

**Views, Experiences and Best Practices as an example of possible options for
the national implementation of Article 9 of the International Treaty
Submitted by Contracting Parties and Relevant Organizations**

Note by the Secretary

This document presents the views, experiences and best practices on the implementation of Farmers' Rights, as set up in Article 9 of the International Treaty submitted by Southeast Asia Regional Initiatives for Community Empowerment (SEARICE) on 26 July 2018.

The submission is presented in the form and language in which it was received.

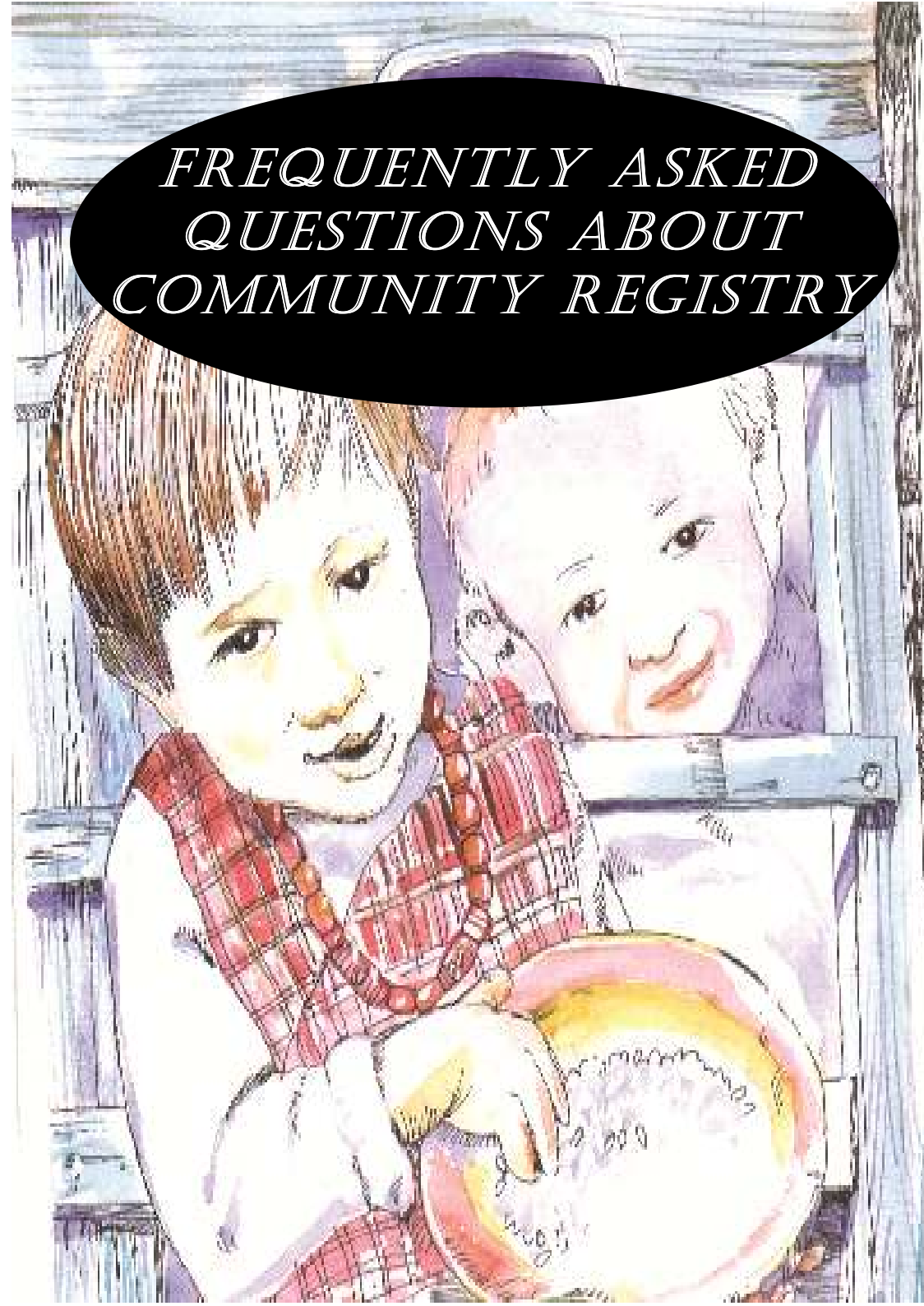
List of Documents Received

1. Frequently Asked Questions (FAQs) on Community Registry
2. Farmers' Rights
3. Proceedings of International Farmers Technical Conference
4. Policy brief on climate change in Vietnam
5. SEARICE' Contribution to Sustainable Use of Plant Genetic Resources
6. Farmers' Rights in International Law
7. Farmers' Rights as Human Rights
8. Exploring the legal terrain for Farmers' Rights Advocacy and PGR conservation and development use
9. Community protocol
10. 10. Farmer-bred varieties: finding their place in the seed supply system of Vietnam
11. Voices from the fields
12. Women breeders

*FREQUENTLY ASKED
QUESTIONS ABOUT
COMMUNITY REGISTRY*



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FREQUENTLY ASKED QUESTIONS ABOUT THE COMMUNITY REGISTRY

This booklet aims to provide basic information to the reader about community registry as one of the many options that could be established in the protection of farmers' varieties from monopoly rights as exemplified in intellectual property rights, or plant patents and plant variety protection systems. This publication does not provide awareness and information alone; it brings forth the issues and situations that farmers are facing, and that have continuously trampled on their rights.



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nity protocol, under which the community may decide that all materials under registry must not be applied with any form of IPR.

In a move by the farmers' organizations in Bohol and soon in Mindanao, the farmers made sure that the rest of the community knows about their initiative, and that in the case of 3rd party transfers, application for IPR is non-negotiable.

... seed exchange under a Community Protocol becomes restricted?

There should be no restriction, except in saying that any form of IPR should not be applied on the materials and knowledge obtained from the community. Free sharing and exchange should still govern but absolutely no IPR application.

... the materials in the Community Registry originate or come from outside the community?

A community registry does not lay claim or ownership over materials that have not been developed by the farmers in that particular community; recognition is still due to the organization or institution or farmer who has developed it. Listing and documenting that the variety can be found in that community is not the same as claiming ownership.



What can we do to support the farmers and communities who have initiated Community Registry?

Farmers and farming communities who have heard of the community registry have already requested for orientations and discussions on how they can also replicate the models in their own areas. The information and experiences should continue to be shared. The farmers who have initiated the community registry continue to strengthen the system, and conduct discussions and consultations with other members of their communities on how the community registry works.

We can do our part by also sharing the information on community registry, and emphasize how this model will strongly oppose IPRs on seeds. We should let policy makers know that there is a strong support to uphold the rights of farmers.



What is Farmers' Rights?

Farmers' rights has been defined by the UN FAO¹ as "rights arising from the past, present and future contribution of farmers in conserving, improving and making available plant genetic resources, particularly those in the centres of origin/diversity."¹ Such rights are deemed inherent to farmers and essential, especially for resource-poor farmers, to their economic survival where they depend on farm-saved seeds for production.

The concept of Farmers' Rights have become enshrined in the International Treaty of Plant Genetic Resources for Food and Agriculture (ITPGRFA). Chapter 3, Article 9 of the ITPGRFA defines farmers rights as the "protection of relevant traditional knowledge, equitable participation in the sharing of benefits derived from the use of PGRFA, and the participation in national decision-making related to their conservation and sustainable use". This provision, however, is subject to national legislation. It will all depend on whether the national government recognizes this right and provides measures to protect them, or totally ignores it and instead gives favors to stakeholders, such as industries and corporations, where economic return becomes very attractive.



What threatens Farmers' Rights?

Seeds have become a valuable component of trade, and thus it is no longer the farmers alone who make a stake at it. Public research institutions and private seed companies have become instrumental in the development and improvement of seed varieties. With the growing number of stakeholders, the inherent right of farmers to access and control the seed have decreased, and the role of farmers have become minor. In addition, there are policies and regulations that are more favorable to trade and investment rather than to the farmers. These policies pose a

¹ UN FAO Resolution on Farmers' Rights (FAO Resolution 5/89), during the 25th Session of the FAO Conference in Rome in 1989

major threat to farmers' rights since it does not only provide a legal environment for investors and private companies to proceed with their operations, it further grants these companies monopoly over the only component that farmers can hold on to.

The Plant Variety Protection (PVP) Act of the Philippines, passed into law by Pres. Gloria Arroyo in June 2002, is one such policy that threatens farmers' rights to plant genetic resources and undermines the notion of PGR as common heritage. The PVP Act sets down restrictions on farmers' rights to save, use, sell, and exchange seeds of varieties covered by PVP claims.

The Act basically prohibits farmers from doing improvement on and further selection from protected varieties since "essentially derived varieties"² are also covered by PVP protection. Moreover, the Act allows for PVP claims on plant varieties that are "discovered," which basically open up traditional and farmers' varieties to possibilities of misappropriation and monopolization.

A system to protect the seeds from monopoly rights at the community level becomes necessary, as farmers are slowly beginning to realize the threats to their right.



What is a Community Registry?

The community registry is an instrument to stop Intellectual Property Rights (IPR)³ by putting community materials and knowledge in the public domain. It does not claim ownership nor does it place plant varieties under a strict and monopolistic property right. Above all else, it recognizes that the origin and developer of the varieties are the farmers, and that they have been practicing such breeding and selection processes in their communities. It does not limit the use of the varieties

²Varieties predominantly derived from the initial variety, or from a variety that is itself predominantly derived from the initial variety, while retaining the expression of the essential characteristics that result from the genotype or combination of genotypes of the initial variety (PVP Act RA9268)

³Intellectual Property Rights - legal systems of protection of knowledge, products, & technologies that give IPR holder exclusive rights over the use of his/her creation; these include patents, copyrights, trademarks, plant variety protection, etc.

Will the Community Registry affect the existing cultural practices of a community, since it is a new system and not coming from within?



It should not affect the cultural practices and values in a community. Part of the task and responsibility of organizations is to make sure that the community registry model should be as close to the cultural practices of the community as possible. The community also changes, even the cultures governing them. It is not to say that the culture of the community should be taken for granted, but as the changes in the world move so quickly, the cultures in a community become more than susceptible to it. If we allow these fast-paced changes in the world shatter the culture of a community without batting an eyelash, then what good does development work do? If they adapt to these changes, instead, and we provide them means and options to cope with the changes without necessarily disrupting their cultures, or even conforming with their way of life, then the communities will not be as vulnerable.

What is the basis for selecting which to protect under the CRS and which not to protect?



There should be no discrimination on what to place under the community registry; as long it is present in the community and the farmers have been planting it, it should be recognized as public material and no IPR should be allowed.

What if ... ?



... the variety becomes transferred and passed on to other communities?

A Materials Transfer Agreement, or just a listing/record of who got the materials, will be sufficient for the monitoring of those who got hold of the materials. However, the registry should be governed by a commu-

Community Protocol. Communities can adopt protocols or procedures meant to facilitate access more systematically and to ensure that farmers' rights to the accessed materials are recognized. Protocols are meant to make interested persons aware that access to and use of materials in the community registry is based on the principle that these materials are part of public domain and should remain free of IPR including any new varieties derived from breeding and selection.

Conformity with a community protocol, whatever form is adopted, presupposes agreement with the principles behind the community registry. Such protocols however can vary in practice and depends on what communities perceive are the most convenient and effective mechanisms for facilitating access. This can range from materials transfer agreements (MTA) to just plain documentation or recording of seed requests. Still, communities can opt to have "no protocols" at all as their "protocol." Protocols are not obstacles to free access because these are not meant to replace farmers' traditions of seed exchange and sharing, which continues alongside the registry.



Does the Community Registry have a legal basis? Will it be strong enough to contest PVP?

The community registry should not be bound by just contesting the PVP; it is simply citing that the resources and knowledge herewith are free and can be shared but it should be recognized that the community has rights over these resources and knowledge, thus it also needs to be protected. Legal grounding of the community registry is only secondary. If they opt for the Community Registry to have legal grounding outside the PVP, they have the freedom to do so.

It will all have to depend on the process and agreement that the community members and People's Organization (PO) members make when they formulate the community protocol. As an essential element of the Community Registry, the protocol is an understanding among the members that they all agree to the cause and nature of the mechanism. It still remains in the hands of the members on how they will go about the process, and whether they would want to take action or remedies in case of violation.

within the community where it is registered; it does, however, uphold the principle that seeds should be freely and widely accessed and exchanged, and should not be protected under a single and exclusive ownership.

The community registry is neither a law nor a prison; it is neither a judge nor a police. There is no assurance, especially if the community registry is left to stand alone. This model should go hand-in-hand and be a part of the work in the community, and should evolve directly from what exists in the community.

For the legal part, it should be the community protocol, which should be consciously developed as close to the culture of the community as possible. Writing it should be the responsibility of the organization, and implementation should be the contribution of organizations that has access to information at the national and even the international level.



Where did the idea of a Community Registry comes from?

In part, the community registry concept is patterned after the People's Biodiversity Registers in India, which is legally recognized by the Indian Biodiversity Bill of 2000. These registers consist of documentation of people's knowledge about biodiversity, its usage, and the efforts to conserve and sustainably manage them. They are developed at local levels by villagers together with students, school teachers and NGO researchers and then compiled in the form databases at the district, state or national levels. These registers are considered a form of prior art meant to place traditional knowledge and genetic resources in the public domain to prevent their misappropriation. The most significant feature of the Indian registers is that they are legally recognized and therefore could provide effective legal remedies to protect farmers' knowledge and farmers' rights to seeds.



When, Where and How was the 1st Community Registry set-up?

After a series of discussions and community consultations in 2002 about the PVP Act, one community organization in Bohol decided to explore the creation of a community registry that declared rice varieties being conserved, developed and used locally to be free from IPRs and for public use of farmers. Such declaration was meant to preempt any possibility that PVP claims would be made on any of the local varieties and to express farmers' objections to the PVP Act itself. Among many forms of public declaration, the farmers chose to use the joint affidavit as their way of collectively asserting that the local genetic resources rightfully belonged to the public domain. By June 2003, the joint affidavit, together with a resolution that the farmers' organization filed before their village council, approved and passed the resolution supporting and recognizing the system protecting the varieties that the farmers have developed.

In the succeeding months and years, neighboring communities in Bohol began replicating the community registry model. During farmers' field days and conferences, the experience of setting up the community registry has been shared, thus farmers in other areas, such as those from Mindanao, were also inspired to start a similar protection system in their own communities.



What does a Community Registry look like?

Each community registry has evolved quite uniquely of the others thus providing different models and experiences. Nevertheless, these farmers' initiatives share a number of common elements, which may be helpful in guiding communities who intend to come up with their own registries.

Community Declaration. The declaration is the basis for farmers and the local communities to publicly and collectively assert their rights over

local plant genetic resources. This could be in different forms: joint affidavit, resolution or statements by communities or farmers' organizations, public ceremonies, rituals or oral traditions, audio or video techniques, or other indigenous means of documentation. Community declarations should be made public to establish that it is a prior art or defensive disclosure. By declaring publicly, the community also calls upon other communities and the broader public to support its efforts and challenges the State to recognize such public initiative.

The communities decide which information to include in the inventory based on what they consider as important and necessary to assert public claim to these varieties. The inventory should not be a one-time initiative but must be continually maintained and updated by the community as a dynamic documentation system to keep track and store information on genetic resources that are being conserved, developed and used by local farmers. The registry is foremost a moral claim by farmers over the resources, information and knowledge rightfully belonging to the public domain. An inventory, whatever information it contains, formalizes that claim by farmers over specific sets of resources or materials that are in the community and rejects IPRs as being incompatible and anathema to farmers' continuing access to and use of these resources for public benefit.

Legal Recognition. Communities can opt to reinforce their claims by seeking legal recognition for their registries. By doing so, communities oblige the State to recognize the registries and to provide them with a mantle of legal protection. Legal recognition of community registries also implies recognition of farmers' rights to seeds, and hence expands the arena for farmers to assert such rights. Communities can seek recognition for their registries from local governments based on the latter's law-making powers under the Local Government Code.

Local government recognition of community registries may be in the form of resolutions or ordinances. Ordinances however are stronger and are more binding legislation that provide penal clauses in cases of violations. Farmers' lobbying for local government recognition of community registries is by itself an empowering process that enhances the assertion by farmers of their rights and compels the State to carry out its responsibility to promote and protect those rights. Local government recognition of community registry, beyond the legal protection it can provide, is thus but one tool for pursuing farmers' rights.

Farmers' Rights: Vision and Realization



Report of Farmers' Consultation Processes
in Africa, Asia and Latin America



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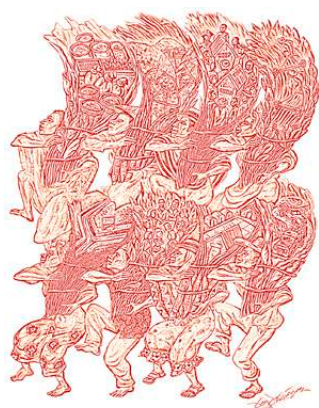
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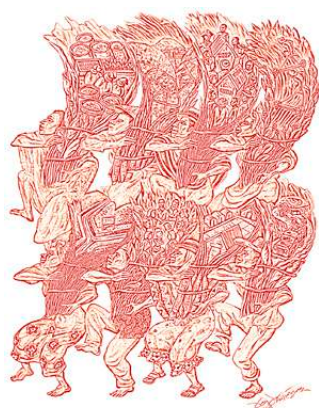


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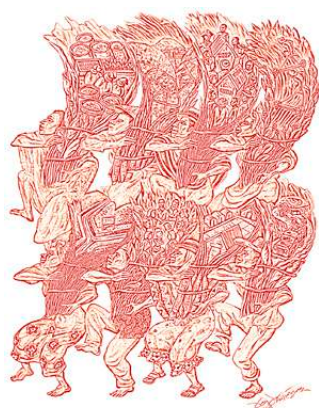
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ABS	Access and benefit sharing
ARBs	Agrarian Reform Beneficiaries
AREX	Agricultural Research and Extension Services
ASSMAG	Association of Smallholder Seed Marketing Action Group
BSAP	Biodiversity Strategy and Action Plan
CAMPFIRE	Communal Areas Management Programme for Indigenous Resources
CARL	Comprehensive Agrarian Reform Law
CARP	Comprehensive Agrarian Reform Program
CBDC-BUCAP	Community Biodiversity Development and Conservation-Biodiversity Use and Conservation in Asia Programme
CBD	Convention on Biological Diversity
CBOs	Community Based Organizations
CLOA	Certificate of Land Ownership Award
CSO	Civil Society Organization
COP	Conference of the Parties
CTDT	Community Technology Development Trust
CEPA	Centre for Environmental Policy and Advocacy
DA	Department of Agriculture
DAR	Department of Agrarian Reform
DARS	Department of Agriculture Research Services
DUS	Distinctiveness, Uniformity and Stability
EAD	Environmental Affairs Department
EMA	Environmental Management Act
FAO	Food and Agriculture Organisation of the United Nations
FFS	Farmers' Field School
FRs	Farmers' Rights
FUM	Farmers' Union of Malawi
GoM	Government of Malawi
GMOs	Genetically Modified Organisms
HRCP	Hybrid Rice Commercialization Program



IPRs	Intellectual Property Rights
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IUPGRFA	International Undertaking on Plant Genetic Resources for Food and Agriculture
LAD	Land Acquisition and Distribution
MAT	Mutually Agreed Terms
MEAs	Multilateral Environment Agreements
MTA	Multilateral Transfer Agreement
NCA	National Competent Authority
NASFAM	National Smallholder Farmers Association of Malawi
NEP	National Environmental Policy
NGO	Non Governmental Organization
OAU	Organization of African Unity
PGRFA	Plant Genetic Resources for Food and Agriculture
PIC	Prior Informed Consent
PVP	Plant Variety Protection
SABSP	Southern African Biodiversity Support Programme
SADC	Southern African Development Community
SEARICE	Southeast Asia Regional Initiatives for Community Empowerment
SPS	Sanitary and Phytosanitary Measures Committee
TBNRM	Transboundary Natural Resource Management
TBT	Technical Barriers to Trade Committee
TFCA	Transfrontier Conservation Area
TK	Traditional Knowledge
TRIPS	Trade-Related Intellectual Property Rights Agreement
UPOV	Union for the Protection of New Varieties of Plants
WIPO	World Intellectual Property Organization
WTO	World Trade Organization



Discussions and debates on Farmers' Rights have been central at numerous international forums and gatherings since the 1980s when the United Nations adopted the Declaration of the right to development, including the right of people to full and complete access to their plant genetic resources (PGRs). International conventions and instruments that have dealt with this issue include the Convention on Biological Diversity (CBD), the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), the World Trade Organization (WTO) and the Organisation of African Unity (OAU, now the African Union AU) Model Law.

These international agreements have come about after years of deliberation and study on the importance of Farmers' Rights to food security, conservation of agro-biodiversity, traditional knowledge systems and the development of appropriate technologies. Experts drawn from various backgrounds have come to realize the role of farmers all over the world in safeguarding the plant genetic material found in food plants in use today. They now acknowledge that farmers have, over the years and across countries, sown and harvested, saved, exchanged, and planted seed, and in so doing, have created an unimaginable pool of plants and, using their knowledge and skills, ensured that people all over the world have food on their tables.

Yet, in rich industrialized countries, the commercialization of plant breeding and propagation has brought huge rewards to large conglomerates while the contribution of millions of farmers in developing countries towards the conservation of food plant diversity and global food security has gone unrecognized and unrewarded.

It is against this background—and after years of ardent and rigorous discussions—that members of the Food and Agriculture Organisation of the United Nations (FAO) adopted the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). Among other issues that it covered, this Treaty established what have come to be known as Farmers' Rights. The International Treaty is the first legally binding international agreement that explicitly recognizes Farmers' Rights to help make it possible for farmers to continue with their work of safeguarding and enhancing agro-biodiversity. This International Treaty came into effect on July 29, 2004.

The Community Biodiversity Development and Conservation Network (CBDC Network) is considered as the first network to advocate the central role of farmers in on-farm conservation and sustainable use of PGRs. The Network is composed of organizations working with farmers from 21 countries in Africa, Latin America and Southeast Asia. For the past 10 years, CBDC concentrated on field level interventions to advance on-farm conservation and sustainable use of genetic resources by looking at ecosystems and indigenous cosmology (in Latin America); farmers' seed systems (in Africa); and farmers' on-farm conservation techniques and role in plant breeding (in Southeast Asia). These concrete field experiences have lent credibility to the Network to articulate its position on issues bearing on Farmers' Rights.

In 2007, selected CBDC Network members in Zimbabwe (Community Technology Development Trust [CTDT]), Malawi (Centre for Environmental Policy and Advocacy [Cepa-



Malawi]], Brasil (Assesoria e Servico A Projectos em Agricultura Alternativo [ASPTA]), Cuba (Asociacion Nacional del Agricultores Pequenos [ANAP]), Venezuela (Instituto para la Produccion e Investigacion dela Agricultura Tropical [IPIAT]), Chile (Centro de Education y Tecnologia para el Desarrollo del Sur [CETSUR]), Lao PDR (CBDC–BUCAP Laos) and the Philippines (Southeast Asia Regional Initiatives for Community Empowerment [SEARICE]) undertook research, consultations and discussions with farmers and other stakeholders to capture farmers' perspectives on the realization of Farmers' Rights in these countries. The result was presented at the 2nd Governing Body Meeting of the ITPGRFA held in Rome in 2007. This report of those parallel efforts is being submitted by the CBDC Network to the ITPGRFA Secretariat as a response to the call for experiences and perspectives on the implementation of Farmers' Rights, which is one of the agenda items for the 3rd Governing Body meeting of the ITPGRFA.

Hopefully, this publication will help to articulate the concerns of farmers in Africa, Asia and Latin America and persuade all sectors to take appropriate practical action to arrest the loss of biodiversity, and promote the recognition, protection and needs of farmers.

ANDREW MUSHITA

**Director, Community Technology Development Trust
Harare, Zimbabwe
March 2009**



The experiences of farmers in Asia, Africa and Latin America provide important points for understanding the subject matter of farmers' rights, types of rights, rights holders, and appropriate measures for protecting and promoting these rights. They also offer lessons from initial efforts at realizing these rights, and warn against certain tendencies which might prove counterproductive in the wake of new and emerging technologies.

Various measures to protect and promote farmers' rights are proposed in this publication. Assisting farmers in in-situ conservation and farmer breeding, and providing incentives for such activities are among the central components in this regard. The availability of a rich diversity of seeds and propagating material is the basis of farmers' rights, as well as of agriculture and food security.

This report also indicates that in the context of conservation, access to technologies and training is of central importance to strengthening the rights of farmers. The establishment of community genebanks is suggested as a further means towards realizing farmers' rights, to complement and support in-situ management of crop genetic resources. It is furthermore recommended that farmers should have the capacity and opportunity to influence future breeding efforts as a component of farmers' rights.

Another central component highlighted in this publication are issues related to farmers' free choice of, and access to, genetic resources for food and agriculture, together with the freedom to share and sell harvested produce, and to improve cultivars. These are basic customary rights, and important preconditions for the continued safeguarding of agricultural biodiversity and farmer innovations.

Some of the key recommendations from the experiences in Asia, Africa and Latin America include:

1. Right to seed conservation and rehabilitation

Recommendations to governments:

- ❖ Enact laws that recognize farmers' right to seeds & traditional knowledge in seed resources conservation and development;
- ❖ Continue to provide improved and local varieties/plant genetic materials (PGRs) to sustain farmers' breeding work;
- ❖ Stabilize the price of grains to guarantee a fair price for agricultural products;
- ❖ Provide land for seed conservation and varietal rehabilitation;
- ❖ Implement incentive schemes, such as tax breaks for farmers engaged in seed conservation and development;
- ❖ Refurbish existing irrigation facilities, and maintain these in good working condition;
- ❖ Establish genebanks in which farmers' seeds could be stored for the long-term;
- ❖ Build the capacity of agricultural extension workers; or better yet, assign an extension worker to stay full-time with the farmers in the course of the latter's seed conservation and rehabilitation work;
- ❖ Provide access to credit on easy terms to farmers;
- ❖ Support the rehabilitation of communities affected by natural disasters;



- ❖ Ensure that local communities are protected from contamination by terminator technologies;
- ❖ Institute policies that promote secure land tenure, provide access to rural credit under reasonable conditions and maintain accessible extension services to small-holder farmers;
- ❖ Enact laws that recognize, protect and enhance farmers' participation in the seed industry;
- ❖ Promote pro-diversity labeling and public education campaigns that encourage local consumers to patronize local products;
- ❖ Encourage viable partnerships that promote the transfer of skills and knowledge or the equitable sharing of benefits; and
- ❖ Encourage cooperative research between farmers and public/private breeders and provide incentives to the private sector to encourage them to invest in local products.

Proposed local/farmer action:

- ❖ Continue varietal selection and breeding of traditional and improved varieties, as well as seed conservation and rehabilitation, even after the CBDC-BUCAP ends;
- ❖ Sustain networking among farmers to exchange planting materials and information;
- ❖ Continue to develop varieties that could be stored in government established genebanks; and
- ❖ Provide labor as counterpart for the maintenance of irrigation facilities.

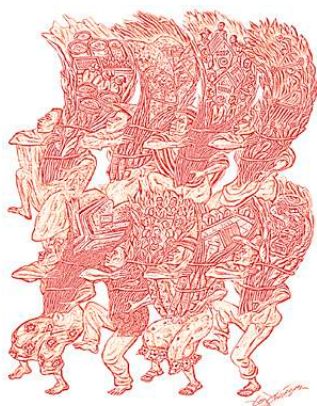
2. Right to varietal selection and breeding

Recommendations to governments:

- ❖ Simplify the seed registration process;
- ❖ Give farmer-breeders credit for their work by naming the seeds after their developers;
- ❖ Hold yearly contests to recognize the work of the best-performing farmer-breeders;
- ❖ Facilitate the participation of farmers and farmers' groups in setting prices and developing regulatory measures;
- ❖ Increase support for seed selection and breeding, particularly by providing the necessary infrastructure/facilities for training, and by putting up seed storage facilities for the use of farmers; and
- ❖ Promote linkages among networks of community seed banks and support festivals and fairs for the exchange of local seeds.

Proposed local/farmer action:

- ❖ Lobby the government for a more simplified seed registration process;
- ❖ Organize a savings group, using the CBDC-BUCAP funds as initial capital;
- ❖ Promote farmers' rights through lobbying national farmers' organizations to include farmers' right as part of their agenda;
- ❖ Participate in ongoing debates on the implications of legislation on seeds and seedlings to family farming; and



- ❖ Expand and intensify ongoing campaigns on farmers' rights issues.

3. Right to seed production and marketing

Recommendations to governments:

- ❖ Provide the necessary support, such as production capital and inputs; technical assistance; infrastructure, including irrigation and post-harvest facilities; and land that could be used as a communal demonstration farm;
- ❖ Provide marketing support, specifically by deploying its extension workers to help farmers identify and link up with potential markets, and agree on a mutually beneficial pricing policy;
- ❖ Reward the exemplary work of farmer-breeders by issuing certificates of recognition;
- ❖ Formulate a National Program on Agro-biodiversity towards encouraging local initiatives that promote free and autonomous use of biodiversity, for example, through the purchase and distribution of local seeds produced by farmers; and
- ❖ Encourage participatory research for the development of production systems using different local seeds.

Proposed local/farmer action:

- ❖ Set up demonstration farms/plots for the benefit of other farmers;
- ❖ Organize a savings group to assist farmers in funding their seed production needs;
- ❖ Set up a seed buying/collection station in different areas;
- ❖ Strengthen linkages between social movements and organizations to lobby against laws that deny farmers the right to produce, exchange and market their seeds;
- ❖ Create mechanisms to prevent the appropriation and misuse of local varieties by researchers and/or companies.

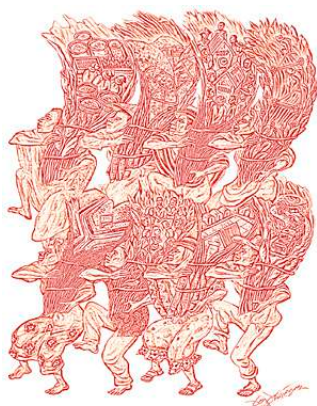
4. Right to protection from the threat of new and emerging technologies

Recommendations to governments:

- ❖ Prioritize technology that is appropriate for rural people;
- ❖ Recognize the contribution of farmers as farmer-scientists and local experts in sustainable agriculture extension systems; allocate funds to promote programs and initiatives on appropriate technology;
- ❖ Ban terminator technology;
- ❖ Consult farmers before introducing any new technology;
- ❖ Protect local seed houses from GMO contamination; and
- ❖ Create "biomonitoring networks" to monitor and report on transgenic contamination.

Recommendations to researchers:

- ❖ Consult farmers and develop technologies that address farmers' needs;
- ❖ Improve the local varieties; and
- ❖ Conserve and rehabilitate local varieties.



Proposed local/farmer action:

- ❖ With the assistance of government and development agencies, conduct surveys and educate farmers about new technologies and their threats to agrobiodiversity.
- ❖ Remain vigilant and report to local farmer community groups any new technology being introduced;
- ❖ Continue varietal selection and breeding of traditional and improved varieties, as well as seed conservation and rehabilitation;
- ❖ Sustain networking among farmers to exchange planting materials and information;
- ❖ Continue to develop varieties that could be stored in community seed banks;
- ❖ Undertake campaigns against HYVs/GMOs;
- ❖ Continue breeding/research efforts;
- ❖ Engage LGUs to formulate a Sustainable Agriculture (SA) Code and organize SA fairs.

5. Right to market organic products

Recommendations to governments:

- ❖ Repeal laws that facilitate the entry of GMO products and enact laws banning the entry and use of GMOs in the country;
- ❖ Provide budget allocations for Sustainable Agriculture and complement related LGU initiatives;
- ❖ Subsidize the certification of organic products of small farmer groups.

6. Right to land

Recommendation to governments:

- ❖ Enact a genuine agrarian reform law.

Proposed local action:

- ❖ Lobby with local legislative bodies to pass resolutions calling on national lawmakers to enact a genuine agrarian and fishery/aquatic reform law;
- ❖ Advocate for the adoption of the "land to the tiller" principle in land reform laws.

7. Right to water

Recommendations to governments:

- ❖ Repeal laws that promote large-scale mining operations to prevent the contamination of water and the destruction of the watersheds, and thereby ensure local communities' access to safe and sufficient water;
- ❖ Investigate the construction of large but defective dam projects;
- ❖ Support small water impounding projects (SWIPs) and rehabilitation of watersheds with farmer/community participation.

8. Rights of women farmers

Recommendation to governments:

- ❖ Enact a Women Empowerment Code for rural women.



Africa

Malawi

During consultations held in Malawi, most of the breeders disputed the need to grant rights to farmers. They argued that only breeders have a claim to varieties they have developed, even if these are no more than improvements on local land races, to which farmers have rights.

In fact, researchers use the term “local land race” in place of “local or indigenous variety” as a none-too-subtle way of suggesting that these varieties had predated farmers’ experimentation with plant breeding. This also explains why researchers or breeders do not bother to obtain Prior Informed Consent (PIC) before they commence breeding programs using local land races and hybrid varieties. Furthermore, it reflects a misunderstanding of the concept that traditional varieties are a common heritage to which Intellectual Property Rights¹ (IPR) do not apply.



A woman farmer displaying local seed)

In all districts visited during the consultations, farmers had difficulty defining farmers’ rights but one woman farmer² came up with this definition which seemed to be generally acceptable: “farmers need to be allowed to plant what they feel will satisfy their needs, and not to be forced to choose certain varieties”. She further illustrated her definition by indicating that currently, agricultural extension staff and promotions being run on both state and private radio stations all advise farmers to use hybrid seeds. Most of the stakeholders, including farmers, technical and local political leaders, do not understand the importance of agro-biodiversity conservation, in general, and farmers’ rights, in particular.

¹ The rights granted by a state authority for certain products of intellectual effort and ingenuity.

² This definition was given by Ms. Ngwenyama of Manyenje Village, Neno district in southern Malawi.



Zimbabwe

Consultations in Zimbabwe were conducted in the districts of Chiredzi, Tsholotsholo and UMP. Farmers in Chiredzi District viewed farmers' rights as consisting of access to the following: (1) land, including dryland and irrigable land; (2) opportunities for training; (3) communication facilities; (4) markets; (5) transport networks; (6) credit facilities; (7) irrigation facilities; and (8) power supply; ownership of seeds; participation in decision-making at all levels; the right to store and exchange seeds; and laws and policies that promote farmers' rights.

In Tsholotsholo District, farmers' rights were defined as the right to use, exchange and sell farm saved seeds. Farmers' rights include the use and protection of traditional knowledge, and the right to conserve seeds for future use and for improvements on participatory plant breeding. They also entail participation in decision-making in issues related to the use and conservation of seed materials.



A farmer in UMP district, Zimbabwe, explains how the community uses the community seed bank

In UMP District, farmers' rights were considered as inherent to farmers yet guaranteed by legislation. Farmers' rights should involve the whole community, i.e. village assembly; village development committee; ward assembly; ward development committee (E.H.T, AREX, Justice, Police, Registrar General's Office); committee of council; farmers' unions; provincial committee; national committee (cabinet). Farmers' rights include access to land, water, inputs, draught power, productivity-enhancing technology, and relevant information; the right to choose varieties that are well adapted to local conditions; farmers' right to sell their produce; linkages with international markets; incentives and subsidies; the right to participate in decision-making; and food security.



Asia

Lao PDR

Few Lao farmers are aware of the concept of farmers' rights, even if they have unknowingly been practicing it. Thus, it was difficult to discuss farmers' rights with them. Thus, at the **Lao PDR Farmers' Policy and Technical Conference on Plant Genetic Resources** held in October 2007, the farmers were encouraged to talk about their involvement in CBDC-BUCAP activities, and thereafter to identify their needs in regard to PGRs. They went on to describe how they felt about the importance of seeds, as follows:

- Seeds are essential to life: a basic need without which they cannot plant and will have no food to eat;
- Farming is the only work they have and without seeds they cannot farm;
- Seeds selection and breeding activities are important because farmers are able to develop varieties that are high-yielding, are resistant to the harsh environmental conditions of their farms, and which are as good or better than their aromatic varieties;
- Breeding activities allow farmers to have access to many other varieties, from which they could develop new ones which are acceptable to the markets and thus earn them more money; and
- In general, farmers are always happy to have new varieties of seeds and want to share these with other farmers (although there are some who are reluctant to participate in seed exchanges).

For Lao farmers, seeds are essential to life: a basic need without which they cannot plant and will have no food to eat.

Both farmers and extension agents at that Conference identified what constitutes farmers' rights in the context of seed conservation and rehabilitation, varietal selection and breeding, and seed production and marketing, as follows:

1. Seed conservation and rehabilitation

- ❖ Capacity to produce grains for consumption and seeds for planting;
- ❖ Option to sell the grains they produce;
- ❖ Right to share and exchange seeds with other farmers;
- ❖ Right to land;
- ❖ Right to irrigation facilities;
- ❖ Access to agricultural inputs and other services (seeds, fertilizers, equipment, low interest credit, etc.);
- ❖ Access to training and technical information to develop their capacities;
- ❖ Right to supportive government policies (e.g., provision of land for field trials, tax exemption on lands used for field trials); and
- ❖ Right to conserve varieties for socio-cultural practices.



2. Seed production and marketing

- ❖ Right to engage in seed selection and to conserve/improve local varieties (manifested in seed exchanges among farmers);
- ❖ Right to put up seed multiplication areas, which includes the right of farmers to group themselves for collective production of seeds;
- ❖ Access to budget/resources like marketing information, technical information, seed registration (to include training and technical assistance on seed production and related support facilities); and
- ❖ Participation in setting the price of seeds.

3. Varietal selection and breeding

- ❖ Protection of farmers' seeds (registration/copyright protection) since farmers consider seeds as essential to life;
- ❖ Farmers' participation in pricing (appropriate pricing of seeds when marketed); and
- ❖ Right to adopt or reject a variety being introduced to them.

Philippines

Farmers' rights in the Philippines have traditionally been equated with the farmer's "right to seeds." However, farmers and development organizations, primarily SEARICE, have realized that the right to seeds could not be meaningfully implemented unless the farmer's other entitlements are guaranteed.

Farmer representatives at a **National Forum on Farmers' Rights**, organized by SEARICE on 4–6 September 2007, identified 10 categories of rights that make up farmers' rights, as follows:

1. Right to seeds;
2. Right to land;
3. Right to water;
4. Rights of women farmers;
5. Right to opportunities and information in regard to marketing organic products;
6. Right to appropriate technology;
7. Right to a healthy environment (air, land, and water);
8. Right to participate in governance processes;
9. Right to support services (e.g., access to information, irrigation facilities, post-harvest facilities, credit, social security services, and healthcare); and
10. Right to life (i.e., protection against human rights violations).

These component rights are further fleshed out in the **Cebu Universal Declaration on Farmers' Rights**—a statement defining the farmer's "bundle of rights"—which was drafted following a SEARICE organized meeting in Cebu on 26 February 2003. The Cebu Declaration identified 38 "elements of rights" (See Annex D), including the right to land, to organize, to participate in policy-making processes related to agriculture, and the right



to food, among others, which must be enforced simultaneously and at multiple levels—household, community, and national levels.

The following presents the expanded “bundle of rights” of which farmers’ rights consist, incorporating the rights categories identified at the National Forum and the 38 elements/components of rights listed in the Cebu Declaration:

1. Access to complete information on activities and results of research

- ❖ Right to support services;
- ❖ Right to access the best available and appropriate farming practices and technologies;
- ❖ Right to take part in government programs; and
- ❖ Right to access information/to be informed of market data and agricultural policies of government.

2. Farmer participation in seed policy development

- ❖ Right to be consulted and to participate in governmental decision-making in regard to laws related to farmers, e.g., determining farm-gate prices, government support prices, and in the formulation of trade policies, including importation;
- ❖ Right to be heard and be given attention regarding ecological matters and those with adverse health impacts i.e. mining cement projects, genetically modified organisms (GMOs);
- ❖ Right to active participation in decision-making processes of government;
- ❖ Right to redress of grievances;
- ❖ Right to be recognized as the country’s primary food producers and thus, as vital to achieving food self-sufficiency and sovereignty; and
- ❖ Right to genuine participation at all levels of policy- and decision-making regarding agriculture and farmers’ welfare.

3. Recognition of farmer initiatives/farmer-developed varieties

- ❖ Right to undertake initiatives in order to help others;
- ❖ Right to use, share, exchange, sell and develop genetic resources;
- ❖ Right to collective ownership of seeds (right to own way of life);
- ❖ Right to be supported by government regarding technologies generated/invented by farmers in the countryside;
- ❖ Right to redress of grievances;
- ❖ Right to be recognized as the country’s primary food producers and thus, as vital to achieving food self-sufficiency and sovereignty; and
- ❖ Right to equitably benefit from the country’s genetic resources.

4. Secure access to and control of seeds

- ❖ Right to use, share, exchange, sell and develop genetic resources;
- ❖ Right to collective ownership of seeds (right to own way of life);
- ❖ Right to be supported by government regarding technologies generated/invented by farmers in the countryside;



- ❖ Right to be recognized as the country's primary food producers and thus, as vital to achieving food self-sufficiency and sovereignty; and
- ❖ Right to equitably benefit from the country's genetic resources.

5. Right to land

- ❖ Right to peaceful life, old age and security, and other support services;
- ❖ Right to a decent and peaceful life;
- ❖ Right to land and other farm equipment to make the land productive;
- ❖ Right to land tenure security;
- ❖ Right to peace and order;
- ❖ Right to access information/to be informed of market data and agricultural policies of government; and
- ❖ Right to redress of grievances.

6. Right to water

- ❖ Right to a peaceful life, old age and security, and other support services;
- ❖ Right to irrigation and equitable distribution of irrigation water;
- ❖ Right to a subsidy (50%–50%) for farming practices;
- ❖ Right to support services; and
- ❖ Right to be consulted and to participate in governmental decision making on laws related to farmers, in determining farm-gate prices, government support prices and in the formulation of trade policies including importation.

7. Rights of women farmers

- ❖ Right to self-determination, and to make decisions on matters that will affect her;
- ❖ Right to undertake initiatives in order to help others;
- ❖ Right to land tenure security;
- ❖ Right to access affordable health services;
- ❖ Right to oppose laws, policies and programs that will negatively affect the livelihood of farmers;
- ❖ Right to be consulted and to participate in governmental decision-making in regard to laws related to farmers, in determining farm-gate prices, government support prices, and in the formulation of trade policies, including importation;
- ❖ Equal rights for women, youth and other farmers in political, social, cultural and economic spheres;
- ❖ Right to be heard and be given attention regarding ecological matters and those that have adverse health impacts i.e. mining cement projects, GMOs; and
- ❖ Right to genuine participation at all levels of policy- and decision-making regarding agriculture and farmers' welfare.

8. Right to market organic products

- ❖ Right to good all-weather roads and bridges;
- ❖ Right to just prices for agricultural produce;
- ❖ Right to be supported by government regarding the technologies generated/invented by farmers in the countryside;



- ❖ Right to access information/be informed of market data and agricultural policies of government;
- ❖ Right to full government support at all levels of production and marketing;
- ❖ Right to be recognized as the country's primary food producers, and thus, as vital to achieving food self-sufficiency and sovereignty; and
- ❖ Right to equitably benefit from the country's genetic resources.

9. Right to appropriate technology

- ❖ Right to support services;
- ❖ Right to access the best available and appropriate farming practices and technologies;
- ❖ Right to be consulted and to participate in governmental decision-making in regard to laws related to farmers, in determining farm-gate prices, government support prices, and in the formulation of trade policies, including importation;
- ❖ Right to protect and preserve traditional farming knowledge and systems;
- ❖ Right to take part in government programs;
- ❖ Right to be heard and be given attention regarding ecological matters and those that have adverse health impacts i.e. mining cement projects, GMOs;
- ❖ Right to be supported by government regarding technologies generated/invented by farmers in the countryside;
- ❖ Right to access information/to be informed of market data and agricultural policies of government; and
- ❖ Right to active participation in decision-making processes of government.

10. Right to a healthy environment (air, land, water)

- ❖ Right to access quality, adequate, safe and sufficient foods for the family;
- ❖ Right to be heard and be given attention regarding ecological matters and those that have adverse health impacts i.e. mining cement projects, GMOs;
- ❖ Right to protect the environment; and
- ❖ Right to active participation in decision-making processes of government.

11. Right to Participate in Governance

- ❖ Right to oppose laws, policies and programs that will negatively affect the livelihood of farmers;
- ❖ Right to be consulted and to participate in governmental decision-making in regard to laws related to farmers, in determining farm-gate prices, government support prices, and in the formulation of trade policies, including importation;
- ❖ Right to take part in government programs;
- ❖ Right to be heard and be given attention regarding ecological matters and those that have adverse health impacts i.e. mining cement projects, GMOs;
- ❖ Right to active participation in decision-making processes of government; and
- ❖ Right to genuine participation in all levels of policy- and decision-making regarding agriculture and farmers' welfare.



12. Right to Access to Information

- ❖ Right to be consulted and to participate in governmental decision-making on laws related to farmers, in determining farm-gate prices, government support prices and in the formulation of trade policies, including importation;
- ❖ Right to be heard and be given attention regarding ecological matters and those having adverse health impacts i.e. mining cement projects, GMOs; and
- ❖ Right to access information/to be informed of market data and agricultural policies of government.

13. Right to Support Services [access to irrigation, post-harvest facilities, credit]

- ❖ Right to a peaceful life, old age and security and other support services;
- ❖ Right to irrigation and equitable distribution of irrigation water;
- ❖ Right to land and other farm equipment to make the land productive;
- ❖ Right to good all-weather roads and bridges;
- ❖ Right to own appropriate post-harvest facilities;
- ❖ Right to a subsidy (50%-50%) for farming practices;
- ❖ Right to support services;
- ❖ Right to access the best available and appropriate farming practices;
- ❖ Right to active participation and decision making processes of government; and
- ❖ Right to access farm credit at affordable interest rates (comprehensive farm credit policy).

14. Right to Support Services [access to social security services and health care]

- ❖ Right to peaceful life, old age and security and other support services;
- ❖ Right to support services; and
- ❖ Right to access affordable health services.

15. Exercise of Human Rights

- ❖ Right to self-determination, to make decisions on matters that will affect him/her;
- ❖ Right to peaceful life, old age and security and other support services;
- ❖ Right to decent and peaceful living;
- ❖ Right to peace and order; and
- ❖ Right to redress of grievances.



Latin America

Brazil

In Brazil, farmers' rights refer to the entitlements of peasants, agrarian reform beneficiaries, and indigenous populations, in regard to biodiversity resources, in general, and to seeds, in particular.

While the concept of farmers' rights is not usually taken up in debates at the grassroots level, it is nonetheless clear among grassroots organizations that seeds are simultaneously a material and economic resource and a cultural asset that is part of the patrimony of farming peoples and thus, a condition of their existence. This understanding of seeds as a cultural good highlights the inextricable relationship between grassroots knowledge and biodiversity resources.

Furthermore, in discussions among farmers' organizations, it was apparent that the right to seeds is regarded as closely bound up with other rights that bear on access to biodiversity resources, including the right to work; the right to security of tenure on land; the right to water; and the community's right to preserve their culture, way of life and management practices related to natural ecosystems. Following this integrative perspective of farmers' rights, other rights are considered as equally indispensable, such as women's access to material and socio-cultural goods and recognition for their work and innovative capacity; the right to food of sufficient quantity and quality, respecting local communities' cultural needs and preferences, and food free of pesticides and transgenic organisms.

In relation to access to and use of seeds, in particular, the organized grassroots movement was unanimous in saying that "to produce, sell and exchange their seeds is a right of the farmer." They also believe that the State, through legal mechanisms and appropriate public policies, should promote such rights by, among others, supplying the public institutional markets with food supplied mainly by family owned farms, and ensuring the participation of rural family farmers in defining, developing and implementing policies for sustainable rural development.

Chile

In a workshop participated in by 17 farmers and representing six sub-territories, the following aspects of farmers' rights were identified:

1. Right to continue being a peasant farmer

This refers to farmers' right to produce what is necessary for their subsistence, and to be recognized as a "farmer," including their interests and problems.

2. Rights of female and male peasant farmers

Men and women have particular roles in farming. Recognizing this, practices that discriminate against either gender in their farm-related work must be recognized



“Seeds are simultaneously a material and economic resource and a cultural asset that is part of the patrimony of farming peoples and thus, a condition of their existence.”

and rooted out. At the same time, it is important to maximize the particular skills and talents of men and women farmers.

3. Right to maintain their seeds

Farmers should have the right to decide which type of crops they wish to grow, and therefore they should have access to the appropriate seeds. Currently, planting decisions are strongly determined by the markets, resulting in the loss of local seeds.

4. Right to land and water

The right to land implies security of tenure: freedom from the risk of being forced to give up farming to work in the cities; of being forced to sell their land because they could not run it viably; and of being evicted from the land to make way for forestry activities, for example.

In relation to water, there is a need to improve the canals and the wells.

5. Right to appropriate technology

Farmers require improvements in food production. The importance of services delivered by the State is recognized, even when they claim that this is a right that all farmers are entitled to. Furthermore, it is necessary to design new technologies that do not require expensive and toxic inputs that endanger human health and the environment.

6. Right to have their own markets

Food fairs represent a significant opportunity for farmers to market their products without the need for middlemen.

7. Right to information

Farmers currently lack access to information, especially State policies, that affects them.

8. Right to organize

There is need to build the capacity of farmers' organizations, and to identify the reasons why many of them cannot be sustained.



Cuba

Cuban farmers perceive their rights as the same as those of any Cuban citizen: the right to defend their Revolution, and the right to be free and to decide their own destiny. This

basic right of Cubans implies that other rights are guaranteed, such as the right of association; the right to maintain their cultural identity; the right to use and conserve the country's natural resources; and the wherewithal to develop their farms, such as access to land, credit, and agricultural insurance. Cuban farmers also claim the right to lead their organizations and to be represented in government institutions.

Venezuela

In consultations on “**Biodiversity and the Rights of Peasant Farmers**” held in Venezuela, 200 participants representing grassroots organizations formulated the “Vision of the Peasant Farmers of Venezuela,” which encapsulates their concept of farmers’ rights, as follows:

1. Right to water

- ❖ Communities have the right to participate in the process of designing rural and urban aqueducts;
- ❖ Water service must be public, sufficient and of potable quality;
- ❖ The State, together with grassroots organizations and peasant families, will integrate agro-ecology policies in the management of watersheds and effluents; and
- ❖ Farmers and communities have the right to protect and defend their water sources from the effects of mega development projects undertaken by either the government or multinational corporations.

2. Right to land

- ❖ Recognition of the legitimacy and legality of land tenure based on the traditional and cultural work of peasant families in the conservation of local biodiversity;
- ❖ Right to family, collective and communal ownership of land;
- ❖ Abolition of the classification of “idle land” in the case of forestry and wildlife areas being protected by farmers; and
- ❖ Right to establish an agro-ecological legal framework aimed at promoting agro-ecological production units.

3. Right to seeds

- ❖ Right of farmers to conserve, save and use traditional seeds;
- ❖ Recognition of the cultural importance of seeds to farmers and indigenous peoples;
- ❖ Use of fallow land to maintain the embryo of seeds;
- ❖ Recognition of the value of peasants’ knowledge in conserving and keeping traditional and local seeds;
- ❖ Recognition of the contribution of farmers who are located in remote areas towards the conservation and maintenance of local seeds; and
- ❖ Sovereignty of peasant and indigenous communities, as expressed by assigning a value to their seeds, through participatory methodologies, and farmer-to-farmer exchanges and research.



4. Right to culture

- ❖ Recognition of the intellectual property and traditions of peasants;
- ❖ Recognition of the historical resistance of peasants and indigenous peoples against the negative impacts of the agricultural models of the Green Revolution; and
- ❖ Recognition of the peasant cultural diversity as a social practice in the conservation and maintenance of biodiversity.

5. Political rights

- ❖ Recognition of the agro-food sovereignty of peoples from an agro-ecological perspective;
- ❖ Freedom from political or market pressures, and protection for the autonomy and interests of peasant families and communities; and
- ❖ Right of peasant and indigenous social movements and their grassroots organizations to supervise and manage agro-biodiversity resources, without outside interference.

6. Farmers' right to market their produce

- ❖ Right of farmers to sell their produce directly to consumers;
- ❖ Design and application of clear and precise public policies that are grounded on agro-ecology as a strategy for biodiversity conservation and preservation; and
- ❖ Right of farmers to receive agricultural insurance from the State.

7. Right to technology

- ❖ Right to use and enjoy alternative and appropriate technologies that contribute to the improvement of the quality of life of difficult-to-access communities and with minimum impact on biodiversity; and
- ❖ Right to be recognized for research that promotes biodiversity conservation.

8. Right to education

- ❖ Right of the peasant family to teach their children how to take care of their animals, water and biodiversity in general;
- ❖ Right to community education which imparts knowledge and skills in local biodiversity conservation;
- ❖ Use of the peasant "huerta" (family plots) to educate children about local biodiversity; and
- ❖ Right to implement programs on rural education, according to the social and environmental realities.

9. Right to social security

- ❖ Right of farmers to be included by the State in the Social Security and the Agrarian Pension Systems;
- ❖ Right of the rural communities to have public services adjusted to their cultural and environmental realities; and
- ❖ Right of the peasant family to be protected against political terrorism, drug trafficking, and organized crime.



Africa

Malawi

Malawi has ratified the Convention on Biodiversity (CBD), the Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). These three instruments are the responsibility of different government departments with often diverging interests and priorities. The CBD is implemented by the Environmental Affairs Department (EAD), which has developed the National Strategy on Sustainable Development (2004), the Biodiversity Strategy and Action Plan (2006), the National Environmental Policy (revised 2004) and the Environmental Management Act, 1996 (under revision). These address biodiversity and agro-biodiversity in general and specifically call for protection of farmers' rights.

The Ministry of Agriculture implements the ITPGRFA and is therefore responsible for farmers' rights issues. There is no legislation dealing with either plant breeders' rights or farmers' rights. A Plant Breeders' Rights Bill remains in draft form and has been for five years or so. With technical and financial support from the Centre for Environmental Policy and Advocacy (CEPA), the Department of Agriculture Research Services (DARS) undertook a review of the draft bill and a stakeholder consultation which resulted in the incorporation of farmers' rights. A new draft was developed, entitled Plant Variety Protection (PVP) Bill, 2006. However after internal consultations within the Ministry of Agriculture, the DARS removed the farmers' rights chapter from the PVP Bill and incorporated it into a revised Environmental Management Act (EMA). This resulted in greater confusion about the implementation of farmers' rights and signaled the level of commitment to farmers' rights within the Ministry of Agriculture. CEPA will continue to lobby the Ministry to ensure that farmers' rights are recognized at the official level. A subsequent stakeholder consultation has however recommended that farmers' rights be brought back into the PVP Bill.

The Ministry of Trade and Industry is responsible for the implementation of the TRIPS Agreement. To date, no significant steps have been taken to revise the intellectual property legislation, such as the Patents Act, the Copyright Act, the Trademarks Act, among others, which are old pieces of legislation mostly enacted during the colonial period. Malawi is however involved in trade negotiations with, among others, the European Union (EU), for the signing of Economic Partnership Agreements. These affect agriculture products and therefore farmers' rights; hence the need for the country to be clear about its policy direction in these discussions.

The most important pieces of legislation that have a bearing on the conservation and utilization of plant genetic resources (PGRs) include the Seed Act, 1988, as amended in 1996; the Plant Protection Act, 1969; and the Patents Act, 1959. The Seed Act provides the regulatory framework for the production, sale, import and export of seeds, as well as standards for seeds germination. The Plant Protection Act, on the other hand, is intended to eradicate plant pests and diseases and to prevent the introduction of such pests and diseases. Both Acts seek to provide a conducive environment for the conservation of PGRs by ensuring that appropriate standards are adopted for the production, sale or



import and export of seeds; that the people responsible for these tasks are competent; and that PGRs are protected against harmful pests and diseases.



Maize plants at Chitedze Research Station outside Lilongwe city, where emphasis is on hybrid and improved varieties

The thrust of the legislation however is to encourage conventional science: hence seed producers and sellers must be registered and comply with certain formalities before they can participate in the seed business. The process therefore leaves out small-scale subsistence farmers that do not have the requisite infrastructure facilities. Further, the small-scale farmers rely on incremental local knowledge passed from generation to generation that can easily be considered as part of the “public domain,” and therefore not patentable under the Patents Act. On the other hand, large-scale commercial seed companies have the necessary technology and information to make inventions patentable under current legislation, even though such inventions may have arisen from prior knowledge acquired from local communities. No mechanisms exist to protect local knowledge or indeed recognize its contribution to the conservation and sustainable utilization of biodiversity. Some of these commercial seed companies have benefited from publicly funded research and breeding programs which produced improved maize varieties. The National Seed Company, which used to be wholly owned by the Government, was sold to a commercial company, and with the sale the improved maize varieties, such as MH17, 18 and others, became the property of the company without any benefit accruing to the Government. Since these varieties were not protected under any legislation, it is difficult to trace their original materials and to claim benefits from their continued use.

Zimbabwe

The use of cultivable land in Zimbabwe for commercial agriculture has been a widespread practice in the country even before its independence in 1984. This has resulted in the clearing of large tracts of land for cash crop production and the displacement of small-scale subsistence agriculture in which most of the country's farmers were engaged.



Then as now, agriculture policy and legislation in Zimbabwe promotes the propagation of commercial agriculture. Indigenous values, knowledge and practices, especially farmers' rights, were not reflected in colonial and post-colonial government policies and legal frameworks. The importance of growing traditional food crops received scant attention and farmers who used crops such as millet and sorghum, for example, did not benefit from financial and research services. It is within this context that one must view Zimbabwe's current legislative framework for intellectual property rights (IPRs), especially as it impacts on farmers' rights.

Patents Act (Chapter 26:03)

Two systems govern ownership and access to genetic and biochemical resources: on one hand, unimproved genetic materials (i.e., wild species and traditional variations of crops and plants) are regarded as belonging to no single person or entity. On the other hand, IPR regimes, including patents, plant breeders' rights and trade secrets, establish ownership over new varieties of plants and animals developed by commercial breeders and over chemicals isolated and developed by pharmaceutical firms. There is therefore some controversy about the applicability of property rights to natural biodiversity and to information about its potential use. It is uncertain whether IPRs could be extended to wild genetic and biochemical resources and whether such rights would hurt or help the objective of promoting food security.

Plant Breeders Rights Act

The 2001 amendment (No. 11) to the Plant Breeders' Rights Act (Chapter 18:16) allows the smallholder farmer to: (1) retain products of their harvest for replanting; and (2) exchange with any other farmer any prescribed plant which he has grown or reproduced on his land; and any seeds from a plant referred to in number (1).

However, the law still does not provide for a mechanism to ensure that communities that have maintained the varieties over a long period of time could be collectively rewarded. Such a mechanism would necessitate the registration of communities as collective owners of plant varieties.

Seeds Act

The Seeds Act (Chapter 19:13) regulates the production of high-quality seed by seed houses for both the domestic and export markets. This is achieved through the registration of sellers of seed and seed testing laboratories; the regulation of seed exports and imports; and the testing, certification and inspection of seeds. Although on the one hand, this law has served the interests of large-scale commercial farming, on the other hand, it has created problems for the smallholder farming sector. It requires the registration of seed growers and inspectors--the attendant fees for which smallholder farmers could not afford. Compulsory certification has, however, been lifted and smallholder farmers can now produce and sell seed of prescribed crops as standard grade seed. The advantages of allowing smallholder farmers to produce such seed are twofold: first, seed prices



are likely to decrease as standard grade seed is cheaper to produce than certified seed. Second, it allows smallholder farmers and other indigenous operators to go into the seed production business. It does not sanction the sale of open-pollinated maize varieties as these do not meet the criteria of distinctiveness, uniformity and stability. However, this requirement was relaxed in 2001 and farmers can now access open-pollinated maize varieties. Seed of such varieties is cheaper and its progeny can be retained for planting in the next season unlike that of hybrids.



A farmer in UMP district, Zimbabwe, showing the list of farmers and hybrid maize varieties grown in the area

National Biotechnology Authority Act

The main argument being put forward by industries engaged in genetic engineering in food and agriculture is that genetically modified organisms (GMOs) would best ensure food security in the 21st century. They argue that GM crops will have a strategic role in promoting sustainable farming by increasing yields and hence reducing the need to expand crop areas into forest and marginal areas as well as reducing the use of herbicides and pesticides. However, these arguments are misleading and false. Considerable pressure is being brought to bear on African governments to allow GM crops into African agriculture. These pressures come mainly in the form of providing GMOs in food aid and privatization of agricultural research and development. During the 2002/2003 food crisis, for instance, Zimbabwe and other countries in the Southern African Development Community (SADC) were inundated with GM maize.

The introduction and use (experimental or commercial) of GMOs in Zimbabwe is regulated by the National Biotechnology Authority of Zimbabwe, which was established through the National Biotechnology Authority Act (Chapter 14:31) (No. 3 of 2006).



Thus, Zimbabwe has an explicit policy on biotechnology. The National Biotechnology Authority of Zimbabwe licences laboratories that meet the stringent requirements to import or work on GMOs in the country. They also supervise any work on GMOs that is conducted in Zimbabwe. Experimental work on GMOs to date includes crops such as maize and cotton.

Zimbabwe is also a signatory to the Cartagena Protocol on Biosafety (Biosafety Protocol), which allows countries to apply the precautionary principle and prohibit or severely restrict the import of GMOs into their countries.

However, the Zimbabwe government has not allocated sufficient resources for the National Biotechnology Authority nor to disseminating information on GMOs. Moreover, the provisions of the Cartagena Protocol have yet to be translated into national laws to ensure their implementation. Much of the GM debate is being conducted at the level of policymakers, leaving the public and farmers largely in the dark about GMOs and the risks they pose to human health, biodiversity and society.

Alongside the current unsupportive policy and legal environment in Zimbabwe in regard to farmers' rights, the country has not enacted laws that would promote the participation of farmers in decision-making on issues that affect them.

The farmers have only limited understanding of what their rights are in relation to the plant varieties they grow.

Nevertheless, the Government has made small inroads into the development of a policy and regulatory framework touching on issues related to farmers' rights.

For example, Section 116 of the Environmental Management Act, which governs the **"Conservation of and access to biological resources,"** stipulates that the government *shall take such measures as may be necessary for the conservation of biological diversity and implementation of Zimbabwe's obligation under the United Nations Convention on Biological Diversity adopted in 1992, and in so doing:*

- (j) *protect the indigenous property rights of local communities in respect of biological diversity;*
- (k) *support the integration of traditional knowledge on conservation of biological diversity;*
- (l) *prohibit or restrict access by any person to or the exportation of any component of biological diversity of Zimbabwe."*

The Ministry of Environment and Tourism, which administers the EMA, has formulated regulations to address the abovementioned concerns.



Asia

Lao PDR

Lao PDR signed up to the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) in 2006.

The seed regulatory environment in Lao PDR

The Regulatory Division of the Department of Agriculture (DOA) in Lao PDR is in charge of the licensing, registration and certification of seeds in the country and is guided by the **Regulation on the Use of Seed and Other Planting Materials in Agriculture in Lao PDR**. This regulations book makes a distinction between seeds as grains and seeds as planting materials.

The objectives of seed regulation in Lao PDR are as follows:

- To regulate the import/export of seeds and thus ensure that these conform to the standards and laws concerning the sale of seeds and grains (e.g., to ensure the seeds do not carry pests/diseases);
- To control the marketing and use of seeds for scientific/research purposes;
- To certify farmer-producers of seeds; and
- To prevent the use of seeds that are not tolerant to the environment where they are to be planted and grown.

Seed regulation in Lao PDR is credited with the following positive effects:

- Prevention of the entry of seeds from other countries that do not meet the standard requirements for seeds; and
- Provision of facilities for, and training in variety development.

However, the current seed regulation regime also has limitations:

- Because of the "long borders" in Lao PDR, monitoring the entry of seeds into the country is difficult, especially since seeds are accessed by farmers or groups in many different ways and because of weak policing;
- Conflict between the agricultural officers and the customs officers, who allow the entry of seeds without the necessary documentation;
- Inadequate enforcement of laws, thus allowing poor quality seeds to be imported or exported; and
- Absence of a list of certified seeds for extension to farmers, as a result of which farmers cannot be sure that the seeds they are buying have been certified or not.



Latin America

Brazil

Throughout Brazil, there have been many community/farmer experiences that are the basis for the development of local processes associated with the rehabilitation, conservation, exchange and sustainable use of local seed. At least 212 such community experiences have been documented.

These experiments involve different networks of local banks and seed houses. In the state of Paraíba, in the semi-arid northeastern Brazil, 6500 families currently comprise a network of 228 community seed banks, spread out over 61 municipalities. This is an example of a communal structure that guarantees the access of farming families to good quality seed at the right time for planting; eliminates the patronage system in the distribution of seeds; and prioritizes local seeds over improved ones, where the former are more adapted to local conditions.

The spread of networks devoted to community-based seed rehabilitation, multiplication and exchange has resulted in the formation of local systems of information on seed availability, which in turn has activated mechanisms of reciprocity and exchange.

Alongside these networks of seed banks, there are other experiences related to the rehabilitation of local varieties, such as the conduct of biodiversity fairs and festivals held throughout the country and in which farmers exchange their seeds.

The spread of networks devoted to community-based seed rehabilitation, multiplication and exchange has resulted in the formation of local systems of information on seed availability, which in turn has activated mechanisms of reciprocity and exchange. In this context, some organizations of farmers have taken up the challenge of producing registered seeds in an agro-ecological way, such as Bionatur, linked to the Movement of Landless Rural Workers (MST); and Unaic, or Union of Associations of Farmers in the State of Rio Grande do Sul, in the southern part of the country.

The articulation of these experiences both locally and nationally has led to some degree of influence on the formulation of public policies for the sector. An example at the local level was already mentioned in the state of Paraíba, where the government enacted a law to ensure that the Seed State Program is supplied with seeds of local varieties. Until then, these government seed programs had focused on the distribution of improved seeds that were dependent on intensive use of agrochemical inputs.



At the federal level, the Food Acquisition Program, which is operated by the National Supply Company, encourages and supports the marketing of local seeds produced by family farmers. Another example are the Multiplying Centers for the Management of Agrobiodiversity—CIMAS, which are the result of a partnership between the National Institute of Colonization and Agrarian Reform and the Ministry of Environment, which supports the genetic conservation of seeds and livestock in rural settlements.

Cuba

Cuban farmers are represented by the National Association of Small Farmers (ANAP), which was founded on May 17, 1961. ANAP participates in the formulation of policies and strategies related to agrarian and production issues. It collaborates and coordinates with national institutions on technical and productive programs, as well as socio-cultural development programs implemented in rural communities.

Cuban farmers are represented in government through 618 cooperativists and farmer delegates to municipal and provincial assemblies, and 12 cooperativists and farmers that are members of the Cuban Parliament. The national president of ANAP is represented in the Cuban Parliament, while men and women of peasant origin have been elected to the Assembly at the provincial and national levels.

Legislation guaranteeing the right to land

There are national laws that recognize the legal status of Agricultural Production Cooperatives (APC) and Credit and Service Cooperatives (CSC) and their right to ownership of land and other goods acquired through the contribution of their members. This recognition is established in the **Constitution of the Cuban Republic**, which stipulates in articles 19 and 20 that:

The State recognizes the right of small farmers to lands that legally belong to them and to all the [necessary] infrastructure...

Legislation guaranteeing the right to association

The Cuban State has taken upon itself the responsibility to promote the formation of farmers' cooperatives. According to **Law 95 of the Cooperatives** the State is obligated to provide economic and technical assistance through qualified agents to enhance farmers' productivity.

Participation in the formulation of socio-economic development plans

The APC and CSC, as legal entities, and the farmers, as individuals, participate in development planning. They take part in discussion and elaboration of the figures related to cropping, sales, inputs, etc.



The Government of Cuba recognizes the right of small farmers to lands that legally belong to them and to all the necessary infrastructure...

Access to credit

The APC and individual farmers are able to access loans for production and other farm investment through the national bank credit system.

Additionally, the APC and CSC have the right to renegotiate and restructure the payment of their loans and also to apply for special financial schemes to settle the accounts of their indebted members.

The CSC can apply for credit for activities for the common benefit and collective use of its members.

Mechanisms for setting agricultural prices

There are several agricultural products in the country, such as sugar cane, coffee, tobacco, and cattle meat, whose prices are regulated under the "Resolutions and other Legal Norms" approved by the Ministry of Finance and Prices.

Prior to setting the price of agricultural products by the central and provincial government levels, an analysis and consultation among interested parties is carried out, and in that process the producers participate, either through the APC or CSC, or through the ANAP.

Price adjustments for products bound for the State agricultural markets are generally done through the Administration Councils of the Provincial Assemblies of the Popular Power (provincial governments), while for other products, prices are set in "offer and demand" markets.

Guaranteed market

The Cuban State guarantees to both the APC and CSC a market for their members' produce. The latter is sold to schools, hospitals, work centers and other destinations.

Non-contract producers sell their goods in the Agricultural Marketplace, which was formed in 1994.



In Cuba, the work of individual farmers is acknowledged, and farmers may exchange experiences and assist one another in replicating successes on their fields or acquiring patents for their work.

Policies and programs regulating the seed industry

The Cuban State guarantees the supply of seeds for production. More than 50 percent of the seed produced in Cuba comes from the farmers, who deliver part of that amount to the State in order to support the rest of the farmers.

Protection of farmers' Intellectual Property Rights

Cuban cooperatives have created a new forum on Science and Technology, in which the work of individual farmers is acknowledged, and where farmers may exchange experiences and assist one another in replicating successes on their fields or acquiring patents for their work.

The Agroecological Peasant to Peasant workshops are one way by which the experience of farmers from different parts of the country is disseminated.

Legislation to conserve and develop forestry resources

Law No. 85 provides for the creation of the National Forestry Development Fund, whose main goal is to promotion and fund projects and activities dedicated to the conservation and development of forestry resources.



Africa

Malawi

The following factors have been observed to limit the promotion of Farmers' Rights in Malawi:

1. Lack of coherence among Government policies and laws related to agro-biodiversity conservation

Although there are a number of policies, laws and strategies related to agro-biodiversity conservation, they all seem to have been developed in isolation. For instance, the National Biodiversity Action Plan (NBSAP) and the National Environmental Policy (NEP) provide for the development of *sui generis* agro-biodiversity related legislation, including the protection of farmers' rights; yet, there does not appear to be a link between this proposed law and the Plant Breeders' Rights Bill that is being developed.

2. Lack of clear guidelines on access and benefit sharing

Access to genetic resources in Malawi is partially provided for in the EMA and in the Procedures and Guidelines for Access and Collection of Genetic Resources in Malawi (2002) and in the Procedures and Guidelines for the Conduct of Research in Malawi (2002). However, these procedures and guidelines do not indicate the type of benefits to be shared; nor have they been promulgated into rules or regulations under the existing legislation. In addition, most of the local farmers and technocrats that have been consulted do not appear to be aware of the existence of these procedures and guidelines. Furthermore, the implementation of access and benefit sharing regimes is not well developed such that materials are collected without following the proper procedures.

3. Market forces

Market demand for certain varieties has tended to erode specific local varieties.

4. Barriers to farmers entering into seed markets

At the local level, farmers enjoy the right to save, exchange, sell or share seed, although seed exchanges are no longer a common practice. In a few areas across Malawi, farmers have established community seed banks of their own, with support from non-government organizations (NGOs). This has promoted local seed access. However, farmers who want to enter the commercial market are constrained by prohibitive regulations enforced by DARS under the Seed Act, 1988. For seed to enter the official seed market, it must first be certified. Before certification can be granted, seed inspectors need to pay regular visits to the farmers' field. However, where there is no outside support, the farmers have to shoulder the costs of hosting the inspectors. Costs include subsistence allowances, transportation and inspection fees. Most of the local farmers cannot afford to pay for these costs on their own.



5. Loss of habitat

The habitat for most of the indigenous tubers, such as *buye* and orchids, is severely restricted due to clearing of land to open up new gardens and settlements. As such, most of them have become rare. With limited programs on collection and management, most of the indigenous tubers will become extinct; hence farmers will not be able to access propagation materials.



Women selling a local edible tuber

6. Limited awareness and vision

Most of the farmers and institutions providing services related to agro-biodiversity lack a reasonable understanding of farmers' rights and its ultimate goals. Their awareness of the end-results of attaining farmers' rights is vague and their application of its principles is weak. Opinions and perceptions among stakeholders about the capacities of rural communities' abilities in this regard are extremely varied.

There is no institution within the public sector and civil society whose core business is to disseminate information on policies and legislation related to farmers' rights. The Government, despite having ratified the ITPGRFA, appears ambivalent about the implementation of this instrument, especially with regard to farmers' rights.

There are just a few NGOs engaged in work related to farmers' rights. These, however, are not involved in the core farmers' rights activities or in the application of its principles but address farmers' activities more as part of general food security support. Rights-based approaches are only taken on board as add-on issues.



7. Involvement of NGOs and government extension staff in promoting hybrid varieties

Most parts of rural Malawi are covered by NGOs implementing either sustainable livelihood or food security projects. In all these, the emphasis is on hybrid maize seeds provided often for free to participating farming communities with the aim of improving their household food security.

8. Weak coordination of smallholder farmer activities

Two institutions are driving most of the smallholder farmer activities in Malawi. These are the National Smallholder Farmers' Association of Malawi (NASFAM) and the Farmers' Union of Malawi (FUM). However, their coverage in terms of focus and geography is limited. There is little organization among smallholder farmers, rendering them unable to approach issues as a united front. This limits their potential to challenge plant breeders and to participate in the general campaign for recognition of their rights.

Although Malawi's plant breeders have ignored the development of local land races, the development of improved varieties, such as the hybrids, has relied on the strengths existing in local varieties.

9. Inadequate capacity of local level farmers' institutions

Institutions dealing with seed at the local level, such as the Association of Smallholder Seed Marketing Action Group (ASSMAG), lack the capacity to effectively coordinate seed production for smallholder farmers. Many smallholder seed producers complain of delays in getting payment for their seed. Most of the seed farmers interviewed in central Malawi indicated that they had not yet been paid for the seed they supplied both in 2005³ and 2006. Private seed traders have also taken ASSMAG for a ride by collecting seed and returning it after failing to sell it. Yet, by then most of the seed will have gone bad.

10. Lack of attention to local varieties in agricultural research

Plant breeders in Malawi have focused their research on hybrid varieties, particularly maize. Little work is done on local land races or on local varieties. This has resulted in farmers lacking seed for some of the important local land races, such as



³ Consultations were held in mid September 2007.

finger millet. However, it is ironic that although plant breeders in the country have ignored the development of local land races, the development of improved varieties, such as the hybrids, has relied on the strengths existing in local varieties. Certain crops, such as finger millet and sorghum, have been ignored in terms of research because of their perceived low economic value. Yet, in most rural areas in Malawi, particularly in the southern region, it is recognized that these crops provide farmers with the much-needed buffer during droughts.



Local finger millet, one of Malawi's neglected food crops

11. Privatization of the seed industry

With the coming in of private companies and other factors, there has been a dramatic shift to hybrid varieties, which are perceived to be highly productive, modern and demand shorter rainfall seasons. This has led to the gradual disappearance of local varieties. However, hybrid varieties demand high levels of chemical fertilizer inputs and a lot of investment in post-harvest chemicals as they are vulnerable to attacks by weevils. In addition, the hybrid seed is also very expensive and most of the local farmers cannot afford to keep paying for it.



Zimbabwe

1. Absence of policy and legislation

Zimbabwe does not have a policy and legal framework dealing with farmers' rights. The development of laws pertaining to farmers' rights has created uncertainties among the breeders. The plant breeders would like to maintain a critical role and are not inclined to support community technology. Thus, they have proceeded cautiously in regard to acknowledging farmers' contribution, which they have little knowledge of or confidence in.

Asia

Lao PDR

1. Factors hindering seed conservation and rehabilitation efforts

According to farmer representatives at the **Lao PDR Farmers' Policy and Technical Conference on Plant Genetic Resources** held in October 2007, the right to conserve and rehabilitate seed consists of the ability to: (1) produce grains for consumption, for re-planting, and for selling; (2) share and exchange seeds with other farmers; and (3) conserve crop varieties that have a socio-cultural significance. The right to seed conservation and rehabilitation also entails farmers' secure access to land, agricultural inputs, and irrigation facilities. Farmers should receive the necessary training and technical assistance to facilitate their seed conservation and rehabilitation initiatives. Lastly, farmers require government support, particularly in terms of policies that guarantee their access to land for field trials, or that provide tax exemptions on lands that are being used for such purposes.

However, the farmers' seed conservation and rehabilitation efforts are constrained by their small landholdings; their lack of access to tools, materials, and equipment; the high cost of irrigation and chemical inputs; the lack of government subsidies, or crop insurance, as a hedge against crop failure due to natural causes; difficulties in availing of the tax exemptions on land devoted to field trials; and the inexperience of many government agricultural extension workers. The farmers also expressed their dilemma in selecting which varieties they should focus their efforts on. Traditional varieties have longer grains and have good eating quality, but are prone to lodging (i.e., tend to droop). Meanwhile, improved varieties have a greater resistance to lodging, but do not have good eating quality, and are usually ill-suited to local conditions (e.g., flooding, drought), making them more difficult to manage.

2. Problems with seed production and marketing

The farmer representatives agreed that their right to produce and market their seeds was contingent on the following: (1) the right to exchange seeds with other farmers; (2) the right to organize themselves and to produce seeds collectively; (3) access to resources, such as information relevant to the marketing of their seeds, information on seed registration, training and technical assistance in seed production, and related support facilities; (4) farmers' participation in setting the price of seeds; and (5) marketing support, in the form of infrastructure, particularly, farm-to-market roads; promotion of processed products to encourage farmers to grow particular seed varieties; etc.



Marketing is an especially formidable challenge for Lao farmers because of the lack of infrastructure facilities and the problems with seed certification.

While the farmer representatives acknowledged the importance of exchanging seeds among themselves, they likewise conceded that they have neglected the more urgent task of getting certification for their seeds, so that they could sell these.

Collective seed production is hampered by their limited communal production area; unsuitable breeding conditions; inadequate technical capacity in regard to breeding; the high cost of inputs; and the lack of irrigation and post-harvest facilities.

It is difficult to enforce a uniform price for seeds because farmers belong to various production/trading groups, which set their own prices. This leads to competition among the trading groups, which lower their prices to undercut one another, resulting in depressed prices for everyone.

Marketing is an especially formidable challenge for the farmer representatives. In the first place, the lack of infrastructure facilities raises the overhead costs of farmers, resulting in uncompetitive prices for their seeds. And without the necessary certification, farmers would not be able to market their seeds at a premium price. Farmers are also unable to market their seeds effectively, for instance, through the use of effective packaging, and by participating in trade fairs, etc.

3. Complicated and costly seed registration and certification

According to the farmer representatives, the right to varietal selection and breeding requires patent protection for farmer-developed seeds, and farmer participation in the pricing of seeds. This right also gives the farmer the option to grow (or not) varieties introduced to them, and to stop using such varieties, where these prove to be unsuitable to local farming conditions.

The farmer representatives credited the government for supporting their varietal selection and breeding activities through enabling policies, training programs on breeding techniques, and by organizing farmer-to-farmer exchanges, such as farmers' field schools (FFSs). The government also finances the holding of these activities, provides the venue and budget for breeding trials, supplies varieties that are well-adapted to local conditions, and ensures that its extension workers are sufficiently trained.

However, the farmer representatives said that the process of registering their seeds (as a prerequisite to securing a patent) is too complicated and involves too many stages. Breeding activities also do not always yield the desired varieties, despite years of work. Another issue raised was the requirement imposed by importing



countries of “approval certificates” for the grains, and the lack of farmers’ participation (especially of the unorganized ones) in the formulation of pricing policies. The farmer representatives expressed their need for land on which they could conduct joint breeding experiments.

4. Factors that hinder policymakers from promoting and protecting farmers’ rights

Policymakers who participated in the **Lao PDR Farmers’ Policy and Technical Conference on Plant Genetic Resources** cited the following factors that constrain their capacity to protect and promote farmers’ rights:

- Lack of human resources and inter-agency coordination for the implementation of regulations, policies and programs; lack of expertise and specialization, specifically of lawyers in agriculture;
- Need to protect farmers’ seeds
 - ❖ Protection of traditional varieties of Lao PDR from others without recognizing the sources;
 - ❖ No system to determine existing varieties in communities/districts/provinces (database on distribution and diversity of seeds);
- Weak capacity and linkage of extension agents and farmers on techniques and knowledge, e.g., on plant breeding;
- No formal recognition of farmers and researchers who develop new varieties;
- There is nothing in the “regulations” pertaining to support for conservation efforts;
- Lack of awareness and enforcement of regulations.

Philippines

1. Landlessness/lack of land tenure security

The poor performance of the Department of Agrarian Reform (DAR), especially the implementation of its Land Acquisition and Distribution (LAD) operations, is one of the major reasons why the majority of farming households in the Philippines remains landless, or lacks security of tenure. In 10 years of implementing the Comprehensive Agrarian Reform Program (CARP), the DAR has concentrated on redistributing government owned lands, and put off acquiring—compulsorily or otherwise—the large privately held estates, or *haciendas*, which have been the subject of contentious, and often violent, land disputes. Thus, at the expiration of the CARP on June 10, 2008, some 1.1 million hectares of land—mostly privately held—remained safely in the hands of the country’s biggest landlords.

Efforts to pass a law extending the CARP for another 10 years, such as the pro-farmer CARP-extension-with-reforms bill (House Bill 4077), briefly made some headway, when pro-farmer members of Congress closed ranks with farmers’ organizations in lobbying for its passage. Unfortunately, the bill failed to pass by June 10—the ap-



pointed deadline, being the date of CARP's expiration—and looks likely to be shelved. Meanwhile, pro-landlord legislators have sprung a nasty surprise in the form of HB 3972. This bill contains various anti-social justice provisions that are obviously meant to obstruct the passage of HB 4077 and to block the continued implementation of the agrarian reform program. Masquerading as a pro-farmer bill, HB 3972 promotes agricultural tenancy, which has long been repudiated by past Philippine administrations. The bill also promotes the implementation of Joint Venture Agreements, which would strengthen the control of big landlords over their lands, thus reversing many of the gains achieved in the past 10 years of agrarian reform implementation. The future of CARP is looking rather bleak.

The poor performance of the Philippines' Department of Agrarian Reform is one of the major reasons why the majority of farming households in the Philippines remains landless, or lacks security of tenure.

Besides the failure of the DAR to meet its targets, other factors and trends continue to undermine the farmers' right to land. Among these are the illegal conversion of agricultural lands to non-agricultural uses; the use of farmland as collateral, which is being aggressively promoted by the administration of Gloria Arroyo (i.e., through its support for the Farm as Collateral Bill); gaps and ambiguities in the Comprehensive Agrarian Reform Law (CARL) and in the Indigenous People's Rights Act (IPRA), which have resulted in violent land disputes between agrarian reform beneficiaries (ARBs) and indigenous communities seeking to establish their claims to their ancestral lands.



2. The Philippine Government's promotion of mining operations

The Mining Act of 1995 provides for:

- 100 percent foreign ownership of mining projects;
- 100 percent repatriation of profits, equipment, and investments;
- Foreign companies' claim to an area of up to 81,000 hectares onshore, or 324,000 hectares offshore;
- Complete protection to foreign companies against state expropriation;
- Tax breaks/holidays for foreign companies;
- 25-year-effectivity of mining concessions, with the option to extend such for 25 more years; and
- Priority access by mining companies to water resources within their area.

Even a cursory look at the provisions of this law would set alarm bells ringing among advocates of farmers' rights. Large-scale mining operations have long been infamous for exacting a heavy toll on the environment. Open-pit mining, in particular, results in clear-cutting of large swathes of forests, including watershed areas. The toxic effluents that mining operations routinely discharge contaminate nearby water bodies and the water supply downstream, rendering the water unsafe for consumption and posing a dangerous health hazard to nearby communities. Mining companies' prior claim to nearby water resources further undermines the communities' water rights. The law's generosity in regard to mining companies' requirements for land leaves little doubt that local people, especially indigenous communities—on whose ancestral lands mining concessions are usually awarded—would be evicted from their homes and from their lands. Thus, at least three farmers' rights are undermined by mining operations: the right to a healthy environment, the right to water, and the right to land.

But one need not speculate on the potential damage that mining operations can inflict. The record shows that large mining companies deplete up to P375 million worth of natural resources every year, while paying only P30 million in taxes. Companies that mine for gold and manufacture cement account for 57 percent of the harm suffered by the environment, yet they make only a paltry contribution (6 percent) to the national income.

“Seed is life, and nourishes many lives. Because seeds support life, no single person or group should claim ownership of them.”

3. Lack of appropriate support mechanisms to promote farmer-led initiatives in the use, conservation and development of plant genetic resources; lack of adequate safeguards to protect farmers' right to seeds

Farmer representatives at the **National Forum held in Quezon City** on 4-6 September 2007 articulated their right to seeds, as follows:

“[Ang] [b]inhi ay buhay na nagbubuhay sa maraming buhay; at sapagkat buhay, ito ay hindi inaari ng isang particular na tao o iilan sapagkat pagmamay-ari ito ng lahat, at ito ay kailangang gamitin, i-konserba, protektahan, at ipalago lalo na ng mga magsasaka.” (“Seed is life, and nourishes many lives. Because seeds support life, no single person or group should claim ownership of them. Seeds should be freely accessed, so that they could be used, conserved, protected, and improved upon, especially by farmers.”)

The farmer representatives likewise defined their right to seeds as consisting of the following:

- Access to complete information on activities and results of research;



- Farmer participation in seed policy development;
- Recognition of farmer initiatives/farmer-developed varieties; and
- Secure access to and control of seeds.

These sub-categories of the farmer's right to seeds are guaranteed under Section 9 of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), which was adopted by the Philippine Government in 2006.

Nevertheless, the farmer representatives identified a number of issues and challenges that undermine the exercise of their right to seeds, as follows.

➤ Lack of farmer participation in decision-making processes relevant to agriculture and/or seed policy development.

The farmer representatives observed that the Government adopts and supports programs and technologies that benefit the interests of private corporations rather than those that respond to the needs and conditions of small farmers. This is manifested by the following trends and developments:

❖ **Enactment of Republic Act 9168, or the Philippine Plant Varieties Protection Act (PPVPA).** The PPVPA, which became law in August 2002, is supposed to encourage the development of new plant varieties by granting plant breeders exclusive rights to produce, reproduce, sell, and market, among other things, their new plant varieties. This law however has come under fire from farmers' groups, indigenous people (IP)'s organizations, NGOs, and a number of scientists, who claim that, due to the expense entailed in securing a PVP certificate, the PPVPA is likely to benefit only the large, moneyed applicants, such as the giant seed companies. Thus, the PPVPA will more than likely consolidate the control of giant seed companies of Philippine agriculture, and in the process, violate farmers' inherent and traditional rights to seeds and to the knowledge associated with the seeds, and pose a threat to biodiversity, sustainable agriculture (SA), and food security.

The critics also argue that the PPVPA would discourage farmer-breeders from making further improvements on seeds because they would have only a limited pool of freely available varieties to work with.

❖ **Massive promotion of hybrid varieties.** A farmer representative at the Luzon Consultation reported the experience of 17 farmers who took part in the Government's Hybrid Rice Commercialization Program (HRCF). Joselito "Ka Tolits" Tambalo related that, to induce farmers, like himself, to shift to hybrid seeds, the HRCF gave away inputs free of charge, and a P10,000-per-hectare cash incentive. As it turned out, however, 12 of the 17 HRCF farmers went bankrupt because Philrice rejected their seeds for not meeting the requirements for certification. Meanwhile, the other HRCF farmers, whose seeds were bought by Philrice, eventually withdrew from the program because the subsidies were cut and the hybrid varieties proved to be susceptible to diseases and pest infestation. The hybrid seeds also could not be re-used for the next cropping season.



- ❖ **Promotion and commercialization of technologies, such as genetic engineering.** The farmer representatives, particularly those engaged in organic farming, feared that their crops would be contaminated by genetically modified varieties, and could no longer be marketed as "organic."



Protest rally against genetically modified rice

- **Lack of appropriate mechanisms to protect farmers' rights to traditional crop varieties.**

The farmer participants expressed concern that the PPVPA does not provide adequate safeguards against private corporations securing patents on crop varieties that farmers have developed, and against other forms of bio-piracy.

- **Lack of recognition and related support for farmers' initiatives and contribution to plant genetic resource (PGR) conservation, development, and use.**

The farmer representatives argued that the lack of recognition and support for farmers' initiatives in regard to PGR conservation, development, and use, stems from the perception that traditional knowledge and methods are inferior to technological solutions. This same lack of appreciation for farmers' input accounts for the absence of programs promoting sustainable agriculture and farmers' conservation initiatives.

- **Lack of thorough dissemination of technologies and programs related to seeds.**

The government has failed to allocate sufficient funds and to build capacity in support of farmer extension and information dissemination programs.



4. Women's lack of access to land

The Comprehensive Agrarian Reform Law (CARL) provides that lands distributed under the agrarian reform program should be issued jointly to spouses. In practice, however, the "household head"—which in most, if not all, cases is presumed to be male—makes all the major decisions in regard to the use and disposition of family landholdings. Ironically, a large number of rural households are headed by women, or are financially sustained by women. Formal credit sources, like banks, are reluctant to lend to women without their husband's approval. It is no surprise that the majority of poor rural households are those that are headed by women.

5. Lack of market support for organic products

More broad-scale adoption of sustainable agriculture is hampered by the lack of government support. Agricultural support, in the form of production credit, subsidies, extension services, access to post-harvest facilities, etc., is still contingent on the practice of conventional chemical agriculture.

Another formidable obstacle to getting farmers to farm organically is the difficulty of marketing organic products. In the first place, the domestic market for organic food and other products is not yet developed; it is at best a niche market. Secondly, the process of getting products certified as organic is not only long and tedious, but very costly. Without such certification, organic farmers end up selling their products at the price of conventionally produced items, and not at a premium, which organic products should command. Thirdly, even though there is a thriving export market for organic products, organic farmers are unable to deal with importers directly, nor even to produce the volumes required and to comply consistently with the stringent quality standards of international markets. Again, the problem can be traced to the lack of government support for the organic sector.

6. Expansion of monocropped agricultural plantations, and its impact on the farm ecology and on human health

Monocropped agricultural plantations have a negative impact on the environment and on human health. The banana plantations in Davao City, in Mindanao, for instance, are especially infamous. Firstly, because these plantations were put up in slopey, upland areas, they have resulted in soil erosion and flooding in adjacent low-lying areas. Secondly, as is the practice in all monocropped plantations, those in Davao City require aerial pesticide spraying. Communities living near the banana plantations have reported a number of problems caused by aerial spraying.

The managers of the plantations do not scrupulously restrict their aerial spraying so as not to go beyond the designated buffer zone. However, even if they could strictly limit their spraying, they could not prevent pesticide drift, which has a 3.2 kilometer radius. Pesticide drift poisons the air and nearby water sources, often leading to pesticide-related deaths and health problems among both humans and



livestock. There has been a high incidence of health problems among communities living near the plantations, such as breathing difficulties, nausea, eye irritation, fever, vomiting, cough, asthma, anemia, a general feeling of weakness, and even cancer.

Pesticide drift contaminates organic farms. This affects the marketability of organically grown products, especially where these are subject to quality control and organic certification.

The fungicides applied in the banana plantations have been reported to kill beneficial fungi, which keep pests that attack coconuts (i.e., the rhinoceros beetle) in check. Pesticide drift also causes the premature flowering of coconuts. Both factors have been blamed for the decline in productivity of coconut crops in areas close to the banana plantations.

7. Inadequate access to support services and information that impact on farming

The farmer representatives complained that many of them do not have access to irrigation facilities, and that there is no consistent government program or policy to provide farmers such access. Many of the farmer representatives said that in place of institutional government support, they depend on their congressperson's largesse.

The patronage system—which is arbitrary and highly politicized—determines whether or not farmers or their organizations are able to purchase, put up, or gain access to post-harvest facilities, such as warehouse/storage facilities, mechanical dryers, tractors, etc.; or whether or not a farm-to-market road is constructed in their area.

Production loans are available at formal sources, such as banks, but these come with interest charges that the farmer representatives are hard-put to pay. Banks also require collateral, which few farmers could provide. As a result, farmers are forced to resort to informal credit sources, which charge usurious interest rates.

The farmer-representatives also cited their lack of awareness of the impact on their livelihood of national and international policies on agriculture and trade, such as the reduction of tariffs on agricultural imports, which has led to the inundation of the domestic markets by cheap developed country imports and, consequently, to the decline in prices of local products.

Other policies that have had an impact on local agriculture are the ASEAN free trade agreements, the Japan-Philippines Economic Partnership Agreement (JPEPA), which critics say is one-sided in favor of Japan, etc.

The farmer-representatives claimed that they get much of the information they need from civil society organizations (CSOs).



8. Militarization and human rights abuses

The Kilusang Magbubukid ng Pilipinas (KMP), a left-leaning federation of farmers' groups, has reported that 65 of its farmer leaders and 430 of its members have been killed by the Philippine military since 2001.

Another report has claimed that half of all victims of extra-judicial killings are peasants or fisherfolk associated with organizations or movements advocating access to land and other resources.

Increased militarization has also been observed in areas where mining operations are widely opposed by the affected communities. For instance, a large military contingent has been deployed to secure the mining operations of TVI Mining in Siocon, Zamboanga against local protesters. A number of human rights violations by the military have been reported in this area.

Latin America

Brazil

While the sustainable use of local seeds and the exercise of farmers' rights to the free use of seeds owe largely to the initiatives of civil society, the limits and threats to the free use of seeds come mostly from agribusiness and the State.

The experiences of rural populations show (and studies confirm) that the agribusiness model is the main factor responsible for the concentration of land, violence in the countryside, the rural exodus, urban unemployment, and consequently, for the degradation of biodiversity, soil and water.

The loss of the traditional practices of farmers and local communities in the management, production, use, storage, marketing and exchange of seed has resulted from the creation or modification of regulatory frameworks to serve the commercial interests of private groups and to introduce technologies, such as transgenic seeds. These new legal instruments tend to increase the privatization of genetic resources and their monopolistic exploitation through different mechanisms of industrial protection, such as patents.

The Plant Variety Protection law ensures the right to commercial reproduction and prohibits others from producing seeds and seedlings of protected varieties for commercial purposes. The intellectual protection is not restricted to seeds and seedlings. It also applies in some cases to the products of the harvest obtained from protected seeds.

These result in severe restriction of rights, increased costs, and loss of autonomy of farmers. Concretely, these changes could be implemented if Brazil joins UPOV 1991–Convention of the Union for the Protection of New Varieties of Plants. Among some sectors of the current government and agribusiness, the use of farm-saved seed is regarded as a bad



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"cultural habit" which farmers must be weaned from, and replaced by the practice of buying registered seeds.

Discussion is ongoing in the federal government for a draft law on access to genetic resources and benefit sharing. As in other cases already mentioned, this discussion has taken place without the participation of civil society and without consultation with the sectors that will be directly affected.

The technical-scientific approach that guides formal agricultural research and which permeates rural extension and the existing regulations for the financing of agriculture has had a negative impact on agro-biodiversity. The view that knowledge about the management of biodiversity resources is the exclusive domain of researchers and plant breeders discredits the know-how accumulated by farmers, and leads to increasing specialization of production and the progressive disappearance of local varieties and breeds.

The support given to the release of transgenic seeds by the current Brazilian government is a major threat to biodiversity resources and farmers' rights. Apart from exposure to the risks of transgenics, many of them still unknown, genetic contamination can result in the loss of varieties and exposes the farmer to legal penalties for infringement of patents. With the spread of contamination by transgenic seeds and crops, the farmer loses his right to choose what to grow and to devote his/her property to agro-ecologic management. Consumers, on the other end, lose the right to opt for transgenic-free food.



Africa

Malawi

1. Small-scale farmers may gain from favorable government policies that provide for secure land tenure, encourage rural credit under reasonable conditions and maintain accessible extension services

Several land utilization studies have commented on dwindling land sizes and its impact on farming practices. In some cases, small-scale farmers do not have adequate security of tenure to invest time and effort in conservation and innovation of agro-biodiversity. These may affect experimentation with PGRFA. In addition, policies that promote reduction in staffing to reduce Government spending have had negative impacts on maintaining extension services and creating enduring and sustainable partnerships between conventional science and local knowledge. Recent policy initiatives have led to the adoption of fairly supportive instruments, including the National land Policy and the National Environmental Policy. Supporting legislation is at various stages of development. The challenge is how to mobilize largely unorganized farmers to continuously engage Government to ensure that these are adopted and implemented.

2. Local markets should not erect artificial barriers that keep out local products

The Seed Act, for example, has stringent standards on labelling and packaging ostensibly to maintain standards and thus protect farmers, but which ultimately keep small-scale seed producers and sellers from entering the market. The Seed Act, as amended in 1996, however, provides for exceptions in that the Minister can provide for different standards and equipment for different seed testing stations. Nevertheless, it is essential for the legislation to provide for exemptions or modifications specifically for small-scale subsistence farmers that are engaged in the production and marketing of seeds. The draft Malawi Plant Breeders' Rights Bill could provide the framework for this but the thrust of the draft is biased towards commercial breeders. There is therefore a need for specific legislation to cover farmers' rights, including farmers' participation in the seed industry.

3. Government should promote pro-diversity labelling and public education campaigns that attract local consumers to local products.

Of course this does not mean the public should endure substandard products. The Consumer Protection Act clearly provides protection to consumers against substandard products; nevertheless the lack of a clear policy on the promotion of local products and the absence of public awareness initiatives to promote local products stifle local innovation.





Farmers in a millet field belonging to a fellow smallholder farmer. Traditionally, apart from assisting each other to carry out land husbandry practices, they also share and exchange seed.

4. While there is evidence that public breeders work with local farmers to promote seed production and animal breeding, there is no policy to encourage viable partnerships that promote transfer of skills and knowledge or the equitable sharing of benefits

Government should therefore work with local farmers or associations to deal with purely mechanical barriers that prevent diversity from reaching the market. Introducing stringent market regulations in the name of maintaining standards and protecting the public health favors large commercial breeders and seed companies while ignoring the disadvantages that small-scale farmers have to contend with in entering such a market. Recent reports suggest that some unscrupulous seed traders have exploited the system in times of urgency or emergency-buying and have put substandard products on the market with little or no consequences.

5. Policies should encourage cooperative research between farmers and public/private breeders and incentives need to be provided to the private sector to encourage them to invest in local products

Informal cooperation exists between local farmers and public breeders. These may need to be formalized and perhaps extended to the private sector where necessary, and specific incentives provided to ensure that both sides are motivated to pursue common objectives that promote breeding programs. Local farmers are simultaneously breeders, growers and primary consumers; thus, they have a stake in sharing the research products at no cost. But where these are commercialized, it is necessary to reflect the partnership in any commercial gains that may accrue.

This could include the establishment of community seed banks to deal with local land races, open pollinated maize varieties and legumes, since it has been established that the private seed industry is not willing to multiply these types of seeds.





Some of the local land races, e.g., Bambara nuts, stored at the National Gene Bank

6. While in most cases it is difficult to identify the custodians of local knowledge and therefore determine the beneficiaries of research and innovation, there is scope for taking a broader and communitarian approach to local community benefit sharing mechanisms

Not only will this reflect the nature of local knowledge, it will also assist considerably in reducing poverty that, though primarily an individual issue, affects the whole community. There is no policy and legislation to promote this approach in Malawi.

Further, the Patents Act under which innovations can be registered is ill suited for this type of innovation since this law is individually oriented. The definition of a patentable "invention" under the Patents Act suggests that local knowledge can easily be undermined. Indeed the Patents Act is ill suited for the protection of farmers' rights. On the other hand, breeders' rights, which normally follow the UPOV, are also individualistic in nature and have criteria that would not be suitable for farmers' rights.

Both the National Science and Technology Policy, 2002 and the Science and Technology Act, 2003 provide for the development of appropriate technology for agriculture development and for the promotion of patenting and commercialization of research for farmers and industry, but do not go into detail on how farmers' rights can be protected. The draft Malawi Plant Breeders' Rights Bill seems to lean towards conventional intellectual property legislation and to focus on commercial breeders. Malawi therefore requires a *sui generis* policy and legislation framework for the protection of farmers' rights and innovations pertaining to biological resources.



7. Promotion of farmers' rights

There is need to lobby national farmers' organizations such as NASFAM and FUM to include farmers' rights as part of their agenda. This would enable farmers to be united and be capable of challenging researchers or any other stakeholder who might be advancing interests that adversely affect farmers.

Zimbabwe

1. Development of a *sui generis* legislation that would enable the country to comply with international instruments

These instruments include the Convention on Biological Diversity (CBD), World Trade Organisation (WTO) rules; the International Treaty on Plant Genetic Resources for Food and Agriculture (ITGRFA); and the FAO Global Plan of Action for Food and Agriculture (GPA). This proposed law should hold the Government accountable for:

- Implementing the principles and relevant provisions of the CBD;
- Defining access to genetic resources in national legislation;
- Preserving and maintaining the knowledge, innovations and practices of indigenous and local communities as these embody traditional lifestyles relevant to the conservation and sustainable use of biological diversity and promote their wider application, with the approval and involvement of the holders of such knowledge, innovation and practices;
- Promoting equitable sharing of benefits from the utilization of such knowledge, innovation and practice;
- Preventing the loss of biological diversity as a result of unauthorized collection and exploitation;
- Creating a legal, administrative and policy environment to facilitate and empower communities to play vital roles in generating and enhancing biological diversity and related knowledge, intellectual practice and culture;
- Protecting resources in recognition of a global tendency towards the affirmation of intellectual property rights over biological diversity, the products and processes related to it; and
- Regulating research, collection, exploitation and use of genetic resources as well as related intellectual knowledge and cultural expressions, including the entry of such resources into the country.



Asia

Lao PDR

Farmer participants at the **Lao PDR Farmers' Policy and Technical Conference on Plant Genetic Resources** proposed the following recommendations to government as well as proposed actions by farmers in regard to three dimensions of the farmers' right to seeds, as follows:

1. Right to seed conservation and rehabilitation

Recommendations to government:

- Continue to provide improved and local varieties/plant genetic materials (PGRs) to sustain farmers' breeding work;
- Stabilize the price of grains to guarantee a fair price for agricultural products;
- Provide land for seed conservation and varietal rehabilitation;
- Implement incentive schemes, such as tax breaks for farmers engaged in seed conservation and development;
- Refurbish existing irrigation facilities, and maintain these in good working condition;
- Establish genebanks in which farmers' seeds could be stored for the long-term;
- Build the capacity of agricultural extension workers; or better yet, assign an extension worker to stay full-time with the farmers in the course of the latter's seed conservation and rehabilitation work;
- Provide access to credit on easy terms to farmers; and
- Support the rehabilitation of communities affected by natural disasters.

Proposed local/farmer action:

- Continue varietal selection and breeding of traditional and improved varieties, as well as seed conservation and rehabilitation, even after the CBDC-BUCAP ends;
- Sustain networking among farmers to exchange planting materials and information;
- Continue to develop varieties that could be stored in government established genebanks; and
- Provide labor as counterpart for the maintenance of irrigation facilities.

2. Right to varietal selection and breeding

Recommendations to government:

- Simplify the seed registration process;
- Give farmer-breeders credit for their work by naming the seeds after their developers;
- Hold yearly contests to recognize the work of the best-performing farmer-breeders;
- Facilitate the participation of farmers and farmers' groups in setting prices and developing regulatory measures; and



- Increase support for seed selection and breeding, particularly by providing the necessary infrastructure/facilities for training, and by putting up seed storage facilities for the use of farmers.

Proposed local/farmer action:

- Lobby the government for a more simplified seed registration process; and
- Organize a savings group, using the CBDC–BUCAP funds as initial capital.

3. Right to seed production and marketing

Recommendations to government:

- Provide the necessary support, such as production capital and inputs; technical assistance; infrastructure, including irrigation and post-harvest facilities; and land that could be used as a communal demonstration farm;
- Provide marketing support, specifically by deploying its extension workers to help farmers identify and link up with potential markets, and agree on a mutually beneficial pricing policy; and
- Reward the exemplary work of farmer-breeders by issuing certificates of recognition.

Proposed local/farmer action:

- Set up demonstration farms/plots for the benefit of other farmers;
- Organize a savings group to assist farmers in funding their seed production needs; and
- Set up a seed buying/collection station in different areas.

Policymakers likewise proposed recommendations to the Lao Government to first build its human resource capacity to make its interventions and assistance relevant to the seed conservation work of farmers. They cited at least two major agenda which would require capacity-building. The first is re-orienting of the extension officers on farmer-centered extension methodologies like the FFS while building up their technical skills and knowledge related to the different aspects of seed conservation work—from the technical aspects of seed conservation to production and marketing. The second agenda is the need to develop or recruit people with specialized seed management skills and experience and who at the same time have the required coordination skills to get the different sectors to work together toward common goals in seed conservation work and FRs and for the monitoring of the implementation and enforcement of related regulations/policies.

The following lists the specific support that the Policymakers Group believe should be provided to Lao PDR farmers and the support that they (policymakers) would need to broaden their understanding and appreciation of seed conservation work so that they can accordingly input these into their policy work.



Recommended Areas for Support	Support Needed by Policymakers
<p>Government should provide support to farmers' work through the following:</p> <ul style="list-style-type: none"> ➤ Institutionalization of policy/programs on strengthening farmer breeding and Farmers Field Schools (FFSs)-support to be given to both farmers and agriculturists; ➤ Strengthening seed conservation and seed dispersal programs in each village (e.g., seed stocks); ➤ Extension agents should provide training to farmers on seed production, marketing, organic farming, seed conservation and development, among others; ➤ In marketing, government should hire someone with expertise in marketing and who could organize and guide marketing committees; ➤ Organizing and institutionalizing seed exhibits and festivals at the community/provincial/national levels to highlight farmers' extensive work on seed conservation and development; ➤ Providing support and assistance in setting up and organizing farmers' committees and groups for seed production, marketing, organic farming, conservation and seed development; ➤ Exploring policies that provide assistance in the conservation work of farmers in the field, and the protection of traditional varieties and farmers' seeds. 	<p>To formulate policies to support farmers' work, policymakers identified the following as the support they need to fulfill their role:</p> <ul style="list-style-type: none"> ➤ Seed distribution and seed diversity maps/database available in communities/districts and provinces as a benchmark tool for further work on conservation and development of farmers' varieties; ➤ Capacity-building activities through exchange of experiences; ➤ Capacity-building support for policymakers, government staff, and members of committees on issues on conservation and sustainable use of seeds; ➤ Continuation of programs like BUCAP that aim for the conservation and sustainable use of farmers' seeds; ➤ For BUCAP to cover not only four Lao PDR provinces but all the other provinces as part of local capacity-building.

Philippines

Farmer participants at the **National Forum on Farmers' Rights** held in September 2007 identified the plan of action for farmers to promote each of the components in the bundle of rights that make up farmers' rights, as follows:

1. **Access to complete information on activities and results of research**
 - ❖ Ensure that information reaches the grassroots level;
 - ❖ Conduct on-farm research in as many places as possible;
2. **Farmer participation in seed policy development**
 - ❖ Organized farmer groups, to work towards publicizing the issues;
3. **Recognition of farmer initiatives/farmer-developed varieties**
 - ❖ Continue dialogue, negotiations and linking with government;
 - ❖ Continue to practice sustainable agriculture (SA) including crop varietal improvement/farm trials;



4. Secure access to and control of seeds

- ❖ Undertake campaigns against HYVs/GMOs;
- ❖ Continue breeding/research efforts;
- ❖ Engage LGUs to formulate a Sustainable Agriculture Code and organize fairs;

5. Right to land

- ❖ Initiate legal action/petitions to rescind onerous land contracts;
- ❖ Organize farmers to advocate for land tenure improvement;
- ❖ Sustain networking/linkaging;
- ❖ Provide education and training for farmers;

6. Right to water

- ❖ Conduct dialogue between parties engaged in water rights disputes;
- ❖ Initiate legal action against the conversion of farmlands to fishponds;
- ❖ Lobby with local governments for the provision of irrigation facilities;
- ❖ Initiate investigation into defective dam construction and diversion of funds;

7. Rights of women farmers

- ❖ Involve women in negotiations, legal actions and dialogues;
- ❖ Provide capacity-building for women's empowerment;

8. Right to market organic products

- ❖ Organize organic producers;
- ❖ Promote crop diversification;
- ❖ Engage in the production of inputs for organic agriculture;
- ❖ Link up with national and international markets;
- ❖ Conduct training, seminars, exposure activities for farmers;
- ❖ Build public and consumer awareness on organic products.;

9. Right to appropriate technology

- ❖ Conduct training/awareness-raising on technologies like hybrid rice and GMOs through civil society organizations;
- ❖ Use traditional varieties and develop other varieties through cross-breeding;

10. Right to participate in governance

- ❖ Lobby for increased sectoral representation in local government units (LGUs);

11. Protection of human rights

- ❖ Conduct dialogues, signature campaigns to publicize human rights violations;



- ❖ Lobby for Human Rights-related laws;
- ❖ Build and strengthen farmers' alliances at the national and international levels.

The farmer representatives drew up a "**Legislative Wish List**," or proposed legislative action to promote the meaningful implementation of their bundle of rights. SEARICE committed to take the lead in advocacy and lobbying activities at the national level.

➤ Right to seeds:

- ❖ **Repeal of PVP Act 9168 and enact laws that recognize farmers' right to seeds and traditional knowledge in seed resources conservation and development.** Part of the lobby work here would be for the expansion of the Farmers' Rights Bill to include all the other rights identified in the 2007 National Forum and not to just limit it to Farmers' Right to Seeds.

➤ Right to land:

- ❖ **Repeal of RA 6657 (CARL) and enact a genuine agrarian and fishery/aquatic reform law that addresses the loopholes of RA 6657.** In terms of local action, this would include lobbying for the local legislative bodies to pass resolutions calling for Congress to repeal CARL and to address the inconsistencies in CARL and related agrarian reform laws. Areas to look into would be: ensuring that the "land to the tiller" principle is observed; abolition of monopoly landownership; distribution of land to legitimate tillers; and prioritization of big public lands in land distribution. The group further suggested using the People's Agrarian Reform Code (PARCode) as a working draft in formulating a genuine agrarian and fishery/aquatic reform law.

➤ Right to water:

- ❖ **Repeal of the 1995 Mining Act to prevent the contamination of water and the destruction of watersheds, and thereby ensure access to safe and sufficient water;**
- ❖ **Investigation into the construction of large but defective dam projects;**
- ❖ **Support for small water impounding projects (SWIPs) and rehabilitation of watersheds with farmer/community participation.** Measures must be undertaken to ensure farmers' access to and control of irrigation water; and to call on the Department of Agriculture to support SWIPs and watershed rehabilitation programs with farmer and community participation.

➤ Rights of women farmers:

- ❖ **Passage of a Women Empowerment Code for Rural Women.**

➤ Right to market organic products:

- ❖ **Repeal of DA Administrative Order #8 on entry of GMO products and enact laws banning the entry and use of GMOs in the country;**
- ❖ **Scrutiny of the DA budget to support Sustainable Agriculture and complement related LGU initiatives.**
- ❖ **Government subsidy for the certification of organic products of small farmer groups.**



➤ **Right to appropriate technology:**

- ❖ *Funding for EO 481 (Organic Agriculture Bill);*
- ❖ *Development of curriculum on organic agriculture in the DepEd and CHED;*
- ❖ *Recognition of farmers as farmer-scientists and local experts in sustainable agriculture extension systems.* Related to these are efforts to ensure that the government allocates funds for these programs/initiatives.

➤ **Right to a healthy environment:**

- ❖ *Implementation of the Clean Air Act and the NIPAS;*
- ❖ *Enactment of laws banning the use of hazardous chemicals and similar substances (persistent organic pollutants, or POPs) in agriculture.*

➤ **Protection of human rights:**

- ❖ *Scrutiny of the intelligence fund/budget of the ISAPF;*
- ❖ *Support for the criminalization of enforced disappearances;*
- ❖ *Expansion of the FR Bill to cover other farmers' rights.*

Latin America

Brazil

To protect and guarantee farmers' right to seeds, the following measures have been proposed:

1. Strengthen linkages between social movements and organizations to lobby against laws that deny farmers the right to produce, exchange and market their seeds;
2. Create mechanisms to prevent the appropriation and misuse of local varieties by researchers and/or companies;
3. Formulate a National Program on Agro-biodiversity towards encouraging local initiatives that promote the free and autonomous use of biodiversity, for example, through the purchase and distribution of local seeds produced by farmers;
4. Encourage participatory research for the development of production systems using different local seeds;
5. Create "biomonitoring networks" to monitor and report on transgenic contamination;
6. Promote linkages among networks of community seed banks and support festivals and fairs for the exchange of local seeds;
7. Participate in ongoing debates on the implications of legislation on seeds and seedlings on family farming; and
8. Expand and intensify ongoing campaigns on farmers' rights issues.



IMPLEMENTATION OF FARMERS' RIGHTS IN MALAWI

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IMPLEMENTATION OF FARMERS' RIGHTS IN MALAWI

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We are very much indebted to farmers and officials in Government and non governmental organizations who took time to talk to us, often without appointments. We will continue to interface with them and hope that the preliminary findings in this report will generate debate on the way forward for farmers' rights in Malawi.

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IMPLEMENTATION OF FARMERS' RIGHTS IN MALAWI

Acronyms and Abbreviations

ASSMAG	Association of Smallholder Seed Marketing Action Group
BSAP	Biodiversity Strategy and Action Plan
CBDC	Community Biodiversity Development and Conservation
CBD	Convention on Biological Diversity
CEPA	Centre for Environmental Policy and Advocacy
DARS	Department of Agriculture Research Services
DUS	Distinctiveness, Uniformity and Stability
EAD	Environmental Affairs Department
EMA	Environmental Management Act
FAO	Food and Agriculture Organization of the United Nations
FUM	Farmers' Union of Malawi
GoM	Government of Malawi
IPR	Intellectual Property Rights
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IUPGRFA	International Undertaking on Plant Genetic Resources for Food and Agriculture
NASFAM	National Smallholder Farmers Association of Malawi
NEP	National Environmental Policy
NGO	Non Governmental Organization
PGRFA	Plant Genetic Resources for Food and Agriculture
PIC	Prior Informed Consent
PVP	Plant Variety Protection
TRIPS	Trade-Related Intellectual Property Rights
UPOV	Union for the Protection of New Varieties of Plants
WTO	World Trade Organization



IMPLEMENTATION OF FARMERS' RIGHTS IN MALAWI

INTRODUCTION

The implementation of farmers' rights continues to pose a major challenge for developing countries in the face of efforts by multinational corporations to promote improved seed varieties. In addition, food insecurity and consumerism have adversely affected the utilization and conservation of traditional varieties, thus putting at risk the sustainability of seed diversity which is essential for adaptation to the distinct cultural, climatic and socio-economic situations of people all over the world.

The rights of farmers to save, exchange, sell, share and re-use seed are essential for reducing farmers' dependence on commercial seed companies. Farmers' rights need to be considered within a broader context by taking into account other important farming factors, such as access to water, land, credit, technology, and markets, and sound environmental management and equitable gender participation. The implementation of farmers' rights in Malawi is constrained because the country lacks a proper policy and legal framework that deals with the participation of farmers in decision-making in issues that affect them. In addition, the understanding and engagement among farmers towards farmers' rights is limited. Furthermore, multinational seed corporations such as Monsanto have the financial and marketing muscle to influence small-scale farmers about the advantages of improved maize varieties. In Malawi, for example, Monsanto has provided free improved seed to Government for distribution to poor farmers. Obviously, farmers will be "hooked" on to these seeds, and will buy them in the next season. On the other hand, this hand of "charity" will make it difficult for Government officials to implement policies, including farmers' rights, which do not promote the interests of Monsanto.

The policy and regulatory framework presents mixed signals. There are progressive draft pieces of legislation on farmers' and plant breeders' rights¹. Farmers' rights have been incorporated into the draft Environment Management Bill (revised 2006), while plant breeders' rights are provided for in the Draft Malawi Plant Breeders' Rights Bill. Concerns have already been raised that incorporating farmers' rights into environmental legislation that will be implemented by an institution responsible for coordinating environmental management is inappropriate. The general feeling is that the legislation is anchored in the wrong institution and that this would pose a major challenge to enforcement.

The driving force of Malawi's agricultural sector is its rich agrobiodiversity. Maize (*Zea mays*), sorghum (*Sorghum bicolor*), rice, and millet (*Pennisetum spp.* and *Eleusine coracana*) are the major cereal crops for Malawi. Originally, Malawi was a country of sorghum and millet but these have been marginalized with the introduction of maize (GoM, 2005). Major leguminous crops grown in Malawi include common beans, cow peas, bambara



¹ Torheim (2005) defines plant breeders' rights as a kind of intellectual property rights protecting plant varieties that fulfil the DUS-criteria; They are the most common type of intellectual property rights to plant genetic resources.

IMPLEMENTATION OF FARMERS' RIGHTS IN MALAWI

beans, peas, groundnuts and pigeon peas. Cassava (*Manihot esculenta*), sweet potatoes (*Ipomea batatus*) and Irish potatoes (*Solanum tuberosum*) are among the widely cultivated root/tuber crops. In addition to these there are also many edible tubers, with the most popular ones being *buye* (*Plectranthus esculentus*) and terrestrial orchids².

Most local farmers in Malawi use hybrid varieties, open pollinated varieties and local varieties of seeds for planting in their gardens. Over time, there has been a dramatic shift to hybrids followed by open pollinated varieties and farther away from local land races. This process has gained momentum as a result of food security concerns among small-scale farmers as improved maize varieties are considered high-yielding and better able to cope with shorter rain seasons than traditional varieties. This hybridization is threatening traditional varieties and farmers are losing their capacity to grow.

Inspired by its participation in the development of legislation related to plant variety protection in Malawi and other international processes, the Centre for Environmental Policy and Advocacy (CEPA) initiated consultations to generate a review of the status of farmers' rights implementation in Malawi. This review was prepared within the context of the Community Biodiversity Development Cooperation (CBDC) network as part of the Malawi Farmers' Report to be presented to the 2nd Governing Body of the ITPGRFA between late October and early November 2007. The strategy involved holding several farmer and stakeholder consultations³ in selected districts in central and southern Malawi. Interviews were also held with key institutions in the seed Malawi.

INTERNATIONAL PERSPECTIVES ON FARMERS' RIGHTS

Farmers' rights gained prominence following discussions in the Food and Agriculture Organisation (FAO) which resulted in the adoption of the International Undertaking on Plant Genetic Resources for Food and Agriculture (IUPGRFA) in 1983. That non-binding instrument set the stage for the recognition of the rights of farmers as custodians of plant genetic resources for food and agriculture (PGRFA). It provided the framework for recognizing farmers' rights after decades when these were not acknowledged by developed countries that regarded traditional varieties as part of the common heritage of mankind and thus available to plant breeders to improve on without sharing any benefits to the sources of their materials.

The recognition of farmers' rights will ensure that some formal system of recognizing farmers' breeding efforts is established. Traditional varieties may be new, distinct and useful but may not be uniform as required by plant breeders' rights under the Interna-



² Orchid tubers are often processed into a meat substitute called *chikande*.

³ The list of interviewees can be found on page.

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tional Union for the Protection of Plant Varieties (UPOV). Farmers' rights protection will further ensure that genetically diverse traditional varieties are not replaced by genetically uniform modern varieties protected by plant breeders' rights. It will also ensure that plant breeders' rights do not restrict farming practices which include saving, selling, exchanging and using farm saved seeds⁴.

Article 8 of the Convention on Biological Diversity (CBD) is supportive of farmers' rights as evidenced by its recognition of the contribution of local communities and indigenous peoples in conserving biodiversity, which includes agro-biodiversity. The CBD however deals with broad aspects of biodiversity conservation, its sustainable utilization and benefit sharing. The TRIPS requirement that all member states must provide patents or some *sui generis* system meant that farmer's rights had to be protected under some system which the CBD did not provide. Yet, neither patents nor the International Union for the Protection of Plant Varieties (UPOV), which some argue is the *sui generis* system for PGPFA, is suited to traditional varieties. The International Treaty for Plant Genetic Resources for Food and Agriculture (ITPGRFA) recognizes that farmers' rights are based on historical and continuing farmers' contribution to PGRFA (Article 9.1). It outlines farmers' rights to include protection of traditional knowledge relating to PGRFA; right to participate in national decision-making at the national level on matters related to the conservation and sustainable use of PGRFA.

Although the treaty is ambivalent in regard to farmers' rights to save, exchange and sell farm saved seed (Article 9.3), its preamble declares that the treaty recognizes the right "to save, use, exchange and sell farm saved seed." Finally, the treaty contains several important provisions that are essential for the realization of farmers' rights, such as promotion of diverse farming systems (Article 6.2); participation of farmers in plant breeding (Article 6.2.c); adjusting breeding and seed distribution (Article 6.2.9) especially with regard to seed legislation; benefit sharing (Article 13.3); funding (Article 18.5); and the global plan of action which calls for better understanding and improvement of on-farm conservation, realization of farmers' rights and promotion of equitable sharing of benefits of PGRFA. State Parties however have the discretion on how to realize farmers' rights. This highlights the need for farmers and civil society to lobby their governments to implement farmers' rights.



⁴ Torheim, 2005.

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MALAWI POLICY AND LEGISLATION ON FARMERS' RIGHTS

Institutional framework

Malawi has ratified the CBD, TRIPS and ITPGRFA. These three instruments are the responsibility of different government departments with often diverging interests and priorities. The CBD is implemented by the Environmental Affairs Department (EAD), which has developed the National Strategy on Sustainable Development (2004), the Biodiversity Strategy and Action Plan (2006), the National Environmental Policy (revised 2004) and the Environmental Management Act (EMA), 1996 (under revision). These address biodiversity and agro-biodiversity in general and specifically call for protection of farmers' rights.

The Ministry of Agriculture implements the ITPGRFA and is therefore responsible for farmers' rights issues. There is no legislation dealing with either plant breeders' rights or farmers' rights. A Plant Breeders' Rights Bill has been in draft for some five years or so. With technical and financial support from CEPA, the Department of Agriculture Research Services (DARS) undertook a review of the draft bill and a stakeholder consultation which culminated into the incorporation of farmers' rights. A new draft was developed, entitled Plant Variety Protection Bill, 2006. However, after internal consultations within Ministry of Agriculture, DARS removed the farmers' rights chapter from the PVP Bill and incorporated it into a revised EMA. This certainly brought more confusion about the implementation of farmers' rights and signaled the level of commitment to farmers' rights within the Ministry of Agriculture. CEPA will continue to lobby the Ministry to ensure that farmers' rights are recognized at official level. A subsequent stakeholder consultation has however recommended that farmers' rights be brought back into the Plant Variety Protection (PVP) Bill.

The Ministry of Trade and Industry is responsible for the implementation of TRIPS. To date, no significant steps have been undertaken to revise the intellectual property legislation, such as the Patents Act, the Copyright Act, the Trademarks Act, among others, which are old pieces of legislation mostly enacted during the colonial period. Malawi is however involved in trade negotiations with, among others, the European Union which will lead to the signing of Economic Partnership Agreements. These affect agriculture products and therefore farmers' rights; hence the need for the country to be clear about its policy direction in these discussions.

Policy and legislation affecting on-farm conservation of PGRFA in Malawi

The most important pieces of legislation that have a bearing on the conservation and utilization of plant genetic resources include the Seed Act, 1988, as amended in 1996; the Plant Protection Act, 1969; and the Patents Act, 1959. The Seed Act provides the regulatory framework for the production, sale, import and export of seeds as well as



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standards for seeds germination. The Plant Protection Act, on the other hand, is intended to eradicate pests and diseases that are destructive to plants and to prevent the introduction of such pests and diseases. Both Acts seek to provide a conducive environment for the conservation of plant genetic resources by ensuring that appropriate standards are set up and that the people responsible for seed production, sale or import and export as well as the need to protect plant genetic resources from harmful pests and diseases have the requisite competence.

The thrust of the legislation however is to encourage conventional science: hence, seed producers and sellers must be registered and comply with certain formalities before they can participate in the seed business. The process therefore leaves out small-scale subsistence farmers that do not have the infrastructure. Further, the small-scale farmers rely on incremental local knowledge passed from generation to generation that can easily be considered as part of the “public domain,” and therefore not patentable under the Patents Act. On the other hand, large-scale commercial seed companies have the necessary technology and information to make inventions patentable under current legislation, even though such inventions may have arisen from prior knowledge acquired from local communities. No mechanisms exist to protect local knowledge or indeed recognize its contribution to the conservation and sustainable utilization of biodiversity. Some of these commercial seed companies have benefited from publicly funded research and breeding programs which produced improved maize varieties. In Malawi, the National Seed Company which was wholly owned by Government was sold to a commercial company, and with this sale went the improved maize varieties, such as MH17, 18 and others, without benefit accruing to the Government. Since these varieties were not protected under any legislation, it is difficult to trace their original materials and to claim benefits from the continued use of the materials.

CONCEPTUAL UNDERSTANDING OF FARMERS' RIGHTS BY FARMERS

What are farmers' rights?

During the consultations, most of the breeders questioned the need to recognize the rights of farmers. They argued that farmers do not have rights over varieties but that the breeders themselves have rights because they are the ones who developed these varieties. This area will require harmonization because the breeders develop the improved varieties from local land races, which farmers have a right to. Most of the technologies can be traced back to local germ plasm—although researchers still argue that farmers do not have rights to these.

In essence the word **local land race** is used by researchers to negate local or indigenous varieties. This perhaps explains why these researchers or breeders do not obtain Prior Informed Consent (PIC) before they commence breeding programs using local land races



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and hybrid varieties. It is a further reflection of the misconception that traditional varieties are a common heritage, and hence no Intellectual Property Rights⁵ (IPR) are applicable.

In all districts visited during the consultations, farmers had difficulty defining farmers' rights but one lady farmer⁶ came up with this definition which seems generally acceptable: "Farmers need to be freely allowed to plant what they feel will satisfy their needs, without being forced to choose certain varieties." She further illustrated her definition by indicating that currently agricultural extension staff and promotions being run on both state and private radio stations are advising farmers to use hybrid seeds. There is apparently no message related to local land races. Most of the stakeholders, including farmers, and technical and local political leadership, do not understand the importance of agro-biodiversity conservation, in general, and farmers' rights, in particular.

Although it is acknowledged that yields from local maize varieties are low, the case study on page 68 perhaps highlights the possibility of households achieving food security using local maize varieties and how local land races can be protected from extinction as long as farmers are given a say in the matter. Apart from low yields, local maize is supreme over hybrids on a number of factors as outlined in Box 1 (See page 68).

KEY ASPECTS OF FARMERS' RIGHTS

There are a number of indigenous local varieties which smallholder farmers use in Malawi. These include finger millet, sorghum, *buye*⁷, local sweet potatoes, local cassava cultivars and local maize varieties. However, the sustainability of these varieties has recently come under threat. Due to changing climatic patterns; the emphasis of political leadership, research, and the agricultural extension system; and the aggressiveness of private seed producers, a majority of farmers have been persuaded to use local land races less and less. Unless protected, these varieties are likely to become extinct. Farmers' rights can be attained through the following:

1. Recognition of local farmers' efforts

Once legislation on breeders' rights is enacted, hybrid varieties will be protected through the formal IPR system; the breeding work of local farmers will remain informal and in the public domain unless a parallel but equally effective *sui generis* system is established to protect traditional varieties. Breeders benefit from the conservation and protection of agro-biodiversity resources cultivated by local farmers. The hybrid seed for maize was developed from local germplasm. Yet, the farmers

⁵ The rights granted by a state authority for certain products of intellectual effort and ingenuity.

⁶ This definition was given by Ms Ngwenyama of Manyenje Village, Neno district in southern Malawi.

⁷ Has very high protein content.



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Box
1*Women Farmers' Perceptions of Local Land Races*

Ms. Florence Ngwenyama is a 60-year-old female small-scale farmer based in Neno District in southern Malawi. She only grows the local variety of maize, groundnuts (local and improved varieties), soy beans and cow peas. She uses animal manure from her cattle. She does not apply any chemical fertilizers. She grows local maize variety because when she compares it with hybrid seeds, the local maize has a hard dent, weighs more per unit seed, uses less flour during preparation of nsima and allows for intercropping in the garden.

In addition, she stated that hybrid maize can get attacked by weevils even before it leaves the garden. In her area, many people had harvested a lot of maize during the 2006/2007 farming season but most of them have lost it due to weevils. The area is now infested with different types of weevils which she feels have been brought about by hybrid maize. Hybrid maize matures early and harvests are higher compared to local varieties but the maize easily gets attacked by weevils. Seeds also have to be purchased every planting season. In essence, she feels that hybrid seeds have not necessarily brought food security to the area. She has a garden of about two acres from which she is able to harvest enough for her household throughout the year.

Ms. Ngwenyama has been using local maize variety since she started farming. She got it from her parents. She says that farmers can maintain their local land races by not being easily taken by "zobwera" (meaning seeds which have just been brought into the country).

She stores her seed in a traditional way, by not removing the sheaths and stacking them on a wooden rack. She then puts a fire below and lets it burn for some time. She also makes sure that the maize is adequately dry before harvesting it. She selects her seed material for the next planting season during harvest time and keeps it somewhere safe.

She stated that the media has also played a big role in people shifting to hybrids because there are messages all the time promoting hybrid seeds: that they mature faster and yields are substantial. She does not recall having heard any promotions of local varieties through the radio or agricultural extension personnel. However, she feels that the local variety of maize is superior because the seed companies themselves in their adverts urge farmers to use improved varieties because they are similar than local varieties. This means that the commercial seed producers realize the superiority of local maize varieties.

Source: Farmer consultations conducted in the Neno District, October 2007.



did not receive any compensation because the local varieties were considered upon as common heritage. There is an urgent need to recognize the efforts of local farmers and bridge the value differences between the two.

2. Recognition of local land races as the basis of plant breeding

Breeders do not recognize farmers' local land races and genetic resources as varieties that are distinct and stable. Plant breeders' rights do not fit well into farmers' rights' protection. The characteristics of uniformity, stability, and distinctiveness

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negate the rights of farmers who would have sustainably conserved and improved their varieties. There is concern about the effect of uniformity on biological diversity and the inability has to encompass land races and traditional varieties. Replacing the requirement of "uniformity" with "identifiability" would encourage heterogeneity by making it possible to protect populations or land races under a plant variety protection system.

3. Conservation and protection

Pure local varieties for most of the crops are under serious threat of becoming extinct in Malawi. Apart from natural disasters such as droughts and floods, one of the major reasons is the gradual replacement of local varieties with hybrids being aggressively promoted by private seed companies, breeders and the agricultural extension system in the country. There has also been a growing gap between agricultural research and local farmers. Perhaps this has led to the breeders having a negative attitude towards farmers. Because of the lack of institutional attention to local varieties, it has mainly been the local farmers who have been conserving and protecting local varieties.

4. Securing farmers' practices

Since the beginning of agriculture, farmers have sourced seed informally through saving, sharing and exchanging. With modern times have come other, formal ways of acquiring seed, like buying from profit-oriented private traders. This saving and exchanging of seeds is very essential for maintaining pure local varieties and, more importantly, for facilitating farmers' breeding. In some cases, researchers and breeders have worked with farmers in breeding; but this is mainly to enable breeders to access germplasm and related knowledge. The withdrawal of the state from the seed industry has restricted farmers' practices, including the interaction between breeders and farmers since commercial seed companies are only interested in marketing their already developed varieties and very much less about building local capacity in breeding.

Local farmers have been saving local plant genetic resources over the years. Yet these important resources are necessary for research and a number of breeders have used these to develop new varieties. Farmers who contribute to the conservation and protection of plant genetic resources which are eventually used by breeders must receive benefits. However, the challenge is in negotiating for such benefits to ensure fairness. Breeders often argue that they can not identify beneficiaries and entities to transact with since these are community rights. This is not an excuse as there are traditional, community and government organizations which can represent local communities.



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WHY FARMERS' RIGHTS ARE NOT REALIZED

Several factors limit the promotion and protection of farmers' rights in Malawi. These include:

1. Absence of policy and legislation

Malawi does not have a policy and legal framework dealing with farmers' rights. The formulation of laws pertaining to farmers' rights has created uncertainties among the breeders. The plant breeders would like to maintain a critical role and are not inclined to provide support for community technology through farmers' rights. Thus, they have proceeded cautiously in dealing with the farmers' part, which they have little knowledge of and confidence in.

Then too it is important to note that although most of the local farmers and breeders have the technical capability on seed multiplication or breeding of new varieties, there is little knowledge on policies and legislation related to agro-biodiversity conservation and protection in general.

2. Linkages of Government policy and legal framework

Although there are a number of policies, legislation and strategies related to agro-biodiversity conservation, they all seem to have been developed in isolation. There is little reference to demonstrate linkages with ongoing national processes or commitment which was declared in previous frameworks. For instance, the National Biodiversity Action Plan (NBSAP) and the National Environmental Policy (NEP) make provision for the development of *sui generis* agro-biodiversity related legislation, including the protection of farmers' rights; yet as the Plant Breeders' Rights Bill is being developed, there is little evidence regarding its relationship to NBSAP and NEP.

3. Current management of access and benefit sharing

Access to genetic resources in Malawi is partially provided for in the EMA and in the Procedures and Guidelines for Access and Collection of Genetic Resources in Malawi (2002) and Procedures and Guidelines for the Conduct of Research in Malawi (2002). However, the procedures and guidelines do not indicate the type of benefits to be shared and have not yet been promulgated into rules or regulations under existing legislation. In addition, most of the local farmers and technocrats that had been consulted do not have adequate knowledge regarding the existence of these procedures and guidelines. Furthermore, the implementation of access and benefit sharing regimes is not well developed such that materials are collected without following the requisite procedures.

4. Market forces

Demand for certain varieties on the market has tended to erode specific local varieties. A classic example concerns the red kidney classes of beans which farmers



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in southern Malawi cited. Farmers have been motivated to grow the other varieties demanded by the market, thereby undermining their local cultivars.

5. Barriers to farmers entering into seed markets

At local level, farmers enjoy the right to save, exchange, sell, or share seed, although the exchange of seed is no longer a common practice. In a few areas across Malawi, and with support from non-governmental organizations, farmers have established community seed banks of their own. This has promoted local seed access. However, for farmers who want to enter the commercial market, they are constrained by prohibitive regulations enforced by DARS under the Seed Act, 1988. For seed to be taken to the official seed market, it must be certified. Seed inspectors have to ascertain it through regular visits to the farmers' gardens. However, where there is no outside support, the farmers have to shoulder the costs of hosting the inspectors. Costs include subsistence allowances, transport and inspection fees. Most of the local farmers cannot afford to pay for these on their own.

6. Loss of habitat

The habitat for most of the indigenous tubers, such as *buye* and *orchids*, is severely restricted due to clearing of land to open new gardens and settlements. As such most of them have become rare. With limited programs on collection and management, most of the indigenous tubers will become extinct; hence farmers will not be able to access propagation materials.

7. Limited awareness and vision

Most of the farmers and institutions providing services on agro-biodiversity do not have a reasonable understanding of farmers' rights and its ultimate goals. The awareness and vision of the end results of attaining farmers' rights are vague and the application of its principles is weak.

Among stakeholders, opinions and confidence in rural communities' abilities are extremely varied. There is no institution within the public sector and civil society whose core business is dissemination of policies and legislation related to farmers' rights. The Government, despite having ratified the ITPGRFA, appears ambivalent about the implementation of this instrument, especially with regard to farmers' rights.

There are just a few NGOs engaged in work related to farmers' rights. These, however, are not involved in the core farmers' rights activities or in the application of its principles but address farmers' activities more as a part of general food security support. Rights-based approaches are only taken on board as add-on issues.



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8. Involvement of NGOs and Government extension staff in promoting hybrid varieties

Most parts of rural Malawi are covered by NGOs implementing either sustainable livelihood or food security projects. In all these, the emphasis is on hybrid maize seeds provided often for free to participating farming communities with the aim of improving their household food security. This now includes what are taken as traditional crops such as sorghum and millet as was noted in the Lower Shire area where millet and sorghum are some of the staple foods. During the consultations farmers mentioned that there is an NGO which is supporting farmers with hybrid sorghum and finger millet seeds.

9. Weak coordination of smallholder farmer activities

Two institutions are driving most of the smallholder farmer activities in Malawi. These are the National Smallholder Farmers' Association of Malawi (NASFAM) and the Farmers' Union of Malawi (FUM). However, their coverage in terms of focus and geography are limited and require expansion. There is little organization among smallholder farmers, rendering them unable to approach issues as a united front. This limits their potential to challenge plant breeders and to participate in the general campaign for recognition of their rights.

10. Capacity of local level farmers' institutions

Institutions dealing with seed at the local level, such as the Association of Smallholder Seed Marketing Action Group (ASSMAG), have inadequate capacity to effectively coordinate seed production for smallholder farmers. Many smallholder seed producers complain of frustration with delays in getting payment after seed sales. Most of the seed farmers interviewed in central Malawi indicated that they had not yet been paid for the seed they supplied both in 2005⁸ and 2006. Private seed traders have also taken ASSMAG for a ride by collecting seed and returning it after failing to sell it, yet by then most of the seed will have gone bad.

11. Emphasis of research

Plant breeders in Malawi have focused their research on hybrid varieties, particularly maize. Little is done on local land races. Local varieties have not received institutional attention. This has resulted in farmers lacking seed for some of the important local land races, such as finger millet. However, it is ironic that although the development of local land races has been neglected, the development of improved varieties such as hybrids has relied on the strengths existing in local varieties. Certain crops, such as finger millet and sorghum, have been ignored in terms of research



⁸ Consultations were held in mid-September 2007.

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because of their perceived low economic value. Yet, in most rural areas in Malawi, particularly in the southern region, it is recognized that these crops provide farmers with the much needed buffer in times of drought.

12. Privatization of the seed industry

With the coming in of private companies and other factors, there has been a dramatic shift to hybrid varieties as they are perceived to be highly productive, modern and demand shorter rainfall seasons. This has led to the gradual disappearance of local varieties. However, hybrid varieties demand high levels of chemical fertilizer inputs and a lot of investment in post-harvest chemicals as they get easily attacked by weevils. In addition, the hybrid seed is also very expensive and most of the local farmers cannot afford this⁹.

RECOMMENDATIONS

Below we outline some policy recommendations to attain farmers' rights in Malawi:

1. Small-scale farmers may gain from favorable government policies that provide for secure land tenure, encourage rural credit under reasonable conditions, and maintain accessible extension services.

Several land utilization studies have commented on dwindling land sizes and their impact on farming practices. In some cases, small-scale farmers do not have adequate security of tenure to invest time and effort in the conservation and innovation of agro-biodiversity. These may affect experimentation with PGRFA. In addition, policies that promote reduction in staffing to reduce Government spending have had negative impacts on maintaining extension services and creating enduring and sustainable partnerships between conventional science and local knowledge. Recent policy initiatives have led to the adoption of fairly supportive instruments, including the National land Policy and the National Environmental Policy. Supporting legislation is at various stages of development. The challenge is how to mobilize largely unorganized farmers to continuously engage Government to ensure these are adopted and implemented.

2. Local markets should not erect artificial barriers that keep out local products.

The Seed Act, for example, has stringent standards on labelling and packaging ostensibly to maintain standards and therefore protect farmers, but which ultimately

⁹ This has led to most of the bumper yields only occurring in seasons when subsidized farm inputs have been made available by government.



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keep out small-scale seed producers and sellers from entering the market. The Seed Act as amended in 1996, however, provides for exceptions in that the Minister can provide for different standards and equipment for different seed testing stations. Nevertheless, it is essential for the legislation to provide for exemptions or modifications specifically for small-scale subsistence farmers that may be seed producers and sellers. The draft Malawi Plant Breeders' Rights Bill could provide the framework for this but the thrust of the draft is biased towards commercial breeders. There is therefore a need for specific legislation to cover farmers' rights, including their participation in the seed industry.

3. Government should promote pro-diversity labelling and public education campaigns that attract local consumers to local products.

Of course this would not mean the public should endure substandard products. The Consumer Protection Act clearly provides the public protection from substandard products; nevertheless the lack of clear policy on promotion of local products and absence of public awareness initiatives to promote local products stifles local innovation.

4. While there is evidence that public breeders work with local farmers to promote seed production and animal breeding, there is no policy to encourage viable partnerships that promote transfer of skills and knowledge or the equitable sharing of benefits.

Government should therefore work with local farmers or associations to deal with purely mechanical barriers that prevent diversity from reaching the market, thereby providing incentives for local farmers. It is a subsidy in favor of large commercial breeders and seed companies for Government to introduce stringent market regulations in the name of standards and public health while ignoring the disadvantages that small-scale farmers have in entering such a market. Recent reports suggest that some unscrupulous seed traders have exploited the system in times of urgency or emergency buying and have put substandard products on the market with little or no consequences.

5. Policies should encourage cooperative research between farmers and public/private breeders and incentives need to be provided to the private sector to encourage them to invest in local products.

Informal cooperation exists between local farmers and public breeders. These may need to be formalized and perhaps extended to the private sector, where necessary, and specific incentives provided to ensure that both sides are motivated to pursue common objectives that promote breeding programs. Local farmers act simultaneously as breeders, growers and primary consumers; thus, their incentives may partly lie in sharing the research products at no cost to them, but where these



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are commercialized it is necessary to reflect the partnership in any commercial gains that may accrue¹⁰.

This could include the establishment of community seed banks to deal with local land races, open pollinated maize varieties and legumes, since it has been established that the private seed industry is not willing to multiply these types of seeds.

6. While in most cases it is difficult to isolate the custodians of local knowledge and therefore determine the beneficiaries of research and innovation, there is scope for taking a broader and communitarian approach to local community benefit-sharing mechanisms.

Not only will this reflect the nature of local knowledge, it will also assist considerably in reducing poverty that, though primarily an individual issue, affects the whole community. There is no policy and legislation to promote this approach in Malawi.

Further, the Patents Act under which innovations can be registered is ill suited for this type of innovation since that is individually oriented. The definition of a patentable "invention" under the Patents Act suggests that local knowledge can easily be undermined. Indeed, the Patents Act is ill suited for the protection of farmers' rights. On the other hand, breeders' rights which normally follow the UPOV are also individualistic in nature and have criteria that would not be suitable for farmers' rights.

Both the National Science and Technology Policy, 2002 and the Science and Technology Act, 2003 provide for the development of appropriate technology for agriculture development and promotion of patenting and commercialization of research for farmers and industry, but do not go into detail on how farmers' rights can be protected. The draft Malawi Plant Breeders' Rights Bill seems to lean towards conventional intellectual property legislation and focuses on commercial breeders. Malawi therefore requires a *sui generis* policy and legislation framework for the protection of farmers' rights and innovations pertaining to biological resources.

7. Promotion of farmers' rights.

There is need to lobby national farmers' organizations, such as NASFAM and FUM, to include farmers' right as part of their agenda. This would enable farmers to be united and be capable of challenging researchers or any other stakeholder who might be advancing interests affecting farmers.



¹⁰ See The Crucible Group (2001).

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LIST OF INTERVIEWEES

1. Nathan Phiri, Farmer, Traditional Authority Maganga area, Salima District;
2. Traditional Authority Kwataine, Traditional Leader and Farmer, Ntcheu District;
3. Jean Chiumia (Mrs.), Farmer, Nkhamenya, Kasungu District;
4. Goodwin Philimon Miti, Farmer, Simulemba area, Kasungu District;
5. Damson Chaguma, Farmer, Simulemba area, Kasungu District;
6. George Mangani, Farmer, Simulemba area, Kasungu District;
7. Dr Francis Mkungula, Farmer/Director Bwanje Environmental and Rural Development Organization, Bwanje Area, Ntcheu District;
8. Prince Kapondamgaga, Executive Director, Farmers' Union of Malawi;
9. Dr M. H. P. Banda, Deputy Director, Department of Agricultural Research Services;
10. John Kanthungo, Curator, Gene Bank, Department of Agricultural Research Services;
11. Lawrent Pungulani, Documentation and Information Officer, Gene Bank, Department of Agricultural Research Services;
12. Harvey Charlie, Scientific Officer (Breeding), ICRISAT, Chitedze Agricultural Research Station;
13. Yona Chawanja, Agriculture Coordinator MALEZA, Nkhamenya, Kasungu District;
14. Ms. Florence Ngwenyama, Farmer, Manyenje Village, Neno District
15. Paramount Chief Lundu, Farmer, Traditional Leader, Chikwawa District;
16. Ms. Joyce Malape, Farmer, Fote 1 Village, Chikwawa District; and
17. Ms. Joyce Sikota, Farmer, Fote 1 Village, Chikwawa District.



STATUS OF FARMERS' RIGHTS IMPLEMENTATION IN ZIMBABWE OCTOBER 2007

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Acronyms and Abbreviations

ASSMAG	Association of Smallholder Seed Marketing Action Group
BSAP	Biodiversity Strategy and Action Plan
CBDC	Community Biodiversity Development and Conservation
CBD	Convention on Biological Diversity
CEPA	Centre for Environmental Policy and Advocacy
DARS	Department of Agriculture Research Services
DUS	Distinctiveness, Uniformity and Stability
EAD	Environmental Affairs Department
EMA	Environmental Management Act
FAO	Food and Agriculture Organization of the United Nations
FUM	Farmers' Union of Malawi
GoM	Government of Malawi
IPR	Intellectual Property Rights
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IUPGRFA	International Undertaking on Plant Genetic Resources for Food and Agriculture
NASFAM	National Smallholder Farmers Association of Malawi
NEP	National Environmental Policy
NGO	Non Governmental Organization
PGRFA	Plant Genetic Resources for Food and Agriculture
PIC	Prior Informed Consent
PVP	Plant Variety Protection
TRIPS	Trade-Related Intellectual Property Rights
UPOV	Union for the Protection of New Varieties of Plants
WTO	World Trade Organization



INTRODUCTION

The Food and Agriculture Organisation Conference held in 1989 recognized Farmers' Rights and member countries agreed to make every effort in the conservation of their genetic resources. It was agreed at that meeting that farmers and their communities should share benefits which arise as a result of the use of their natural resources. Realizing this noble idea of has given rise to many challenges to the developing countries of the world where there are vast quantities of the genetic resources. The genetic resources have continued to be exploited by multinational corporations and it is these conglomerates which continue to promote improved seed varieties, thus bringing about food insecurity since it affects the utilization and conservation of traditional varieties; which had adapted so well to the climatic conditions of the area where the varieties were grown.

The rights of farmers to save, exchange, sell, share and re-use seed are essential for reducing farmers' dependence on commercial seed companies. Farmers' rights need to be considered within a broader context by taking into account other important farming factors, such as access to water, land, credit, technology, markets, sound environmental management and equitable gender participation. Zimbabwe lacks the proper legislation to implement fully farmers' rights since there is no policy or legal framework that deals with the participation of farmers in decision-making in issues that affect them. Farmers have also limited knowledge and understanding of what their rights are in relation to the plant varieties they grow, and they are not clear on how they should engage the big companies in economic partnership when marketing their crops.

The Government has made however some inroads into coming up with a policy and regulatory framework touching on issues related to farmers' rights.

Farmers' rights have been incorporated into the Environment Management Act (Chapter 20:27).

The Plant Breeders' Rights Act (Chapter 18:16) through Amendment No. 11 of 2001 now recognizes the input of smallholder farmers through the provision which allows small holder farmers to:

- (a) retain products of their harvest for replanting;
- (b) exchange with any other such farmer:
 - (i) any prescribed plant which he has grown or reproduced on his land; and
 - (ii) any seeds from a plant referred to in subparagraph (ii).

However, the problem is not solved since there is no mechanism on how communities that have maintained varieties over a long period of time can be rewarded collectively. Maybe it will be necessary to provide for the registration of communities as collective owners of plant varieties protection rights. It should be emphasized that traditional farmers play a greater role in the achievement of food security in the country and incentives and rewards should be awarded to them.



Inspired by the important contribution of our traditional farmers toward food security in our country, we felt it necessary to review our current legislation and highlight the status of farmers' rights implementation in the country. In coming up with this report, we held several farmer and stakeholder consultations in selected districts in the country and interviews were also held with key institutions.

INTERNATIONAL PERSPECTIVES ON FARMERS' RIGHTS

The **Convention on Biological Diversity (CBD)** provides a holistic conservation framework which links biodiversity conservation and development in a stronger and clearer way than most Multilateral Environment Agreements (MEAs). The basic premise of the CBD is that biological resources and their diversity are important for development and should be used sustainably. It also stresses that international cooperation to promote these views is important. The CBD has taken on board issues of:

- the need to include the private sector in taking part in conservation efforts;
- the stewardship of biodiversity; and
- the critical role of indigenous and local communities in the conservation and sustainable use of biological resources.

Some of the CBD's key provisions include:

- The fundamental belief that natural resources can best be conserved at the national level—hence the need for national sovereignty over natural resources and the need for appropriate access legislation.
- A further call for devolving natural resources ownership from the national level to the local level. People at the local level have a closer relationship with natural resources than the State and are in a position to understand better the local ecological dynamics involved in the conservation. This relationship is encapsulated in indigenous knowledge systems (IKS), innovations and practices of indigenous and local communities which must be equated to scientific knowledge, respected and compensated for. This forms the fundamental basis for “equitable benefit sharing” called for in the CBD. It also raises the need for putting local communities at the centre of biodiversity conservation efforts.
- The need for Parties to regulate access and benefit sharing and to protect community rights and indigenous knowledge.
- The need for the private sector to share technological developments with the countries of origin of biodiversity materials they will have accessed and to pay royalties to these countries which will finance conservation efforts.
- In addition, article 10 calls on states to protect customary use of biological resources in accordance with cultural practices that are compatible with the conservation and sustainable use requirements. These provisions, therefore, not only call for the protection of community rights but also that the communities must approve the use of their knowledge and resources.



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Each member country is therefore at liberty to enact legislation that protects community rights and indigenous knowledge systems as outline in article 15 that: *"Each contracting party shall take legislative, administrative or policy measures with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic resources."*

Trade Related Aspects of Intellectual Property Rights (TRIPS)

TRIPS was negotiated during the Uruguay Round of trade talks that took place from 1986–1994 under the auspices of the General Agreement on Trade and Tariffs (GATT). The TRIPS Agreement came into effect with the establishment of the WTO on the 1st of January 1995. The Agreement was framed with the intention of protecting intellectual property on a global scale by means such as patents, copyrights, plant breeders' rights, trademarks and industrial designs. IPRs are defined by the WTO as the rights that are given to persons over creations of mind, such as inventions, works of art and literature and designs. They usually give the creator exclusive rights over the use of his/ her creation for a certain period of time, usually 20 years. In order for a patent to be granted, it must fulfil certain criteria of novelty, innovativeness and usefulness.

The objectives of TRIPS were articulated in its preamble as:

"to reduce distortions and impediments to international trade, and taking into account the need to promote effective and adequate protection of intellectual property rights, and to ensure that measures and procedures to enforce intellectual property rights do not themselves become barriers to legitimate trade."

The TRIPS Agreement therefore requires member states to provide patent protection for any "inventions, whether products or processes, in all fields of technology, provided that they are new (novel in the strict sense of the word), involve an inventive step (technically non-obvious) and are capable of industrial application."

Of particular importance is article 27.3(b) of the TRIPS Agreement that requires WTO members to protect plant varieties either through patents; a sui generis regime, such as plant breeders' rights; or through a combination of both. The article states that member countries can make patents available for any invention whether processes in any field of technology without discrimination. There are however, three exceptions:

- i. Article 27.2 states that countries may exclude from patentability inventions whose exploitation must be avoided to protect morality. This covers inventions dangerous to human, animal or plant life/health or seriously prejudicial to the environment.
- ii. Article 27.3(a) creates a second exception that diagnostic therapeutic and surgical methods for the treatment of human and animals may be excluded from patenting.
- iii. Article 27.3(b) creates the third exception that members may exclude "plants and animals other than micro-organisms and essentially biological processes" for the production of plants and animals other than non-biological and micro-biological processes.



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It should be noted too that Article 8(j) of TRIPS states that:

"members may, in formulating or amending their national laws and regulations, adopt measures necessary to protect public health and nutrition and to promote the public interest in sectors of vital importance to their socio-economic and technological development provided that such measures are consistent with the provisions of the Agreement."

Thus any country that determines that protecting communities' knowledge and associated biological material is required to enhance its socio-economic and technological development, may enact specific legislation for that purpose, within or outside the model provided by IPR and within or outside the framework of the TRIPS Agreement. The discontent of developing countries at the 'privatization of biodiversity' was exemplified by the SADC workshop on TRIPS in March 1999 whose summation stated:

"The problem with TRIPS is that the only inventions it recognizes are those that meet the criteria of novelty, inventiveness and industrial applicability or usefulness. This system denies property rights to local and indigenous knowledge practice and innovations. TRIPS only recognizes as worthy of protection inventions that conform to the northern definition. Local people end up being exploited and even made poorer by developed countries because their knowledge is accessed freely, then 'treated' in laboratories in the north, and ownership rights claimed through patents. Royalties are then paid to new owners by those who make use of their patented products."

IPRs therefore provide protection to individual inventors at the expense of the collective rights of communities.

Contradictions between the CBD and the TRIPS Agreement

The TRIPS Agreement is in sharp contrast with the CBD in as far as the protection of indigenous knowledge is concerned. Of importance to this study is the provision on equitable sharing of benefits which is not a prerogative of the TRIPS Agreement, which came into force two years after the coming into force of the CBD. The TRIPS Agreement does not require the establishment of any mechanisms to ensure fair and equitable benefit sharing with states and the holders of the traditional knowledge. The tension between the WTO and the CBD relate to intellectual property and to trade practices that could impact on the conservation of biodiversity. While the CBD calls for the protection and promotion of indigenous knowledge, innovations and practices, TRIPS obligates members to adopt patents or *sui generis* systems for plant varieties. The TRIPS Agreement does not recognize obtaining prior informed consent from the holders of the biological resources before bio-prospecting. Patents are usually granted without examining the origin of the genetic material, existence of prior informed consent on the part of indigenous communities, or whether the patentee is committed to sharing the benefits with the knowledge provider.

In the CBD, intellectual property is explicitly referred to only in the context of technology transfer, which is supposed to be one of the main kinds of benefit that the provider



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countries ought to receive. Article 16 on access to and transfer of technology requires Parties to the convention to undertake to provide and/or facilitate access and transfer of technologies to other Parties under fair and most favorable terms. The only technology referred to is biotechnology, but article 16 is concerned with technologies "that are relevant to the conservation and sustainable use of biological diversity or make use of genetic resources and do not cause significant damage to the environment." Recognizing that technologies are sometimes subject to patents and other IPRs, access to such technologies must be "on terms which recognize and are consistent with the adequate and effective protection of intellectual property rights." Of controversy is Article 16 (5) which requires Parties to cooperate to ensure that patent and other IPRs "are supportive of and do not run counter to" the CBD objectives. This article therefore poses a threat as to how the rights of communities, local farmers and commercial plant breeders are to be balanced.

It is therefore important to protect local seed diversity in the national and community genebanks from the forces of globalization. It is estimated that African farmers depend on seeds cultivated within their own communities for as much as 90 percent of their seed needs. Most of these seed breeders are women, as they produce 70 percent of the food used in the region. They carefully select those seeds that respond to various soil types and growing conditions and that carry particular traits, such as stability, disease resistance, drought tolerance, palatability, and storage quality. In Southern Africa, on-farm seed multiplication and farmer saved seed constitute 95–100 percent of the seed used for sorghum, millet, food legumes, roots and tuber crops. In Zambia, 95 percent of the millet crop is grown from farmers' seed. Even with a commercial crop like maize, small farmers are typically the main suppliers of seed. In Malawi, despite years of effort by the state seed company and private seed companies, hybrid maize covers no more than 30 percent of the smallholder area. Small farmers constitute by far the largest sector of seed breeders in Southern Africa and they have cultivated the abundant diversity that sustains the continent's food security. The above statistics clearly show the importance of local seed varieties to African agriculture.

OAU Model Law

Because of the inapplicability of the TRIPS/UPOV model of intellectual property rights for the African context, the Organization of African Unity (now the African Union) sought to formulate a genuinely African alternative. The OAU Model Law was intended to assist African states in their effort to develop and implement legal instruments capable of satisfying their conflicting obligations under TRIPS and the CBD. The OAU Model Legislation for the Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources is premised on the rejection of patents on life or the exclusive appropriation of any life form, including derivatives. Its provisions on access to biological resources make it clear that the recipients of biological resources or related knowledge cannot apply for any intellectual property right of exclusionary nature. The model legislation focuses mainly on the definition of the rights of communities, farmers and breeders. Community rights recognized include rights over



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their biological resources and the right to collectively benefit from their use, rights to their innovations, practices, knowledge and technology, and the right to collectively benefit from their utilization. In practice, these rights allow communities the right to prohibit access to their resources and knowledge but only in cases where access would be detrimental to the integrity of their natural or cultural heritage. Further, the state is to ensure that at least 50 percent of the benefits derived from the utilization of their resources or knowledge is channelled back to the communities.

The rights of farmers under the OAU Model law are to a certain extent more precisely defined. These include the protection of their traditional knowledge, an equitable share of benefits arising from the usage; the right to participate in decision-making on matters related to the conservation and sustainable use of plant and animal genetic resources; the right to save, use, exchange and sell farm-saved seed or propagating material; and the right to use a commercial breeder's variety to develop other varieties. The breeders' rights defined under the model legislation generally follow the definition given in the UPOV convention and the duration of the rights is modelled after UPOV 1991. One specificity of the plant breeders' rights regime under the model legislation is the rather broad scope of the exemptions granted. Exemptions to the rights of breeders include the right to use a protected variety for purposes other than commerce, the right to sell plant or propagating material as food, the right to sell within the place where the variety is grown and the use of the variety as an initial source of variation for developing another variety. Farmers therefore are awarded the right to sell, use, reuse and exchange seed varieties.

Key provisions of the ITPGRFA

Article 1—Objectives

- 1.1 The objectives of this Treaty are the conservation and sustainable use of plant genetic resources for food and agriculture and the fair and equitable sharing of the benefits arising out of their use, in harmony with the Convention on Biological Diversity, for sustainable agriculture and food security.
- 1.2 These objectives will be attained by closely linking this Treaty to the Food and Agriculture Organization of the United Nations and to the Convention on Biological Diversity.

Article 9—Farmers' Rights

- 9.1 The Contracting Parties recognize the enormous contribution that the local and indigenous communities and farmers of all regions of the world, particularly those in the centres of origin and crop diversity, have made and will continue to make for the conservation and development of plant genetic resources which constitute the basis of food and agriculture production throughout the world.
- 9.2 The Contracting Parties agree that the responsibility for realizing Farmers' Rights, as they relate to plant genetic resources for food and agriculture, rests with national governments. In accordance with their needs and priorities, each Contract-



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ing Party should, as appropriate, and subject to its national legislation, take measures to protect and promote Farmers' Rights, including:

- (a) Protection of traditional knowledge relevant to plant genetic resources for food and Agriculture;
- (b) The right to equitably participate in sharing benefits arising from the utilization of plant genetic resources for food and agriculture; and
- (c) The right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture.

9.3 Nothing in this Article shall be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seed/propagating material, subject to national law and as appropriate.

Article 10—Multilateral System of Access and Benefit-sharing

10.1 In their relationships with other States, the Contracting Parties recognize the sovereign rights of States over their own plant genetic resources for food and agriculture, including that the authority to determine access to those resources rests with national governments and is subject to national legislation.

10.2 In the exercise of their sovereign rights, the Contracting Parties agree to establish a multilateral system, which is efficient, effective, and transparent, both to facilitate access to plant genetic resources for food and agriculture, and to share, in a fair and equitable way, the benefits arising from the utilization of these resources, on a complementary and mutually reinforcing basis.

Article 11—Coverage of the Multilateral System

11.1 In furtherance of the objectives of conservation and sustainable use of plant genetic resources for food and agriculture and the fair and equitable sharing of benefits arising out of their use, as stated in Article 1, the Multilateral System shall cover the plant genetic resources for food and agriculture listed in Annex I, established according to criteria of food security and interdependence.

11.2 The Multilateral System, as identified in Article 11.1, shall include all plant genetic resources for food and agriculture listed in Annex I that are under the management and control of the Contracting Parties and in the public domain. With a view to achieving the fullest possible coverage of the Multilateral System, the Contracting Parties invite all other holders of the plant genetic resources for food and agriculture listed in Annex I to include these plant genetic resources for food and agriculture in the Multilateral System.

11.3 Contracting Parties also agree to take appropriate measures to encourage natural and legal persons within their jurisdiction who hold plant genetic resources for food and agriculture listed in Annex I to include such plant genetic resources for food and agriculture in the Multilateral System.

11.4 Within two years of the entry into force of the Treaty, the Governing Body shall assess the progress in including the plant genetic resources for food and agriculture referred to in paragraph 11.3 in the Multilateral System. Following this assess-



ment, the Governing Body shall decide whether access shall continue to be facilitated to those natural and legal persons referred to in paragraph 11.3 that have not included these plant genetic resources for food and agriculture in the Multilateral System, or take such other measures as it deems appropriate.

- 11.5 The Multilateral System shall also include the plant genetic resources for food and agriculture listed in Annex I and held in the *ex situ* collections of the International Agricultural Research Centres of the Consultative Group on International Agricultural Research (CGIAR), as provided in Article 15.1a, and in other international institutions, in accordance with Article 15.5.

Article 12—Facilitated Access to Plant Genetic Resources for Food and Agriculture within the Multilateral System

- 12.1 The Contracting Parties agree that facilitated access to plant genetic resources for food and agriculture under the Multilateral System, as defined in Article 11, shall be in accordance with the provisions of this Treaty.
- 12.2 The Contracting Parties agree to take the necessary legal or other appropriate measures to provide such access to other Contracting Parties through the Multilateral System. To this effect, such access shall also be provided to legal and natural persons under the jurisdiction of any Contracting Party, subject to the provisions of Article 11.4.
- 12.3 Such access shall be provided in accordance with the conditions below:
- (a) Access shall be provided solely for the purpose of utilization and conservation for research, breeding and training for food and agriculture, provided that such purpose does not include chemical, pharmaceutical and/or other non-food/feed industrial uses. In the case of multiple-use crops (food and non-food), their importance for food security should be the determinant for their inclusion in the Multilateral System and availability for facilitated access.
 - (b) Access shall be accorded expeditiously, without the need to track individual accessions and free of charge, or, when a fee is charged, it shall not exceed the minimal cost involved;
 - (c) All available passport data and, subject to applicable law, any other associated available non-confidential descriptive information, shall be made available with the plant genetic resources for food and agriculture provided;
 - (d) Recipients shall not claim any intellectual property or other rights that limit the facilitated access to the plant genetic resources for food and agriculture, or their genetic parts or components, in the form received from the Multilateral System;
 - (e) Access to plant genetic resources for food and agriculture under development, including material being developed by farmers, shall be at the discretion of its developer, during the period of its development;
 - (f) Access to plant genetic resources for food and agriculture protected by intellectual and other property rights shall be consistent with relevant international agreements, and with relevant national laws;
 - (g) Plant genetic resources for food and agriculture accessed under the Multilateral System and conserved shall continue to be made available to the Multilateral System.



eral System by the recipients of those plant genetic resources for food and agriculture, under the terms of this Treaty; and

- (h) Without prejudice to the other provisions under this Article, the Contracting Parties agree that access to plant genetic resources for food and agriculture found in *in situ* conditions will be provided according to national legislation or, in the absence of such legislation, in accordance with such standards as may be set by the Governing Body.

- 12.4 To this effect, facilitated access, in accordance with Articles 12.2 and 12.3 above, shall be provided pursuant to a standard material transfer agreement (MTA), which shall be adopted by the Governing Body and contain the provisions of Articles 12.3a, d and g, as well as the benefit sharing provisions set forth in Article 13.2 d(ii) and other relevant provisions of this Treaty, and the provision that the recipient of the plant genetic resources for food and agriculture shall require that the conditions of the MTA shall apply to the transfer of plant genetic resources for food and agriculture to another person or entity, as well as to any subsequent transfers of those plant genetic resources for food and agriculture.
- 12.5 Contracting Parties shall ensure that an opportunity to seek recourse is available, consistent with applicable jurisdictional requirements, under their legal systems, in case of contractual disputes arising under such MTAs, recognizing that obligations arising under such MTAs rest exclusively with the parties to those MTAs.
- 12.6 In emergency disaster situations, the Contracting Parties agree to provide facilitated access to appropriate plant genetic resources for food and agriculture in the Multilateral System for the purpose of contributing to the re-establishment of agricultural systems, in cooperation with disaster relief co-ordinators.

Article 13—Benefit-sharing in the Multilateral System

- 13.1 The Contracting Parties recognize that facilitated access to plant genetic resources for food and agriculture which are included in the Multilateral System constitutes itself a major benefit of the Multilateral System and agree that benefits accruing there from shall be shared fairly and equitably in accordance with the provisions of this Article.
- 13.2 The Contracting Parties agree that benefits arising from the use, including commercial, of plant genetic resources for food and agriculture under the Multilateral System shall be shared fairly and equitably through the following mechanisms: the exchange of information, access to and transfer of technology, capacity-building, and the sharing of the benefits arising from commercialization, taking into account the priority activity areas in the rolling Global Plan of Action, under the guidance of the Governing Body:
 - (a) Exchange of information. The Contracting Parties agree to make available information which shall, *inter alia*, encompass catalogues and inventories, information on technologies, results of technical, scientific and socio-economic research, including characterization, evaluation and utilization, regarding those plant genetic resources for food and agriculture under the Multilateral System. Such information shall be made available, where non-confidential, subject to applicable law and in accordance with national capabilities. Such information shall be made



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available to all Contracting Parties to this Treaty through the information system, provided for in Article 17.

(b) Access to and transfer of technology:

- (i) The Contracting Parties undertake to provide and/or facilitate access to technologies for the conservation, characterization, evaluation and use of plant genetic resources for food and agriculture which are under the Multilateral System. Recognizing that some technologies can only be transferred through genetic material, the Contracting Parties shall provide and/or facilitate access to such technologies and genetic material which is under the Multilateral System and to improved varieties and genetic material developed through the use of plant genetic resources for food and agriculture under the Multilateral System, in conformity with the provisions of Article 12. Access to these technologies, improved varieties and genetic material shall be provided and/or facilitated, while respecting applicable property rights and access laws, and in accordance with national capabilities.
- (ii) Access to and transfer of technology to countries, especially to developing countries and countries with economies in transition, shall be carried out through a set of measures, such as the establishment and maintenance of, and participation in, crop-based thematic groups on utilization of plant genetic resources for food and agriculture, all types of partnership in research and development and in commercial joint ventures relating to the material received, human resource development, and effective access to research facilities.
- (iii) Access to and transfer of technology as referred to in (i) and (ii) above, including that protected by intellectual property rights, to developing countries that are Contracting Parties, in particular least developed countries, and countries with economies in transition, shall be provided and/or facilitated under fair and most favourable terms, in particular in the case of technologies for use in conservation as well as technologies for the benefit of farmers in developing countries, especially in least developed countries, and countries with economies in transition, including on concessional and preferential terms where mutually agreed, *inter alia*, through partnerships in research and development under the Multilateral System. Such access and transfer shall be provided on terms which recognize and are consistent with the adequate and effective protection of intellectual property rights.

- (c) Capacity-building. Taking into account the needs of developing countries and countries with economies in transition, as expressed through the priority they accord to building capacity in plant genetic resources for food and agriculture in their plans and programmes, when in place, in respect of those plant genetic resources for food and agriculture covered by the Multilateral System, the Contracting Parties agree to give priority to (i) establishing and/or strengthening programmes for scientific and technical education and training in conservation and sustainable use of plant genetic resources for food and agriculture, (ii) developing and strengthening facilities for conservation and sustainable use of plant genetic resources for food and agriculture, in particular in developing countries, and countries with economies in transition, and (iii) carrying out sci-



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entific research preferably, and where possible, in developing countries and countries with economies in transition, in cooperation with institutions of such countries, and developing capacity for such research in fields where they are needed.

- (d) Sharing of monetary and other benefits of commercialization
 - (i) The Contracting Parties agree, under the Multilateral System, to take measures in order to achieve commercial benefit-sharing, through the involvement of the private and public sectors in activities identified under this Article, through partnerships and collaboration, including with the private sector in developing countries and countries with economies in transition, in research and technology development;
 - (ii) The Contracting Parties agree that the standard Material Transfer Agreement referred to in Article 12.4 shall include a requirement that a recipient who commercializes a product that is a plant genetic resource for food and agriculture and that incorporates material accessed from the Multilateral System, shall pay to the mechanism referred to in Article 19.3f, an equitable share of the benefits arising from the commercialization of that product, except whenever such a product is available without restriction to others for further research and breeding, in which case the recipient who commercializes shall be encouraged to make such payment. The Governing Body shall, at its first meeting, determine the level, form and manner of the payment, in line with commercial practice. The Governing Body may decide to establish different levels of payment for various categories of recipients who commercialize such products; it may also decide on the need to exempt from such payments small farmers in developing countries and in countries with economies in transition. The Governing Body may, from time to time, review the levels of payment with a view to achieving fair and equitable sharing of benefits, and it may also assess, within a period of five years from the entry into force of this Treaty, whether the mandatory payment requirement in the MTA shall apply also in cases where such commercialized products are available without restriction to others for further research and breeding.

13.3 The Contracting Parties agree that benefits arising from the use of plant genetic resources for food and agriculture that are shared under the Multilateral System should flow primarily, directly and indirectly, to farmers in all countries, especially in developing countries, and countries with economies in transition, who conserve and sustainably utilize plant genetic resources for food and agriculture.

13.4 The Governing Body shall, at its first meeting, consider relevant policy and criteria for specific assistance under the agreed funding strategy established under Article 18 for the conservation of plant genetic resources for food and agriculture in developing countries, and countries with economies in transition whose contribution to the diversity of plant genetic resources for food and agriculture in the Multilateral System is significant and/or which have special needs.

13.5 The Contracting Parties recognize that the ability to fully implement the Global Plan of Action, in particular of developing countries and countries with economies



in transition, will depend largely upon the effective implementation of this Article and of the funding strategy as provided in Article 18.

- 13.6 The Contracting Parties shall consider modalities of a strategy of voluntary benefit sharing contributions whereby Food Processing Industries that benefit from plant genetic resources for food and agriculture shall contribute to the Multilateral System.

Supporting components

Article 14—Global Plan of Action

Recognizing that the rolling Global Plan of Action for the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture is important to this Treaty, Contracting Parties should promote its effective implementation, including through national actions and, as appropriate, international cooperation to provide a coherent framework, *inter alia*, for capacity building, technology transfer and exchange of information, taking into account the provisions of Article 13.

Article 15—Ex Situ Collections of Plant Genetic Resources for Food and Agriculture held by the International Agricultural Research Centres of the Consultative Group on International Agricultural Research and other International Institutions

- 15.1 The Contracting Parties recognize the importance to this Treaty of the *ex situ* collections of plant genetic resources for food and agriculture held in trust by the International Agricultural Research Centres (IARCs) of the Consultative Group on International Agricultural Research (CGIAR). The Contracting Parties call upon the IARCs to sign agreements with the Governing Body with regard to such *ex situ* collections, in accordance with the following terms and conditions:

- (a) Plant genetic resources for food and agriculture listed in Annex I of this Treaty and held by the IARCs shall be made available in accordance with the provisions set out in Part IV of this Treaty.
- (b) Plant genetic resources for food and agriculture other than those listed in Annex I of this Treaty and collected before its entry into force that are held by IARCs shall be made available in accordance with the provisions of the MTA currently in use pursuant to agreements between the IARCs and the FAO. This MTA shall be amended by the Governing Body no later than its second regular session, in consultation with the IARCs, in accordance with the relevant provisions of this Treaty, especially Articles 12 and 13, and under the following conditions:
 - (i) The IARCs shall periodically inform the Governing Body about the MTAs entered into, according to a schedule to be established by the Governing Body;
 - (ii) The Contracting Parties in whose territory the plant genetic resources for food and agriculture were collected from *in situ* conditions shall be provided with samples of such plant genetic resources for food and agriculture on demand, without any MTA;



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- (iii) Benefits arising under the above MTA that accrue to the mechanism mentioned in Article 19.3f shall be applied, in particular, to the conservation and sustainable use of the plant genetic resources for food and agriculture in question, particularly in national and regional programmes in developing countries and countries with economies in transition, especially in centres of diversity and the least developed countries; and
- (iv) The IARCs shall take appropriate measures, in accordance with their capacity, to maintain effective compliance with the conditions of the MTAs, and shall promptly inform the Governing Body of cases of non-compliance.
- (c) IARCs recognize the authority of the Governing Body to provide policy guidance relating to *ex situ* collections held by them and subject to the provisions of this Treaty.
- (d) The scientific and technical facilities in which such *ex situ* collections are conserved shall remain under the authority of the IARCs, which undertake to manage and administer these *ex situ* collections in accordance with internationally accepted standards, in particular the Genebank Standards as endorsed by the FAO Commission on Genetic Resources for Food and Agriculture.
- (e) Upon request by an IARC, the Secretary shall endeavour to provide appropriate technical support.
- (f) The Secretary shall have, at any time, right of access to the facilities, as well as right to inspect all activities performed therein directly related to the conservation and exchange of the material covered by this Article.
- (g) If the orderly maintenance of these *ex situ* collections held by IARCs is impeded or threatened by whatever event, including *force majeure*, the Secretary, with the approval of the host country, shall assist in its evacuation or transfer, to the extent possible.

15.2 The Contracting Parties agree to provide facilitated access to plant genetic resources for food and agriculture in Annex I under the Multilateral System to IARCs of the CGIAR that have signed agreements with the Governing Body in accordance with this Treaty. Such Centres shall be included in a list held by the Secretary to be made available to the Contracting Parties on request.

15.3 The material other than that listed in Annex I, which is received and conserved by IARCs after the coming into force of this Treaty, shall be available for access on terms consistent with those mutually agreed between the IARCs that receive the material and the country of origin of such resources or the country that has acquired those resources in accordance with the Convention on Biological Diversity or other applicable law.

15.4 The Contracting Parties are encouraged to provide IARCs that have signed agreements with the Governing Body with access, on mutually agreed terms, to plant genetic resources for food and agriculture not listed in Annex I that are important to the programmes and activities of the IARCs.

15.5 The Governing Body will also seek to establish agreements for the purposes stated in this Article with other relevant international institutions.



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Article 16—International Plant Genetic Resources Networks

- 16.1 Existing cooperation in international plant genetic resources for food and agriculture networks will be encouraged or developed on the basis of existing arrangements and consistent with the terms of this Treaty, so as to achieve as complete coverage as possible of plant genetic resources for food and agriculture.
- 16.2 The Contracting Parties will encourage, as appropriate, all relevant institutions, including governmental, private, non-governmental, research, breeding and other institutions, to participate in the international networks.

Article 17—The Global Information System on Plant Genetic Resources for Food and Agriculture

- 17.1 The Contracting Parties shall cooperate to develop and strengthen global information system to facilitate the exchange of information, based on existing information systems, on scientific, technical and environmental matters related to plant genetic resources for food and agriculture, with the expectation that such exchange of information will contribute to the sharing of benefits by making information on plant genetic resources for food and agriculture available to all Contracting Parties. In developing the Global Information System, cooperation will be sought with the Clearing House Mechanism of the Convention on Biological Diversity.
- 17.2 Based on notification by the Contracting Parties, early warning should be provided about hazards that threaten the efficient maintenance of plant genetic resources for food and agriculture, with a view to safeguarding the material.
- 17.3 The Contracting Parties shall cooperate with the Commission on Genetic Resources for Food and Agriculture of the FAO in its periodic reassessment of the state of the world's plant genetic resources for food and agriculture in order to facilitate the updating of the rolling Global Plan of Action referred to in Article 14.

ZIMBABWE POLICY AND LEGISLATION ON FARMERS' RIGHTS

The clearing of large tracts of land for cash crop production has been going on in Zimbabwe even before its independence, and has resulted in the displacement of small - scale subsistence agriculture in which most Africans were and continue to be engaged.. The policy then (before independence) was to propagate commercial agriculture, and thus laws were put in place to support the colonial agriculture policy. Africans were alienated from their traditional source of food.

Indigenous values, knowledge and practices, especially farmers' rights, were not reflected in colonial government policies and legal frameworks. No one understood the fact that food security can only be attained if attention is paid to growing traditional food crops. Farmers who used traditional crop varieties, such as millet and sorghum, did not benefit from financial and research services. Thus, the traditional farmer was demotivated. It is



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within this context that one has to view our IPR legislative framework on farmers' rights. Current IPR laws can be divided into the following categories:

- Copyright;
- Trademarks;
- Trade secrets;
- Industrial designs;
- Geographical indications; and
- Patents.

Copyright protects ideas expressed in a creative and tangible way. Trademarks protect symbols, words and marks used to distinguish goods and services in the market. Geographical indications identify goods as originating from the territory of a member, or region or locality in that territory. No significant steps have been undertaken to revise the intellectual property legislation, such as the Patents Act, the Copyright Act, the Trademarks Act, among others, which are old pieces of legislation mostly enacted during the colonial period. Zimbabwe is however involved in trade negotiations with, among others, the European Union. These affect agriculture products and therefore farmers' rights; hence the need for the country to be clear about its policy direction in these discussions.

Patents Act (Chapter 26:03)

A patent grants to the inventor certain rights which include the right to exclude others from making, using or selling an invention for a given period. A patent holder can sue an infringer of his rights too and he can obtain compensation or recover damages. The knowledge or the work of farmers has led to the discovery of new genes. These farmers who are holders of traditional knowledge have not received just compensation for the use of their knowledge.

Two systems govern ownership and access to genetic and biochemical resources: On one hand, unimproved genetic materials (i.e. wild species and traditional variations of crops and plants) are treated as ownerless. On the other hand, Intellectual Property Rights (IPR) regimes, including patents, plant breeders rights and trade secrets, establish ownership for new varieties of plants and animals developed by commercial breeders and chemicals isolated and developed by pharmaceutical firms. There is therefore controversy on the applicability of property rights to natural biodiversity and to information about its potential use. It is uncertain whether IPRs could be extended to wild genetic and biochemical resources and whether such rights would hurt or help the objectives of increasing food security. It should be emphasized that extending IPRs to wild species would address the balance between the rights of ownership for improved and unimproved genetic resources. IPRs can stimulate domestic innovation and technology acquisition, thus providing an incentive for the sustainable development of the resource within the source country and thus economic benefits may be generated that may be used to support conservation or to compensate the community who owns the biodiversity. Greater benefits can be obtained if the traditional societies are empowered to restrict access and also empowered to have contracts—formal and informal—to ensure just com-



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pensation for their knowledge. All individuals who contribute intellectually in the identification and processing of plant varieties should be compensated. Once farmers are in a position to have intellectual property protection, i.e. refuse access to knowledge or traditional seed variety, then they are in a position to negotiate an equitable settlement and they may even be in a position to issue collecting permits only after prior informed consent had been obtained from the local communities before any collection has been done.

There is therefore need for national legislation which will regulate:

- User fees for access to genetic or biochemical resources on public or private land; and
- Requirements that collectors negotiate with the local communities, the farmers who are the custodians of the biodiversity collected or who contributed to the discovery of the plant variety.

It should however be highlighted that developing policies and legislation on IPRs as regards farmers rights is a complex issue. The indigenous, traditional local communities view IPR regimes as instruments of dominion and totally incompatible with indigenous cultures. IPRs are regarded as colonialist, racist and usurpatory. Further ecological boundaries are not bound by political boundaries; thus, there is need for harmonized regulations for the SADC region, so that bio-prospectors might not move to other countries which have lax laws or regulations. The current patent law is therefore unsuitable in protecting traditional intellectual contributions to plant varieties; thus it is advocated that an effective *sui generis* system should be developed since there is need to recognize IPRs over genetic resources at the level of traditional farming communities.

Plant Breeders Rights Act (Chapter 18:16)

There are two types of farming systems in Zimbabwe. The commercial farming (A2)—which is a large scale, agricultural production system with an active private plant-breeding sector.

The small scale subsistence farmers (A1)—these are mainly traditional communal farmers who normally grow crops for local consumption.

Under the TRIPS (Trade-Related Intellectual Property Rights) agreement, each state is encouraged to provide for the protection of plant varieties either by patents or by an effective *sui generis* system, or by any combination thereof.

Plant varieties can only be protected if they are:

- distinct from existing, common varieties;
- sufficiently homogenous;
- stable; or
- new.



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Plant breeders' rights gives exclusive property rights to a breeder. There has been however controversy over the equitable distribution of benefits arising from the use of plant genetic resources. Controversy surrounds the question of assigning IPRs to those who breed new plant varieties while traditional farmers who have created the plant diversity that lay the basis for modern breeding are not legally recognized. It becomes evident that the right of farmers in developing countries including Zimbabwe should be acknowledged to counter-balance the rights of plant breeders in industrialized countries.

It was found that it was necessary to promote farmers' rights so as to encourage the maintenance and development of varieties through ownership. This means access to a plant variety would be under a farmer's control. However, still the problem is not solved since there is no mechanism on how communities who have maintained varieties over a long period of time can be rewarded collectively. Maybe it will be necessary to provide for the registration of communities as collective owners of plant varieties protection rights.

New legislation should be developed which clearly distinguish between the rights of farmer-cultivators and farmer-conservers. The farmer cultivator rights enables the farmer to save seed for raising crops and enter into a limited exchange or sale in her/his neighborhood. The farmer-conserver shall practice farm conservation and add value in terms of selection. It is important here to highlight that the OAU model has defined farmers' rights as including the following:

- protect their traditional knowledge of plant and animal genetic resources;
- obtain an equitable share of benefits arising from the use of plant and animal genetic resources;
- use new breeders' varieties protected under the law to develop farmers' varieties, including propagation material obtained from genebanks or plant genetic resource centers; and
- collectively save, use, multiply and process farm saved seed of protected varieties.

The recognition of the input of smallholder farmers led to the amendment of the Plant Breeder's Rights Act (Chapter 18:16) (Amendment No. 11 of 2001) and the insertion of the provision which allows the smallholder farmers to:

- (a) retain products of their harvest for replanting;
- (b) exchange with any other such farmer:
 - (i) any prescribed plant which he has grown or reproduced on his land; and
 - (ii) any seeds from a plant referred to in subparagraph (i).

Seeds Act (Chapter 19:13)

The Seeds Act (Chapter 19:13) regulates the production of high quality seed by seed houses for both the domestic and export markets. This is achieved through the registration of sellers of seed and seed testing laboratories; the regulation of seed exports and imports; and the testing, certification and inspection of seed. Although the Act has served the former large scale commercial farming sector well over the years, it led to the fol-



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lowing problems for the smallholder farming sector: It required the registration of seed growers and inspectors which smallholder farmers could not afford. Compulsory certification has, however, been lifted and smallholder farmers can now produce and sell seed of prescribed crops as standard grade seed. The advantages of allowing smallholder farmers to produce such seed are twofold: First, seed prices are likely to decrease as standard grade seed is cheaper to produce than certified seed. Second, it allows smallholder farmers and other indigenous operators to go into the seed production business. It did not sanction the sale of open-pollinated maize varieties as they did not meet the criteria of distinctiveness, uniformity and stability. However, this requirement was relaxed in 2001 and farmers can now access open pollinated maize varieties. Seed of such varieties is cheaper and its progeny can be retained for planting in the next season unlike that of hybrids.

National Biotechnology Authority Act (Chapter 14:31)

The main argument issued by GM industries to speed up the development and use of genetically modified organisms (GMOs) or genetically modified (GM) crops in food and agriculture is that these will be the best resources for ensuring food security in the 21st century. They argue that GM crops will have a strategic role in promoting sustainable farming by increasing yields and hence reducing the need to expand crop areas into forest and marginal areas as well as reducing the use of herbicides and pesticides. However, these arguments are misleading and false. Considerable pressure is being exerted on African governments to accept the introduction of GM crops into African Agriculture. These pressures come in the form mainly of the provision of GMOs in food aid and privatization of agricultural research and development. During the 2002/2003 food crisis, Zimbabwe and other countries in the SADC were all targeted with GM maize. Zimbabwe banned the import of unmilled GM crops and unsupervised field trials of GM crops. The introduction and use (experimental or commercial) of GMOs in Zimbabwe is controlled by the National Biotechnology Authority of Zimbabwe, which was established through an Act of Parliament, National Biotechnology Authority Act (Chapter 14:31) (No. 3 of 2006). It falls under a full fledged Ministry of Science and Technology created in 2005. Zimbabwe now has an explicit policy on biotechnology. The National Biotechnology Authority of Zimbabwe licences laboratories that meet the stringent requirements to import or work on GMOs in the country. They also supervise any work on GMOs that is conducted in Zimbabwe. There are currently three competent laboratories that have been licensed to conduct research on GMOs. These are the Tobacco Research Board (Kutsaga Research Station); African Institute of Biomedical Science Technology (AIBST); and Central Veterinary Laboratory (CVL). Three other institutions, namely, the University Zimbabwe, National University of Science and Technology and SIRDC are in the process of registering their laboratories as well. Experimental work that has been conducted to date includes crops such as maize and cotton. Zimbabwe is a party to the Cartagena Protocol on Biosafety (Biosafety Protocol). The protocol is part of the CBD and allows countries that are Parties to the Protocol to apply the precautionary principle and prohibit or severely restrict the import of GMOs into their countries, where they believe scientific uncertainty exists concerning the safety of GMOs in terms of the environment



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and human health. The main reasons to be wary of the introduction of GMOs into Agriculture are:

- GM crops will contaminate non-GM Crops;
- GM crops will foster dependency on corporate seed supply;
- GM crops favor industrial agricultural systems and threaten alternative agricultural systems;
- GM crops threaten organic and sustainable farming;
- Stringent and well-capacitated biosafety systems are required to deal with the risks posed by GMOs; and
- GMO crops threaten biodiversity.

Zimbabwe's priority is currently low due to lack of awareness and limited resources and capacity to implement this act. While most of the GM debate is done at the political level, the public and farmers, especially, are still kept in the dark about GMOs and the risks they pose to human health, biodiversity and society. Therefore, public awareness campaigns based on accurate information and an open and honest debate are needed. In addition, decisions on the future of GMOs should be science-based but communicated in simple terms. Zimbabwe's capacity to monitor GMOs needs to be strengthened. There is need to incorporate the provisions of the Cartagena Protocol on Biosafety into national legislation for effective implementation.

Environmental Management Act (Chapter 20:27)

Section 116 of the Environmental Management Act stipulates as follows:

"Conservation of and access to biological resources

The Minister shall take such measures as may be necessary for the conservation of biological diversity and implementation of Zimbabwe's obligation under the United Nations Convention on Biological Diversity adopted in 1992, and may, in so doing:

- (j) protect the indigenous property rights of local communities in respect of biological diversity;*
- (k) support the integration of traditional knowledge on conservation of biological diversity;*
- (l) prohibit or restrict access by any person to or the exportation of any component of biological diversity of Zimbabwe."*

The Ministry of Environment and Tourism which administers the Environmental Management Act has come up with regulations, which are now awaiting gazetting, which shall address the issues stated above.



CONCEPTUAL UNDERSTANDING OF FARMERS' RIGHTS BY FARMERS

Chiredzi District

Farmers' rights means the following:

- a) Access to land: dryland; irrigatable;
- b) Opportunities for training: Master farmer trainings; advanced technologies; conservative farming;
- c) Access to communication (effective): telephone, media memos and circulars; flow of information from top to bottom;
- d) Access to market: Local, district, national and international level;
- e) Access to transport network: land and air;
- f) Loan facilities;
- g) Access to irrigation facilities;
- h) Access to power supply;
- i) Ownership of seed;
- j) Access to participation in decision making at all levels;
- k) Right to exchange seed: traditional crop varieties;
- l) Right to storage of seed and post-harvest treatment of local varieties; and
- m) Legal documents/policy supporting farmers' rights.

Tsholotsholo District

Farmers' rights are considered as rights to use, exchange and sell farm saved seeds. They also include use and protection of traditional knowledge. These are rights to conserve seeds for future use and improve on participatory plant breeding. These also entail participation in decision-making on issues related to the use and conservation of seed materials.

UMP District

Farmers' rights are rights which farmers have and which are supported by legislation. Farmers' rights should involve the whole community, i.e, village assembly; village development committee; ward assembly; ward development committee (E.H.T, AREX, Justice, Police, Registrar General's Office); committee of council; farmers' unions; provincial committee; national committee (cabinet).

Farmers' rights should include the following:

- Access to land;
- Access to inputs and implements;
- Access to draught power;
- Access to water;
- Access to technology to boost productivity;



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- Right to choose the correct variety of seed which suits our areas;
- Right to sell our produce;
- Right to access international markets;
- Right to access government loans, subsidies and incentives;
- Right to quality seed/produce e.g., tomatoes;
- Government to chip in with loans from banks for marketing purposes;
- Access to information, through government gazettes, statutory instruments, etc.;
- Right to participate in decision-making- farmers unions, associations; and
- Right to food security.

KEY ASPECTS OF FARMERS' RIGHTS

➤ Interpretation

"Farmers' variety": a botanical variety developed or maintained by farmers which can be differentiated from another of the same kind by one or more characteristics which is/are capable of definition and recognition (identifiable).

➤ Recognition of Farmers' Rights

- (1) Farmers' Rights are recognized as stemming from the enormous contributions that local farming communities; especially their women members, of all regions of the world, particularly those in the centers of origin or diversity of crops and other agro-biodiversity, have made in the conservation, development and suitable use of plant and animal genetic resources that constitute the basis of breeding for food and agriculture production; and
- (2) For farmers to continue making these achievements, therefore, Farmers' Rights have to be recognized and protected.

➤ Application of law on farmers' varieties

- (1) Farmers' varieties and breeds are recognized and shall be protected under the rules of practice as found in, and recognized by, the customary practices and laws of the concerned local farming communities, whether such laws are written or not.
- (2) This Act shall apply only in respect of a plant which has its origin in Zimbabwe and which is a new farmers variety in that:
 - (a) before the date of application it was not available in trade outside a restricted area or at community level;
 - (b) before the date of application it was not generally known;
 - (c) it is distinct; and
 - (d) it is identifiable.

➤ Registrar of Farmers' Rights and other Officers

Subject to the Public Service Act (Chapter 16:04), there shall be:

- (1) an officer, to be styled the Registrar of Farmers Rights, who shall exercise such functions as are conferred or imposed on the Registrar by this Act; and



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- (2) such examiners and other officers as may be necessary for the better carrying out of the provisions of this Act.

➤ Register of Farmers' Rights

- (1) The Registrar shall cause to be kept a Register of Farmers Rights in which shall be entered:
 - (a) particulars of farmers; rights which are in force and of any licences issued in respect thereof; and
 - (b) notice of all matters which are required by or under this Act to be entered in the Register and of such other matters affecting the validity or ownership of farmers' rights as the Registrar thinks fit.
- (2) The Register shall be prima facie evidence of any matters entered therein which are required or authorized by or under this Act to be entered therein.

➤ Persons entitled to make application

- (1) An application for the grant of farmers' rights in respect of a new farmer's variety may be made by any of the following persons:
 - (a) a person or a community who is the breeder or maintainer of the new variety;

An application in terms of subsection (1) may be made by a headman or chief on behalf of the community.

➤ Application for farmers' rights and effective date thereof

- (1) An application for the grant of farmers' rights shall be:
 - (a) made in the prescribed form; and
 - (b) lodged with the Registrar in the prescribed manner.
- (2) The effective date of application in terms of this section shall be the date on which the application is received by the Registrar.
- (3) The Registrar may require:
 - (a) that the plant concerned be shown to him or to a person designated by him; and
 - (b) that any additional information or specimens which he considers necessary to determine whether or not the plant concerned constitutes an eligible variety be furnished to him.

➤ Naming of plant concerned

- (1) The name of the plant concerned shall be proposed by the person who applies for the grant of farmers' rights.

➤ Refusal of application

The Registrar may refuse an application made if *prima facie* it appears to him that:

- (a) the application is not entitled in terms of this Act to make the application; and
- (b) the application does not comply with the requirements of this Part.



➤ Grant of farmers' rights

- (1) A variety with specific attributes identified by a community shall be granted intellectual protection through a variety certificate issued by the Registrar, unless the application has been refused.

➤ Duty of holder of farmers' rights to maintain reproductive material

- (1) An individual or community that holds farmers' rights shall ensure that throughout the period for which the rights are exercisable, he/they are in a position to produce to the Registrar reproductive material which is capable of producing the variety to which the rights relate.
- (2) The registration of a variety shall be cancelled when it has been found that characteristics of the plant of the registered variety have become different from the characteristics of the plant at the time of its registration.

➤ Rights of holder of farmers' rights

- (1) A holder of farmers' rights shall [during the designated period] have the sole right to sell, reproduce and multiply reproductive material of the plant concerned.
- (2) The term of farmers rights shall, subject to the provision of this Act, be fifty years from the date of grant thereof. It shall not be an infringement of the rights conferred by subsection (1) for a farmer:
 - (a) to use the variety concerned as an initial source of variation for the purpose of creating any other new variety;
 - (b) to save, use and exchange farm—saved seed/propagating material of farmers varieties; and
 - (c) use a protected breeder's variety to develop farmers' varieties, including material obtained from genebanks or plant genetic resource centers.

Notwithstanding paragraph (c) the farmer(s) shall not sell farm saved seed/propagating material of a breeders' protected variety in the seed industry on a commercial scale.

➤ Issue of licences

- (1) A community that is the holder of farmers' rights may apply to the Registrar for the rights to registered as rights in respect of which licences may be issued. On receipt of an application in terms of subsection (1), the Registrar shall cause to be entered in the Registrar of Farmers' Rights notice that licences in respect of the rights concerned may be issued by the holder and thereafter, if the holder grants to any person a licence to sell, reproduce or multiply reproductive material of the variety concerned, the holder shall within three months of granting such licence, notify the competent authority in writing of the grant of the licence and of any conditions, limitations or restrictions imposed.
- (2) In granting any licence, the holder of the farmers' right may impose such conditions, limitations or restrictions as they think fit.



WHY FARMERS' RIGHTS ARE NOT REALIZED

Several factors limit the promotion and protection of farmers' rights in Zimbabwe. These include:

Absence of policy and legislation

Zimbabwe does not have a policy and legal framework dealing with farmers' rights. The development of legislation pertaining to farmers' rights together with the plant breeders' rights has created uncertainties among the breeders. The plant breeders would like to maintain a critical role and are not inclined to provide support for community technology through farmers' rights. As such, they have proceeded cautiously in dealing with the work of farmers, which they have little knowledge of and confidence in. Then too it is important to note that although most of the local farmers and breeders have the technical capability for seed multiplication or breeding of new varieties, there is little knowledge on policies and legislation related to agro-biodiversity conservation and protection in general.

RECOMMENDATIONS

The development of a *sui generis* legislation will make us fully compliant with international instruments, such as:

- Convention on Biological Diversity (CBD);
- World Trade Organisation (WTO);
- International Treaty on Plant Genetic Resources for Food and Agriculture (ITGRFA); and
- Global Plan of Action for Food and Agriculture (GPA).

The above international instruments call on nation states to:

- implement the principles and relevant provisions of the CBD;
- provide for access to genetic resources in national legislation;
- respect, preserve and maintain the knowledge, innovations and practices of indigenous and local communities, which embody traditional lifestyles relevant to the conservation and sustainable use of biological diversity, and promote their wider application with the approval and involvement of the holders of such knowledge, innovation and practices;
- be committed to equitable sharing of benefits from the utilization of such knowledge, innovation and practice;
- recognize that biological diversity is being reduced by many human activities and if left unprotected can be lost by unauthorized collection and exploitation;
- create a legal, administrative and policy environment to facilitate and empower communities to play vital roles in generating and enhancing biological diversity and related knowledge, intellectual practice and culture;
- protect resources in recognition of the global trend towards the affirmation of intellectual property rights over biological diversity, and over the products and processes related to it;



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- regulate research, collection, exploitation and use of genetic resources as well as related intellectual knowledge and cultural expressions, including the entry of such resources into the country.

Article 15 of CBD recognises the sovereign rights of states over their natural resources and their authority to determine access to them subject to national legislation. The rationale of the legislative proposal will also make us fully comply with the provisions of the Agreement on Trade Related Aspects of Intellectual Property Rights article 27 (3b), which calls for the establishment of a *sui generis* system of plant protection.

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FARMERS' RIGHTS: FIELD AND POLICY PERSPECTIVES

HIGHLIGHTS OF THE LAO PDR FARMERS' POLICY AND TECHNICAL CONFERENCE ON PLANT GENETIC RESOURCES

LUANG PRABANG 11–12 OCTOBER 2007

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CONFERENCE OVERVIEW

Background

The Farmers' Policy and Technical Conference on Plant Genetic Resources held in Luang Prabang last 11–12 October 2007 was the third in a series of Farmers' Technical Conferences (FTCs) conducted in Lao PDR. The Conference was participated in by around 50 farmers and extension agents (around 20 percent of whom were women); 15 officials/staff from the local government units (LGUs) and agencies from four Lao PDR provinces (Champassak, Luang Prabang, Savanakheth and Vientiane); and six male farmers and project staff from the Community Biodiversity Development and Conservation (CBDC) Project in Thailand.

The first two FTCs, held in 2005 in the provinces of Vientiane and Champasak, aimed to provide a venue for the sharing of lessons and experiences from the conduct of Farmers' Field Schools (FFS) and from the farmers' and trainers' technical work on the conservation, development and use of plant genetic resources (PGR–CDU).

Rights of farmers to seeds upheld by the ITPGRFA

- Protection of traditional knowledge linked to seeds
- Right of farmers to equitably participate in sharing benefits from the use of seeds
- Right of farmers to participate in decision-making at the national level on matters related to the conservation and sustainable use of seeds
- Right of farmers to save, use, exchange, and sell farmer-saved seeds

This third FTC, which was organized and facilitated by SEARICE for partner-farmers in the Community Biodiversity Development and Conservation–Biodiversity Use and Conservation in Asia Program (CBDC–BUCAP), differed from the earlier FTCs in that it departed from the usual technical discussions and farmers' sharing on activities related to PGRs to give way to a discussion of farmers' perspectives on their rights to seeds and of how the support systems should function so that, together with farmers, they may ensure the conservation and development of PGRs, and of rice seeds, in particular.

The use of the FTCs as a forum to discuss farmers' rights (FRs) was in line with recent national developments in Lao PDR, including its membership

in March 2006 of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). Article 9 of this Treaty promotes the conservation and sustainable use of plant genetic resources for food and agriculture and upholds the rights of farmers to these plant genetic resources. Article 9 likewise acknowledges the important contribution being made by local and indigenous communities and by farmers everywhere, and enjoins all governments to institute measures to recognize their contributions and to protect their rights.

The Government of Lao PDR has since become interested in developing its *sui generis* legislation in support of farmers' seed systems. However, its present seed regulatory environment needs to be reviewed in light of its potential consequences on the work of



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farmers concerning the conservation, development and use of plant genetic resources, especially in their transition from subsistence farming to market-oriented farming.

It was in this context that the 2007 FTC sought to provide a venue where Lao farmers could discuss with field extension agents and government officials how their work on PGR-CDU (i.e., seed production and marketing, participatory plant breeding and plant varietal selection, and conservation efforts) are an expression or concretization of their rights to seeds.

Objectives of the conference

The two-day Conference aimed to provide the opportunity for farmers, policy makers and other key actors in the local seed system to discuss and analyze how farmers' rights to seeds were being implemented in Lao PDR, and thereby contribute to the formulation of practical recommendations.

Specifically, the conference aimed to:

- Enhance the participants' understanding of farmers' rights to seeds as enshrined in the ITPGRFA and how the country's policies and seed regulations support or contradict FRs based on the farmers' understanding of the concept and on farmers' rights are articulated in the treaty;
- Analyze farmers' work on PGR-CDU as expressions and realization of their rights to seeds;
- Identify gaps, issues, challenges and enabling factors in the current status of farmers' rights to seeds in Lao PDR by critically reviewing its existing local and national policies and seed regulations; and
- Propose practical recommendations, including policy support, to fully realize farmers' rights to seeds in Lao PDR.

Conference program

The Conference program had four modules: (i) Setting the context; (ii) Understanding Farmers' Rights and their manifestations; (iii) Issues/gaps and enabling factors for the realization of FRs; and (iv) Recommendations towards the realization of FRs in Lao PDR.

Setting the context for the Conference involved providing input, such as the Conference overview (objectives and general program); presentations on the ITPGRFA; explanation of the international, regional, and national perspectives on FRs.

Understanding Farmers' Rights and their manifestations consisted of sharing of experiences in defining FRs and discussions on how these are manifested in their specific contexts and along pre-identified thematic groupings. The activities in this part of the Conference included farmer field visits; viewing of Conference exhibits; small group discussions; and presentations by Lao farmers on their experiences in the CBDC-BUCAP Program, especially on farmer-led techniques for seed rehabilitation, varietal selection,



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breeding, seed characterization, and production of bio-extracts. Additionally, experiences, lessons and recommendations from the CBDC Program in Thailand were also presented by participants from CBDC–Thailand.

For the small group discussions, the farmers and extension agents were pre-assigned, based on their experiences and expertise, to three thematic groupings, i.e., Seed Conservation and Rehabilitation; Varietal Selection and Breeding; and Production and Marketing. The participants from the government and policy-makers comprised the fourth group—the Policy Making group, who reflected not only on their understanding of FRs but also on what they perceived to be their role in supporting FRs. Participants from CBDC–Thailand comprised the fifth group.

The five small groups went into further discussions to identify the **Issues/Gaps and Enabling Factors for the Realization of FRs** based on how the groups defined and understood FRs. From these the groups formulated **Recommendations** to address and strengthen the technical work of farmers and the policy and operational environment that supports the realization of FRs.

Inputs to the workshop sessions

The following are highlights of the various inputs presented during the first day of the Conference. The CBDC–Thailand sharing is presented as a separate chapter of the report.

ITPGRFA

The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) was adopted in 2001 by the Food and Agriculture Organisation (FAO) of the United Nations. This international agreement was drawn up so that countries around the world could better manage the different PGRs for food and agriculture, and to promote recognition of the rights of farmers to manage these resources. When 54 countries signed up to the ITPGRFA in 2004, the Agreement became legal and binding. Lao PDR signed up in 2006.

The ITPGRFA has the following objectives relevant to the work of farmers. These pertain to:

1. Conservation and Sustainable Use of PGRs for Food and Agriculture, or specifically, how member-countries could better manage their PGRs for food and agriculture to meet both their present and future needs;
2. Rights of Farmers to Seeds or the rights that the ITPGRFA recognizes to promote and protect the work of farmers. The ITPGRFA is relevant to the work of farmers because it recognizes the past contributions of farmers in maintaining, conserving, and developing the diverse PGRs for food and agriculture that are available today. It also recognizes the contributions of farmers in maintaining and developing the seeds that are necessary for sustainable agriculture and food security. The Treaty recognizes the rights of farmers to seeds and enjoins governments to take the necessary measures to protect and promote these.



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Furthermore, the Treaty supports and promotes the work on farmers, particularly the following activities—conservation and seed-saving; seed rehabilitation; selection of seeds; development of good varieties; seed production and marketing; sustainable agriculture through organic farming; seed exchanges; and customary and traditional methods in farming and seed management, among others—in the following ways:

1. The ITGPRFA provides for four core rights of farmers pertaining to PGRs for food and agriculture:

- ❖ Protection of traditional knowledge of farmers to PGRs for food and agriculture;
- ❖ Right of farmers to equitably participate in sharing benefits from the use of PGRs for food and agriculture;
- ❖ Right of farmers to participate in making decisions at the national level, on matters pertaining to the conservation and sustainable use of PGRs; and
- ❖ Right of farmers to save, use, exchange and sell farm-saved seeds;

2. Article 5 of the ITPGRFA promotes:

- ❖ Efforts and work of farmers and local communities in managing and conserving their seeds on-farm (Article 5.1[c]); and
- ❖ Efforts of indigenous and local communities to conserve, in-situ, wild crop relatives and wild plants for food production;

3. Article 6 of the ITPGRFA provides for:

- ❖ Agricultural policies that promote the development and maintenance of diverse farming systems that enhance the sustainable use of seeds (Article 6.2[a]);
- ❖ Strengthening research which enhances and conserves biological diversity by maximizing variation for the benefit of farmers who generate and use their own varieties and apply ecological principles to maintain soil fertility and combat diseases, weeds and pests (Article 6.2[b]);
- ❖ Promoting plant breeding efforts with the participation of farmers in order to strengthen their capacity to develop varieties adapted to social, economic and ecological conditions (Article 6.2[c]);

From International Commitments to National Implementation

- ➔ For the implementation of the Treaty to be relevant, it must address the realities and experiences of farmers in their continuing work towards the conservation and sustainable use of plant genetic resources
- ➔ A national framework must be developed towards supporting and realizing farmers' rights and promoting the work of farmers on conservation and sustainable use of seeds
- ➔ Farmers must realize that they have rights under the Treaty
- ➔ Policymakers must understand their important role in supporting farmers attain their goals of sustainable agriculture and food security



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- ❖ Broadening the genetic base of crops and increasing the range of genetic diversity available to farmers (Article 6.2[d]); and
- ❖ Promoting the expanded use of local and locally adapted crops, varieties and underutilized species (Article 6.2[e]).

For implementation of the ITPGRFA to be relevant, it must address the realities and experiences of farmers in their continuing work towards the conservation and sustainable use of PGRs for food and agriculture. There is also a need to develop a national framework that supports and assists in the realization of FRs, and promotes the work of farmers on conservation and sustainable use. Part of this process of helping farmers to realize their important roles under the ITPGRFA is recognition by policy-makers of farmers' contribution towards achieving the country's goals of sustainable agriculture and food security through the exercise of FRs.

The Seed Regulatory Environment in Lao PDR

The Regulatory Division of the Department of Agriculture (DOA) in Lao PDR is in charge of the licensing, registration and certification of seeds in the country and is guided by the **Regulation on the Use of Seed and Other Planting Materials in Agriculture in Lao PDR**. This regulations book makes a distinction between seeds as grains and seeds for planting purposes.

The objectives of seed regulation in Lao PDR are as follows:

- To regulate the import/export of seeds to ensure that these conform to the standards and laws concerning the sale of seeds and grains (e.g., to ensure the seeds do not carry pests/diseases);
- To control the marketing and use of seeds for scientific/research purposes;
- To certify farmer-producers of seeds; and
- To prevent the use of seeds that are not tolerant to the environment where they are to be planted and grown.

Seed regulation in Lao PDR is credited with the following positive effects:

- Prevention of the entry of seeds from other countries that do not meet the standard requirements for seeds, e.g., in order to avoid the spread of seed-borne pest and diseases in the country; and
- Provision of facilities for, and training in variety development.

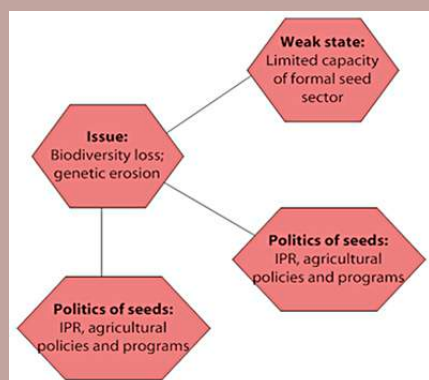
However, the current seed regulation regime also has limitations:

- Because of the "big/long borders" in Lao PDR, monitoring the entry of seeds into the country is difficult, especially since seeds are accessed by farmers or groups in many different ways and because of weak policing.
- Conflict between the agricultural officers and the customs officers, who allow the entry of seeds without the necessary documentation;
- Inadequate enforcement of DOA regulations, allowing poor quality seeds to be imported or exported; and



- ➔ Absence of a list of certified seeds for extension to farmers, as a result of which farmers cannot be sure that the seeds they are buying have been certified or not.

The CBDC–BUCAP program context



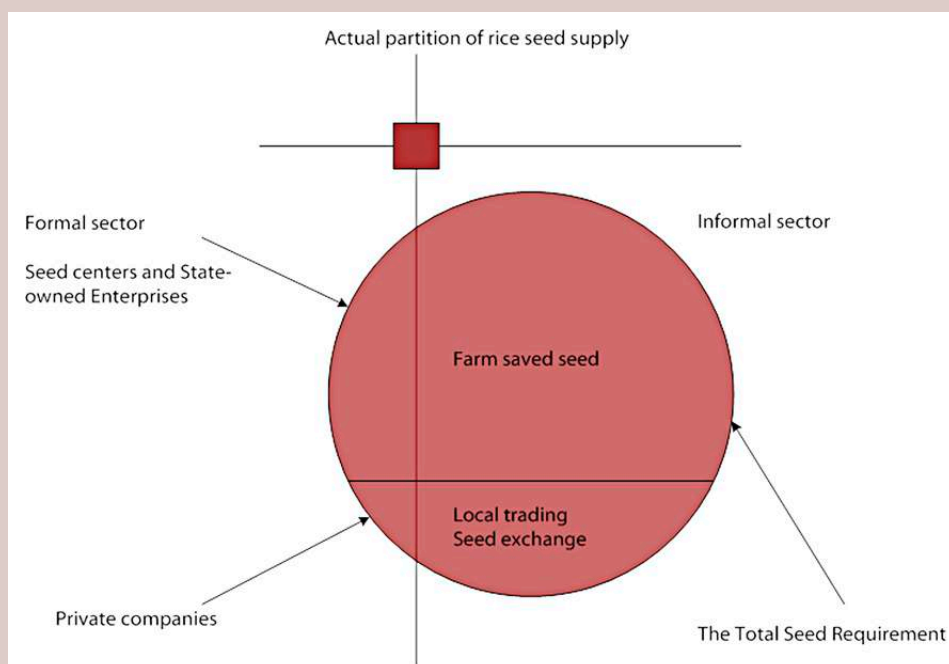
CBDC–BUCAP program

The Biodiversity Use and Conservation in Asia Program (BUCAP) which has been merged with the Community Biodiversity Development Conservation (CBDC) Program is “farmers’ rights in practice.” It is a regional program covering 42 provinces in five countries in Asia: eight provinces in Bhutan; four, in Lao PDR; four, in the Philippines; two, in Thailand; and 24, in Vietnam.

The Program views the farmer as a victim of three forms of agricultural tenancy. The first is land tenancy, where, for example in the Philippines, farmers do not own the lands they till.

The second is technological tenancy, where the farmers are mere recipients of developed tech-

Distribution of rice seed supply, by source, to meet total rice seed requirements



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nologies, and therefore heavily dependent on those who develop the technologies, like seeds, fertilizers and pesticides.

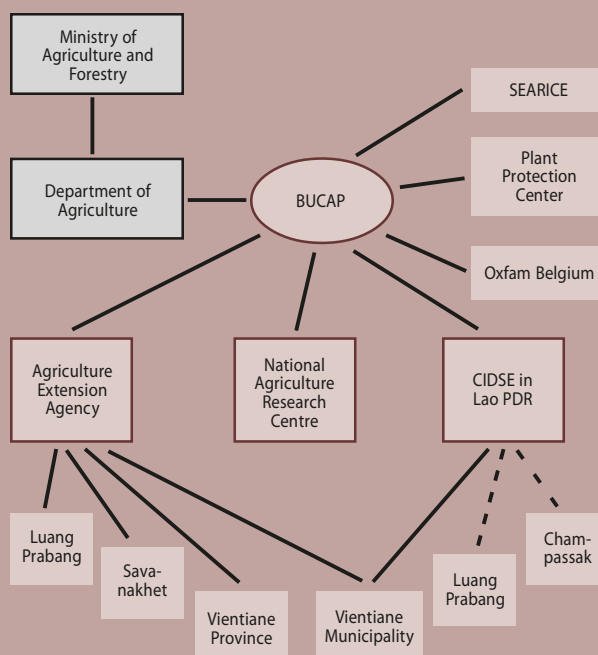
The third is market tenancy, where the farmers do not have control over the prices of their produce or even over the kinds of crops to produce because these are controlled by market forces and by politics. In some cases, governments mandate farmers to grow only specific varieties of crops. For example, in Vietnam, the farmers are allowed to plant only five varieties of rice (which are in great demand in international markets), rendering them unable to conserve their own seeds.

What is lamentable is that while around three-fourths of the total rice seeds requirements are provided by farmer-saved seeds and only about 10 percent come from the formal sector, farmers have little say in the seed system. This is why in CBDC-BUCAP, the major areas of work do not only pertain to increased biodiversity through technical interventions (varietal rehabilitation, selection, evaluation and hybridization using both traditional and improved varieties); but also include political work (policy lobbying, advocacy and campaigning), strengthening of farmers' and local institutions, and socio-economic work as part of the process of empowering communities.

Implementation of CBDC-BUCAP in Lao PDR

The multi-stakeholder set-up is a major feature of BUCAP-Lao PDR. The main challenge is to ensure that leadership of the program is done jointly. BUCAP Lao-PDR focuses on

Institutional framework for implementation of the Lao PDR BUCAP implementation



the capacity-building of farmers and institutions in rice breeding work, extension and marketing. The program works directly with farmers and extension agents. A number of these farmers participated in this third FTC.

PERSPECTIVE OF FARMERS AND EXTENSION AGENTS

Few Lao farmers are aware of the concept of farmers' rights, even if they have unknowingly been practicing it. Thus, it was difficult to discuss FRs with them, despite the input on the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). So rather than asking the farmers what they thought FRs meant, they were encouraged to talk about their involvement in CBDC-BUCAP activities, and thereafter to identify their needs in regard to PGRs. They went on to describe how they felt about the importance of seeds, as follows:

- Seeds are essential to their lives: a basic need of farmers without which they cannot plant and will have no food to eat;
- Farming is the only work they have and without seeds they cannot farm;
- Seeds selection and breeding activities are important because farmers are able to develop varieties that are high-yielding, are resistant to the harsh environmental conditions of their farms, and which are as good or better than their aromatic varieties;
- Breeding activities allows farmers to have access to many other varieties, from which they could develop new ones which are acceptable to the markets and thus earn them more money; and
- In general, farmers are always happy to have new varieties of seeds and want to share these with other farmers (although there are some who are reluctant to participate in seed exchanges).

The participants moved on to discuss what they feel are the rights of farmers or at least to describe manifestations of these rights. The matrices in the following pages present the perceptions of farmers and extension agents who participated in the Conference on what constitutes FRs; what they perceive to be FRs as manifested in their farming activities; and the gaps/issues and enabling factors that affect the realization and practice of these rights in the context of seed conservation and rehabilitation, varietal selection and breeding, and seeds production and marketing. Some of the identified FRs do not have corresponding gaps/issues and/or enabling factors, not because there are none but because of the limited time for further discussions during the Conference.



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TABLE 1
Farmers' rights in seed conservation and rehabilitation

Identified FR/FR concept and as practised	Gaps/Issues	Enabling factors
Farmers should be able to produce grains for consumption and seeds for planting	<ul style="list-style-type: none"> ➤ Traditional varieties have longer grains and are of good eating quality but are susceptible to lodging; ➤ Improved varieties not prone to lodging but have poor eating quality, and are not usually suitable to local/land conditions; ➤ Adaptability/non-adaptability of varieties in some areas and to environmental conditions (flooding, drought) 	<ul style="list-style-type: none"> ➤ Availability of traditional varieties as parent materials for breeding; ➤ Easy access to improved varieties (from seed multiplication centers and from DAFO); ➤ Projects like BUCAP help farmers develop knowledge and skills in seed purification and varietal rehabilitation; ➤ Farmers have the capacity to produce good quality seeds suitable to their conditions.
Farmers should be able to sell the grains they produce.	<ul style="list-style-type: none"> ➤ Price of rice dependent on the market; ➤ Low grains prices as dictated by middlemen. 	
Farmers should be able to share and exchange seeds with other farmers.		Farmers can still freely exchange and share seeds.
Farmers have a right to land.	Many farmers at the Conference have very small landholdings.	Government should provide land for seed conservation and varietal rehabilitation.
Farmers have a right to irrigation facilities; Farmers should have access to agricultural inputs and other services (seeds, fertilizers, equipment, low interest credit, etc.)	<ul style="list-style-type: none"> ➤ Lack of or no access to tools/materials/equipment, e.g., poor and costly irrigation facilities; ➤ High cost of chemical fertilizers. 	
Farmers should have access to training and technical information to develop their capacities.	<ul style="list-style-type: none"> ➤ Not easy to find help/get technical support; ➤ Limited knowledge/experience of extension agents. 	Farmers provided training by government on planting techniques.
Right to supportive government policies (e.g., provision of land for field trials, tax exemption on lands used for field trials)	<ul style="list-style-type: none"> ➤ Government does not have enough funds for subsidy to crops damaged by natural calamities; ➤ Some useful government policies are not being implemented, e.g., tax exemption on land when crops are damaged by natural calamities. 	Financial support from government
Farmers have the right to conserve varieties for socio-cultural practices.		

FARMERS' RIGHTS: FIELD AND POLICY PERSPECTIVES

TABLE 2
Farmers' rights in seed production and marketing

Identified FR/FR concept and as practised	Gaps/Issues	Enabling factors
Right to do seed selection and to conserve/improve local varieties (manifested in seed exchanges among farmers)	<ul style="list-style-type: none"> ➤ Farmers like to share seeds but in the process they do not earn income from the seeds; exchanged seeds are not certified and therefore farmers have no right to these varieties and cannot sell them; ➤ Seeds exchange is not the same as marketing of seeds (the latter goes through a seeds certification process to assure that good and stable quality seeds are sold). 	Processing activities available, thus increasing the demand for the development and production of specific varieties of seeds.
Right to put up seed multiplication areas, which includes the right of farmers to group themselves for collective production of seeds	<ul style="list-style-type: none"> ➤ Limited area for production; ➤ Natural environment not suitable for breeding activities; ➤ Farmers into different jobs, limiting their participation in groups; ➤ Low technical capacity of farmers to engage in breeding activities; ➤ High cost of inputs (chemical fertilizers, electricity for irrigation, soil preparation, seed testing); ➤ Limited irrigation facilities; ➤ No post-harvest facilities. 	<ul style="list-style-type: none"> ➤ Strong farmer production groups; ➤ Interest of farmers to produce seeds, e.g., for increased household income as influenced by market potential of seed varieties; ➤ High local demand for seeds.
Access to budget/resources like marketing information, technical information, seed registration (to include training and technical assistance on seeds production and related support facilities).	<ul style="list-style-type: none"> ➤ Limited funds for assistance programs; ➤ Low capacity of technicians/extension agents. 	Availability of government support in terms of funds and technical support programs and facilities/resources (including training facilities, fertilizers, seeds for initial production).
Participation in setting price of seeds	<ul style="list-style-type: none"> ➤ No uniform pricing among the different production groups; not all farmers are members of production or trading groups; ➤ Low marketing capacity. 	<ul style="list-style-type: none"> ➤ Strong farmer/production groups that can negotiate in setting of prices; ➤ Access to trading centers that set quality and pricing standards.



FARMERS' RIGHTS: FIELD AND POLICY PERSPECTIVES

TABLE 3
Farmers' rights in varietal selection and breeding

Identified FR/FR concept and as practised	Gaps/Issues	Enabling factors
Protection of farmers' seeds (registration/copyright protection) since farmers consider seeds as essential to their life; without seeds farmers "die"/cannot farm	<ul style="list-style-type: none"> ➤ Seed regulation process is too complicated (i.e., too many steps) for the farmer; ➤ Technical issues/problems, like sterile seeds (no F1); ➤ Breeding activities not always 100 percent successful; when doing breeding, the desired characteristics are not realized even after planting them for generations. 	<ul style="list-style-type: none"> ➤ Government allwows/encourages farmers to do breeding/selection activities through: policy development, provision of training programs on breeding techniques, and through farmer-to-farmer exchanges on breeding experiences, e.g., the Farmers' Field School (FFS) approach as platform or venue for training/learning; ➤ Availability of budget to carry out the above initiatives.
Farmers' participation in pricing (appropriate pricing of seeds when marketed)	<ul style="list-style-type: none"> ➤ Farmers, especially the unorganized ones, are not properly consulted in the pricing of their produce nor in the formulation of pricing policies; ➤ Many states are asking for approval certificates in the marketing of seeds. 	
The farmer decides whether to use or not use a variety being introduced to them. For example, when the government introduces a new seed variety, it is up to the farmer whether to plant it or not. If the farmer plants the new variety, s/he can do away with the variety is s/he finds out that it is not suitable to her/his farming conditions.	<ul style="list-style-type: none"> ➤ No communal land where farmers can conduct breeding experiments; ➤ Environmental constraints/climate not suitable to the variety. 	<ul style="list-style-type: none"> ➤ Supportive government policies; capable trainers and availability of a place/venue and budget for breeding trials; ➤ Variety suitable to the farming/environmental conditions.

PERSPECTIVE OF PARTICIPANTS FROM THE GOVERNMENT AND POLICYMAKERS

The "Policy Makers" workshop group discussed what they perceive as their role in supporting FRs as well as the issues related to that role. A number of the workshop participants were concerned that officials at the provincial level have yet to fully understand and appreciate BUCAP interventions. In general, however, they acknowledged that the BUCAP Program fits into the Agricultural Development Program (ADP) of Lao PDR for 2006-2010, which emphasizes increased farm production and productivity to attain the country's food security, poverty reduction, and trade objectives.



FARMERS' RIGHTS: FIELD AND POLICY PERSPECTIVES

There are provinces in the country where varietal improvement is a government priority and investments are made in station trials and multi-location testing, with successful results being passed on to extension work. Farmers interested in the newly developed varieties are directed to buy the seeds from the trial stations.

Under the ADP, participatory approaches are used to involve the farmers, especially in the establishment of multi-locational trials and seed multiplication plots; the government provides the seeds and the farmers in turn provide the labor and the use of their land. Before project implementation, government holds farmers' meetings where farmers are given the opportunity to ask questions and give suggestions. Surveys and evaluation activities are also conducted to assess the viability of certain government programs and projects.

Tables 4 and 5 present the perceived roles of government representatives and policymakers in supporting farmers' rights to seeds; how such roles are put into action; and the gaps/issues and enabling factors that affect the realization of FRs, particularly to seeds.

TABLE 4

Roles perceived by the Policymakers Group in promoting/protecting FRs in Lao PDR and how these are manifested

Role of Policymakers in regard to FRs	Manifestation
Provide farmers with improved/good varieties/seeds	The Agricultural Development Program of the government, which aims to improve local conditions of farmers through increased food security and commercial (livelihood and market-oriented) activities, provides improved seeds to farmers at the provincial level.
Ensure participation of farmers in project implementation	In the implementation of programs, farmers are given the opportunity to participate from the planning to implementation stages through their involvement and consultations with them in small project meetings, evaluation activities, and surveying activities.
Recognize the role of farmers in: <ul style="list-style-type: none"> ➤ Breeding work and in improving traditional varieties; ➤ Selection and improvement of varieties; ➤ Growing and conserving traditional varieties. 	This is best manifested in government support for the BUCAP project on seed conservation and improvement.
<ul style="list-style-type: none"> ➤ Provide farmers with farm techniques (skills and technologies); ➤ Recognize and promote local knowledge related to agrobiodiversity 	<ul style="list-style-type: none"> ➤ This role is carried out through government extension workers; ➤ Accessions through gene banks.

TABLE 5
Hindering and enabling factors identified by Policymakers Group in promoting FRs

Gaps/Issues/Problems	Enabling/Supporting factors
<ul style="list-style-type: none"> ➤ Lack of human resources and inter-agency coordination for the implementation of regulations, policies and programs; lack of expertise and specialization, specifically, lawyers in agriculture; ➤ Need to protect farmers' seeds <ul style="list-style-type: none"> ❖ Protection of traditional varieties of Lao PDR from others without recognizing the sources; ❖ No system to determine existing varieties in communities/districts/provinces (database on distribution and diversity of seeds); ➤ Weak capacity and linkage of extension agents and farmers on techniques and knowledge, e.g., on plant breeding; ➤ No formal recognition of farmers and researchers who develop new varieties; ➤ There is nothing in the "regulations" pertaining to support for conservation efforts; ➤ Lack of awareness and enforcement of regulations. 	<ul style="list-style-type: none"> ➤ Through institutional linkages, strengthening human resource capacity building programs within the government is already part of government plans; ➤ The existing set-up in government for seed networking (distribution) continues to provide seeds to farmers; ➤ There is farmers' participation (consultation) in all project processes; ➤ There are existing programs on conservation and utilization of seeds that complement farmers' work.

PERSPECTIVE OF CBDC-THAILAND PARTICIPANTS

The seed supply system in Thailand

The Thai participants explained that in their country farmers are mere recipients of developed or improved seeds. The traditional varieties grown by farmers, together with the wild plant varieties, are collected and go into the National Gene Bank. Normally, the gene bank collections are accessed only by the research centers and agricultural universities that undertake varietal development trials. Once stable varieties are developed, these are released from the experiment stations and go into the seed multiplication units. Seeds from the multiplication units are then distributed to farmers by the agricultural extension office through its agricultural technology transfer unit. For areas reached by the CBDC program, where the Farmer Field Schools (FFS) approach is practiced, farmers are not mere recipients of developed or improved seeds but they also actively participate in plant varietal development. The FFS are able to get seeds from the gene bank, from the research stations and agricultural universities, from the extension office, and even from NGOs implementing varietal development projects. Farmers in the FFS then run their own breeding programs and stable varieties developed are then reproduced by seed production groups for distribution to farmers in the community. In this set-up, therefore, the National Gene Bank is able to collect not only traditional and wild plant varieties from the community but also farmer-developed varieties.



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Farmers' rights in CBDC-Thailand

The summary of the sharing among the Thai participants is presented in Table 6.

TABLE 6
Farmers' rights perspectives of CBDC-Thailand participants

Identified FR/FR concept and as practised	Gaps/Issues	Enabling factors
<p>Right to:</p> <ul style="list-style-type: none"> ➤ Ownership of land and other properties; ➤ Select planting materials; ➤ Share and exchange information/knowledge to and with individuals and institutions, and transfer these to the next generation; ➤ Services from government and other partners (access donor support); ➤ Access to irrigation (water supply) and to other natural resources to support the farming system; ➤ Share/exchange, distribute and sell or market seeds; ➤ Conserve planting materials for special ceremonies (religious/cultural activities); ➤ Conserve planting materials for daily use/home consumption; ➤ Organize as farmers' or community groups for seed production and storage and other processes; ➤ Access to banks/credit facilities; ➤ Access to seeds outside their communities (local and international to seeds of other countries). 	<p>Selection and Conservation:</p> <ul style="list-style-type: none"> ➤ Many farmers only wait for seeds distributed by the government and think that these are already good seeds, thus posing a threat to local varieties; <p>Breeding:</p> <ul style="list-style-type: none"> ➤ Poor awareness on seed certification; some farmers think that if they do not distribute seeds, there will not be enough seeds to distribute and therefore they distribute seeds even without seed certification; ➤ Farmers' inability to produce seeds in high quantity to meet demand; <p>Support:</p> <ul style="list-style-type: none"> ➤ Seeds policy a constraint to FFS partners (farmers need to inform government on this), e.g., problems with regard to seed registration. 	<p><i>Through the Farmer Field School/Seed Groups</i></p> <p>Selection and Conservation:</p> <ul style="list-style-type: none"> ➤ Farmers conserve their seeds right on their fields; <p>Breeding:</p> <ul style="list-style-type: none"> ➤ A farm/family can decide on their own what seeds to produce/develop; ➤ Faster time to develop varieties and therefore seeds can be reproduced and distributed faster to farmers; ➤ Farmer groups able to solve their problems related to seeds; <p>Support system:</p> <ul style="list-style-type: none"> ➤ Farmers help each other in the FFS with equal sharing of benefits; ➤ FFS helps link the farmers to NGOs and their partners.

In particular, the group identified the following challenges in promoting FRs in Thailand:

1. Challenges to the farmer: seed rehabilitation work, planning for seed selection, and doing campaigns/awareness activities, which would include proper recording and documentation of experiences for use in the campaigns;
2. Challenges to the government, NGOs and others:
 - ❖ Need to work together to improve extension/promotion work by using farmer-centered approaches;
 - ❖ Need for technical skills and information among government officials and NGOs to enable them to formulate better support strategies and mechanisms for farmers' human resource development; and

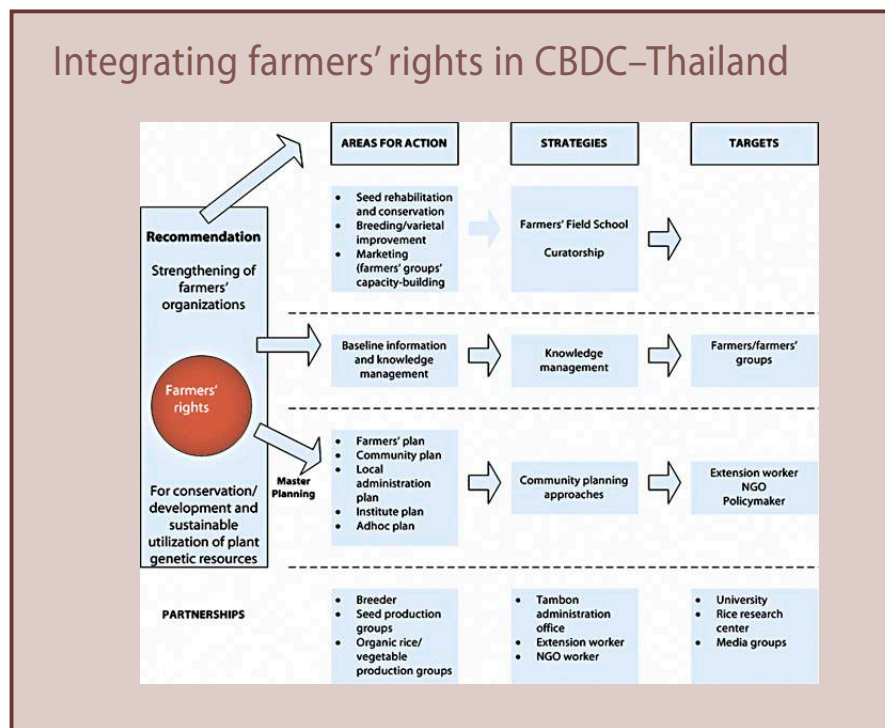


FARMERS' RIGHTS: FIELD AND POLICY PERSPECTIVES

- ❖ Need for farmers to be better informed of policies so that they can participate in policy development, e.g., by giving feedback.

Integrating farmers' rights in CBDC–Thailand

The Thai participants came up with a set of recommendations pertaining to their work in Thailand. Their major recommendation is for the integration of FRs in all areas of intervention of CBDC–Thailand.



RECOMMENDATIONS FROM FARMERS AND EXTENSION AGENTS

The recommendations from the farmers and extension agents pertain to three contexts—seed conservation and rehabilitation; varietal selection and breeding; and seed production and marketing.

However, while the participants attempted to come up with recommendations in response to each specific gap/issue identified in the previous section, there was simply not enough time during the workshop to do this. As a result, some of the recommendations are quite general.

Tables 7 to 9 in the following pages provide a summary of the recommendations from farmers and extension agents who participated in the Conference.



FARMERS' RIGHTS: FIELD AND POLICY PERSPECTIVES

TABLE 7

Farmers' recommendations for improving and supporting FRs related to seed conservation and rehabilitation

Identified FR/FR concept and as practised	Gaps/Issues	Enabling factors
Projects like BUCAP help farmers develop knowledge and skills in seed purification and varietal rehabilitation.	Beyond BUCAP to allow farmers to: <ul style="list-style-type: none"> ➤ Continue varietal selection and breeding of traditional and improved varieties; ➤ Continue work on varietal rehabilitation and seed conservation. 	Continue to provide improved and local varieties/PGR materials for breeding work of farmers, especially when farmers have difficulty accessing parent materials for breeding.
Low grain prices as dictated by middlemen.		Government should set pricing policies for grains to protect the interest of farmers.
Farmers can still freely exchange and share seeds.	Maintain the network of farmers (as a source of materials through seed exchanges) to enhance learning through exchange of experiences.	
Lack of or no access to tools/materials/equipment and other services, e.g., poor and costly irrigation facilities.	<ul style="list-style-type: none"> ➤ Continuous growing of traditional varieties would require support for the establishment of gene banks where farmers can keep seeds for a longer time; ➤ Farmers can help/provide labor to maintain irrigation facilities, while government pays for the maintenance of equipment. 	<ul style="list-style-type: none"> ➤ Provide land for seed conservation and varietal rehabilitation; ➤ Provide incentives, e.g., tax breaks to farmers doing seed conservation and development.
<ul style="list-style-type: none"> ➤ Not easy to find help/get technical support; ➤ Limited knowledge/experience of extension agents. 		Capacity-building for farmers/extension agents (theory and practice); government to assign a local official/technician to stay with the farmers doing seed conservation/rehabilitation work.



FARMERS' RIGHTS: FIELD AND POLICY PERSPECTIVES

TABLE 8

Farmers' recommendations for improving and supporting FRs related to seed production and marketing

Identified FR/FR concept and as practised	Gaps/Issues	Enabling factors
<ul style="list-style-type: none"> ➤ Seed registration is too complicated (too many steps) for the farmer; ➤ Technical issues/problems; sterile seeds (no F1); ➤ When doing breeding techniques, the desired characteristics are not realized even after planting them for generations. 	Farmers/farmer groups to ask the government to help in facilitating the seed registration process on behalf of farmers.	<ul style="list-style-type: none"> ➤ Set up policies for registration of farmers' varieties (which should include allowing farmers/farmers' groups to decide on the name of seed varieties they develop); ➤ Hold yearly contests to recognize farmers who are able to produce good seed varieties.
Farmers, especially the unorganized ones, are not properly consulted in the pricing of their produce nor in the formulation of pricing policies.		Encourage participation of farmers/farmers' groups in setting of prices and seed regulations.
Government allows/encourages farmers to do breeding/selection activities through: policy development; provision of training programs on breeding techniques; and farmer-to-farmer exchange of breeding experiences, e.g., the FFS approach as platform or venue for learning/training.		Provide more programs on selection and breeding (including provision of related infrastructure/facilities for training, seeds storage facilities for farmers' groups)
Availability of budget to carry out the above initiatives.	Farmers to set up a savings group (utilizing the CBDC-BUCAP budget for initial capitalization).	



FARMERS' RIGHTS: FIELD AND POLICY PERSPECTIVES

TABLE 9**Farmers' recommendations for improving and supporting FRs related to varietal selection and breeding**

Identified FR/FR concept and as practised	Gaps/Issues	Enabling factors
For issues related to seed production	<ul style="list-style-type: none"> ➤ Set up demonstration plots/trials for promotion to other farmers; ➤ Set up savings groups for seed production purposes. 	<ul style="list-style-type: none"> ➤ Provide technical knowledge to farmers; ➤ Provide seeds in time to farmers; ➤ Irrigation areas should cover all farm areas; ➤ Provide budget for seed production; ➤ Set up demonstration plots/trials for farmers to see and allow for expansion of seed production areas.
For issues related to seed marketing	Set up groups for buying/collecting seeds in different areas.	<ul style="list-style-type: none"> ➤ Extension agents should participate in identifying and finding the markets; ➤ Extension agents should participate in the pricing of seeds; ➤ Government should support and promote the best varieties of farmers, e.g., through the issuance of recognition certificates to farmers that have produced good varieties.

RECOMMENDATIONS FROM GOVERNMENT REPRESENTATIVES AND POLICY MAKERS

A major recommendation that came out from the Policy makers Group is for government to first build its human resource capacity to make its interventions and assistance relevant to the seed conservation work of farmers. They cited at least two major agenda, which would require capacity-building. The first is re-orienting of the extension officers on farmer-centered extension methodologies like the FFS while building up their technical skills and knowledge related to the different aspects of seed conservation work – from the technical aspects of seed conservation to production and marketing. The second agenda is the need to develop or recruit people with specialized seed management skills and experience and who at the same time have the required coordination skills to get the different sectors to work together toward common goals in seed conservation work and FRs and for the monitoring of the implementation and enforcement of related regulations/policies.



FARMERS' RIGHTS: FIELD AND POLICY PERSPECTIVES

Table 10 lists the specific support that the Policy makers Group believe should be provided to Lao PDR farmers and the support that they (policy makers) would need to broaden their understanding and appreciation of seed conservation work so that they can accordingly input these into their policy work.

TABLE 10
Recommended areas for support from policymakers

Recommended areas for support	Support policymakers need
<p>Government should provide support to farmers' work through the following:</p> <ul style="list-style-type: none"> ➤ Institutionalization of or policy programs on strengthening farmer breeding and Farmers Field Schools (FFSs)-support to be given to both farmers and agriculturists; ➤ Strengthening seed conservation and seed dispersal programs in each village (e.g., seed stocks); ➤ Extension agents should provide training to farmers on seed production, marketing, organic farming, seed conservation and development, among others; ➤ In marketing, government should hire someone with expertise in marketing and who could organize and guide marketing committees; ➤ Organizing and institutionalizing seed exhibits and festivals at the community/provincial/national levels to highlight farmers' extensive work on seed conservation and development; ➤ Providing support and assistance in setting up and organizing farmers' committees and groups for seed production, marketing, organic farming, conservation and seed development; ➤ Exploring policies that provide assistance in the conservation work of farmers in the field, and the protection of traditional varieties and farmers' seeds. 	<p>To formulate policies to support farmers' work, policymakers identified the following as the support they need to fulfill their role:</p> <ul style="list-style-type: none"> ➤ Seed distribution and seed diversity maps/database available in communities/districts and provinces as a benchmark tool for further work on conservation and development of farmers' varieties; ➤ Capacity-building activities through exchange of experiences; ➤ Capacity-building support for policymakers, government staff, and members of committees on issues on conservation and sustainable use of seeds; ➤ Continuation of programs like BUCAP that aim for the conservation and sustainable use of farmers' seeds; ➤ For BUCAP to cover not only four Lao PDR provinces but all the other provinces as part of local capacity-building.

STATUS OF FARMERS' RIGHTS IN LAO PDR: A Summary

This Summary Status Report was based mainly on the perspectives of farmers and extension agents who participated in the Conference.

When one examines Tables 1 to 3, which present the farmers' perspective and matches identified farmers' rights with gaps/issues (challenges and opportunities) in implementation and then Tables 7 to 9, which contain the recommendations put forward by the



FARMERS' RIGHTS: FIELD AND POLICY PERSPECTIVES

farmers, it becomes clear that FRs from the perspective of the Lao farmers go beyond Article 9 of the ITPGRFA to include the following concepts:

1. Protection of traditional knowledge relevant to PGRs for food and agriculture;
2. Participation in sharing the benefits arising from the conservation, use, and development of seeds by farmers, directly or indirectly through government programs and incentives supporting farmers' work on the conservation, use and development of seeds;
3. Participation in national decision-making on matters related to the conservation, use, development or breeding, and marketing of seeds, as well as support to farmers' organizing and networking initiatives;
4. Free use, sharing and exchange of seeds and varieties available to farmers, as well as exchange of techniques and experiences among farmers and extension agents;
5. Access to land and other production inputs/resources especially when engaging in breeding activities/variety experiments e.g. irrigation water, fertilizers, seeds for breeding experiments, low-interest credit/financing;
6. Protection of farmer-developed varieties (while this may be subsumed under Article 9.2a of the ITPGRFA, this deserves special emphasis inasmuch as a major part of the farmers' discussions in the Conference workshops revolved around farmer-developed varieties); and
7. Access to information and other technical support/facilities, e.g. training programs, seed banks, markets.

This expanded list of major FR categories is presented in Table 11.

In general, much has been accomplished by both government and farmers when it comes to: (1) the protection of traditional knowledge, e.g. the practice of seed exchange and organization of farmers' groups; and (2) access to information and other technical support, particularly extension/training programs.

However, there is still much scope for improvement, as reflected in the various farmers' recommendations in Tables 7 to 9, specifically government support/policies. Much has been done in these two major categories of FRs, partly because of the complementary work between the government and the CBDC-BUCAP Program.

With regard to participation in the sharing of benefits, the general environment has been quite permissive, particularly in the CBDC-BUCAP areas. Some progress has been made in this area, although stronger supportive policies still need to be instituted.

Policy weaknesses are more evident when it comes to farmers' participation in national decision making. It is important to note, however, that at the local level where there are strong production/traders groups, farmers are able to participate in decision-making processes, particularly in the setting of market prices.



Concerning farmers' right to land, access to other production inputs/resources, and protection of farmer-developed varieties, much work remains to be done inasmuch as there is still a bias in favor of conventional farming, seeds systems characterized by the use of inorganic/chemical inputs, and seed certification processes that favor the big or conventional seed producers

TABLE 11
Expanded list of major FR categories

With respect to	Major Categories of FRs as Identified in Art. 9 ITPGRFA and CBDC-BUCAP Farmers					
	Protection of Traditional Knowledge	Participation in Sharing the Benefits	Participation in National Decision-Making	Access to Land and Other Production Input	Protection of Farmer Developed Varieties	Access to Information & Other Technical Support
Article 6.1 Promote an integrated approach to the exploration, conservation and sustainable use of PGRFA						
Article 6.2c	✓	✓	x	x	x	✓
Article 6.2f	x	x	x	x	x	✓
Article 6.2 Take steps to minimize or if possible eliminate threats to PGRFA						
Article 6.2a	✓	x	x	x	x	✓
Article 6.2b	✓	x	x	x	x	✓
Article 6.2d	✓	✓	x	x	x	✓
Article 6.2e	x	✓	x	x	x	✓
Article 6.2g	x	✓	✓	✓	x	✓



REPORT OF REGIONAL AND NATIONAL FORA ON FARMERS' RIGHTS IN THE PHILIPPINES 2007

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This report is dedicated to the memory of
Mr. Eulogio 'Tay Gipo' Sasi, Jr.,
Mrs. Guadalupe "Nang Upe" Dispo
and
Mr. Eliezer "Boy" Billanes,
who dedicated their lives to the struggle for and
advancement of Farmers' Rights in the Philippines.

Acronyms and Abbreviations

ARBs	Agrarian Reform Beneficiaries
CARL	Comprehensive Agrarian Reform Law
CARP	Comprehensive Agrarian Reform Program
CBDC–BUCAP	Community Biodiversity Development and Conservation— Biodiversity Use and Conservation in Asia Programme
CLOA	Certificate of Land Ownership Award
CSO	Civil Society Organization
DA	Department of Agriculture
DAR	Department of Agrarian Reform
FFS	Farmers' Field School
FRs	Farmers' Rights
HRs	Human Rights
HRCP	Hybrid Rice Commercialization Program
IPRs	Intellectual Property Rights
IPRA	Indigenous People's Rights Act
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
LAD	Land Acquisition and Distribution
NGO	Non Government Organization
PGRs	Plant Genetic Resources
PGRFA	Plant Genetic Resources for Food and Agriculture
PPVPA	Philippine Plant Varieties Protection Act



INTRODUCTION

The Southeast Asia Regional Initiatives for Community Empowerment (SEARICE) seeks to promote community based conservation, development and sustainable use of plant genetic resources (PGRs). As such, much of its advocacy work in regard to promoting farmers' rights has traditionally focused on ensuring that farmers enjoy continued access to the seeds that they have developed.

However, SEARICE also acknowledges that the farmer's "right to seeds" could not be meaningfully implemented unless the farmer's other entitlements are guaranteed. On 26 February 2003, SEARICE identified 38 "rights," including the right to land, to organize, to participate in policy-making processes related to agriculture, and the right to food, among others which must be enforced simultaneously and at multiple levels—household, community, and national levels. This statement defining the farmer's "bundle of rights" has since become known as the Cebu Universal Declaration on Farmers' Rights. (See page 152.)

Thereafter, SEARICE sought to establish the legal basis for farmers' rights in the Philippines, particularly by situating the pursuit of farmers' rights within the broader framework of human rights advocacy.

In 2004, SEARICE conducted a consultation to identify the issues and challenges that are undermining farmers' right to seeds and to continued access to a diverse pool of PGRs. The farmers expressed concern over the expansion of mining operations; the conversion of prime agricultural land to industrial and residential uses; the emphasis on high-value industrial and export crops and the consequent neglect of staple food crops; the use on a commercial scale of genetically modified crops; and the government's massive promotion of hybrid rice.

At the First Meeting of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), the importance of farmers' rights was recognized, and discussion of it was tabled for the Governing Body's Second Meeting in October 2007.

In response to the growing awareness and appreciation of farmers' rights worldwide, and as a follow-up to the Philippine Government's formal adoption of the ITPGRFA, SEARICE decided to further flesh out the concept of farmers' rights, as these apply in the Philippines. In line with this, SEARICE conducted regional fora and a national consultation to determine farmers' capacity to claim their rights, as well as the issues and challenges that are tending to limit or undermine the exercise of such rights.

The consultation process began with a Forum on Farmers' Rights in Mindanao—dubbed *Bugkos* (Bundle of Rights)—which was held in Tacurong City, Sultan Kudarat Province, in Mindanao, on 25 June 2007. This was followed by the Visayas consultation held in Cebu



City on 31 July 2007. The Luzon consultation was held back-to-back with the National Forum held in Quezon City on 4-6 September 2007.

The findings from these consultations are the subject of this report.

Major categories of farmers' rights

Farmer representatives at the National Forum identified 10 major categories of farmers' rights, as follows:

1. Right to seeds;
2. Right to land;
3. Right to water;
4. Rights of women farmers;
5. Right to opportunities and information in regard to marketing organic products;
6. Right to appropriate technology;
7. Right to a healthy environment (air, land, and water);
8. Right to participate in governance processes;
9. Right to support services (e.g., access to information, irrigation facilities, post-harvest facilities, credit, social security services, and health care); and
10. Right to life (i.e., protection against human rights violations).



ISSUES AND CHALLENGES IN PURSUIT OF FARMERS' RIGHTS

Landlessness/lack of land tenure security

The poor performance of the Department of Agrarian Reform (DAR), especially the implementation of its Land Acquisition and Distribution (LAD) operations, is one of the major reasons why the majority of farming households in the Philippines remains landless, or lacks security of tenure. In 10 years of implementing the CARP, the DAR has concentrated on redistributing government owned lands, and put off acquiring—compulsorily or otherwise—the large privately held estates, or haciendas, which have been the subject of contentious, and often violent, land disputes. Thus, at the expiration of the CARP on June 10 this year, some 1.1 million hectares of land—mostly privately held—remains safely in the hands of the country's biggest landlords.

Efforts to pass a law extending the CARP for another 10 years, such as the pro-farmer CARP-extension-with-reforms bill (House Bill 4077), briefly made some headway, when pro-farmer members of Congress closed ranks with farmers' organizations in lobbying for its passage. Unfortunately, the bill failed to pass by June 10—the appointed deadline, being the date of CARP's expiration—and looks likely to be shelved. Meanwhile, pro-landlord legislators have sprung a nasty surprise in the form of HB 3972. This bill contains various anti-social justice provisions that are obviously meant to obstruct the passage of HB 4077 and to block the continued implementation of the agrarian reform program. Masquerading as a pro-farmer bill, HB 3972 promotes agricultural tenancy, which has long been repudiated by past Philippine administrations. The bill also promotes the implementation of Joint Venture Agreements, which would strengthen the control of big landlords over their lands, thus reversing many of the gains achieved in the past 10 years of agrarian reform implementation. The future of CARP is looking rather bleak.

Besides the failure of the DAR to meet its targets, other factors and trends continue to undermine the farmers' right to land. Among these are the illegal conversion of agricultural lands to non-agricultural uses; the use of farmland as collateral, which is being aggressively promoted by the administration of Gloria Arroyo (i.e., through its support for the Farm as Collateral Bill); gaps and ambiguities in the Comprehensive Agrarian Reform Law (CARL) and in the Indigenous People's Rights Act (IPRA), which have resulted in violent land disputes between agrarian reform beneficiaries (ARBs) and indigenous communities seeking to establish their claims to their ancestral lands.



**Box
1***The Struggle for Farmers' Land Rights in Hacienda Esperanza*

The experience of a group of ARBs in Hacienda Esperanza, in La Carlota City, Negros Occidental illustrates how farmers, armed only with a government issued land title, resisted the attempts of the former landlord to regain control of land that had been awarded to the farmers under the CARP.

Hacienda Esperanza is a 564-hectare sugar estate owned by the Benedictos, a rich and politically powerful family. In 1992, the Malibo Corporation—the entity managing the estate—was given notice that the hacienda would be put under the CARP. Not all the farm workers in the estate welcomed the news however: one group opted to remain as they were: mere wage workers in the estate. The second group could not make up its mind, probably fearing reprisals from their powerful landlord. The third group, numbering 182 members, decided it was worth the risk and organized themselves into a cooperative in order to qualify as ARBs. In 1999, the DAR, then headed by Horacio “Boy” Morales, distributed Certificates of Land Ownership Award (CLOAs) to the 182 ARBs. However, the former landowner resisted the DAR order and hired armed guards to prevent the ARBs from entering the estate. A year after the CLOAs were distributed, the ARBs split into three groups: the first group, composed of 32 ARBs, decided to work, not as a group, but as individuals; the second group, numbering 74 ARBs, joined the Workers Amalgamated Union of the Philippines (WAUP); and the third group, composed of 76 ARBs, formed the NARB Multi-Purpose Cooperative (NARB-MPC).

The DAR divided the estate to give the three groups a portion of the estate. However, none of them could resume work in the estate without being harassed or forcibly removed by the estate guards. The stalemate lasted for three years, from 2000 to 2003. The ARBs repeatedly sought the intervention of the national office of the DAR and of President Gloria Arroyo, to no avail. During the ARBs’ ninth attempt to enter the estate, they were accompanied by DAR Undersecretary Braganza. But the estate guards were unfazed by the DAR official, who broke down and cried when he failed to get the ARBs into the estate. The former landowner also filed several cases against the ARBs to further derail the land transfer process.

On 6 March 2003, 150 members of the NARB-MPC decided they had waited long enough and forced their way into the estate. In the ensuing scuffle, one of the ARBs, Diony Gaylan, was killed, and two elderly women, age 47 and 50, respectively, were wounded. The military intervened, but this was still not enough to put an end to the impasse. The dispute turned into a legal battle between the Malibo Corp. and the cooperative.

In the meantime, members of the cooperative were allowed limited access to the estate. However, the former landowner made sure that their stay would be as uncomfortable as possible. Water and power facilities were cut off. The harvest could not be brought to the sugar mill because of blockades put up by the former landowner. There was little money for food, and much less for the children’s schooling. Farmers who tried to find work in other haciendas found that they had been blacklisted and were turned away.

Despite their hardship, the members of the cooperative tried to eke out a living from a small portion of the estate. Fortunately, a number of NGOs, such as Kaisampalad, Inc., JCNC, PAP21, and NCPERD provided financial support for production. The farmers were also assisted by legal aid groups in prosecuting their case in court.

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Box 1

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Finally, the cooperative won its case and was awarded 155 hectares by the DAR. Since then, the cooperative has made a number of improvements on their land. They have diversified to other crops, apart from sugar, to ensure that their food needs are adequately met. Each member household now maintains a 3,000-square-meter backyard garden on which they grow vegetables and other food crops. The coop started a capital build-up program, and in a few years, was able to purchase a tractor, a multi-purpose truck, and 10 bull carts. It has also put up a small office.

The coop has learned the value of linking up with government agencies, financial institutions, and NGOs, in order to gain access to support services. Its linkage with the DAR for instance has enabled it to get scholarships for a number of its members' children.

The members of the NARB-MPC have learned that the struggle to secure their right to land is a life-and-death struggle. Lives could be lost. But while fighting for their rights carries enormous risks, the coop members have found that it is a fight that can be won.

The Philippine Government's promotion of mining operations

The Mining Act of 1995 provides for:

- 100% foreign ownership of mining projects;
- 100% repatriation of profits, equipment, and investments;
- Foreign companies' claim to an area of up to 81,000 hectares onshore, or 324,000 hectares offshore;
- Complete protection to foreign companies against state expropriation;
- Tax breaks/holidays for foreign companies;
- 25-year effectivity of mining concessions, with the option to extend such for 25 more years; and
- Priority access by mining companies to water resources within their area.

Even a cursory look at the provisions of this law would set alarm bells ringing among advocates of farmers' rights. Large-scale mining operations have long been infamous for exacting a heavy toll on the environment. Open-pit mining, in particular, results in clear-cutting of large swathes of forests, including watershed areas. The toxic effluents that mining operations routinely disgorge contaminate nearby water bodies and the water supply downstream, rendering the water unsafe for consumption and posing a dangerous health hazard to nearby communities. Mining companies' prior claim to nearby water resources further undermines the right to water. The law's generosity in regard to mining companies' requirements for land leaves little doubt that local people, especially indigenous communities—on whose ancestral lands mining concessions are usually



awarded—would be evicted from their homes and from their lands. Thus, at least three farmers' rights are undermined by mining operations: the right to a healthy environment, the right to water, and the right to land.

But one need not speculate on the potential damage that mining operations can inflict. The record shows that large mining companies deplete up to P375 million worth of natural resources every year, while paying only P30 million in taxes. Companies that mine for gold and manufacture cement account for 57% of the harm suffered by the environment, yet they make only a paltry contribution (6%) to the national income.

South Cotabato Province, particularly Tampakan, Koronadal, is the site of one of the most widely opposed mining projects in the country. The Tampakan mine site is regarded as one of the best copper-gold mines in the world, yielding an estimated 11.6 million tons of copper and 14.6 million ounces of gold a year. However, since the 1990s local communities have been protesting the open-pit mining operations being conducted in Tampakan by the Western Mining Corporation (WMC), later renamed Tampakan Mineral Resources Corporation. In fact, the provincial council of South Cotabato had passed a resolution in 1996 (Resolution No. 74, series of 1996) stating that bulldozing vast areas of land to make way for the open-pit mining operations being conducted by WMC in Tampakan would result in deforestation, loss of soil fertility and productivity, displacement of forest-dwelling communities, and irreversible damage to the environment, and that taking these into consideration, South Cotabato stands to lose rather than gain from the WMC operations. The province also issued its own Environmental Code (2005), which prohibits open-pit mining in the province (Sec. 21); mandates the protection of critical watersheds (Sec. 28), and water resources (Sec. 38); and guarantees the rights of indigenous communities to their ancestral domain (Sec. 114).

Notwithstanding the clear prohibition against open-pit mining, another company—Sagittarius Mines, Inc. (SMI)—was awarded a mining concession for the same area in 2002 and picked up where the WMC had left off. The affected communities promptly resumed their protest actions. In 2006, the Municipality of Buluan passed Resolution No. 13 “strongly opposing the continued operations of SMI in South Cotabato.”

However, all such opposition has gone unheeded. By 2010, SMI would be joined by two of the world's biggest mining companies—Indophil Resources NL, an Australian publicly listed company; and Xstrata, the UK-Swiss mining conglomerate—in extracting Tampakan's gold and copper. At least four forest-dwelling communities would be caught in the middle of these mining operations—Bong Mal, Tablu, Danlag, and Folu Bato. Groups opposed to the project also fear that the project would lead to large-scale land grabbing, especially of the ancestral lands of the B'laan tribe; the destruction of important water resources, such as Taplan River, Lake Buluan, and the Liguasan Marsh; and to the contamination of the water supply of South Cotabato, North Cotabato, Sultan Kudarat, and General Santos City.

Early this year, the facilities of SMI-INDOPHIL-XTRATA were raided twice by the New People's Army (NPA), the combatant unit of the Communist Party of the Philippines (CPP).



The NPA condemned the project for its "destructive and plunderous operations," and the Arroyo government, for "auction[ing] off the country's natural resources to big foreign capitalists."

Lack of appropriate support mechanisms to promote farmer-led initiatives in the use, conservation and development of plant genetic resources; lack of adequate safeguards to protect farmers' right to seeds

Farmer representatives at the National Forum held in Quezon City on 4-6 September 2007 articulated their right to seeds, as follows:

"[Ang] [b]inhi ay buhay na nagbubuhay sa maraming buhay; at sapagkat buhay, ito ay hindi inaari ng isang particular na tao o iilan sapagkat pagmamay-ari ito ng lahat, at ito ay kailangang gamitin, i-konserba, protektahan, at ipalago lalo na ng mga magsasaka."
("Seed is life, and nourishes many lives. Because seeds support life, no single person or group should claim ownership of them. Seeds should be freely accessed, so that they could be used, conserved, protected, and improved upon, especially by farmers.")

The farmer representatives likewise defined their right to seeds as consisting of the following:

- Access to complete information on activities and results of research;
- Farmer participation in seed policy development;
- Recognition of farmer initiatives/farmer-developed varieties; and
- Secure access to and control of seeds.

These sub-categories of the farmer's right to seeds are guaranteed under Section 9 of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

Nevertheless, the farmer representatives identified a number of issues and challenges that undermine the exercise of their right to seeds, as follows.

- **Lack of farmer participation in decision-making processes relevant to agriculture and/or seed policy development.**

The farmer representatives observed that the Government adopts and supports programs and technologies that benefit the interests of private corporations rather than those that respond to the needs and conditions of small farmers. This is manifested by the following trends and developments:

- 1. Enactment of Republic Act 9168, or the Philippine Plant Varieties Protection Act (PPVPA).** The PPVPA, which became law in August 2002, is supposed to encourage the development of new plant varieties by granting plant breeders exclusive rights to produce, reproduce, sell, and market, among other things, their new plant varieties. This law however has come under fire from farmers' groups, indigenous people (IP)'s organizations, NGOs, and a number of scientists, who claim that, due to the expense entailed in securing a PVP certificate,



the PPVPA is likely to benefit only the large, moneyed applicants, such as the giant seed companies. Thus, the PPVPA will more than likely consolidate the control of giant seed companies of Philippine agriculture, and in the process, violate farmers' inherent and traditional rights to seeds and to the knowledge associated with the seeds, and pose a threat to biodiversity, sustainable agriculture (SA), and food security.

The critics also argue that the PPVPA would discourage farmer-breeders from making further improvements on seeds because they would have only a limited pool of freely available varieties to work with.

Farmer representative, Avelino Sarino, added that, even if individual farmers could somehow raise the money to get a PVP certification for their seeds, they would still be hard put to make sure that their seed patents are enforced. In any case, the farmer representatives maintained that seeds, which generations of farmers have developed, should not be "owned" by a single person or group—including farmers—but rather should remain common property, which farmers can freely access, use, exchange, and make further enhancements on.

2. Massive promotion of hybrid varieties. A farmer representative at the Luzon Consultation reported the experience of 17 farmers who took part in the Government's Hybrid Rice Commercialization Program (HRCF). Joselito "Ka Tolits" Tambalo related that, to induce farmers, like himself, to shift to hybrid seeds, the HRCF gave away inputs free of charge, and a P10,000-per-hectare cash incentive. As it turned out, however, 12 of the 17 HRCF farmers went bankrupt because Philrice rejected their seeds for not meeting the requirements for certification. Meanwhile, the other HRCF farmers, whose seeds were bought by Philrice, eventually withdrew from the program because the subsidies were cut and the hybrid varieties proved to be susceptible to diseases and pest infestation. The hybrid seeds also could not be re-used for the next cropping season.

3. Promotion and commercialization of technologies, such as genetic engineering. The farmer representatives, particularly those engaged in organic farming, feared that their crops would be contaminated by genetically modified varieties, and could no longer be marketed as "organic."

➤ Lack of appropriate mechanisms to protect farmers' rights to traditional crop varieties.

The farmer participants expressed concern that the PPVPA does not provide adequate safeguards against private corporations securing patents on crop varieties that farmers have developed, and against other forms of bio-piracy.



- Lack of recognition and related support for farmers' initiatives and contribution to plant genetic resource (PGR) conservation, development, and use.

The farmer representatives argued that the lack of recognition and support for farmers' initiatives in regard to PGR conservation, development, and use, stems from the perception that traditional knowledge and methods are inferior to technological solutions. This same lack of appreciation for farmers' input accounts for the absence of programs promoting sustainable agriculture and farmers' conservation initiatives.

- Lack of thorough dissemination of technologies and programs related to seeds.

The government has failed to allocate sufficient funds and to build capacity in support of farmer extension and information dissemination programs.

Box 2

Farmer Initiatives to Assert Their Right to Seeds

The bulk (85–90%) of the country's seed requirements is supplied through the informal system, wherein farmers select the seeds for planting, save some from their harvest for re-planting in the next cropping season, and exchange seeds and varieties with other farmers.

Farmer representatives from FCC, ASEPLAFA, and SEEDS shared during the regional and national fora how this informal system (specifically for rice) is enhanced in the provinces of Bohol, North Cotabato, and Sultan Kudarat, through a number of practices, as follows.

On-farm conservation of traditional and local varieties entails the cultivation by each farmer of different types of local crop varieties (on the average, 3–5 varieties per farmer) on her/his farm plot to conduct her/his own on-farm trials. The size of the individual on-farm trials depends on the availability of land and on the volume of seeds available. It is in these individual on-farm trials that farmers select seed materials for eventual reproduction and parent materials for breeding. Farmers' groups affiliated with SEEDS (in North Cotabato) and FCC (in Bohol), and farmer members of ASEPLAFA (in Sultan Kudarat) maintain communal farms on which they conduct joint on-farm trials involving an average of 5 to 10 varieties.

Members of SEEDS had organized themselves and set up 3 community seedbanks that served as a back-up storage facility for the traditional and local varieties they had collected. At the same time, they would regularly (i.e., every season) pick and select

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Box
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seed materials from the seedbank set up by CONSERVE. The CONSERVE seedbank has a cold storage facility and a 400-square-meter seed regeneration area, which is used by farmer-breeders as back-up storage of varieties whose advanced lines are difficult to maintain. There are at least 15 traditional and local varieties found in the CONSERVE seed regeneration area, from which farmers could pick and select. The seeds selected are reproduced in a 0.75 hectare area set aside by CONSERVE for seed production. Upon harvesting, the seeds are packed and distributed to farmers and organizations of farmers that request them. Eventually, the community seedbanks were shut down because of the difficulties of maintaining and monitoring them. Now, the farmers store the seeds in their homes, using traditional methods of storing seeds. The individual varietal trials however are still done every cropping season.

In Bohol, the FCC, a network of 7 farmers' groups, in collaboration with SEARICE and CVSCAFT, the local university/college, have put up and continue to maintain a community seedbank within the facilities of CVSCAFT. There are currently 260 rice varieties stored in this seedbank. These are continuously planted, regenerated, and reproduced by farmers in an organic seed production area. FCC members and other civil society organizations (CSOs) promoting sustainable agriculture in Bohol are welcome to the harvested seeds.

Participatory farmer plant breeding (PPB) and participatory varietal selection (PVS). SEARICE has been conducting season-long Farmers Field Schools (FFSs) on CDU since 2000. But a number of FCC and SEED members had received their training in seed breeding much earlier, from training facilitated by CONSERVE and the CBDC (?) Program. To date, some 231 varieties have been crossed, bred, and selected by farmers.

STORIES OF THREE FARMER-BREEDERS

Eulogio Sasi, Jr., or Tatay Gipo, lives in President Roxas, North Cotabato. He owns a hectare of land, and has been farming for 40 years. Tatay Gipo has experienced the initially positive, as well as the longer-term, negative impact of the Green Revolution technology. When he noticed the adverse effects of the latter on the soil, he started to experiment with crop breeding. He grew the modern varieties alongside traditional ones on small plots, and yielded varieties that showed promising traits. Eventually, he developed a variety which was resistant to drought, pests, and diseases. He named this sturdy rice variety, Bordagol. Bordagol became so popular that Tatay Gipo received a citation for it from the provincial government of North Cotabato. It spread even wider, throughout most of the country, that the national seed board certified it as PSB RC34 in 1994.

The certification was done without Tatay Gipo's knowledge or permission. For a while, the incident discouraged Tatay Gipo from further experimentation. Eventually, however, he resumed his breeding and selection work with the help of his two sons. He wanted to develop a variety with good eating quality. Crossing Bordagol and Basmati—an Indian rice variety—Tatay Gipo produced—after three years—many stable lines which he called GIFTS (for Genetically Improved Farm Technology of Seeds).

Tatay Gipo worries about maintaining and conserving the lines because he does not have enough land. He is also concerned about the effects of the PPVPA on farmer-breeders like himself. Yet, he continues his breeding work and encourages other farmers to do the same. He says that small farmers can not count on anyone but themselves.

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Box
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Ruperta Mangayaay, a member of the FCC, lives in Bilar, Bohol. After attending the FFS on PGR CDU, Ruperta tried her hand at breeding rice. She wanted to develop a variety that was resistant to pests and diseases, and to lodging; had high tillering (branching) ability; was high-yielding; and produced big grains that had good eating quality, and therefore highly marketable. Following a series of varietal crossings, Ruperta produced 6 stable varieties, which she named according to the color of the grains.

Through breeding and selection, Ruperta is able to produce enough seeds to supply all her planting requirements. She is also able to share the varieties she has developed with other farmers, and to encourage the latter to do their own breeding.

Avelino Sarino, a member of SEEDS, owns a 0.28 hectare farm land in President Quirino, North Cotabato. He started breeding in 1994 to develop rice varieties that yielded abundant grains that were not prone to breaking and had good eating quality, that could resist lodging, as well as pests and diseases, and that grew to a medium height but could produce enough biomass for soil composting. Avelino produced 5 lines after crossing 2 farmer-bred varieties. He named these lines after his initials, AS. A few AS lines that have become popular are AS54, AAS5, and AS1.

Local seed exchanges. Farmers continue to spread the varieties within their communities and to neighboring ones through sharing, barter, seed as loan payment, and seed sales. Farmers' organizations also take advantage of local agriculture fairs and even community fiestas (feasts) to promote their seeds. But a more regular venue for the exchange of seed materials and seed-related information are farmers' meetings.

Establishment of a community registry system. Farmer representatives at the Mindanao consultation cited the importance of a community registry as a mechanism to protect a community's rights to PGRs against PPVPA claims. A community registry is an inventory of all PGRs in a community to show proof that these are pre-existing (thus precluding potential patent applications) and belong to the public domain.

The preparation of one such community registry for Bilar, Bohol was facilitated by the FCC. The FCC listed all existing crop varieties, along with their distinctive features, the name of the farmer-breeder, or the source of the variety, and the specific uses of each variety. This list was attached to an affidavit cum declaration executed by FCC. The list is updated every cropping season. The validity of the community registry was reinforced when the barangay and municipal council of Bilar recognized the document by way of a municipal resolution in 2004.

➤ Lack of access to land by women

The Comprehensive Agrarian Reform Law (CARL) provides that lands distributed under the agrarian reform program should be issued jointly to spouses. In practice, however, the "household head"—which in most, if not all, cases is presumed to be male—makes all the major decisions in regard to the use and disposition of family landholdings. Ironically, a large number of rural households are headed by women, or are financially sustained by women. Formal credit sources, like banks, are reluctant to lend to women without their husband's approval. It is no surprise that the majority of poor rural households are those that are headed by women.



➤ Lack of market support for organic products

More broad-scale adoption of sustainable agriculture is hampered by the lack of government support. Agricultural support, in the form of production credit, subsidies, extension services, access to post-harvest facilities, etc., is still contingent on the practice of conventional chemical agriculture.

Another formidable obstacle to getting farmers to farm organically is the difficulty of marketing organic products. In the first place, the domestic market for organic food and other products is not yet developed; it is at best a niche market. Secondly, the process of getting products certified as organic is not only long and tedious, but very costly. Without such certification, organic farmers end up selling their products at the price of conventionally produced items, and not at a premium, which organic products should command. Thirdly, even though there is a thriving export market for organic products, organic farmers are unable to deal with importers directly, nor even to produce the volumes required and to comply consistently with the stringent quality standards of international markets. Again, the problem can be traced to the lack of government support for the organic sector.

Box 3

Altertrade Makes a Breakthrough for Philippine Organic Producers

MIARBA is a federation of people's organizations (POs) composed of 879 members—all of whom are agrarian reform beneficiaries (ARBs)—from various municipalities of Negros Occidental. Altertrade, an NGO that focuses on assisting organic producers to gain access to export markets, facilitated the formation of MIARBA.

The landholdings of MIARBA's PO members total 709.98 hectares. Part of this is planted to crops that have been certified as organic: sugarcane (409.11 hectares); rice (40 hectares); banana (11 hectares); assorted crops (27.77 hectares). MIARBA's operations are inspected by the Institute for Market Ecology (IMO), which uses the standards laid down by the European Union, the US, etc. MIARBA's products are certified by Naturland-Verband (Germany) and Biosuisse (Switzerland), both of which are private certifiers. MIARBA has also secured the Fairtrade Labelling Organizations International (FLO) Fair Trade Certification.

With the help of Altertrade, MIARBA has established links with international markets, among them, Alter Eco-France & America; Alternative People's Network for Peace and Life—Korea; Gepa-Germany; Chocolat Bernrain & Claro Switzerland; Daishizen Corporation-Japan; Eine welt handel-Austria; Liberemondo-Italy; CED Import/Export; Chrisna Jenio & Matahari Organic Wholesaler-Malaysia; and Alter Trade Japan, Inc.

In 2006, 16 PO members of MIARBA reported a net income of PhP19,490,744.35 from sugarcane and other crops, and from poultry and livestock. MIARBA's accumulated capital amounts to P18,016,088.12. It has acquired 7 trucks, 1 thresher, and 3 farm tractors. It has put up health and training centers, housing for its livestock, irrigation facilities, etc.



➤ Expansion of monocropped agricultural plantations, and its impact on the farm ecology and on human health

Monocropped agricultural plantations have a negative impact on the environment and on human health. The banana plantations in Davao City, in Mindanao, for instance, are especially infamous. Firstly, because these plantations were put up in slopey, upland areas, they have resulted in soil erosion and flooding in adjacent low-lying areas. Secondly, as is the practice in all monocropped plantations, those in Davao City require aerial pesticide spraying. Communities living near the banana plantations have reported a number of problems caused by aerial spraying.

The managers of the plantations do not scrupulously restrict their aerial spraying so as not to go beyond the designated buffer zone. However, even if they could strictly limit their spraying, they could not prevent pesticide drift, which has a 3.2 kilometer radius. Pesticide drift poisons the air and nearby water sources, often leading to pesticide-related deaths and health problems among both humans and livestock. There has been a high incidence of health problems among communities living near the plantations, such as breathing difficulties, nausea, eye irritation, fever, vomiting, cough, asthma, anemia, a general feeling of weakness, and even cancer.

Pesticide drift contaminates organic farms. This affects the marketability of organically grown products, especially where these are subject to quality control and organic certification.

Box 4

Lobbying by Local Group Leads to Ban on Aerial Spraying

In response to the widespread negative impact of aerial spraying in the banana plantations in Davao City, a local group called Mamamayan Ayaw sa Aerial Spraying [or Citizens Opposed to Aerial Spraying] (MAAS) organized the affected communities and undertook a massive campaign against aerial spraying. MAAS sought to raise awareness of the injurious effects of aerial spraying by distributing information materials; getting people to sign a petition for the banning of aerial spraying; using the media to get their message across; and mobilizing protest actions to draw the municipal government's attention to the issue. MAAS also lobbied hard with the City Council and the Mayor of Davao City for a city ordinance/resolution banning aerial spraying.

In August 2004, a draft ordinance aimed at regulating aerial spraying was submitted to the City Council. This was followed, in April 2005, by a proposed ordinance to ban aerial spraying within the next 5 years. Starting April 2006 until the end of that year, this proposed ordinance went through extensive deliberations, while MAAS kept up its anti-aerial spraying campaign. Finally, in February 2007, the City Ordinance imposing a ban on aerial spraying was signed by the Mayor of Davao City, Rodrigo Duterte. The ban became effective on June 23, 2007. The City Ordinance provides for a 30-meter buffer zone and imposes stiff penalties for non-compliance: for first time offenders, a P5,000 penalty and/or imprisonment for 1-3 months; and for the most recalcitrant (third-time offenders), a P5,000 penalty, up to a year's imprisonment, and cancellation of the City-issued permit to operate a plantation.

The fungicides applied in the banana plantations have been reported to kill beneficial fungi, which keep pests that attack coconuts (i.e., the rhinoceros beetle) in check. Pesticide drift also causes the premature flowering of coconuts. Both factors have been blamed for the decline in productivity of coconut crops in areas close to the banana plantations.

➤ Inadequate access to support services and information that impact on farming

The farmer representatives complained that many of them do not have access to irrigation facilities, and that there is no consistent government program or policy to provide farmers such access. Many of the farmer representatives said that in place of institutional government support, they depend on their congressperson's largesse.

The patronage system—which is arbitrary and highly politicized—determines whether or not farmers or their organizations are able to purchase, put up, or gain access to post-harvest facilities, such as warehouse/storage facilities, mechanical dryers, tractors, etc.; or whether or not a farm-to-market road is constructed in their area.

Production loans are available at formal sources, such as banks, but these come with interest charges that the farmer representatives are hard-put to pay. Banks also require collateral, which few farmers could provide. As a result, farmers are forced to resort to informal credit sources, which charge usurious interest rates.

The farmer-representatives also cited their lack of awareness of the impact on their livelihood of national and international policies on agriculture and trade, such as the reduction of tariffs on agricultural imports, which has led to the inundation of the domestic markets by cheap developed country imports and, consequently, to the decline in prices of local products.

Other policies that have had an impact on local agriculture are the ASEAN free trade agreements, the Japan-Philippines Economic Partnership Agreement (JPEPA), which critics say is one-sided in favor of Japan, etc.

The farmer-representatives claimed that they get much of the information they need from civil society organizations (CSOs).

➤ Militarization and human rights abuses

The Kilusang Magbubukid ng Pilipinas (KMP), a left-leaning federation of farmers' groups, has reported that 65 of its farmer leaders and 430 of its members have been killed by the Philippine military since 2001.

Another report has claimed that half of all victims of extra-judicial killings are peasants or fisherfolk associated with organizations or movements advocating access to land and other resources.



Increased militarization has also been observed in areas where mining operations are widely opposed by the affected communities. For instance, a large military contingent has been deployed to secure the mining operations of TVI Mining in Siocon, Zamboanga against local protesters. A number of human rights violations by the military have been reported in this area.

SUMMARY OF ISSUES RELATED TO FARMERS' RIGHTS AND PROPOSED PLANS OF ACTION

Tables 1 to 10 provide a summary of the discussion of concepts related to farmers' rights and proposed actions:

TABLE 1
Summary of concepts and status of farmers' rights to seeds from experiences and perspectives shared by Forum participants

Access to complete information on activities and results of research				
Corresponds to the following FR elements of the 2003 Cebu Declaration:				
<ul style="list-style-type: none"> • Element 16: Right to support services • Element 17: Right to access the best available and appropriate farming practices techniques and technologies • Element 27: Right to take part in government programs • Element 31: Right to access information/to be informed of market data and agricultural policies of government • Element 38: Right to equitably benefit from the country's genetic resources 				
Practice	Gaps	Issues	Action	Results
<ul style="list-style-type: none"> • Participation in forums, meetings and conferences; access to extension materials in popular form, e.g., comics • Use of demo farms 	<ul style="list-style-type: none"> • Only few can participate in forums, etc. • Government bias for TNCs/MNCs in terms of research and information 	Lack of funds and capacity to carry out information campaigns and research that fit the requirements of farmers	Challenges: <ul style="list-style-type: none"> • Information must reach grassroots level; • On-farm research should be conducted in as many places as possible. 	Intended results: <ul style="list-style-type: none"> • Well-informed farmers; • Research done is appropriate and tested in different farm and farmer situations.

Farmer participation in seed policy development				
Corresponds to the following FR elements of the 2003 Cebu Declaration:				
<ul style="list-style-type: none"> • Element 22: Right to be consulted and to participate in governmental decision-making on laws related to farmers in determining farm-gate prices government support prices and in the formulation of trade policies including importation • Element 28: Right to be heard and be given attention regarding ecological matters and those having adverse health impacts i.e. mining cement projects, GMOs. • Element 32: Right to active participation in decision-making processes of government • Element 33: Right to redress of grievances • Element 35: Right to be recognized as the country's primary food producers vital to achieving food self-sufficiency and sovereignty • Element 36: Right to genuine participation in all levels of policy-making and decisions regarding agriculture& farmers' welfare 				
Practice	Gaps	Issues	Action	Results
Nothing here as government does not encourage this	No consultations with the farmers	Bias toward influential people in the agriculture sector	Push by farmers [organized farmer groups] to bring out the issues	Concrete actions/ public awareness campaigns staged to influence policy development

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TABLE 1 (ctd.)

Summary of concepts and status of farmers' rights to seeds from experiences and perspectives shared by Forum participants

Recognition of farmer initiatives/farmer-developed varieties Corresponds to the following FR elements of the 2003 Cebu Declaration: <ul style="list-style-type: none"> • Element 10: Right to create initiatives in order to help others • Element 24: Right to use, share, exchange, sell and develop genetic resources • Element 25: Right to collective ownership of seeds (right to own way of life) • Element 29: Right to be supported by government regarding technologies generated/invented by farmers in the country side • Element 33: Right to redress of grievances • Element 35: Right to be recognized as the country's primary food producers vital to achieving food self-sufficiency and sovereignty • Element 38: Right to equitably benefit from the country's genetic resources. 				
Practice	Gaps	Issues	Action	Results
Continuing seeds conservation and development activities.	<ul style="list-style-type: none"> • Government indifference to farmers' grievances; • Acceptability of technology/practice. 	No government support (financing and seeds certification) for farmer-developed varieties.	<ul style="list-style-type: none"> • Continuing dialogue, negotiations and linkage with government; • Practice of sustainable agriculture (SA) including crop varietal improvement/farm trials. 	Hope remains that government would recognize farmer initiatives; meantime initial victories have been achieved: (a) Increased rice diversity; and (b) production of good quality seeds; access to source of new varieties
Secure access to and control of seeds Corresponds to the following FR elements of the 2003 Cebu Declaration: <ul style="list-style-type: none"> • Element 24: Right to use, share, exchange, sell and develop genetic resources • Element 25: Right to collective ownership of seeds (right to own way of life) • Element 29: Right to be supported by government regarding technologies generated/invented by farmers in the country side • Element 35: Right to be recognized as the country's primary food producers vital to achieving food self-sufficiency and sovereignty • Element 38: Right to equitably benefit from the country's genetic resources. 				
Practice	Gaps	Issues	Action	Results
<ul style="list-style-type: none"> • Seed conservation; • Plant breeding; • Local exchanges. 	<ul style="list-style-type: none"> • PVP, patenting, bio-piracy; MNC plantations use chemical agriculture; • Value of naturally-produced food not well appreciated. 	<ul style="list-style-type: none"> • Bias of government to HYVs/GMOs; • Importation policies of government; • Lack of marketing support. 	<ul style="list-style-type: none"> • Campaigns against HYVs/GMOs; Continued breeding/research efforts; • Engaging LGUs to formulate a Sustainable Agriculture Code and organize fairs. 	<ul style="list-style-type: none"> • Interest of LGUs to support programs on seeds, e.g., ordinance for a community seed registry; • Production of safe food coming from farmer-developed seeds/ traditional varieties.

TABLE 2

Farmers' right to land

Farmers' right as identified in the 2007 National Forum: Farmers' right to land

Farmers' conceptual understanding of the FR: Farmers' right to manage their own land and make it productive

Farmers' Right to Land Corresponds to the following FR elements identified in the 2003 Cebu Declaration: <ul style="list-style-type: none"> Element 5: Right to peaceful life, old age and security and other support services Element 7: Right to decent and peaceful living Element 9: Right to land and other farm equipment to make the land productive Element 15: Right to security over land Element 19: Right to peace and order Element 31: Right to access information/to be informed of market data and agricultural policies of government Element 33: Right to redress of grievances 			
Status as per the National Forum Discussions			
Gaps	Issues	Action	Results
<ul style="list-style-type: none"> • Many loopholes in CARL, e.g., Agri-Venture Agreements, Voluntary Offer to Sell, Farm as Collateral (FAC) Bill; • Criminalization of agrarian cases; • Conversion of agricultural lands; • Divisiveness among farmers; • Gaps in the IPRA Law; • Inconsistency in CARL and IPRA. 	<ul style="list-style-type: none"> • Lack of DAR political will; • Big corporations and influential clans taking advantage of CARL loopholes; • Big businesses encroaching on ancestral lands; • Use of guns, goons, and gold (3Gs) by landowners; • Lack of information on FR to land, making farmers prone to harassment. 	<ul style="list-style-type: none"> • Legal actions/petitions to rescind onerous contracts; • Organizing farmers (LTI advocacy)/mobilization/ mass actions; • Lobbying and advocacy; • Networking/linkaging; • Education and training for farmers; • Keeping the media in the dark about pro-farmer actions until these are in progress so that landowners cannot immediately resort to their unfair strategies. 	<ul style="list-style-type: none"> • Established good relations with LGUs though the process has been difficult; • Positive media coverage.

TABLE 3

Farmers' right to water

Farmers' right as identified in the 2007 National Forum: FR to Water

Farmers' conceptual understanding of the FR: Water is life; Farmers need water both for irrigation and domestic use

Farmers' Right to Water Corresponds to the following FR elements identified in the 2003 Cebu Declaration: Element 5: Right to a peaceful life, old age and security and other support services Element 8: Right to irrigation and equitable distribution of irrigation water Element 14: Right to a subsidy (50%-50%) for farming practices Element 16: Right to support services Element 22: Right to be consulted and to participate in governmental decision making on laws related to farmers, in determining farm-gate prices, government support prices and in the formulation of trade policies including importation			
Status as per the National Forum Discussions			
Gaps	Issues	Action	Results
<ul style="list-style-type: none"> Not enough water to irrigate the farms; No consistent water program or policy. 	<ul style="list-style-type: none"> Large dams constructed are defective/diversion of funds; Conversion of farmlands to fishponds, thus increasing competition for water; High irrigation fees. 	<ul style="list-style-type: none"> Dialogue between the parties concerned; Legal action; Lobbying with local governments. 	Some got access to water but still no clear policies on water use.

TABLE 4

Women and farmers' rights

Farmers' right as identified in the 2007 National Forum: Women and FRs

Farmers' conceptual understanding of the FR: Women are integral to the whole agricultural and development process; need for distinct women's organizations with a peasant character

Women and FRs Corresponds to the following FR elements identified in the 2003 Cebu Declaration: <ul style="list-style-type: none"> Element 1: Right to self-determination, to make decisions on matters that will affect him/her Element 11: Right to create initiatives in order to help others Element 15: Right to security over land Element 20: Right to access affordable health services Element 21: Right to oppose laws, policies and programs that will affect the livelihood of farmers Element 22: Right to be consulted and to participate in governmental decision making on laws related to farmers, in determining farm-gate prices, government support prices and in the formulation of trade policies including importation Element 23: Equal rights for women, youth and other farmers in political, social, cultural and economic spheres Element 28: Right to be heard and be given attention regarding ecological matters and those having adverse health impacts i.e. mining cement projects, GMOs Element 36: Right to genuine participation in all levels of policy-making and decisions regarding agriculture& farmers' welfare 			
Status as per the National Forum Discussions			
Gaps	Issues	Action	Results
A social culture still not supportive of women's empowerment, e.g., husbands still resist the participation of their wives in organizations.	<ul style="list-style-type: none"> Discrimination against women, e.g. women given lower wages than men for the same work; Women not encouraged to participate in land conversion issues and not given equal rights to land; Access to health services (irregular and not comprehensive). 	<ul style="list-style-type: none"> Involvement of women in negotiations, legal actions and dialogues, e.g., women participated in barricades as front liners on land conversion issues; Capacity building for women's empowerment. 	Farm families able to gain possession of lands through the involvement of women in the issues.

TABLE 5

Farmers' right to market organic products

Farmers' right as identified in the 2007 National Forum: FR to Market Organic Products

Farmers' conceptual understanding of the FR: Marketing supports the livelihood systems and economic sustainability of farmers

Farmers' Right to Market of Organic Products			
Corresponds to the following FR elements identified in the 2003 Cebu Declaration:			
<ul style="list-style-type: none"> • Element 11: Right to good all-weather roads and bridges • Element 13: Right to just prices for agricultural produce • Element 29: Right to be supported by government regarding the technologies generated/invented by farmers in the countryside • Element 31: Right to access information/be informed of market data and agricultural policies of government • Element 34: Right to full government support in all levels of production and marketing • Element 35: Right to be recognized as the country's primary food producers vital to achieving food self-sufficiency & sovereignty • Element 38: Right to equitably benefit from the country's genetic resources 			
Status as per the National Forum Discussions			
Gaps	Issues	Action	Results
<ul style="list-style-type: none"> • Farmers do not have sufficient information on and understanding of market demands and prices for crops; • Tedious and expensive certification of organic products which farmers find difficult to comply with; • Low production volume of organic products to meet market requirements; • Poor quality of organic products; • High cost of organic product certification; • Low consumer awareness of organic products. 	<ul style="list-style-type: none"> • Lack of market support and subsidies; • Fair pricing for organic products; • Problematic organic certification standards in the Philippines. 	<ul style="list-style-type: none"> • Organizing organic producers; • Crop diversification; • Production of inputs for organic agriculture; • Linkage with national and international markets; • Trainings, seminars, exposure activities for farmers; • Building public and consumer awareness on organic products. 	<ul style="list-style-type: none"> • Organized local marketing, thus able to sell organic products in local supermarkets and through other institutions; • Expansion of local organic production; • Established international markets for organic products, e.g., ATFI; • Productive lands through crop diversification.



TABLE 6

Farmers' right to appropriate technology

Farmers' right as identified in the 2007 National Forum: FR to Appropriate Technology

Farmers' conceptual understanding of the FR: Access to and use of sustainable cost-effective technologies and farming systems

Farmers' Right to Appropriate Technology Corresponds to the following FR elements identified in the 2003 Cebu Declaration: <ul style="list-style-type: none"> • Element 16: Right to support services • Element 17: Right to access the best available and appropriate farming practices techniques and technologies • Element 22: Right to be consulted and to participate in governmental decision making on laws related to farmers, in determining farm-gate prices, government support prices and in the formulation of trade policies including importation • Element 26: Right to protect and preserve traditional farming knowledge and systems • Element 27: Right to take part in government programs • Element 28: Right to be heard and be given attention regarding ecological matters and those having adverse health impacts i.e. mining cement projects, GMOs. • Element 29: Right to be supported by government regarding technologies generated/invented by farmers in the country side • Element 31: Right to access information/to be informed of market data and agricultural policies of government • Element 32: Right to active participation in decision-making processes of government 			
Status as per the National Forum Discussions			
Gaps	Issues	Action	Results
<ul style="list-style-type: none"> • Lack of (no budget) support for SA programs, including integration of SA in the school curricula; • Technologies and research are confined to research centers • Bias for WTO policies and hybridization/GMOs evident in the government's promotion of technologies that seek to replace local traditions and farming systems; • Lack of appropriate educational opportunities for farmers. 	<ul style="list-style-type: none"> • Lack of government research on appropriate farming technologies; • Farmers do not have sufficient access to technologies that are appropriate and adapted to their traditions and practices. 	<ul style="list-style-type: none"> • Policy advocacy/ lobbying; • Training/awareness on technologies like hybrid rice and GMOs through civil society organizations; • Use of traditional varieties and development of other varieties through cross-breeding. 	<ul style="list-style-type: none"> • Partnerships with LGUs, NGOs and other agencies; • Farmers made aware about hybrid rice and GMOs and decide to enhance use of traditional varieties.

TABLE 7

Farmers' right to a healthy environment

Farmers' right as identified in the 2007 National Forum: FR to a Healthy Environment (air, land, water)

Farmers' conceptual understanding of the FR: Farmers' access to safe and sound environment in the pursuit of farming and livelihood systems

Farmers' Right to a Healthy Environment (air, land, water) Corresponds to the following FR elements identified in the 2003 Cebu Declaration: <ul style="list-style-type: none"> • Element 6: Right to access quality, adequate, safe and sufficient foods for the family • Element 28: Right to be heard and be given attention regarding ecological matters and those having adverse health impacts i.e. mining cement projects, GMOs. • Element 30: Right to protect the environment • Element 32: Right to active participation in decision-making processes of government 			
Status as per the National Forum Discussions			
Gaps	Issues	Action	Results
<ul style="list-style-type: none"> • Encroachment on protected areas; • Threats from the 1995 Mining Act; • Use of hazardous substances in agriculture. 	<ul style="list-style-type: none"> • Non-compliance with Environmental Clearance Certificate (ECC) requirements; • Destruction of watersheds; • Buffer zone regulations ignored in aerial spraying; • Only small farmers are fined for violations. 	<ul style="list-style-type: none"> • Campaigns/Lobbying/ Advocacy; • Organizing work. 	<ul style="list-style-type: none"> • City ordinance on aerial spraying (Davao City); • Construction of farm-to-market roads.

TABLE 8

Farmers' right to participate in Governance

Right as identified in the 2007 National Forum: FR to Participate in Governance

Farmers' conceptual understanding of the FR: Participation of farmers in local governance is important to push for implementation of SA in LGU programs

Farmers' Right to Participate in Governance			
Corresponds to the following FR elements identified in the 2003 Cebu Declaration:			
<ul style="list-style-type: none"> • Element 21: Right to oppose laws, policies and programs that will affect the livelihood of farmers • Element 22: Right to be consulted and to participate in governmental decision making on laws related to farmers, in determining farm-gate prices, government support prices and in the formulation of trade policies including importation • Element 27: Right to take part in government programs • Element 28: Right to be heard and be given attention regarding ecological matters and those having adverse health impacts i.e. mining cement projects, GMOs. • Element 32: Right to active participation in decision-making processes of government • Element 36: Right to genuine participation in all levels of policy-making and decisions regarding agriculture & farmers' welfare 			
Status as per the National Forum Discussions			
Gaps	Issues	Action	Results
<ul style="list-style-type: none"> • Local sectoral representation as provided by the Local Government Code has not materialized; • DA budgeting process not flexible. 	Creation of local special bodies to push for SA requires a separate law for implementation.	Lobbying for sectoral representatives in local government units (LGUs).	<ul style="list-style-type: none"> • Participation of farmers in local development councils; • Access to the LGU internal revenue allotment (IRA).

TABLE 9A

Farmers' right to support services

Farmers' right as identified in the 2007 National Forum: FR to Support Services

Farmers' conceptual understanding of the FR: Rights that include (i) Access to information; (ii) Access to irrigation, post-harvest facilities, credit; and (iii) Access to social security services and health care

Farmers' Right to Support Services - ACCESS TO INFORMATION			
Corresponds to the following FR elements identified in the 2003 Cebu Declaration:			
<ul style="list-style-type: none"> • Element 22: Right to be consulted and to participate in governmental decision making on laws related to farmers, in determining farm-gate prices, government support prices and in the formulation of trade policies including importation • Element 28: Right to be heard and be given attention regarding ecological matters and those having adverse health impacts i.e. mining cement projects, GMOs. • Element 31: Right to access information/to be informed of market data and agricultural policies of government 			
Status as per the National Forum Discussions			
Gaps	Issues	Action	Results
<ul style="list-style-type: none"> • Government promotion of certain technologies does not usually show the whole picture; • No real effort by government to inform/educate farmers and to explain policies; • Farmers not consulted. 	Farmers have no access to information.	Information secured by farmers through civil society organizations and organized farmers' groups.	Farmers are consulted and participate in issues affecting them.

TABLE 9B

Farmers' right to support services

Farmers' right as identified in the 2007 National Forum: FR to Support Services

Farmers' conceptual understanding of the FR: Rights that include (i) Access to information; (ii) Access to irrigation, post-harvest facilities, credit; and (iii) Access to social security services and health care

Farmers' Right to Support Services - ACCESS TO IRRIGATION, POST-HARVEST FACILITIES, CREDIT Corresponds to the following FR elements identified in the 2003 Cebu Declaration: <ul style="list-style-type: none"> • Element 5: Right to a peaceful life, old age and security and other support services • Element 8: Right to irrigation and equitable distribution of irrigation water • Element 9: Right to land and other farm equipment to make the land productive • Element 11: Right to good all-weather roads and bridges • Element 12: Right to own appropriate post-harvest facilities • Element 14: Right to a subsidy (50%-50%) for farming practices • Element 16: Right to support services • Element 17: Right to access the best available and appropriate farming practices • Element 34: Right to active participation and decision making processes of government • Element 37: Right to access to farm credit at affordable interest rates (comprehensive farm credit policy) 			
Status as per the National Forum Discussions			
Gaps	Issues	Action	Results
<ul style="list-style-type: none"> • Lack of infrastructure, e.g., for irrigation; • Farmers have no capacity to purchase farm tractors; • Loan/credit facilities for farmers are not cheap and require collateral; • Loan/credit usually conditioned on use of certified crops which create problems for farmers using traditional varieties. 	Padrino system (patron-client relations) in accessing government services.	Lobbying by farmers' groups.	<ul style="list-style-type: none"> • Farmers able to buy tractor through funds from the Department of Agriculture (DA) and the LGU; • Installment payment of loans extended to a longer period (soft loans to farmers).

TABLE 9C

Farmers' right to support services

Farmers' right as identified in the 2007 National Forum: FR to Support Services

Farmers' conceptual understanding of the FR: Rights that include (i) Access to information; (ii) Access to irrigation, post-harvest facilities, credit; and (iii) Access to social security services and health care

Farmers' Right to Support Services - ACCESS TO SOCIAL SECURITY SERVICES AND HEALTH CARE Corresponds to the following FR elements identified in the 2003 Cebu Declaration: <ul style="list-style-type: none"> • Element 5: Right to peaceful life, old age and security and other support services • Element 16: Right to support services • Element 20: Right to access affordable health services 			
Status as per the National Forum Discussions			
Gaps	Issues	Action	Results
No health insurance and appropriate social security services for farmers.	No specific support for farmers.	None mentioned.	

TABLE 10

Farmers' right to life/ Farmers' rights as human rights

Farmers' right as identified in the 2007 National Forum: FR to Life / FR as HR

Farmers' conceptual understanding of the FR: A dead farmer cannot farm to enjoy his/her rights as farmer; Farmer has to assert his/her right to live peacefully and all other rights—civil, political, economic, social and cultural rights

Farmers' Right to Life/Farmers' Rights as Human Rights			
Corresponds to the following FR elements identified in the 2003 Cebu Declaration:			
<ul style="list-style-type: none"> • Element 1: Right to self-determination, to make decisions on matters that will affect him/her • Element 5: Right to peaceful life, old age and security and other support services • Element 7: Right to decent and peaceful living • Element 19: Right to peace and order • Element 33: Right to redress of grievances 			
Status as per the National Forum Discussions			
Gaps	Issues	Action	Results
<ul style="list-style-type: none"> • Association of Human Rights (HRs) advocacy with "leftist" groups/ideology; • HRs not given much importance or not part of the discussions even in schools. 	<ul style="list-style-type: none"> • Extra-judicial killings; • Harassment of farmers asserting their rights/ tagged as leftists; • State policies, e.g., the Human Security Act, do not distinguish between peaceful protesters and armed dissidents; • Militarization especially in relation to agrarian reform matters. 	<ul style="list-style-type: none"> • Dialogues/pastoral letters; • Socio-economic programs; • Lobbying in the crafting of HR-related laws; • Alliance building – national and international; • Signature campaigns; • Use of alternative media. 	<ul style="list-style-type: none"> • United front among the NGOs; • Philippines put in the HR spotlight.

LEGISLATIVE WISH LIST

The farmer representatives drew up a "Legislative Wish List," or proposed legislative action to promote the meaningful implementation of their bundle of rights. SEARICE committed to take the lead in advocacy and lobbying activities at the national level.

1. FR to Seeds:

- ❖ Repeal PVP Act 9168 and enact laws that recognize farmers' right to seeds and traditional knowledge in seed resources conservation and development.

Part of the lobby work here would be for the expansion of the Farmers' Rights Bill to include all the other rights identified in the 2007 National Forum and not to limit it to FR to Seeds.

2. FR to Land:

- ❖ Repeal Republic Act 6657 (CARL) and enact a genuine agrarian and fishery / aquatic reform law that addresses the loopholes of RA 6657.

In terms of local action, this would include lobbying for the local legislative bodies to pass resolutions calling for Congress to repeal CARL and to address the inconsistencies in CARL and related agrarian reform laws. Areas to look into



would be: ensuring that the “land to the tiller” principle is observed; abolition of monopoly landownership; free distribution of land to legitimate tillers; and prioritization of big public lands in land distribution. The group further suggested using the People’s Agrarian Reform Code (PARCode) as a working draft in formulating a genuine agrarian and fishery/aquatic reform law.

3. FR to Water:

- ❖ Repeal of the 1995 Mining Act to prevent the contamination of water and the destruction of the watersheds, and thereby ensure access to safe and sufficient water;
- ❖ Review and investigate the construction of large but defective dam projects; and
- ❖ Support for small water impounding projects (SWIPs) and rehabilitation of watersheds with farmer/community participation.

Measures must be undertaken to ensure farmers’ access to and control of irrigation water; and to call on the Department of Agriculture to support SWIPs and watershed rehabilitation programs with farmer and community participation.

4. Women FRs:

- ❖ Passage of a Women Empowerment Code for Rural Women.

5. FR to Market Organic Products:

- ❖ Repeal of DA Administrative Order #8 on entry of GMO products and enact laws banning entry and use of GMOs in the country;
- ❖ Scrutiny of the DA budget to support Sustainable Agriculture and complement related LGU initiatives; and
- ❖ Government subsidy for the certification of organic products of small farmer groups.

6. FR to Appropriate Technology:

- ❖ Funding for Executive Order (EO) 481 (Organic Agriculture Bill);
- ❖ Development of curriculum on organic agriculture in the DepEd and CHED; and
- ❖ Recognition of farmers as farmer-scientists and local experts in sustainable agriculture extension systems.

Related to these are efforts to ensure that the government allocates funds for these programs/initiatives.

7. FR to a Healthy Environment:

- ❖ Implementation of the Clean Air Act and the NIPAS; and
- ❖ Enactment of laws banning the use of hazardous chemicals and similar substances (persistent organic pollutants, or POPs) in agriculture.

8. Protection of FR as HR:

- ❖ Scrutiny of the intelligence fund/budget of the ISAPF;
- ❖ Support for the criminalization of enforced disappearances; and
- ❖ Expansion of the FR Bill to cover other farmers’ rights.



Next steps

The National Forum participants entrusted to SEARICE the consolidation of the various regional reports presented and agreed with SEARICE's recommendation that the consolidated report incorporates the 38 Elements of FR identified in Cebu (i.e., the Cebu Declaration). The draft report would be circulated to participants for validation and then further shared with other stakeholder groups so that the report becomes a truly "national report".

The participants further agreed that SEARICE should take the lead in lobbying for the legislative wish list at the national level, while they conduct their respective lobbying work at the local level to lend support to SEARICE's national lobby initiatives.

SEARICE informed the participants that the consolidated report would be disseminated at the 2nd Governing Body Meeting of the ITPGRFA slated in October or November 2007. SEARICE would provide regular updates to the participants and to other interested stakeholder groups through the Farmers' Right Monitor (BUGKOS Newsletter). The first issue of BUGKOS would feature the highlights of this 2007 National Farmers' Forum.

38 ELEMENTS OF FARMERS' RIGHTS (2003 CEBU DECLARATION)

Household level

- Element 1:** Right to self-determination, to make decisions on matters that will affect him/her
- Element 2:** Right to livelihood for the entire family
- Element 3:** Right to continuing, free education of the farmer's children, up to college
- Element 4:** Right to build own house and lot
- Element 5:** Right to peaceful life, old age and security and other support services
- Element 6:** Right to access quality, adequate, safe and sufficient foods for the family
- Element 7:** Right to decent and peaceful living

Farm level

- Element 8:** Right to irrigation and equitable distribution of irrigation water
- Element 9:** Right to land and other farm equipment to make the land productive
- Element 10:** Right to create initiatives in order to help others
- Element 11:** Right to good all-weather roads and bridges
- Element 12:** Right to own appropriate post-harvest facilities
- Element 13:** Right to just prices for agricultural produce
- Element 14:** Right to a subsidy (50%–50%) for farming practices



- Element 15:** Right to security over land
- Element 16:** Right to support services
- Element 17:** Right to access the best available and appropriate farming practices techniques and technologies
- Element 18:** Right to choose planting materials

Community level

- Element 19:** Right to peace and order
- Element 20:** Right to access affordable health services
- Element 21:** Right to oppose laws, policies and programs that will affect the livelihood of farmers
- Element 22:** Right to be consulted and to participate in governmental decision making on laws related to farmers, in determining farm-gate prices, government support prices and in the formulation of trade policies including importation
- Element 23:** Equal rights for women, youth and other farmers in political, social, cultural and economic spheres
- Element 24:** Right to use, share, exchange, sell and develop genetic resources
- Element 25:** Right to collective ownership of seeds (right to own way of life)
- Element 26:** Right to protect and preserve traditional farming knowledge and systems

National level

- Element 27:** Right to take part in government programs
- Element 28:** Right to be heard and be given attention regarding ecological matters and those having adverse health impacts i.e. mining cement projects, GMOs
- Element 29:** Right to be supported by government regarding technologies generated/invented by farmers in the country side
- Element 30:** Right to protect the environment
- Element 31:** Right to access information/to be informed of market data and agricultural policies of government
- Element 32:** Right to active participation in decision-making processes of government
- Element 33:** Right to redress of grievances
- Element 34:** Right to active participation and decision making processes of government
- Element 35:** Right to be recognized as the country's primary food producers vital to achieving food self-sufficiency and sovereignty
- Element 36:** Right to genuine participation in all levels of policy-making and decisions regarding agriculture & farmers' welfare
- Element 37:** Right to access to farm credit at affordable interest rates (comprehensive farm credit policy)
- Element 38:** Right to equitably benefit from the country's genetic resources



FARMERS' RIGHTS IN THE CONTEXT OF FAO'S TREATY ON PLANT GENETIC RESOURCES—THE DEBATE IN BRAZIL

RIO DE JANEIRO
OCTOBER 2007

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This paper summarizes the current debate in grassroots organizations about farmers' rights particularly in regard to the resources of biodiversity, their social practices of management, the current threats to these rights, and the forms of resistance by farmers' organizations and civil society organizations. This document will be incorporated into a broader text that addresses the state of the debate in other countries in the CBDC—Community Biodiversity Development and Conservation network.

For the preparation of this document several inputs of grassroots organizations were reviewed, such as letters and statements made at political meetings in recent years that were marked by broad participation of farmers.

FARMERS' RIGHTS

The topic of Farmers' Rights, which in Brazil includes the rights of family-based farmers, peasants, extracting farmers, agrarian reform settlers, local communities and traditional traditional populations, has been systematically discussed in recent years at major events and public demonstrations of organizations and entities representing various social sectors.

In these areas of social and political expression, increasing emphasis is being given to Farmers' Rights over the resources of biodiversity, in particular, and to seeds of agricultural and forestry use.

The concept of "Farmers' Rights," as addressed in different international fora, is not necessarily incorporated into the debate of grassroots organizations in Brazil. However, it is evident that these organizations regard seeds as simultaneously a material and economic resource, as well as a cultural asset that is part of the patrimony of farming peoples and is a condition of their existence. This understanding of the seed as a cultural good highlights the inextricable relationship between their knowledge and the resources of biodiversity.

Discussion of farmers' rights is included in discussion of the right to seeds and of the recognition and exercise of other rights that affect full access to the resources of biodiversity. Hence, farmers' rights comprise the right of farmers to express their own socio-cultural identity: the right to work, the right of access and permanence in the land, the right of access and availability of drinking water, the right to preserve their culture, their ways of life and management practices of natural ecosystems. Also emerging from that integrating approach is the right of women to material and sociocultural goods as well as recognition for their work and innovative capacity¹. In this broader context of social

¹ March of the Daisies, National Confederation of Workers in Agriculture—Contag, 2006.



struggle is the right to food in adequate quantity and quality for the nutrition and health of families, respecting their cultural diversity² and the right to foods free from pesticides and transgenic organisms³.

Specifically in relation to access to and use of seeds, the organized grassroots movement is unanimous in saying that "to produce, sell and exchange their seeds is a right of the farmer." They also believe that the State, through legal mechanisms and appropriate public policies, should promote such rights⁴, among others, supplying the public institutional markets mainly with home and family production⁵, and ensuring the participation of rural family farmers in the definition, development and implementation of policies for sustainable rural development.

FARMERS' RIGHTS IN PRACTICE

There are now in all regions of Brazil a large number of community farmer experiences that have been the basis for the development of local processes of agro-ecological transition⁶ associated with the rehabilitation, conservation, exchange and sustainable use of local seed. It is these social practices that affirm the importance of farmers and their organizations as the true guardians of local seeds, while they exercise their rights to biodiversity resources.

These experiments involve different networks of local banks and seed houses. In the state of Paraíba, in the semi-arid northeastern Brazil, 6500 families currently comprise a network of 228 community seed banks, distributed in 61 municipalities. This is an example already very well known in the country of communal structures that guarantee farming families access to good quality seed at the right time, i.e. for planting; eliminate the frequent political use of their distribution; and prioritize local seeds over improved ones for other management conditions.

There are other experiences related to the rehabilitation of local varieties, e.g. traditional practices of selection and multiplication in communal seed fields.

The knowledge and exchange of these experiences occur in different biodiversity fairs and festivals held throughout the country and in which farmers exchange their seeds.



² Idem.

³ II ENA, March of Daisies.

⁴ Federation of Workers in Family Farming, 17/09/2007; II ENA.

⁵ II ENA, 2006.

⁶ World March of Women, 2006.

The spread of networks for community rehabilitation, multiplication and exchange of breeding material has resulted in the formation of local systems of information on seed availability, which in turn has activated mechanisms of reciprocity and exchange. In this context, some organizations of farmers have taken up the challenge to produce registered seeds in an agroecological way, such as Bionatur, linked to the Movement of Landless Rural Workers (MST), and Unaic, Union of Associations of Farmers in the State of Rio Grande do Sul, in the southern part of the country.

The articulation of these experiences both locally and nationally has led to some degree of influence on the formulation of public policies for the sector. An example at the local level was already mentioned in the state of Paraíba, where the government enacted a law that ensured the supply of stocks of the Seed State Program with seeds from local varieties. Until then these government programs of seeds were characterized by the distribution of improved seeds in different environmental conditions, and adapted for systems based on intensive use of agrochemical inputs.

At the federal level, the Food Acquisition Program can be highlighted, operated by the National Supply Company, which encourages and supports the marketing of local seeds produced by family farmers, and the Multiplying Centers for the Management of Agrobiodiversity—CIMAS, the result of a partnership between the National Institute of Colonization and Agrarian Reform and the Ministry of Environment, which support the genetic conservation of seeds and livestock in rural settlements.

THREATS TO FARMERS' RIGHTS

If on the one hand, the sustainable use of local seeds and the exercise of farmers' rights to the free use of seeds have been due mostly to the initiative of civil society, on the other hand, initiatives to restrict these rights and the threats that may limit the free use of the seed come mostly from agribusiness and the State.

The experiences of rural populations show, and studies confirm it, that the agribusiness model is primarily responsible for the concentration of land, the violence in the countryside, the rural exodus, the urban unemployment and the degradation of biodiversity, soil and water^{7,8}. The predatory way in which agribusiness corporations occupy territory, promoting their physical destruction, is a serious threat to rural populations.



⁷ Letter of the ENA II.

⁸ Gemmil, B, and Varela, AM Modern agriculture and biodiversity: uneasy neighbors. Policy Briefs. Science and Development Network, Feb, 2004.

The retrenchment of the traditional practices of farmers and local communities in management, production, use, storage, marketing and exchange of seed have been occurring due to the creation or modification of regulatory frameworks that protect the commercial interests of private groups and the introduction of technologies such as transgenic seeds. These new legal contours tend towards increasing privatization of genetic resources and its monopolistic exploitation through different mechanisms of industrial protection, such as patents, in the case of transgenics.

The experiences cited previously, and many other ongoing in the country that were not mentioned in the text, are considered legal only because there are small "gaps" in the national legislation on seeds and seedlings (Law 10711/03) and plant variety protection (Law 9456/97), which recognize the local seeds (hitherto regarded as "grains") and allow their use. The law also ensures equal conditions to farmers who grow conventional and local seeds, particularly in access to state subsidies agriculture, such as credit.

These small exceptions are a result of recent mobilization by civil society. If it were not for this, all community experiences of management of biodiversity resources would be deemed illegal.

The present moment could be used for consolidation and expansion of experiences, as an exercise of these rights. However, what is happening is that the organizations and movements engaged in the promotion and protection of the local seeds are investing their efforts in a new process of mobilization to prevent changes in the law that reverse these "loopholes" and impose further restrictions on the use of the resources of biodiversity.

Family farmers who produce registered seed commercially experience difficulties in meeting the requirements of legislation, since the access to basic seed (produced by the breeder or maintainer of the variety) has been heavily restricted⁹ to family farm organizations. Contrary to the law of Seeds and Seedlings, farmers who use local seed have difficulties in accessing agricultural insurance, intended solely to benefit users of registered seed¹⁰.

The Plant Variety Protection law ensures the right to commercial reproduction and prohibits others to produce seeds and seedlings of protected varieties for commercial purposes. But in its current form, the law provides that the personal use of protected seed (harvested and used as seed the following year), and the consumption or sale of production do not infringe any property rights. Moreover, the same law allows for the do-



⁹ Article 2, section XXV of the Seed Law defines the maintainer of seeds as "natural or legal person responsible for making available a minimum inventory of propagating material of a cultivar listed in the National Registry of Cultivars-RNC, retaining features of genetic identity and varietal purity."

¹⁰ London, F. The new legislation on seeds and seedlings in Brazil and its impacts on the family farm. National Agroecology Articulation: Rio de Janeiro, 2006.

nation or exchange of seeds among small producers. Currently, the government is considering changes in legislation so that, inter alia, the protection that today focuses on a specific list of species will apply to all grown plants, fungi and algae.

As if all this was not enough, the intellectual protection is not restricted to seeds and seedlings, covering in some cases the products of the harvest obtained from protected seeds. The results are restriction of rights, increased costs and loss of autonomy of farmers. Concretely, these changes could be implemented if Brazil joins UPOV 1991—Convention of the Union for the Protection of New Varieties of Plants. For some sectors of the current government and agribusiness, the use of farm-saved seed is a bad “cultural habit” of the farmer, who needs to be re-educated to use registered seeds¹¹.

Discussion is currently ongoing in the federal government for a draft law on access to genetic resources and benefit sharing, which the government intends to send to Congress to replace the national guidelines currently in effect.

As in other cases already mentioned, this discussion has taken place without the participation of civil society and without the consultation of the sectors that will be directly affected.

It is convenient to cite the negative impacts on the conservation of agrobiodiversity arising from the technical-scientific approach that guides agricultural research and which permeates rural extension and the existing regulations for the financing of agriculture. A view that knowledge about the management of biodiversity resources is the exclusive domain of researchers and plant breeders results in the discredit and disqualification of the know-how accumulated by farmers in the management of diverse agroecosystems, leading to increasing specialization of production and progressive disappearance of the local varieties and breeds¹².

The grassroots social movements have been working throughout the country to defend and strengthen the sustainable use of local seeds by farmers and traditional populations. At the same time, they seek to improve their strategies to address the impacts of the agribusiness companies that want to control Brazilian seeds, production and agricultural trade and policies. The main strategies of peasant resistance lie in the strengthening of local experiences and their affirmation as a way of influencing public policies.



¹¹ Lobby in Congress that restricts the right of farmers to save seeds. Socioenvironmental Institute, 08/08/2007. Available in http://www.socioambiental.org/nsa/direto/direto_html?codigo=2007-08-08-153804, consulted on 03/10/2007.

¹² Letter from I ENA.

Among others, some initiatives underway can be highlighted that seek to guarantee the rights of farmers to seeds:

- Linkages between social movements and organizations to ensure that Brazilian seed legislation does not deny farmers the right to produce, exchange and market their seeds;
- Creation of mechanisms to prevent the appropriation and misuse of local varieties by researchers and/or companies;
- Negotiations so that rural credit programs, crop insurance, technical assistance and State programs encourage the free and autonomous use of seeds with an agro-ecological focus, guaranteeing farmers' rights;
- Formulation of a National Program on Agro-biodiversity towards encouraging local initiatives to free and autonomous use of biodiversity, including through the purchase and distribution of local seeds produced by farmers;
- Encouraging participatory research for the development of production systems using different local seeds;
- Creation of "biomonitoring networks" to monitor and report on transgenic contamination;
- Development of networks of community seed banks and promotion of festivals and fairs for the exchange of local seeds;
- Support for the social debate on the implications of legislation on seeds and seedlings to family farming;
- The expansion and intensification of campaigns, such as "Seeds Heritage of Humanity", led by Via Campesina, and the "Campaign For A Transgenics Free Brazil";
- The presence of social movements and civil society organizations in areas of consultation and political impact, such as the CONSEA—National Food Safety Council, or the CONDRAF—Council of Rural Development and Family Agriculture, the CTNBio—National Technical Commission on Biosafety, the CNBS—National Council Biosafety and the Advisory Council of Foreign of Embrapa; and
- Linking up consumers and family farmers, thus enhancing the quality of food production and promoting a production system that is environmentally friendly.



THE RIGHTS OF FAMILY-BASED AGRICULTURE

WORKSHOP REPORT—FINAL SUMMARY

OCTOBER 2007

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BACKGROUND

General objective of the workshop

To discuss and identify the rights of family-based agriculture.

Specific objectives of the workshop

- To identify the objectives of family-based agriculture;
- To introduce the participants and their communities; and
- To provide participants with a methodological framework to define farmers' rights.

Methodology

Selection of participants

- Six territories were identified, according to receptivity in the territories (Rebolledo, 2007).
- In each territory several farmer organizations were visited (mainly Neighbor Councils) through which sub-territories were characterized (6 in total).
- Within each sub-territory, the problems of peasant communities were identified, and classified, e.g., technical, etc.
- Each organization was invited to participate in the workshop on Farmers' Rights. Four representatives from each community, from 6 sub-territories, were invited and asked to ensure that both genders were equally represented.
- In total 17 farmers participated in the event.

WORKSHOP

Presentation of the activity

- Introduction to Farmers' Rights;
- Discussion on the objective of family-based agriculture;
- What do farmers think about their rights;
- How are their rights realized in practice.

Results

1. Presentation of the activity;
2. Introduction to Farmers' Rights
Activity carried out by the facilitator of the workshop;
3. Discussion on the objective of family-based agriculture
The discussion focused on:
 - ❖ Livelihood production;
 - ❖ How to ensure subsistence;
 - ❖ What types of assistance are necessary;
4. What do farmers think about their rights?
Farmers discussed seven thematic areas. Those areas were:
 - ❖ Technology;
 - ❖ Seed;
 - ❖ Environment;



- ❖ Organization;
- ❖ Information;
- ❖ Market; and
- ❖ Commercialization.

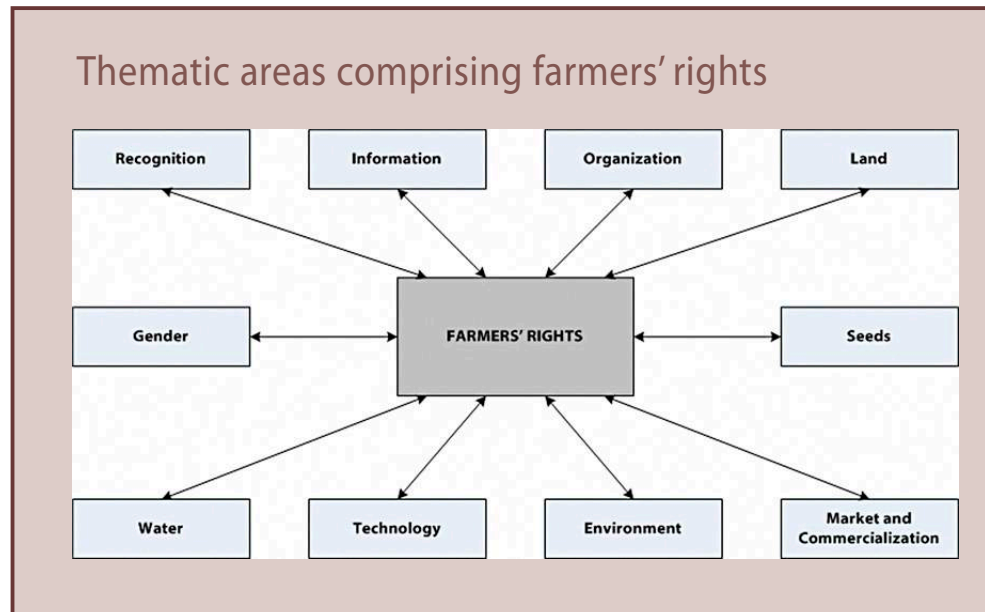
In particular, the following were discussed:

- ❖ Technology
 - How to improve production;
 - The costs of technology are high;
 - The technical assistance has been positive (from the PRODESAL), this should be shared with other farmers;
 - The farmer does not do what the professional recommends (alluding to the indications by the veterinarian doctor in the management of milking cows in the commons).
- ❖ Seed
 - Seeds should be allowed to be reproduced;
 - Access to seed;
 - The farmers recognize that despite the influx of certified seeds, they have kept local seeds of bean, maize, melon, tomato, coriander, watermelon, lettuce, peach, apple. The advantages of using these seeds were described, mainly associated with better taste and greater diversity of uses;
 - Seed with high yields;
 - Genetic quality.
- ❖ Environment
 - High pollution due to pesticides;
 - Pollution from cellulose processing plant;
 - Foul odors from porcine production.
- ❖ Organization
 - The need for greater participation is recognized, at the same time as developing a better level of commitment from farmers in matters of protection of agriculture;
 - The need for a unit of organization for the protection of agriculture;
 - The “committee” disappeared, we are not united and we have had therefore to depend on the Neighbor Council from another community.
- ❖ Information
 - They do not know which institutions to go to for information.
- ❖ Market and commercialization
 - Being able to access markets with their production;
 - Maintain food fairs;
 - The producers are not taking their products to the fairs;
 - Increase commercialization places;
 - Access to transport facilities;
 - An itinerant fair was implemented which did not have the support of the farmers (because they were not informed);
 - They are not organized for commercialization;
 - They do not have purchasing power;
 - Peasant products are not preferred;



- Middle-men buy the vegetables and sell them at a much higher price than what they buy them from the farmers; and
- The land is abandoned and the owners are selling it.

Afterwards the work was done through cards which proposed other entries to the discussed topics.



The following thematic areas were added then:

- ❖ Land;
- ❖ Water;
- ❖ Gender; and
- ❖ Recognition.

Gender

- It is acknowledged that men and women share roles.
- Women recognize that men should not bear all the heavy burden of work.
- Men think that women work the same as men. It is said that women are hired based on their physical appearance, and this constitutes a form of discrimination.
- Shared work on the basis of equity is what should be promoted.
- Men are discriminated against when physically disabled.
- There is a high demand for women at work posts. They feel molested in the work places.
- Women also discriminate when they are in charge.
- Women are valued because of their delicacy (especially when working with blueberries).

Land

- Not losing the ones they now have.
- To have work in their lands.



- It is not acceptable that forestry activities (with eucalyptus) are done on wheat fields.
- There is a lack of control in the fields.

Water

- Lack of water leads to the bankruptcy of the vineyards.
- Improving canals and wells is needed.

Recognition

- Authorities and technicians should learn about the interests and problems of the peasants.
- They should fulfill their promises.
- They should listen to the farmers.

5. How are Farmers' Rights realized in practice?

Farmers recognize that they have not carried out practices for the protection of their rights to date. They recognize that somehow the work through community organizations, the requests to the municipal authority about improvement on the communities' infrastructure, the individual work done by some leaders, the creation of women's organizations and the technical practices for the protection of their crops and animals contribute to the protection of their rights. They also recognize that there are individualistic practices that work against the collective rights of farmers.

THE RIGHTS OF FAMILY-BASED AGRICULTURE

1. The right to continue being a peasant farmer

This can be understood in a simple way, as the right to produce what is necessary, and to ensure their present and future subsistence.

This is also expressed in terms of being recognized as such. The latter meaning that the peasant farmers wish their authorities and technicians know in a better way the interests and problems that affect them.

2. Rights of female and male peasants farmers

It is recognized that men and women share roles in the diverse activities of farmwork. The need to eliminate the discriminatory practices that both men and women have to deal with in agricultural activities is also recognized. In the same way, the importance to take advantage of the skills and talents of their relations is also recognized. In particular, women express their concern for their increasingly hard and demanding work.

3. Right to maintain their seeds

Farmers claim the right to decide which type of crops they wish to grow and therefore the type of seeds. This choice has been strongly determined by the markets, resulting in the loss of the local seeds. Local seeds offer other advantages and uses.



4. Right to land and water

The right to land, understood as protection against the loss of the right to work in their own lands, is felt by many farmers who have had to relocate to the cities and to take on non-farm work. The right to land also means not being forced to sell, not accepting legal regulations for the use of their land; and not giving up their land for forestry activities.

In relation to water there is a need to improve the canals and the wells.

5. Right to appropriate technology

Farmers require improvements in food production. The importance of services delivered by the State is recognized, even when they claim that this is a right to which all farmers are entitled. Nevertheless, it is necessary to design new technologies that require few, low-cost inputs. Farmers recognize that technological packages that rely on pesticides and fertilizers pose a risk to human health, but the lack of alternatives forces them to take part in that kind of agriculture.

6. Right to a healthy environment

There is an increasing concern for the contaminating effects generated by agriculture. Similarly, the porcine industry generates foul smells.

Also worrying is the pollution generated by the installation of a cellulose processing plant in the territory.

7. Right to have their own markets

Local food fairs represent one of the significant spaces for the peasantry. It is important to maintain such spaces, at the same time as highlighting the concern for the fact that the producers have discontinued their presence there. They recognize the need to protect such places though, especially since consumers' access to peasants' products depends on middlemen who collect greater gains.

8. Right to information

In general there is not very good access to information, particularly those related to State policies that involve or affect the peasantry.

9. Right to organize

Farmers acknowledge their limited organizational ability. It is important to identify the elements of participation. In this way, organizations do not simply fold for no apparent reason.



FARMERS' RIGHTS IN CUBA

REPORT OF THE SECOND MEETING OF THE SUPERINTENDENT
ORGANISM OF THE INTERNATIONAL TREATY ON PLANT GENETIC
RESOURCES FOR FOOD AND AGRICULTURE (FAO), IN ROME FROM
THE 30TH OF OCTOBER TO THE 2ND OF NOVEMBER

Asociacion National de Agricultores Pequenos
(National Association of Cuban Small Farmers), Cuba
Calle I no.206 entre Línea y 13 Vedado, Plaza de la Revolución
Ciudad de la Habana, Cuba

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BACKGROUND

Upon the victory of the Cuban Revolution, a process of great and profound structural transformation began, aimed at establishing a fair distribution of the wealth that was concentrated in the upper classes and land tenants, eliminating the exploitation system that existed. In order to do that, significant programs were put in motion to deal with employment, education, public health, housing, security, basic food production, science, culture and sports that, together with social justice and the conquered national independence, eliminated the grave social problems and the high unemployment rates, unsanitary conditions and low literacy levels that were characteristic of Cuban society before the victory of the revolution.

Before 1959, arable land in Cuba added up to 1.9 million hectares, or around 17 percent of the national territory, for a population of six million inhabitants.

The predominant land tenure form was the "latifundio" (large land holdings). Around 8 percent of the farms were concentrated in about 71 percent of the land; and 64 percent of the farmers were not owners of the land they worked in.

Social development indicators in the country in those times showed that between 1956 and 1957, more than 40 percent of the people were illiterate.

Laws of Agrarian Reform were promulgated by the Revolution between 1959 and 1963, and they not only abolished large landholdings, but also guaranteed a secure job to agricultural workers.

In general, the beneficiary farmers were settled in lands that were suitable for agriculture, and there were even changes in land use as well as relocations where necessary in order to provide the owners with a better life and better working conditions.

The right to property, according to agrarian laws, extends to the instruments and tools of work, the housing and infrastructure and to the product of the work. Regarding property, these laws continue in effect and the agrarian legislation after its promulgation continues to be respected and its mandate taken into consideration.

CONTEXT

The Cuban peasantry with the victory of the revolution has never had to go through the misery that was characteristic of the pre-Revolution times. Cuban peasants can count on rural support institutions, a wide spectrum of free and accessible services, infrastructure, access to land, low interest credit, inputs and a stable market, together with strong national policies regarding social values.

Starting from the 1990s, a deep economic crisis hit the island. With the fall of the Soviet Union and the socialist block in Eastern Europe, Cuba lost 80 percent of its import ca-



capacity. Farmers did not have fuel for their tractors, fertilizer nor pesticides for their crops, nor spare parts for their water pumps; agricultural production, as well as all other activities were completely stopped, and parallel to this the sanctions imposed by the United States government to the island became ever more crude.

FARMERS' RIGHTS

1. Collective Rights

The first right that us Cuban farmers are granted is the right to have our own Revolution and the right to defend it. As part of the organized defensive system of our country, we have the inalienable right to be free and to decide our own destiny; we have the right of association, free health services, education and sports, as well as the right to maintain our cultural identity. We have the right to use and conserve the resources that Nature has given us, the use of the land, the right to credit in order to develop our farms, insurance against natural disasters for our crops and infrastructure. The right to choose and be chosen for the elective positions of the farmers' organizations, as well as of the different institutions in the popular government.

2. Organization that represents farmers

The Cuban farmers have an organization that represents them from the economic, political, social and cultural points of view: the National Association of Small Farmers (ANAP), founded on a 17th of May 1961.

As a representative of the peasantry in the different institutions of Cuban society, ANAP participates in the formulation of policies and strategies related to agrarian and productive issues and to the economy; it collaborates and coordinates with the national institutions on technical and productive programs, as well as on socio-cultural development initiatives implemented in rural communities.

3. The Right to be represented in Cuban Parliament

Cuban farmers enjoy all the rights and liberties to participate in the electoral process; they have the chance to propose candidates and be chosen. For example, right now there are 618 cooperativists and farmers that are Delegates to municipal and provincial assemblies; and 12 cooperativists and farmers are members of the Cuban Parliament. In the general elections that were held on October 21, there were 1600 men and women candidates from the cooperatives.

In the Cuban parliament not only is the highest direction of the ANAP represented in the country, through its National President, but also men and women with peasant origins who are elected as congress people for the Assembly at the provincial and national levels.



4. Right to land property

There are national laws that recognize the legal status of Agricultural Production Cooperatives (APC) and Credit and Service Cooperatives (CSC) and their right to the ownership of land and other goods acquired through the contribution of their members. This recognition is established in the **Constitution of the Cuban Republic**, in effect to date and in which articles 19 and 20 ascertain categorical precepts, such as:

- ☛ The State recognizes the property of small farmers on lands that legally belong to them and all the infrastructure that is necessary for the exploitation activity that they do, according to the Law.

5. Law of protection to the peasantry/Right to associate in APC or CSC in a voluntary form

It is important to highlight that the Cuban State takes into account its responsibilities for the development of agrarian cooperativism and in the **Law 95 of the cooperatives** the obligation of the State in allowing economical and technical help through human qualified resources for increasing their production is stated, as well as its commitment to facilitate the process of identifying the common interests of the cooperative with the interests of society.

In another article of the law it is expressed that the APC and CSC should have their own legal status as well as their internal life ordered through an **Integral Regulation** that must be approved by the General Assembly of its members. This regulation aims at the exercise of the cooperative democracy as an internal functioning norm.

6. Right to participate in the socio-economic development plans of the nation

The axis of integration of the producers from the peasant and cooperative sectors to the national economy is formed by the relations of the APC and CSC with the State, through specialized planning systems, contracts, finance, prices, credit, agricultural insurance, social security and life insurance, among others.

The APC and CSC, as legal entities, and the farmers individually as natural persons, are economic beings that participate in the execution of the **socio-economic development plan of the nation**. As such, they are incorporated in the process of discussion and elaboration of the figures related to cropping, sales, inputs, etc.; in order to formulate and approve an annual techno-economic plan for agricultural production.

7. Right to enter into contract

The economic and monetary-market relations between parties are ruled by economic contracts. The economic contracts highlight the obligation of the contractors, among themselves and with the Plan. There are several types of contracts,



e.g., for pre-sale of goods, buy-sell special agricultural products, inputs, services, transport, construction, insurance over property, etc.

The basic norms for economic contracts among executing parties of the Plan are found in the **Decree of Law 15/78 of the Ministers Council**.

8. Access to credit

The APC and the individual farmers receive loans from the national bank to finance production and to make productive investments. The production credit covers the ordinary costs of each productive cycle and the investment covers the expenses for acquiring or building basic structures and their repair; they may also avail of credit for the promotion, renovation or rehabilitation of permanent crops and for the construction of houses.

The paperwork process to obtain credit can be done by the CSC in the name and representation of its members if they so agree. There are norms, backed by Resolutions from the Central Bank of Cuba and the Commercial Banks, for the grant, regulation and repayment of agricultural loans. Bank loans generate interest for the time between the granting and amortization of it. The current interest rates are approximately between 4 and 6 percent for the loans on production and investment, accordingly, and for rural housing the rate could be around 2 or 3 percent, depending on whether they are located in the uplands or lowlands.

Additionally, the APC and CSC have the right to renegotiate and restructure the payment of their loans and also to apply for special financial concessions for the settlement of the loans of their indebted members.

The CSC can solicit loans for activities for the common benefit and collective use of its cooperativists. These loans are paid with the income generated from the sales on inputs and services.

9. Right to social security

The APC pays an annual contribution to guarantee the social security of its members, paid vacations, sickness, pension. The CSC, when it employs a workforce in its administrative tasks, also contributes to the payment of the social security for its staff.

Independently from these conquests won by the Cuban peasantry, they have the right to another series of social benefits for their employees or family members. For example, children with physical limitations are enrolled in Special Schools, where they are educated and taught skills according to their limitations. There are schools for the blind and visually impaired. For the elderly who do not have families, there are homes with all the necessary accommodations.



10. Right to fair prices for their produce

They participate in setting prices for their agricultural products

There are several agricultural products in the country, such as sugar cane, coffee, tobacco, cattle meat, which prices are regulated according to Resolutions and other Legal Norms approved by the Ministry of Finance and Prices. There are cost-record cards with commercial margins and utilities. The proposal for new prices or modification to existing ones are generally done through the Administration Councils of the Provincial Assemblies of the Popular Power (provincial governments), for those products that are to be sold within the province and those that are bound for State agricultural markets. Additionally, there are prices for products to be sold in the offer and demand markets.

Prior to setting prices for products to be distributed at the central government level as well as at the province, an analysis and consultation among interested parties is carried out, and in that process the producers participate, either through the APC or CSC, or through the ANAP, as the representative organization of the economic and social interest of the Cuban farmers.

11. Right to safe commercialization of production

The Cuban State guarantees to both the APC and CSC a ready market for their members' produce, e.g., state owned corporations, schools, hospitals, work centers and other destinations.

For non-contract production, the Agricultural Marketplace was created in 1994 so that producers can sell at liberalized prices to the offer and demand market.

12. Right to agricultural insurance

The Cuban farmers are protected by an agricultural insurance system, both for crops and cattle and other goods, against the damage or loss caused to their plantations, crops, animals or other goods by natural disasters or other risks.

13. Right to seed

The Cuban State, through its created structures to attend the cooperative and peasant sectors, guarantees the necessary seeds for the productive processes. The Cuban peasants also have traditionally developed methods and techniques for the conservation and propagation of our main varieties of staple foodstuffs, preserving their main characteristics, which have allowed them to adapt perfectly to our climate conditions.

More than 50 percent of the seed produced in Cuba comes from farmers, and they deliver part of that amount to the State in order to support the rest of the farmers.



The ANAP is developing right now an agro-ecological program, and one of its main venues is the conservation of native varieties of each region, and to start their adaptation to other parts of the country.

14. Right to intellectual property

The recrudescence of the US sanctions against our country has made it necessary to constantly search for different alternatives to maintain our machinery and tools in good working condition, and to develop varieties that are more resistant to pests and diseases. To address this need, our cooperatives have created a new forum on Science and Technology where the creativity of our farmers is evidenced and at all moments the authors' rights to their creations are respected, provided these are not used for commercial purposes, but rather shared with the rest of the interested producers who may want to apply the inventions in their fields. Farmers can even file patent claims for varieties they have developed.

The Agroecological Peasant-to-Peasant workshop is one of the ways by which the experiences of our farmers from different parts of the country are disseminated.

15. Women's rights

Women, just like men, have the right to own land and to protect and conserve the natural resources found in it, and to be owner and heir. They also have the right to become members of the Cuban parliament. Currently 11 percent of ANAP's members are women. Furthermore, ANAP has a gender strategy to promoting greater women's participation. In the Agricultural Production Cooperatives (APCs), there are more than 10857 women incorporated, or about 22 percent of the total membership; and in the Credit and Service Cooperatives (CSCs), there are 25268 women, 10.3 percent of the total members. Some 10191 (or 8.8 percent) of all landowners are women. Of this number, 885 are leasing (10.6 percent), and from the total number of women leaders, 52 are presidents of APCs and 79 of CSCs.

16. Environmental and natural resources law that protects farmers

Small and mid-sized farmers in Cuba (and in this last category we include the APC) have the responsibility to produce a significant percentage of the food that the population will consume, but they have the right and commitment to manage the surrounding natural resources. Protecting these resources is protecting themselves and their loved ones, and that is the rationale for their efforts to practice a healthier, more harmonious, and more balanced agriculture.

Law No. 85, of the Forestry Law from the Ministry of Economy and Planning and the Ministry of Finance and Prices establishes the creation of the National Forestry Development Fund, which has as its main goal the promotion and finance of projects and activities dedicated to the conservation and development of forestry resources.



BIODIVERSITY AND THE RIGHTS OF PEASANT FARMERS

REPORT ON SOCIAL CONSULTATION AND PARTICIPATION IN VENEZUELA

OCTOBER 2007

Instituto para la Produccion e Investigacion dela Agricultural Tropical (IPIAT)
Venezuela

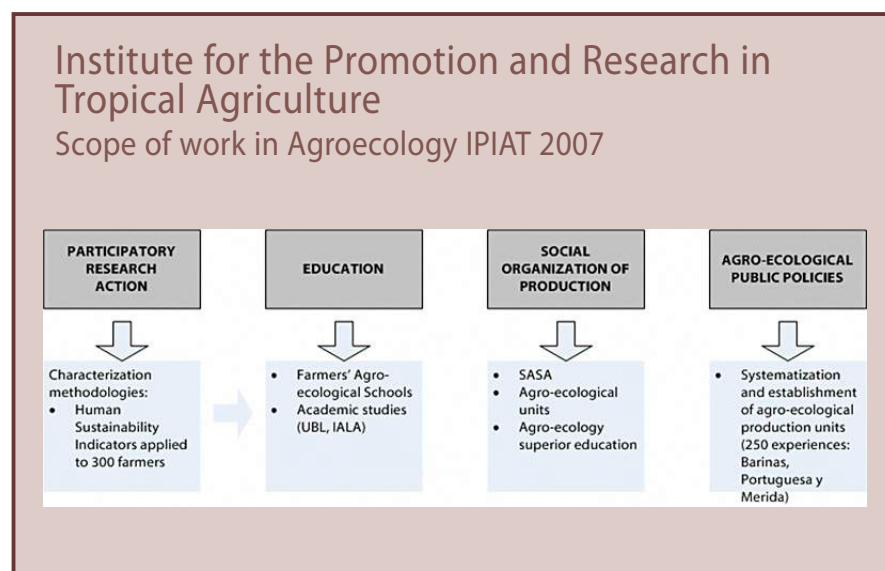
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CURRENT SOCIO-POLITICAL CONTEXT

Constitutional popular process 1989

- National Constitution of Bolivarian Republic of Venezuela (CNRBV) 1999
- Constitutional reform, 2007
- Proposal from the Social and Agroecological Movement for Food and Agroecological Sovereignty, article 305 of the CNRBV.



CONSULTATION PROCESS: Biodiversity and Farmers' Rights

Grassroots collectives

- Agroecological producers associated with IPIAT
- Students from the Latin American Agroecology Institute Paulo Freire
- Farmers' Cooperative Aromas de Calderas
- Farmers' Cooperative Cobalongo-Conuquero
- Network of organizations of Agroecological Coffee Producers
- Socio-cultural production calendars
- Popular meetings "Enriqueta Arvelo Larriva"
- Mission Culture: Altamira Church, Calderas
- Agroecologic Cooperative Arco Iris

Number of people consulted

200

Methodology

CBDC, through socialized debates and assessment of the collective systematized experiences.



VISION OF THE PEASANT FARMERS OF VENEZUELA

1. Right to water

- ❖ The communities have the right to participate in the process of design and selection of the sources of water that supply rural and urban aqueducts;
- ❖ Each water service must be public, sufficient and of potable quality;
- ❖ The State, together with grassroots organizations and peasant families, will integrate Agro-ecology in an organizational and productive structure for the management of watersheds and affluents;
- ❖ Right of farmers and communities to protect and defend the water sources from the predatory invasion of development mega projects implemented by public institutions, and multinational corporations.

2. Right to land

- ❖ Right to recognize the legitimacy and legality of land tenure based on the traditional and cultural work of peasant families in the conservation of local biodiversity;
- ❖ Right to family, collective and communal property of the land, that allows the social permanence in the conservation and stewardship of the local peasant biodiversity;
- ❖ Eliminate the classification of "idle land" of areas designated by the farmer for the conservation of local forestry resources and wildlife;
- ❖ Right to establish an agro-ecological legal framework aimed at protecting the environment of the parcels, or agroecological production units.

3. Right to seeds

- ❖ Right of farmers to conserve, save and use traditional seeds;
- ❖ Right to recognize the genetic quality of the traditional peasant seed;
- ❖ Right to consider seed as a item of cultural tribute and of profound importance to the farmers and indigenous peoples;
- ❖ Right to recognize fallow land as an ecological space to maintain the embryo of seeds;
- ❖ Right to recognize the value of peasants' knowledge in conserving and keeping traditional and local seeds;
- ❖ Right to recognize the contribution of farmers who are located in remote areas in the conservation and maintenance of local seeds;
- ❖ Recognition of the Sovereignty of peasant and indigenous communities by acknowledging the genetic value of their seeds, by promoting participatory methodologies, and farmer-to-farmer exchange and research.

3. Right to culture

- ❖ Right to recognize and respect the intellectual property and tradition of the peasant, afro-descendant and indigenous knowledge;
- ❖ Right to recognize the historical resistance of peasants and indigenous peoples against the negative impacts of the agricultural models of the Green Revolution;



BIODIVERSITY AND THE RIGHTS OF PEASANT FARMERS

- ❖ Right to recognize that from the peasant and indigenous culture of resistance, alternative proposals on sustainable production are also built. This statement is assumed from the concept of cultural, material and immaterial patrimony that includes the knowledge, seeds, territory, land, struggle, social organization;
- ❖ Right to recognize the peasant cultural diversity as a social practice in the conservation and maintenance of biodiversity.

4. Political rights

- ❖ Right to recognize the agro-food sovereignty of the peoples from an agro-ecological scope and perspective;
- ❖ Right to guarantee ways and means of access to public and private institutions without political or market pressures, with respect to the autonomy and interest of the peasant families and communities;
- ❖ Right to recognize the supervision and management of the biodiversity from peasant and indigenous social movements and their grassroots organizations without interference from external actors.

5. Right to commercialization and markets

- ❖ Right of farmers to local markets in direct relation to land-producer-consumer, strengthening the traditional crops;
- ❖ Design and application of clear and precise public policies with a solid base on agro-ecology as a valid strategy for conservation and preservation of biodiversity;
- ❖ Right of farmers to receive agricultural insurance from the States and Governments to guarantee and maintain local production;
- ❖ Right to recognition of agricultural finance in case of natural disaster situations that lead to the loss of crops.

6. Right to technology

- ❖ Right to use and enjoy alternative and appropriate technologies that contribute to the improvement of the quality of life of difficult-to-access communities and with a minimum impact on biodiversity;
- ❖ Right to recognition, development and implementation of the research done by “popular scientists”, which are in permanent articulation and balance with nature.

7. Right to education

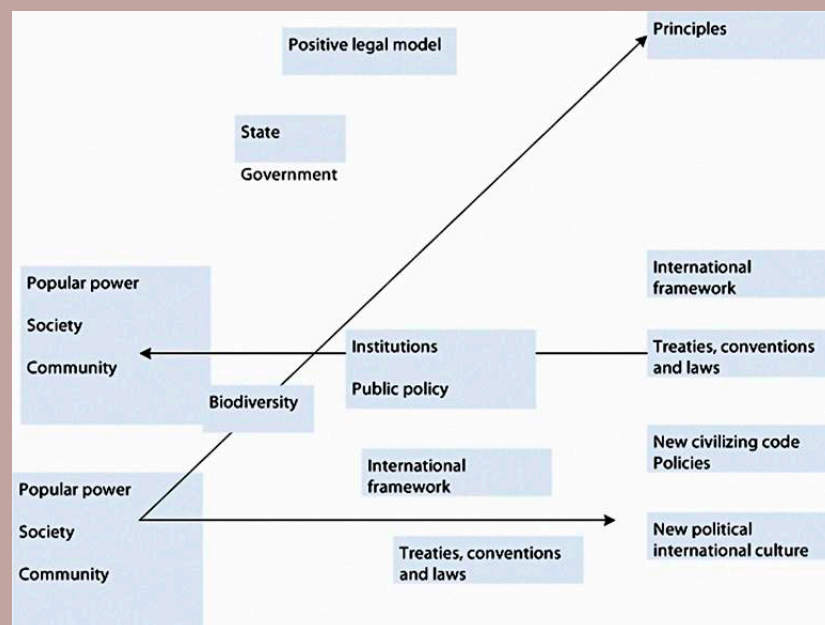
- ❖ Right of the peasant family to teach their children how to take care of their animals, water and biodiversity in general;
- ❖ Right to community education on the knowledge and skills to take good care of local biodiversity;
- ❖ Right to recognize the peasant “huerta” (family plots) as a family and community space for education about local biodiversity;
- ❖ Right to implement programs on rural education, according to the social and environmental reality.



8. Right to social security

- ❖ Right of farmers to be included by the State in the Social Security and the Agrarian Pension Systems;
- ❖ Right of the rural communities to have public services adjusted to their cultural and environmental conditions;
- ❖ Right to physical security of the peasant family against political terrorism, drug trafficking, and organized crime.

Model of collective law, active, participatory, real



CONCLUSIONS

- The historical process of study, research and formulation of public policies linked to issues of biodiversity has yielded a good amount of treaties, conventions and agreements signed by the governments where farmers' rights are recognized. This fact must be understood as a result of the decades-long social struggle by the world's peasant movement. That is, they are rights conquered and achieved by the peoples movement.
- From this perspective the IPIAT considers that it is imperative to establish the principle that laws must be guided by the concrete practice of the community, popular power, cultural diversity, the self-determination of the peoples, and community based management of local natural resources. All that within the basic principle of unity and indivisibility of the national territories.
- The two previous points are essential political conditions to advance the formal recognition of the positive law, the real legal and concrete exercise of the communities' rights and those of the peasant farmers in relation to the conservation and preservation of biodiversity.





What is CBDC?

The Community Biodiversity Development and Conservation Programme (CBDC) is a global initiative developed by governmental and non-governmental organisations (GOs and NGOs) involved in agricultural initiatives in Africa, Asia and Latin America, in cooperation with Northern partners. Its purpose is to strengthen the ongoing work of farming communities in conserving and developing the agricultural biodiversity that is vital to their livelihood and food security.

The CBDC Network



Assessoria e Serviços a Projetos em Agricultura Alternativa (AS-PTA, Brazil)



Centro de Educacion y Tecnologia para el Desarrollo del Sur (CET-SUR, Chile)



Centro de Investigación, Educación y Desarrollo (CIED, Peru)

CBAN

Community Biodiversity Action Network (CBAN, Sierra Leone)



Community Technology Development Trust (CTDT, Zimbabwe)



Action Group on Erosion, Technology and Concentration (ETC Group)



Hug Muang Nan Network (Thailand)



Instituto Mayor Campesino (IMCA, Colombia)



Institut de l'Environnement et de Recherches Agricoles (INERA, Burkina Faso)



Mekong Delta Farming Systems Research and Development Institute, Can Tho University (NARS)



Centre of International Environment and Development Studies Agricultural University of Norway (NORAGRIC, Norway)



South East Asia Regional Initiatives for Community Empowerment (SEARICE, the Philippines)



Unitarian Service Committee of Canada (USC–Canada, Mali)



Center for Genetic Resources, Norwegian University of Life Sciences

PROCEEDINGS

INTERNATIONAL FARMERS' TECHNICAL CONFERENCE



February 11-13, 2004
Grand Pacific Hotel,
Kuala Lumpur, Malaysia



Community Biodiversity Development and
Conservation Programme (CBDC)

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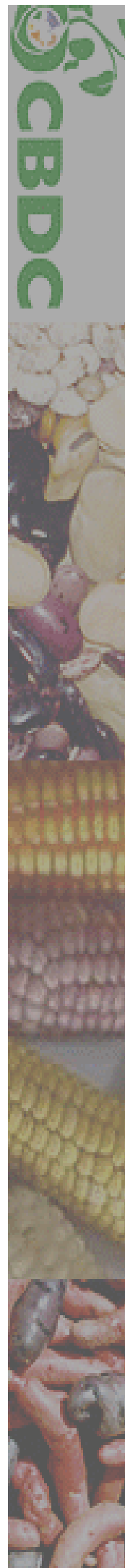
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PROGRAMME

LIST OF PARTICIPANTS

BACKGROUND

The **Community Biodiversity Development and Conservation** (CBDC) as a global program on agricultural biodiversity conservation, development and use implemented in the regions of Southeast Asia, Latin America, and Africa, has been running for the past eight years with limited international visibility and projection. In the last World Summit on Sustainable Development held in Johannesburg on August of 2000, CBDC had series of activities that projected its work to broader international audience with positive response.

Inspired by the positive result, CBDC targeted the 7th Convention of Parties (COP 7) of the Convention of Biological Diversity (CBD) in Kuala Lumpur as another opportunity to present CBDC work at the International level. It was a significant event for CBDC in terms of content area since it brought representatives from different governments to discuss global strategy on PGR conservation, GURTS, technology transfer, and access and benefit sharing which run parallel to the CBDC concerns.

The **International Farmers' Technical Conference** (IFTC) as a platform for sharing and advocacy, was the first time for CBDC to attempt in bringing some of its farmer partners for program sharing within and with other interested farmers, organizations and individuals. It became a venue not only for farmers to share among themselves but also to encourage policy makers to support their work on the ground and question current government policies and programs, which pose a threat to farmers' gains.

The **Southeast Asia Regional Initiative for Community Empowerment** (SEARICE) hosted this first IFTC event. As the regional coordinating unit of the South East Asian component of the CBDC, SEARICE has already organized and co-organized regional, national and provincial FTCs in the Philippines and Vietnam.

The three-day activity (February 11-13, 2004) held in Grand Pacific Hotel in Kuala Lumpur, Malaysia, was guided by three themes: 1) ***Conserving Agricultural Biodiversity***; 2) ***Modes of Technology Transfer Towards Agricultural Biodiversity Conservation***; 3) ***Initiatives to Protect Farmer Innovations and Agricultural Biodiversity***, along the CBDC agenda items.

Each day was also divided into three segments:

- Panel Discussion - CBDC farmer partners and representatives presented the nature of their work on the specified theme for the day.
- Food fair - CBDC farmer partners and institutions shared with the conference participants some local food and cuisine
- Technofora - CBDC farmer partners and institutions conducted hands-on sharing on technologies/ techniques used, developed and adapted by the farmers.

The IFTC also included an agricultural biodiversity fair in the form of exhibits featuring among others: agricultural (and cultural) diversity in the regions and/ or countries, CBDC products (processed food or goods) from agricultural biodiversity, farmer inventions and innovations, impacts of CBDC in the region and/ or country, policy issues and concerns, and advocacy work of farmers and CBDC institutions .

This document presents the proceedings of the three-day IFTC activity which is divided into the three themes and the technofora.

SEARICE extends its thanks to Ms. Erna Samonte for the documentation and lay-out and Ms. Agnes Lintao for finalizing the document.

SEARICE
For the CBDC Programme





OPENING REMARKS

Angélica Celis*

Dear friends and colleagues,

Within the CBDC family, we have learned that Biodiversity is the joint and collective work of creative forces that exist on the planet, and of the native peoples and small farmers of the whole world.

Thanks to Biodiversity, we are able to inhabit the Earth. Thanks to it we can eat, deal with our health problems, clothe ourselves and enjoy beauty. Thanks to it, we are here all together after almost ten years of work.

Plants and people comprise a common body of knowledge, sharing the mandate of life: to share and not to compete. Nowadays, we observe how all of these concepts and sentiments are being mortally threatened: Biodiversity is being treated as a hunting reserve for private interests.

- Competition has become an unquestionable principle that imposes the concept of Nature as merchandise.
- Exploitation seems to be the way we should establish our relationships with Nature, based on appropriation, division and secrecy.

Since its beginning, CBDC as a program, as a network, and as a family has opposed these ideas. We do not agree with concepts related to competition. We do not believe that Biodiversity should be appropriated, divided and marketed as merchandise.

As farmers' communities, as farmers' organization, as civil society organizations, as researchers and as citizens of this world, we reject the idea of any type of intellectual property rights over any form of life and any form of knowledge.

But we have to recognize that we are confronted by laws established in our countries, and that we face the challenge of maintaining, supporting and strengthening the original ideas that inspired the creation of CBDC at the Keystone Dialogues.

Our collective knowledge about Biodiversity, and our local knowledge of agricultural Biodiversity, is the patrimonial heritage of peoples, and the peoples of the Earth have the right to maintain and strengthen themselves as the custodians of that heritage.

We know that our experience and the lessons we have learned as a network are not only elements for use in the conservation of Biodiversity; our experience should provide the means for defending Biodiversity and nurturing it for its use by future generations.

At this Farmers' Technical Conference, we are practicing our right to benefit from and exchange Biodiversity as has been our practice for centuries.

We are freely exercising our right to share not only our own knowledge, but also the knowledge that we have inherited from our ancestors.

We are exercising our rights to care for Biodiversity as it has cared for us and to share Biodiversity.

I wish the very best for all of you, and hope that we shall have a very interesting and friendly conference. This is the first time that the technical staff and farmer partners of the whole CBDC network have had the opportunity to work together face to face, to prepare and enjoy our meals

* CBDC Global Coordinator (CET-SUR, Chile)

together, to listen to different languages, and to learn more about our communities, our countries and our diversity of cultures.

I want to take this opportunity to say "muchas, muchas gracias" - thank you very, very much to our friends at SEARICE for having developed the bright idea of holding this conference. Many thanks also to our friends and donors of SWED-BIO who have supported this conference, and for your presence here.

And I do not want to miss this opportunity to make special mention of our friend and colleague, Paul Borja, our Regional Coordinator for South East Asia, who has accomplished so much of the work of CBDC since the beginning of the program. We wish him all the very best in his new activities.

Let us invoke the strength of our Mother Earth - the spirit of the pachamama as we say in the Andes - to be here with us and to inspire us during our meetings.

Thanks once again to all of you.





OPENING PRAYER/REFLECTION

The Seeds, the Farm, the Farmer and the Farm of Nature

by: Datu Vic Saway*

I was requested to open this farmers' meeting with a simple ritual.

*What I would like to do is to give a chant, and as I chant,
I request everybody to reflect deeply in three or five minutes.
Now, since we will be discussing about seeds in this meeting,
let us think beyond the seeds developed and cultivated by
farmers of today.*

*Let us think about the first seed that grow in the farm of the
first farmer, in the farm that is nature.*

*Let us think about the whole earth as the farm and think
about the grass, the vines, the trees that grow on this farm.*

*Let us think about the rain that pours water on this farm;
the fresh air and the sunlight that take care of this farm.*

*Let us think of the sounds and the language that expressed
the meaning of this farm.*

*Then, let us think of the butterflies, the bees, the birds, the animals, and
the human beings including ourselves who took
the bounty and enjoyed the fruits of this farm.*

*Did we ever think of the seeds from the fruits of the grasses,
the vines and trees that grow in the great farm that is nature?*

*Did we ever care for them? Yes, we care for
them! We care for the seeds, in the farm, of the farmer of creation.*

*We are here today, to share a meaningful discussion about
the seeds, the farm, the farmer and nature.*

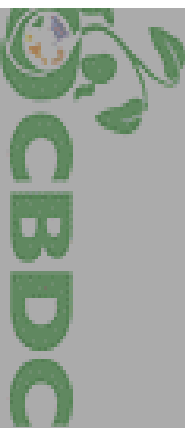
*As I give a brief chant, let us go on reflecting, and bring
ourselves deeper and closer to the seed, the farm, the farmer and the farm
of nature we are going to share in a very fruitful discussion
today until the end of this meeting.*

I now give the Chant.

(Chanting asking for spiritual guidance and blessings)

May God bless Us All!

* Leader, Talaandig Tribe, Sungko, Lantapan, Bukidnon, Mindanao, Philippines



Conserving Agricultural Biodiversity



AGRICULTURAL BIODIVERSITY CONSERVATION IN THE CONTEXT OF REHABILITATION FROM CIVIL WAR

A case of Sierra Leone

Sylvester Rogers
Farmer, Sierra Leone

Background

Sierra Leone is located in West Africa, south of Sahara with Guinea and Liberia on the West and East respectively. It is a country ravaged by a brutal civil war.

The presentation is focused on three topics: 1. Situation of Sierra Leone before establishing a linkage with CBDC; 2. Situation after linking with CBDC/ CBAN during the war; 3. Situation after linking with CBDC after the war.

I. Situation of Sierra Leone before establishing a linkage with CBDC

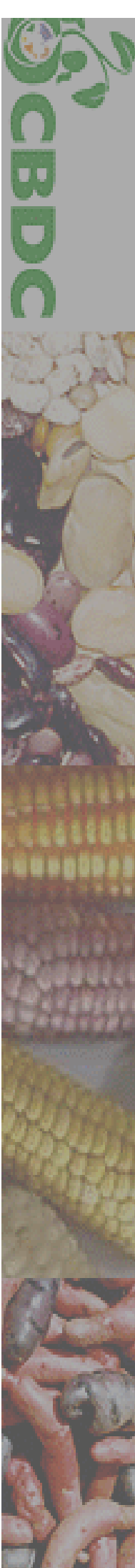
*“The
cultivation of
these PGR was
not done to
conserve them
but purely for
consumption
and
commercial
purposes.”*

The Newton/ Magbafti Farmers' Association was formed in May 1997 at Newton, a town which is about 60 km. away from Freetown, the capital of Sierra Leone. The group consisted of 50 individual from the Internally Displaced Peoples' (IDPs) from the war zones. The main objective of the group was to collect the limited germplasm of seed crops for cultivation that were available, as most have been lost due to the erosion, destruction, and to a greater extent, consumption of people during the war. The effort started with the collection of the few germplasm that the people stored in bottles prior to the war and from commercial seeds sold in the city markets. Some were even collected from previously planted farms or abandoned forests. The collected germplasms were cultivated in rebel-free zone areas and were sold in the market.

There were only very small quantities of low yielding plant genetic resources (PGR) available at that time. The cultivation of these PGR was not done to conserve them but purely for consumption and commercial purposes. The concern for agricultural biodiversity conservation was not a priority owing to the lack of knowledge and appreciation of the community of its importance. Only few crop species were targeted and grown in mixed and multiple cropping like rice, okra, garden eggs, pepper and cucumber. There was also a shortage of animal germplasm. Ruminants (e.g. goats and sheep), poultry and swine were all lost during the war. In addition, very few farmers were involved in these activities due to the migration of people to war-free zones.

Plant and animal species were not readily available due to their limited quantity. In fact, there were only five crop species and poultry at that time. Farmers also did not know the available and needed materials in other communities. There was a lack of an organized Agricultural Biodiversity Conservation institution like CBDC to teach and assist farmers on PGR conservation. Seeds collected were just stored in bottles or hanged in places above the fire.





II. Linkage with CBDC during the War

The year 1998 marked the first contact of some of the farmers with CBDC through a Participatory Varietal Selection (PVS) demonstration. Farmers became highly interested that soon after, CBDC technicians and Technical staff started to work with them and they became registered CBDC farmer-partners in March 1999.

Farmers were organized into a “community” for PGR conservation. Lands located in two villages (about an acre in size) were selected as conservation sites for large PGR production. CBDC staff frequently visited the area to supervise the work, and give training on basic conservation methods on short cycle crop cultivation in the lowlands to enhance constant PGR and storage techniques were conducted.



CBDC introduced other crops in the area particularly lowland species. Hence, there was an increase in PGR from five species to 12. Some of the PGR introduced were maize, spinach, bitter balls, cowpea, pigeon pea, groundnuts, soybean, and improved Nericas rice from WARDA in Coite d' Ivoire. Animal genetic resources (AGR) were also increased from one to three animal species of poultry and swine.

CBDC packages for community-based projects in Sierra Leone include:

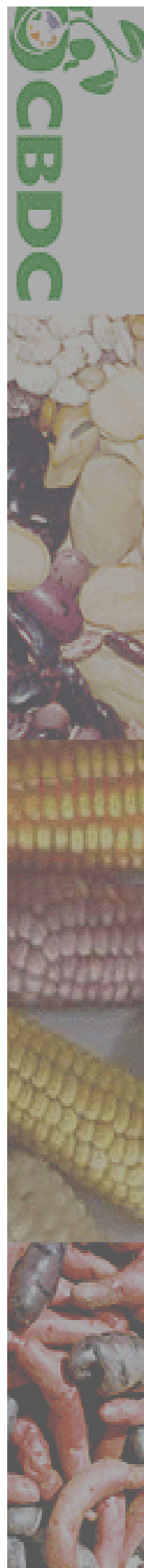
1. 1 bushel (25 kg.) of improved seeds
2. 500 grams of maize seeds
3. 1 bushel (25 kg) of deshelled/ dehusked groundhusk
4. Assorted vegetable seeds of 200 g each of improved pepper, garden eggs, spinach, okra, bitterballs, cowpea, cucumber, pigeon pea, maize, soybeans, and some potato cuttings.
5. 10 suckers each of five improved bananas and plantains

Other CBDC initiatives:

1. Training on soil fertility management particularly on the use of organic manure as an alternative to inorganic fertilizer
2. Training on planning, maintenance, and care of the conservation plots
3. Linkages with several national and international agricultural institutions such as the Rice Research Station, Rokupr (RRS,R), Institute of Agricultural Research (IAR), and strengthening the linkage with the government's Ministry of Agriculture
4. Monthly field visits and monitoring by the CBDC staff

III. Linkage with CBDC after the War

The end of the war on March 2001 encouraged refugees from other countries like Nigeria and Guinea, who hid in the forest during the war, to come back and settle in Sierra Leone. This contributed to an increased in work area and membership of the group.



The current membership consists of 250 farmers managing five hectares of land in five villages (1 acre/village). Each village cultivates one acre of short-cycle crops in the uplands during the rainy season, and half acre in the lowlands during the dry season.

Linkages with other institutions also expanded through the assistance of CBDC: West African Rice Development Association (WARDA), Cooperation for the American Relief Everywhere (CARE International) for rice; I Centre Africaine De Recherche Sur Bananiets et Plantains (CARBAP) for bananas and plantains; and Asian Vegetable Research and Development (AVRDC) for vegetables.

Animal restocking were increased which was very essential to provide for the protein requirement of the rural poor. The animals which were restocked included 15 pairs of broiler and layer poultry, and five each of goats, sheep, and swine.

Other NGOs like CORD International provided assistance in introducing improved short-cycle crops in the lowlands for seed production and marketing.

More workshops and field visits were organized by CBDC on PVS on rice and vegetables, participatory plant breeding (PPB) on rice, genebank establishment and maintenance, and on-farm and off-farm storage techniques.

Some refugees who joined the CBDC working groups introduced new exotic PGR. CBDC, in collaboration with other agricultural research institutions provided assistance in identifying these new species and in monitoring them in the fields.

The Way Forward

The following recommendations were raised:

- Efforts of farmers to rehabilitate and conserve plant and animal genetic resources destroyed by civil war must be strengthened and extended throughout Sierra Leone.
- There is a need for CBDC-Sierra Leone to conduct more surveys to determine farmers' genetic holding (plants and animals) in order to define strategies and approaches to improve their conservation.
- Problems of plant and animal loss due to pests and diseases must be studied in order to come up with appropriate recommendations for assistance from the government or partners in development work to sustain conservation work in Sierra Leone. Problem related to PGR storage is another area that needs support.
- There is also a need for CBDC Sierra Leone to support large-scale PGR conservation in order to enhance the rehabilitation process throughout the country. This will ensure adequate supply of germplasm to farmers, which will ultimately increase the farmers' economic base and their standard of living.
- It is also recommended that more farmers be invited to attend conferences as venue to exchange ideas and learn from one another.
- There is therefore a need for the continued support from CBDC to sustain the PGR to be able to attain the goal of Food Security by the year 2007.



THE INFLUENCE OF THE CIVIL WAR ON SIERRA LEONE FARMERS' PGR HOLDINGS

Aiah S. Ngaujah

Plant breeder, Rice Research Station/CBDC-Sierra Leone

Background

The Sierra Leone civil war started in 1991 in the southeastern region of the country, brutally progressed to the north, and eventually entered the capital city of Freetown on May 25, 1997. From 1991 to January 18, 2000, the people of Sierra Leone saw a lot of horror and destruction of lives and properties.

The agricultural sector, among others, was the hardest destroyed to the extent that 'seeds', which became inaccessible to farmers. In view of the above events, there is a need to know what happened to farmers' plant genetic resources (PGR) holdings prior to war and how farmers came up with their present PGR holdings.

The focus of the discussion is on rice, the country's staple food crop, though not ignoring other food crops such as: cassava, maize, sorghum, root and tuber crops, vegetables, etc.

It is inevitable to talk about the situation of the production environment and the fate of the farmers during the warring years because PGR conservation and development require farmers, and these processes did not take place in a vacuum. Thus, the discussion shall progress as specified below:

a) Movement of farmers

Over 75% of the rural population is composed of farmers who happened to be the most vulnerable victims of the war, including the aged, women and children. Youth, both male and female, voluntarily joined the Revolutionary United Front (RUF) fighters or were forcefully abducted, trained and armed.

There was a movement of farmers/people in four major directions:

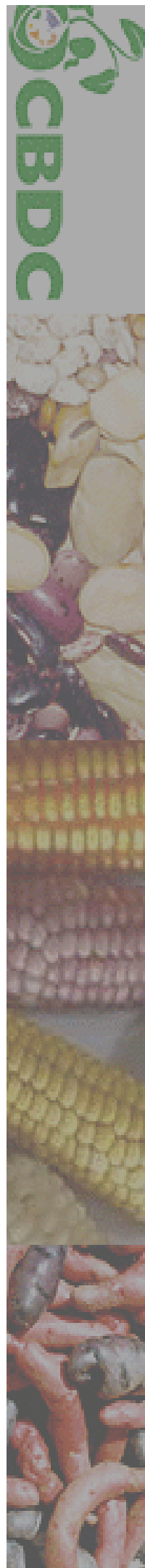
- Hideouts/caves in the forest, thus becoming forest dwellers
- War-free zones/areas within the country and were referred to as internally displaced people
- Friendly neighboring countries as refugees
- Rebel camps who served RUF in various capacities e.g. Administrators, educators, agriculturists/farmers, fighters or as collaborators etc.

Worst, some captives ended in stew pots or used in rituals etc.

b) What happened to PGR in farmers' holdings?

Because of the movement of the farmers, PGR or seeds were:

- Abandoned in the field/barn/store
- Destroyed due to inclement weather/ rodents/ birds/ rats in the field
- Slashed and burnt
- Seed rice became table rice



On-farm conservation were continued but to a limited scale of mini plots. Farm sizes drastically reduced, but RUF plots were comparatively larger in size due to free labor of captives. Seed rice were traded for other essential foodstuffs e.g. foo-foo, palm oil, salt, fish etc. also emerged. Hence, only the rebels have access to food and labor.

c.) *Farmers' present PGR holding*

Interestingly, farmers' PGR were enriched through Mini kit seed packages and farm tools were provided by research institutions and non-government organizations (NGOs)

Desperate farmers' new discoveries for sources of germplasms:

- Rogues/picks from imported rice e.g. Butter Cup/CHINA
- Gatherings from abandoned farms
- Ratoon rice crop e.g. WAB 450.I.B.P38-HB – post-harvest exercise undertaken by the aged, particularly the elderly women
- Rice seedling uprooted from rice mill areas and from threshing, drying, and winnowing areas
- Seeds/ cuttings brought into the country from refugee camps
- Seeds taken from animal droppings e.g. guava, pepper, eggplant, etc.

d) *Degradation of the production environment*

The harsh situation prompted the people to exploit the natural environment through:

- Indiscriminate illicit mining for diamonds
 - Gathering of fuel wood/ charcoal which contributes to deforestation
 - Stone gathering for infrastructure rehabilitation – house/road bridge construction.
 - Timber processing (power saws) for building/ furniture
- These resulted to massive degradation of natural environment

e) *CBDC-SL intervention*

While maintaining live genebanks, the program extended its activities from sole PGR conservation to other areas like trade and establishment of livelihood projects

- Retrieval of rice germplasm from Rokupr and West Africa Rice Development Association (WARDA), Bouake, Cote d'Ivoire, INGER-AFRICA rice nurseries, conduct of participatory varietal selection (PVS) and participatory plant breeding (PPB)
- Retrieval of root and tuber germplasms from the Institute of Agricultural Research, Njala, Sierra Leone.
- NERICA on-farm multiplication initiated through the support of the Ministry of Agriculture, Forestry and Food Security (MAF& FS).
- Distribution of seed packages, farm tools and food for work by *CARE International-Sierra Leone*, Childrens' Aid Direct (CAD) and CARITAS, through the help of WFP, FAO.
- Distribution of exotic bananas from the Centre for Agricultural Research on Bananas and Plantains (CARBAP), Cameroon, and the establishment of the International Sweet Pepper Nursery (ISPNN) through the assistance of the Asian Vegetable Research Development Centre (AVRDC), Taiwan
- Live gene bank establishment/ in-situ conservation located in Kambia and Port Loko District.



- On-farm and on-station conservation in Port Loko District (Lokomassama and Kafu Bollum); Koya Rural District (Newton and environs), Western Sierra Leone; Moyamba District; and Bo District & Kenema District.
- CBDC-SL has extended its activities to Kono and Kailahun Districts that were occupied by the RUF fighter for the longest period of time and the last to be disarmed and resettled.
 - **Kono District** - Rehabilitation of areas for agricultural purposes; rehabilitation of schools burned down by rebels; skills training for ex-combatants like: gara-tying and dying, masonry, carpentry, etc.
 - **Kailahun District** – Construction of a primary school; computer literacy and skills training for ex-combatants

OPEN FORUM

1. Who is the farmer and who is the technician between the two of you?

There seems to be no more distinction between a farmer and me. Today, many literate people are becoming interested in farming and this should be encouraged. Literate and illiterate individuals must both see farming or agricultural work as important. In Sierra Leone, there is a Presidential Decree encouraging educated people to engage into farming. Literate farmers have a big role in sharing and teaching other farmers particularly the illiterate ones on new and improved farming technologies/ techniques. On the other hand, technical experts are more involved in field trials, researches, documentation, analysis of reports and other technical undertaking.

2. Colombia had also experienced war and is currently undergoing structural changes especially after the September 11 terrorist attack on the US. How different is your situation from us? We wanted to learn from your experience because we are also doing similar work in the area of agrarian reform.

The situation between Colombia and Sierra Leone are different. The war in Sierra Leone is not a terrorist act like that of the US. It is a civil war where groups of aggrieved people, particularly the youth, decided to take up arms/ guns and bring down those who were in power at that time. We allowed them to come in because we thought that if they unseat the government, it would be the end of the war. But the war continued after they have overthrown the government and caused massive killing of people.

3. Where did the seeds from WARDA come from - from the government or farmers' seeds?

The seeds that we get from WARDA comes directly from the Rice Research Station where I worked. The Rice Research Station and CBAN are working in close collaboration and you'll see from our reports that the technicians in CBAN are all rice scientists. The seeds freely go to the farmers because when they come to us, we put these in rice gardens where farmers can choose which seeds they prefer. In a way, the rice seeds are for the farmers.



SEED KEEPERS OF COLOMBIA AND CHILE: PROTECTORS OF CULTURAL AND SOCIAL PATRIMONY

Alicia Muñoz and Gilma Benítez

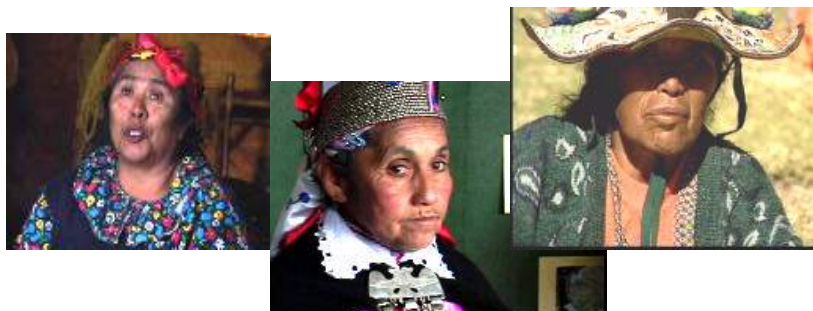
Farmers, Chile and Columbia

Background

There is a common situation that is being shared by the different regions - Africa, Asia and Latin America in relation to food sovereignty. It should be emphasized that all people share the same understanding that as human beings, we all come from the womb of the mother earth and share the same understanding of our origin and our relationship with nature

This presentation puts emphasis on the timeless role of rural women in keeping or conserving the seeds and to demonstrate how this is done in Latin America specifically in Chile and Colombia with the "**seedkeepers**".

The timeless role of women as seed keepers :



CURATORS OF LOCAL PATRIMONY

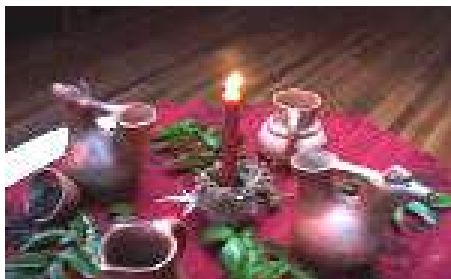
Traditionally, women are the seed keepers. They are also referred to as the curators of local patrimony. As seed keepers, they play the major role of preserving traditional knowledge which includes the physical and spiritual dimensions. The preservation of traditions (including rituals) significantly contributed to the conservation of the original biodiversity in every locality.

Seedkeepers and Biodiversity

Biodiversity requires a sharing of all forms of life its relationship to animals, plants and humans even to our own expression, be it spiritual, political, or practical. Seeds are considered blessings which have to be shared with other cultures, and should be transmitted from generation to generation. They should be freely reproduced and used by other farmers to allow the spread and preservation of traditional knowledge.



The Role of Seedkeepers in Biodiversity Conservation



Traditional knowledge includes the spiritual dimensions



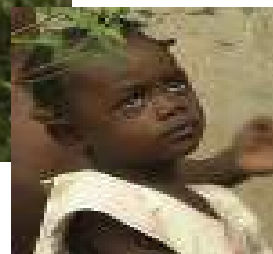
... that seeds are blessings that have to be shared



with other cultures...



transmitted from generation...



... to generations.

Hence, conserving



biodiversity



...and traditional knowledge

Points of platform of Via Campesina and its guiding principles in moving forward towards a strong campaign and solidarity in the preservation of seeds:

1. First principle: The Right to Land

- Basis of the first principle - earth/ land is an expression of nature that should serve to support our right and benefit all society.
- Defend the free use of earth's possessions against any concentration of land as a property, or its being used to exploit other people.
- Defend the agrarian reform which guarantees the people right's to work on land and relate its property in a democratic way; prioritize family's' and social cooperative means of ownership.



- Defend the rights of Campesinos and partner farmers to organize themselves within their communities
- Defend the need of the government to protect and stimulate family farming, as well as collective and cooperative farming, with agricultural policies that are appropriate in terms of prices, technical assistance and certain guarantees and securities

2. Second principle: Food Sovereignty

- Defend food sovereignty as a right of peoples and nations in defining their own agricultural policies
- Defend food sovereignty as the right and duty of farming communities to produce seeds.
- Hence, we are against monopolies and the use of genetically modified organisms (GMOs)



3. Third principle: The right to seeds and agriculture

Farmers and communities have the right to:

- Define the plants and varieties they wish to plant
- Reject plants that are dangerous from cultural, ecological, and economic points of view
- Define their own agricultural systems
- Conserve and develop their local knowledge
- Use all benefits produced by agriculture
- Choose their products, varieties, quantity and quality and farming systems, individually or collectively, in a democratic manner
- Plant and care crops using appropriate technology that would be beneficial to both humankind and nature
- Plant and develop seeds of their own local varieties



4. Fourth principle: The right to protect agricultural values



Farmers and communities have the right to:

- Obtain protection and respect for local cultural values
- Develop and preserve their knowledge and local methods of farming
- Reject all types of interventions that could destroy agricultural values

Farmers and their families have the right to:



- Sow, plant, develop and conserve biodiversity in a collective and individual way
- Reject any kind of patent on food, medicine, culture and any expression of biodiversity
- A law for the protection of biodiversity and against biopiracy and environmental contamination
- Eliminate intellectual property for goods and services discovered, developed and produced by local communities
- Obtain protection through the creation of national and international laws for maintaining, exchanging and preserving biological and genetic diversity as the wealth of community resources



Via Campesina and CBDC have joined together to create and promote an international campaign to defend the rights to seeds. This campaign was actually launched regionally in the **Social Forum of the South** held last October 2003. The goal is to arrive at the greatest, largest, and most effective alliance among farmers and others that will support our efforts around the world, and to achieve an appreciation that is expressed in the seed campaign which is **"Seed: the patrimony of humanity and at the service of humanity"**.

Farmers have key roles in achieving this goal. We must continue to support the theme: **"Globalize the struggle and globalize hope"**.

OPEN FORUM

1. We wanted to preserve local or traditional knowledge but at the same time we also wanted to avail of the modern technologies as much as possible. How do you deal with this?

The modern world is built with good intentions. However, let us not forget that men and women farmers in the South have listened to the expression of many good intentions and at the same time, struggled to preserve our own traditional knowledge and wisdom and have tried as hard as we can to defend it. I suggest that we must read between the lines and try to understand those intentions. Let us not forget that for many centuries, women have learned to preserve the seeds to feed our families and we are trying to continue this by doing the same.

2. We have collaborations with government institutions in Africa. Comparing the situation between Africa and Chile, how much resistance do you get from the government in terms of pursuing your goals?

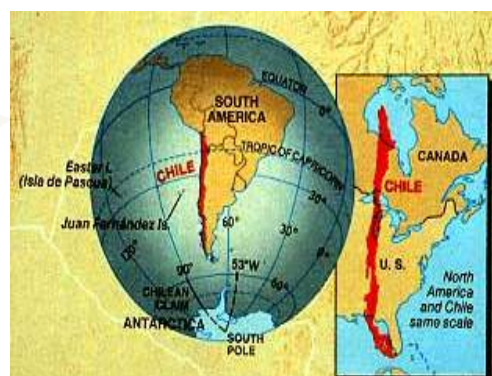
Once again, we have heard expressions of good intentions for many years, but our experience in the last 40 years or so have not been so good. We are the same women who struggled against the military dictatorship that lasted 17 years in Chile between 1973 – 1990. Prior to these years, there was an exemplary agrarian reform that prevailed in Chile; however, it was reverted when the military dictatorship took over. Many of us have our lands taken away from us in 1974. Those lands were sold in the marketplace and are now in the hands of either the military who have retired from service, businessmen who supported the military, or in transnational corporations (TNCs). Many of us are rural workers who have heard of good intentions all of our lives.

RECOVERING TERRITORY, CONTRIBUTIONS FROM DECENTRALIZED MANAGEMENT OF LOCAL BIODIVERSITY

Max Thomet
CBDC-Chile

Background

Chile is located in South America, on the west coast of the continent. The National CBDC project in Chile is working with the Mapuche people who are the largest and primary indigenous population in Chile. The Mapuche represent about 1 million people out of the total 17 million national population.



Map of Chile and the territory occupied by the Mapuche people

Brief historical events of the Mapuche people in Chile

- During the 16th-19th century, intercultural relations (war and trade) occurred between the Mapuche people and the Spaniards
- The 300 years of Spanish colonization resulted to an adverse impact on biodiversity -primarily the displacement of native species and techniques by those introduced by the Spaniards.
- In 1883, the national government of Chile adopted an explicit and aggressive policy of extending its administration to include the territory occupied by the Mapuche. This resulted to: 1. establishment of specific territorial units for the Mapuche; 2. changes in socio-economic lifestyle from being herders to farmers; 3. new wave of European colonization; 4. expansion of Chile's agricultural frontier; and 4. massive deforestation of the native forests giving way to monoculture of cereals and cattle.
- 1960s - 1973 – government launched programs to modernize the rural sector of Chile. Through rural extension, the formal “science” was introduced in the communities and applied in the farms. It encouraged mechanization and the use of agro-chemicals leading to the homogenization of farming systems and knowledge. It also did not recognize the value of oral tradition. Different types of Campesina organizations were created to facilitate the entry and penetration of “modernization” into the culture, tradition, and practices of the rural people.



- The year 1975 marked the explicit implanting of the Neo-liberal model. Rural farming was transformed into an export-oriented agriculture which resulted to the further erosion of traditional knowledge systems that led to the adverse impact on local genetic resources.

Recovery of Territory by:

1. Orientations of local and traditional specialists

- Orientation provided by local wisdom and traditional specialists
- Traditional knowledge is oriented towards spirituality by way of rituals and behavior with regard to sundry actions: a. productive practices; b. gathering of non-cultivated biodiversity; c. behavior in different ecosystems.
- Human health has a direct relationship with the ecosystems that should be in constant balance with the natural forces.

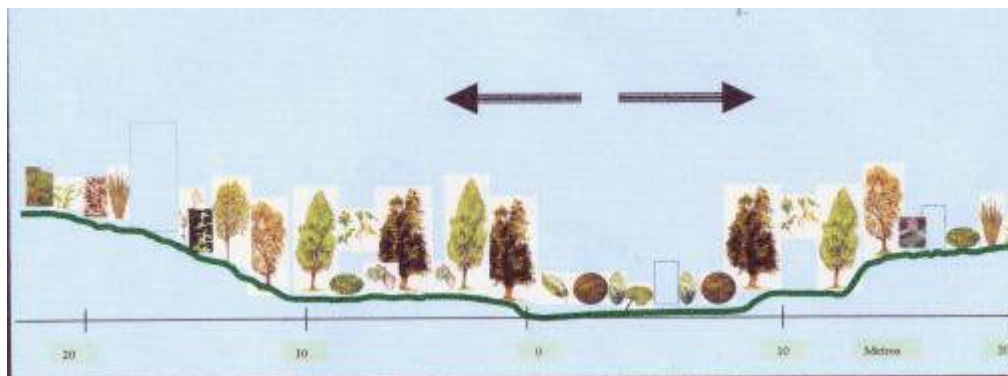


2. The contributions of biodiversity to the restoration of territory

- Promote autonomous Campesino systems of managing and conserving seeds
 - Strengthening the knowledge about biodiversity
 - Promoting local and traditional cooking as an everyday expression of the conservation of territorial biodiversity

3. Restoring ecosystems, restoring balances

- Every people and culture has its special way of understanding, and this principle is displayed through a multiplicity of roles and functions in the rural world
- According to the Mapuche idea of ecology, ecosystems are protected by those who are in-charge of those sets of relationships. Their restoration demands efforts that go beyond what is strictly “ecological”.



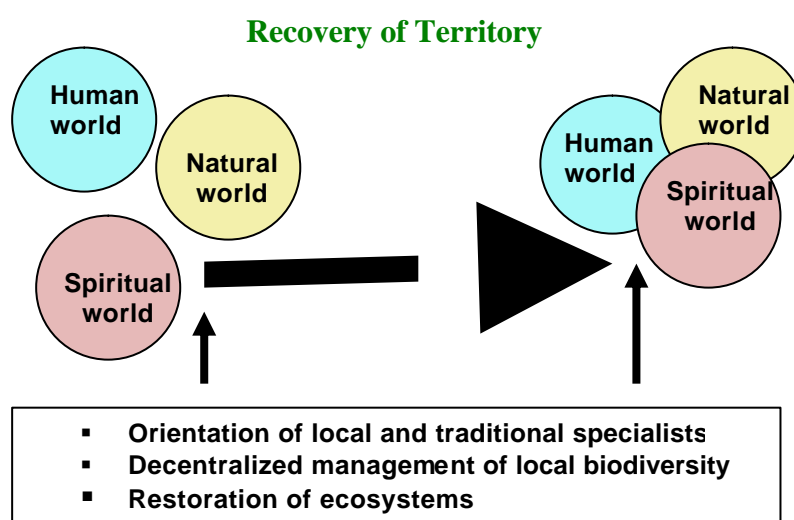
Ecological succession and the original location of species as a guide for their reestablishment

Mapuche cosmovision

- According to the Mapuche cosmo-vision, the recovery of ecosystems implies not only the physical elements of habitat but also the supernatural elements.
- The recovery of ecosystems requires an intercultural dialogue and communication on a cosmic level.

Major lessons learned from working with the Mapuche people:

Ecological restoration isn't a mere question of technicalities, nor is it a question of politics. It is a question of changing attitude. It is something that can be dealt with by all cultures because we all share a common origin and similar characteristics.



OPEN FORUM

Comment:

The spiritual dimension of agriculture is something that we have to recover to attain sustainability. But I would like to react on the illustration separating spiritual dimension from nature and human being because I believe that the spiritual dimension is integrated in the physical – human and nature. In fact, it is very spiritual. It is expressed in our religion when we say “El nombre del Padre, y del hijo, y del espíritu santo”. The cosmo-vision is the father. The macro-world is the son, and the micro-world is the holy spirit. I suggest that we have to understand it this way – that the spirit is integrated in all beings and in all forms of life, and that we have to reconnect ourselves to the cosmo-vision.



ECOLOGICAL AND CULTURAL FACTORS THAT INFLUENCE FARMERS' DECISION-MAKING ON AGRO-BIODIVERSITY CONSERVATION ON-FARM: *Burkina Faso Component of the CBDC Project*

Didier Balma, INERA*

Mahamadou Sawadogo, UFR-SVT/ Université' de Ouaga

Mamounata Belem, INERA



Background

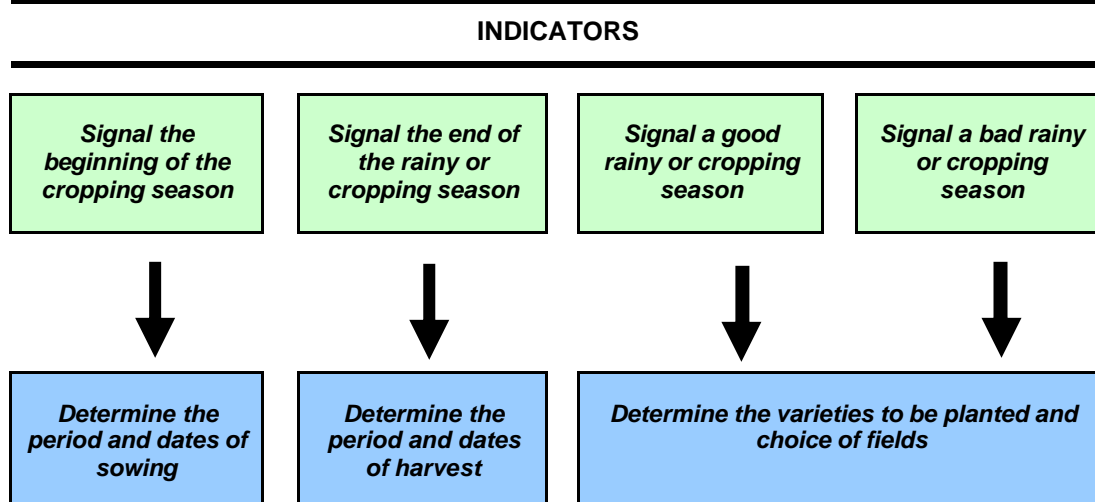
Burkina Faso is a landlocked country in Africa. The CBDC project in Burkina Faso is composed of partners, collaborators, researchers, base organizations of farmers and technicians. The technical organization has three field sites.

Objective

To understand the issues of ecosystem components on socio-ecological factors that affect the decision-making of farmers in the daily management of their plant genetic resources.

Agro-ecological factors affecting Agrobiodiversity on-farm

Fig. 1 Farmers' knowledge of agricultural season



* Presenter



Farmers used various indicators in predicting the beginning of the rainy season or period of sowing. These include conditions of the plants, behavior of birds and animals, appearance of specific stars, weather conditions, and rituals.

Table 1. The different indicators used by farmers to predict the beginning of the rainy season or period of sowing.

INDICATORS	SIGNS
PLANTS	<ul style="list-style-type: none"> Falling of Tamarind (<i>Tamarindus indica</i>) and Karité (Shea butter tree/ <i>Vitelaria paradoxum</i>) leaves Leafing out and flowering of Raisinier (<i>Lannea microcarpa</i>) and <i>Sclerocarya birrea</i> (Nobga) Appearance and ripening of fruits of <i>Sclerocarya birrea</i>, <i>Lannea microcarpa</i> and <i>Pterocarpus lucens</i> (Kumbrsaka), "Perperga" Yellowing and falling of the leaves of <i>Lannea acida</i> (Samb-nutuga) Appearance in riverbeds of <i>Stylochiton hypogaeae</i> (Wule) Ripening and withering/ drying of fruits of <i>Lannea microcarpa</i>, <i>Sclerocarya birrea</i>, and <i>Vitelaria paradoxum</i>
BIRDS	<ul style="list-style-type: none"> Laying of eggs of the wild guinea-fowl Nesting and returning of the stork in the village Migration of Silakoe and Kilimba from south to north Continuous call of the sparrow hawk
ANIMALS	<ul style="list-style-type: none"> Moulting of lizards and margouillats Movement of toads from ponds to the brush Constant croaking of the toads
STARS/ WEATHER	<ul style="list-style-type: none"> Appearance of the six-star (little bear) constellation in the west Declination of the sun from its usual trajectory Blowing of the wind towards the east Rising of temperature Appearance of the first clouds Constant rumbling of thunder right from the first rains
RITUALS	<ul style="list-style-type: none"> Prediction of the rainmakers Consultation of the lunar calendar

Factors influencing decisions in seed conservation

1. Seed-control of environmental health (mastery to predict precisely how the rainy season will come)
2. Preferential choice of men (crop yield, value of the crop, good quality for seed conservation)
3. Preferential choice of women (good culinary property, easy to cook, tasty)
4. Socio-cultural factors (ritual value of the crop/ species, importance in terms of utilization for traditional and religious ceremony)

Plants are indicators mostly used by farmers in predicting rainy, good or bad season. There are many species of plants that serves as farmers' indicators in the prediction of the beginning of rainy season or period of sowing. On the other hand, rituals are the least used because most of these rituals or indigenous cultural practices are eroding. Presented below are the graphs showing the



number of indicators used by farmers in predicting the beginning of the rainy and good season.

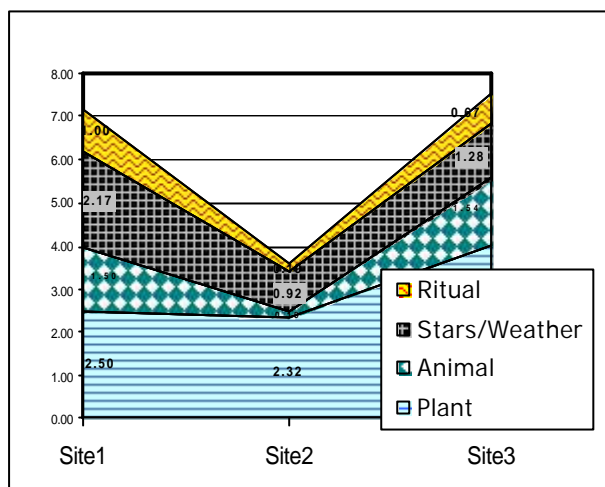


Fig.2. Number of signs used by farmers in the prediction of the beginning of the rainy season

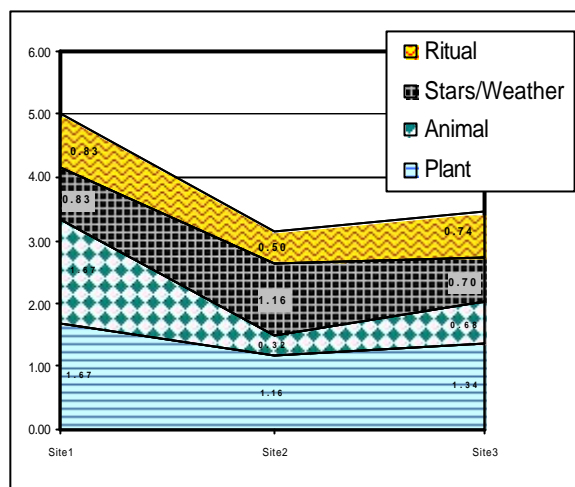


Fig. 3. Number of signs used by farmers in the prediction of the good season

Below are the lists of plants used by farmers in the three sites as indicators of the coming cropping season. Table 2 also shows the distribution of crop diversity across the three project sites managed by CBDC Burkina faso.

Table 2. Species of plants most used by farmers in the prediction of the coming cropping season

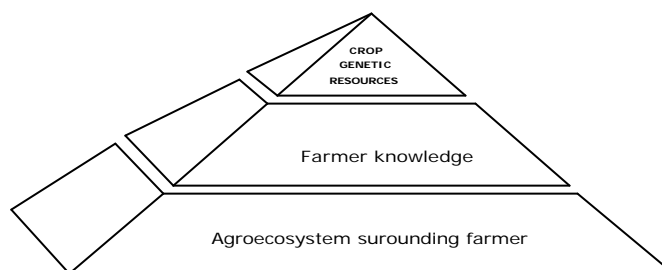
Plant species	SITE 1	SITE 2	SITE3	TOTAL
<i>Lannea microcarpa</i> (Raisnier, *sabga)	19.18	19.05	21.85	20.00
<i>Sclerocarya birrea</i> (*Nobga)	16.44	19.05	20.17	18.38
<i>Vitelaria paradoxum</i> (Karite, *Taaga)	13.70	14.29	11.76	13.24
<i>Ficus platyphylla</i> (*Kamsango)	6.16	4.76	5.04	5.41
<i>Heeria insignis</i> (*Lebnore)	5.48	4.76	3.36	4.59
<i>Acacia albida</i> (*Zaaga)	5.48	3.81	6.72	5.41
<i>Ximenia americana</i> (*Lenga)	4.79	4.76	3.36	4.32
<i>Diospiros mespilliformis</i> (*Ganka)	4.11	4.76	3.36	4.05
<i>Boscia Senegalensis</i> (*Nabdga)	4.11	3.81	4.20	4.05
<i>Loudetia togoensis</i> (*Soutou)	3.42	4.76	2.52	3.51
<i>Ceiba pentandra</i> (Fromager)	2.74	0.00	3.36	2.16
<i>Borassus aethiopaum</i> mart. (Rhonier, *Koaga)	2.05	0.00	0.00	0.81
<i>Pennisetum americanum</i> (millet)	1.37	4.76	0.00	1.89
<i>Pennisetum pedicellatum</i>	1.37	4.76	0.00	1.89
<i>Adansonia digitata</i> (Baobab, *Toega)	1.37	0.95	1.68	1.35
<i>Sterculia setigera</i> or <i>Setigera</i> del. (*Punpuga)	1.37	0.95	1.68	1.35
<i>Tamarindus indica</i>	1.37	0.00	0.00	0.54
<i>Acacia nilotica</i> (*Perperga)	0.68	1.90	2.52	1.62
<i>Pterocarpus lucens</i> (*Kumbrsaka)	0.68	1.90	2.52	1.62
<i>Stylochiton hypogaens</i> (*Wule)	0.68	0.95	2.52	1.35
<i>Lannea acida</i> (*Samb-nutuga)	0.68	0.00	2.52	1.08
Agricultural crops	0.68	0.00	0.84	0.54
<i>Ficus gnaphalocarpa</i> (Figuier)	0.68	0.00	0.00	0.27
Plant seedling	0.68	0.00	0.00	0.27
Moyenne	4.14	4.17	4.17	4.16
Ecart type	5.13	5.56	5.81	5.39
Inter. Confi.	2.0530	2.2240	2.3260	2.1550

Conclusion

- Farmers in all sites possess a good knowledge in predicting the beginning and nature of the rainy season. This is a proof of their capability in using signs as source of information
- In the absence of modern techniques, a good knowledge in using these signs is necessary for better management of available germplasm by the farmers. That is why farmers have varied sources of these indicators and a reasonable level of signs to constitute vital information for their decision-making.
- Farmers at the three sites all used signs mostly based on the plants in predicting good rainy and agricultural seasons. A characteristic, however, in the use of these signs by the farmers were the presence of animal-based in the site.
Nevertheless most of plant species are disappearing or in state of extinction at the North and central regions of the country.
- It is therefore necessary to determine conservation methods with combine conservation of agro-ecosystem components and crop diversity.

Summary

Components of agro-ecosystem constitute a basis of a pyramid: on the top is the agro-biodiversity linked; at the base is the farmers' knowledge and environmental ecosystem.



Lessons learned

- In the arid regions of Burkina Faso characterized by irregular and low rainfall, agrobiodiversity conservation is essential for survival.
- Managing crop diversity is the only strategy that guarantees food security to poor rural communities from year to year.
- Guaranteed good conservation of germplasm on-farm (in situ), it is necessary to ensure back-up or at least the essential components of the ecosystem. Without it, the farmer would become a blind man on his farm.



BIODIVERSITY, INTERCULTURABILITY, AND THE MARKET

Ricardo Claverias

Centro de Investigacion Educacion y Desarrollo, CBDC-Peru

Background

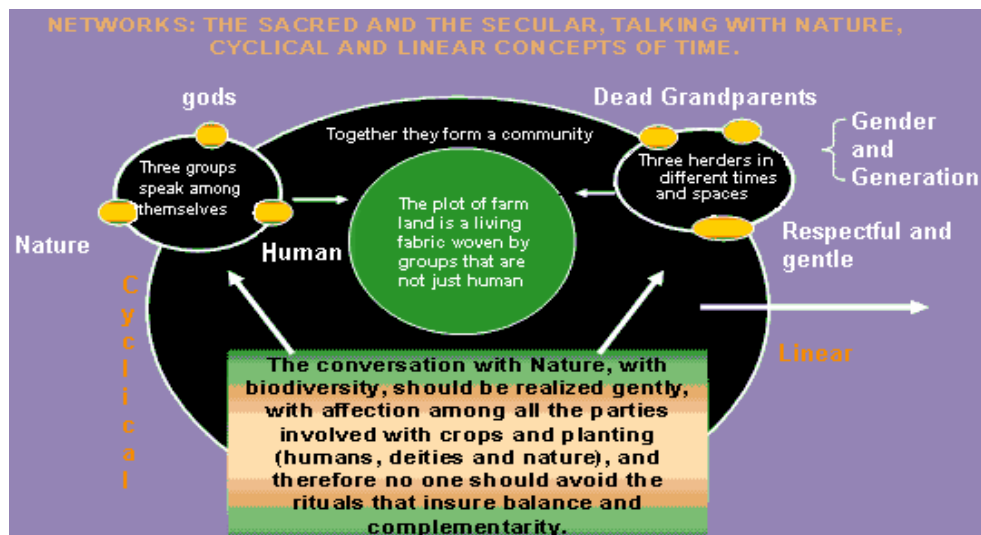
Problems in developing Campesino productivity

- A. Outside constraints
 - Imported food stuff
 - Unequal distribution of the urban population
 - No government policy that provides incentives for agricultural development
- B. Internal constraints
 - Poor quality of agricultural land
 - Altitude of 3,800 m above sea level, scarce rainfall
 - Distance from the market, with bad roads

Working hypothesis:

1. Campesinos can live and improve their circumstances because they have their cosmology, biodiversity, ideals of food sovereignty, and intercultural relationships.
2. They can further survive because of their relationship with the marketplace which is influenced by their culture. This culture is based on their knowledge about weather cycles/ conditions, commercial peaks and non-peaks season, etc.
3. The technical experts only gather knowledge and information (i.e. about weather conditions, soil conditions, etc.) from heterogenous sources. They gather and combine rituals, experiences, and observation from the local people to come up with technical recommendations.

There is a dialogue going on between the sacred (the gods, nature) and the secular (human) which brought out these knowledge and information. This conversation takes place from generation to generation – from the predecessor to the present generation. Therefore, our current knowledge results from a collective effort and hence, it cannot be patented or applied with any intellectual property rights



Some results of the application of Andean cosmology and intercultural relations

- When there is diversity among the varieties of potatoes, it is easier to select those that are traditionally preferred for products such as “chuño”, “tunta” or “moraya”
- When new technologies such as irrigation and improved products are applied properly and efficiently, the potential of native seeds is increased
- A comparative study of the three types of potatoes (hybrid versus two native varieties) was conducted
 - Results showed that native species performed better than the hybrid variety under low moisture and high altitude conditions
- Some of the micro-organisms found in the soil, known as micro curitos, are important and beneficial to crop development. However, these micro curitos are eliminated by the use of agro-chemicals
- Biodiversity is important for food security, because when there are problems with pests and diseases and adverse weather conditions, one does not lose the whole crop because some of the varieties in the field are resistant and tolerant for such conditions.

The importance of producing for family consumption and for the market as factors involved in food security

- Important during the period of scarcity and surplus – This has something to do with the issue of supply and demand. The prices of the products go up when there is scarcity of production and go down when there are abundant production.
- Dependence and independence from the market – Farmers grow varieties that are intended for family consumption and at the same time, produce crops that suit the preference of the market.

Important points

- Knowledge is the property of community and it belongs to them
- Because of the relationships between different networks of the sacred and the secular, knowledge cannot be privatised. It should be treated as a collective ownership.
- Indigenous people have the right to continue their tradition of sharing their seeds and knowledge and no one has the right to exploit and commercialise that knowledge, including the scientists and researchers in the academe.



Different ways of exchanging knowledge on biodiversity



Lessons learned

- The Andean cosmology and the dialogue sustained with other cultures is a basic framework for achieving food sovereignty in the Andean region.
- With this ideal of food sovereignty, it is possible to achieve agricultural production that is more harmonious with nature.
- This sovereignty is also achieved as a result of a more competitive placement of Campesino products in the market. A competitive advantage is achieved when the farmers manage strategies that balance the phases of the agricultural cycle with the dynamics of the market.

THE ROLE OF UNDOMESTICATED SPECIES IN FOOD SECURITY IN A SAHELIAN ZONE OF MALI: The case of *Boscia Senegalensis* (pers.) Lam. in three communes of the district of Douentza

Mamby Fofana, Program Coordinator
SOS/USC-Canada/ CBDC

Executive Summary

Today's food production systems around the world are facing challenges of increasing production to meet the basic needs of food and fiber of the ever increasing human population without undermining the diversity of the resource base on which life and sustainable agriculture depends. This challenge is more pronounced and immediate in marginal environments such as Sahelian agroecosystems in which aridity and desertification influence human security and the maintenance, conservation, and uses of plant genetic resources.

In this type of fragile and sensitive agroecosystems, farmers have developed through time diverse, adapted and dynamic genetic materials using their experimental knowledge of soils, climate, plants, selections, breeding, exchange of information and germplasm storability. Because of both external human and natural factors, lack of partnership and favourable policies, the traditional farming systems, however, tend to lose ground to risk of losses of time tested knowledge, genetic erosion, and irreversible land degradation processes.

Introduction

In the Douentza area, *Boscia senegalensis* is well known as a poverty foodstuff and is generally the most common forest tree species on uncultivated land. Due to the lack of other alternative resources, *Boscia senegalensis* is important in the daily lives of the communities.

Objectives

The objective of this study is to identify the local know-how associated with the *Boscia senegalensis* that is:

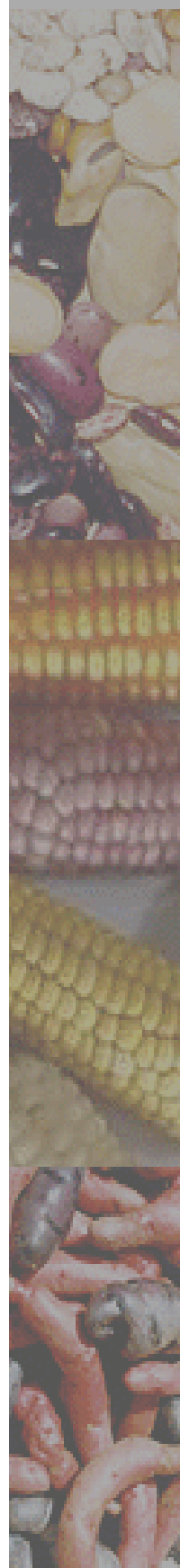
- What the communities know about the *Boscia senegalensis*;
- The various utilizations of the *Boscia senegalensis*;
- The profits that the communities can benefit from the various products of the *Boscia senegalensis*.



Methodology

The topic and its objectives have been defined by the SOS/ USC-Canada. As for the choice of the study area, the project has set selection criteria which are:

- The different communes;
- The ethnic and socio-professional diversity;
- The fact that the villages are land-locked and opened;





- The areas which the species are abundant and the areas where the species are very scarce

The investigations have been achieved in eight villages, six (6) of which are from the 16 ALCOP/ Douentza Project target villages.

Our field interview included two steps:

- The organization of General Assembly
- The organization of the interview and questionnaire to the communities.

Processing and Consumption of *Boscia senegalensis*: A Gender Disaggregated Role

Human Consumption



In terms of human alimentation in the investigated villages millet (cereal crop) comes first, seconded by *Boscia senegalensis* and followed by sorghum. This activity is more precisely during rainy season.

Since then, the period designated for mass consumption expanded up to the consumption of the early agricultural crops. Starting from this period, consumption of *Boscia senegalensis* although much less frequent, does not stop through out the whole year. The survey has pointed out that *Boscia senegalensis* has covered in the month of August, 17% of prepared meals in three villages in the district of Douentza.

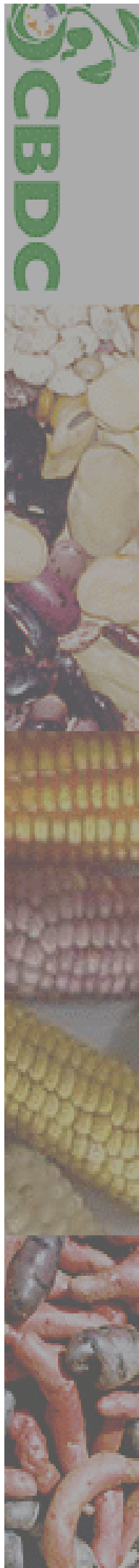
The Grains of the Green Fruits

Four to five months after fruit production, based on the condition of the previous farming season, a systematic fruit harvest methods was established. During the noted period, the grains are called **Ogolodje** in the Dogon, which have a better taste for consumption.

Beyond the month of June, the least favored people, mainly the women, pursue the harvest until the fruits ripen. Furthermore, in the case of serious food problems, even the grains of ripe fruits fallen from the plants of *Boscia senegalensis* are not consumed. If the consumption of the grains of the *Boscia senegalensis* does make sense, human alimentation is its main utilization.

The pulp of ripe fruits

The appearance of ripe grains called Siribi in Bambara, coincides with an intensification of agricultural activities (i.e. planting and mainly ploughing). They are mainly harvested for their sweet syrup substance. During off season, children and women harvest the ripe Siribi fruits. Women extract the juice from the ripe fruits for the preparation of jam. The survey shows that nowadays, the preparation of the jam have been unpopular to the community.



Boughs

The boughs are called **Leguel** at Doumbara and **Kiro** in the commune of Bore'. They are used in the preparation of cream as a substitute to sugar. When the cream is at its start of ferment, the sweet taste becomes more distinguishable.

Animal Consumption

In some areas, to a certain height, no plant bears leaves. Animals seem to have grazed on these plants. Hay shortage periods are noted when leaves of *Boscia senegalensis* are consumed by animals. This is in contrast to the observations we have in July, August and September.



Shells for ripe fruit are favoured by goats, sheep, and cows. These animals seem to be fond of shells of *Boscia senegalensis*. Green fruits are kept from livestock.

Harvest

Cases of organized harvest of *Boscia senegalensis* are noted in older days. Harvesting of *Boscia* fruits is free. Each person can harvest anywhere he wants including farms and territories of the neighbour.

Harvest date is fixed base on the fruit production condition of the species and/or the condition of the previous farming season. Usually April-May, are the intense months for harvest.



During harvest season of man and women alike goes to the field. However, men's participation is much greater within the poor households and in case of potential fruit production and/ or when the previous farming has been bad.

To give grains of the *Boscia* is a sign of graciousness and politeness while to go to the harvest of the *Boscia* is a sign of discretion and wisdom.

The Harvesting Techniques

- Simple harvest of single fruits with bare hands
- Cutting of branches and boughs
- The technique of breaking boughs
- Putting fire on the plant (burning)

Current Meals made from *Boscia senegalensis*

- The *Boscia senegalensis* in the sauce
- The oiled *Boscia senegalensis*
- The *Boscia senegalensis* mixed with sugar
- The *Boscia senegalensis* with ripe fruit juice
- The *Boscia senegalensis* with milk
- The *Boscia senegalensis* with crushed millet



Therapeutic virtues

Plant part	Disease/ physical disorders
Roots	Malaria, Rheumatism, Intestinal parasites, Sexual impotence, Sexual impotence without pains, Painful menstruations, Urinary pains
Barks	Ache
Leaves	Malaria, Headache, Rheumatism, Leprosy, some stages of craziness
Buds and small leaves	Body pains, Rheumatism for some animals, Obesity with dromedaries, Heavy headache, Headache
Resin	Cataract

Other Utilizations

Barks, young leaves and crushed fresh fruits: According to the localities, these products are utilized in the manufacture of traditional gun explosives, to make it more powerful.

The soaking water of the grains: The soaking water of the grains was utilized as anti-termites.

Shells of the fruits: It is utilized as fertilizers for glades and farms.

Plant of the *Boscia*: Some speculations (e.g. "gourde") profit from *Boscia senegalensis* and produce well-shaped fruits.

Conclusion

The problems faced by farmers are more structural: land tenure issues, lack of credit, lack of access to post harvest facilities and marketing, destruction of their environment by the government and powerful companies. The current study aimed to address some of these issues as case studies in order to gain data which will serve as lobbying matter for USC and CBDC and any other agency aiming for the promotion of rural development in scarce environments.

God created the *Boscia* for survival stated by an old man at Petka village. The *Boscia senegalensis* is the most important ligneous plant stated by another 91 year old man at Dansa village. These old men summarize all the importance of the *Boscia senegalensis* in the communities' daily life and survival. by Contrary to what the communities' stated that the meal of the *Boscia* is just to fill the belly for it contains several important elements in the organism, the plant is much more important since we know that it is consumed by the livestock beyond hay shortage period.



Recommendations

We recommend for the follow-up of the study specifically:

- To make investigations so as to determine the growth of the species
- To make inventories of the main harvest sites to determine the populations, the average age of the plants, and the state of densities so as to evaluate the dangers of the species
- To pursue the monitoring and the planting of 3000 plants in nursery beds. This will allow experiments on the rate of survival of the *Boscia senegalensis* after a definite setting
- To isolate, monitor, and treat a few plants on various sites so as to determine the annual production of the species and the impact of the treatment on this production,
- To determine a correlation between the types of soil and the percentage of the weight on termite nest and in the middle of glades, mainly in the farms,
- To determine the reasons rendering bitter juice of the fruits a few minutes after their harvest
- To determine the physical and chemical composition of the fruits and their alimentation values
- To realize 'proving' studies (validation of the therapeutic hypotheses in relation with specialized researchers in pharmacy and public health).

OPEN FORUM

1. *The processing of Boscia senegalensis is very labor intensive and time-consuming. Is there a possibility of developing a technology that would make the processing easier for the community?*

As of now, we have to wash *B. senegalensis* with water many times a day (probably about 20 times). Hence, water is the first limiting factor. As of now, there is no technology developed yet to allow easier processing because this is the first study conducted on *B. senegalensis*. We are in the process of negotiating with the university to get involved with a follow-up studies/ researches. We are also asking assistance from the government to develop methods that will lessen the time of processing *B. senegalensis*.

2. *Is there a way of domesticating B. senegalensis?*

It is actually one of the purposes of the study to domesticate *B. senegalensis*. In fact, right now, we have generated 3,000 seedlings which we will use to maintain this crop species. However, we must combine the domestication along with the conservation of the wild species.



SYNTHESIS

By: Dr. Bert Visser,
Center for Genetic Resources (CGN)

Highlights from the discussion that are most important:

1. Effects of war to the people

- The presentation showed that when people started to migrate because of war, there was an immediate loss of animal and plant genetic resources. During the war situation, people had still access to the seeds, but the seeds were consumed and not maintained as plant genetic resources. Hence, there was a loss of diversity or traditional farmers' varieties.
- After the war, the situation normalizes. There might have been a recovery but it is difficult to retrace the original diversity. It takes conscious effort to retrace the original diversity.
- The recovery of agro-biodiversity is not only a method of finding the seeds. There should also be a method of restoring the mind of the farmers because they have grown out from their traditional system and became used to seed supply system of the outside forces.

2. Issue of climate change

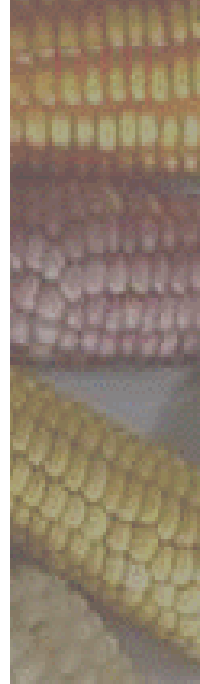
- Climate change is a global issue that affects biodiversity conservation and development. In many of our projects, we experience this abrupt and irregular change in the weather patterns.
- It is therefore necessary to adapt our plant genetic resources to the changing environment
- This reality calls for strategies such as plant varietal selection (PVS) and participatory plant breeding (PPB).

3. Technology development and transfer

- The different experiences in the CBDC programs resulted to the recognition that development of appropriate technologies leads to higher adoption rate
- However, to develop appropriate technologies, this needs intensive analysis, and this can be done through the conduct of studies and researches so that we can develop technologies that are location specific - employing different solutions for different problems in different communities and ecosystems.

4. Farmer Empowerment

- As a community or farmers' group, the major aim is to develop appropriate technologies. However, farmers must first determine what they want. They must be conscious of their capabilities and limitations and these need inputs from the outside.



5. Importance of Cosmo-vision

- This is particularly stressed in the Latin American and Burkina faso presentations. The cosmo-vision or the recognition that the technical aspects of our work relates directly with the human and cultural aspects, needs to be integrated in the CBDC work.
- Aside from the integration between technologies and human-cultural values, there must also be an integration of the technologies on genetic resources management, soil fertility management, and integrated pest management to come up with a holistic approach in terms of optimising the use of our ecosystem.
- These result to the restoration of our environment

6. Networking

- There is a need to network with other institutions especially those from the public sector. These selected institutions could provide us with similar technologies and expertise that could help us to improve our own work
- However, in collaborating with these institutions, there should be a clear socio-political framework in which we want to collaborate, so that we can expect to obtain inputs from these collaborations.

7. Marketing of products or varieties

- Seed certification was mentioned during the presentation. However, seed certification is only one aspect of marketing
- One aspect of our program is not only to create and maintain biodiversity in the fields, but also to create and maintain biodiversity in the market.
- Production should not only focus for consumption but also for marketing
- There is therefore, a need to maintain outlets in local and outside markets and this deserves more attention.

8. PPB

- For many years, advances in plant breeding were recognized as provided only by the formal plant breeders who are the educated people in formal institutions. However, our experiences have proven that farmers are also breeders.

Summary

The presentations covered many topics which only indicate the various activities that are going on in the program. All the topics discussed showed the richness of CBDC in terms of experiences. It is however important that we pick out our priorities that would determine our next activities.



REACTION FROM THE FARMER

By: Eloi Francisco Kottwitz

Farmer-Partner,

Assessoria e Servicos a Projetos em Agricultura Alternativa (AS-PTA)

All the presentations are interesting. Learning from the presentations and discussions include:

- The experience of Sierra Leone – how they were able to restore their plant genetic resources after the war
- How communities managed to organize and put up a system; and the role that culture plays
- It is important to know what is happening to other farmers in the other parts of the world – how they work, their experiences, and their culture.
- Farmers have detailed and complex knowledge on different aspects of life. This is related to his relation with nature and the sacred dimensions.
- It is important to know and appreciate how women worked and the role they played in agriculture
- There must be holistic approach of conserving agricultural biodiversity
- It doesn't matter what situations we are experiencing in our communities today. What is important is that there are old people that will keep the knowledge and willing to talk and share this knowledge to the next generations. In this way, we can restore our biodiversity, knowledge, and our nation.
- It is important that we recognize that we are part of a greater whole.

***Modes of Technology Transfer
Towards Agricultural
Biodiversity Conservation***





FARMERS' FIELD SCHOOL (FFS) FOR RICE PLANT GENETIC RESOURCES CONSERVATION, DEVELOPMENT AND USE IN LAO PDR

Chay Bounphanousay, *National Agricultural Research Centre, Vientiane Lao PDR*
Viengsavai Sengsoulivong, *Department of Agriculture, Ministry of Agriculture and Forestry, Vientiane, Lao PDR*

Kamkai Vonvichit, *Farmer, Vientiane Province*

Abstract

The Lao PDR lies within the primary center of regional and domestication of Asian rice (*Oryza sativa* L.). Traditional glutinous, mostly photoperiod sensitive varieties used to be grown throughout the rainfed lowland and upland environments.

The use of Farmers' Field Schools (FFS) for Rice Plant Genetic Resource Conservation, Development and Use (PGR CDU) was initiated by SEARICE in its projects in North Cotabato and Bohol, Philippines as early as 1995.

In 1998 to 1999, SEARICE along with the Development Fund of Norway explored the possibility of having a regional rice PGR CDU program called the Biodiversity Use and Conservation in Asia Program (BUCAP). The program linked with the National Integrated Pest Management (IPM) Program in partnership with non-government organizations and research stations in Bhutan, Lao PDR and Vietnam. It was the partnership that led to the development of FFS specific for rice PGR CDU.

The BUCAP Lao PDR Country Project is currently coordinated by the Plant Protection Center. CIDSE Laos provides support monitoring, backstopping and coordination for the implementation of BUCAP in Vientiane Municipality. The National Agriculture Research Centre of the National Agriculture and Forestry Institute provides technical backstopping and breeding materials to farmer partners of BUCAP in five provinces (actually four provinces and Vientiane Municipality), namely, Vientiane, Luang Prabang, Savannakhet, Champasak provinces and Vientiane Municipality.

BUCAP is implemented in 4 villages in partnership with 398 farmers, 97 of which are women. For the year 2003, 342 uniform lines were evaluated in nine sites. From 701 lines, 454 lines were selected by farmers for planting in the next season. Farmers in Bounnai village, Pathumphon district even selected seven lines which they like but which they claimed are not uniform yet. They plan to make the materials uniform for subsequent use and production.

Fourteen crosses were bred by farmers and 108 farmers have taken rice seeds to grow and select in their own field. Eight farmer developed varieties were grown in the production areas.

Introduction

The Lao PDR is a landlocked country with natural and semi-natural agro-economic condition in the Southeast of Asia. The country is bordered by the People's Republic of China on the North, the Union of Myanmar on the North West, the Kingdom of Thailand on the West, the Kingdom of Cambodia on the South, and the Socialist Republic of Vietnam on the East.

Laos is located almost in the Mekong river watershed. It has a total land area of 236,800 km² which included lowland alluvial plains and terraces in the central and southern (20% of total areas) parts.

As of 1999, the Lao PDR has a population of 5,067,662, of which 50.6 % are female and 49.4 % are male, and with an average density of 19.4 persons per square kilometre. The population is growing at about 2.6% per year. The majority of the population are Buddhist. The entire country is divided into 18 provinces but the census distinguishes 47 ethnic groups.

The Lao PDR lies within the primary center of regional domestication of Asian rice (*Oryza sativa* L.). Until 1994, traditional glutinous, mostly photoperiod sensitive varieties used to be grown throughout the rainfed lowland and upland environments. Varieties grown in these environments differ considerably in morphological, physiological, agronomic, and grain-quality attributes. In addition to cultivated rice, wild rice and spontaneous inter-specific hybrids between wild and cultivated rice are also found. Rice germplasm of the Lao PDR shows great diversity in both the rainfed lowland and rainfed upland.

During 1995 to April 2000, 13,192 samples of cultivated rice were collected, as well as 237 samples of wild rice species. The collection represents 136 districts of the country, which include all 17 provinces and Saisomboun, the special region for development. Nearly half of the samples (5,638) were from the northern region. Samples collected from the central and southern regions were 3,498 and 2,402, respectively. Samples collected from the upland totalled to 6,717, slightly higher than that from the rain-fed lowland (5,173). Glutinous samples predominate (85.9%) over non-glutinous ones (14.1%) which reflects farmer and consumer preferences for glutinous varieties. The collection is kept at the genebank of the National Agriculture Research Centre and at the International Rice Research Institute (IRRI).

The BUCAP Lao PDR Country Project is currently coordinated by the Plant Protection Center under the Department of Agriculture, Ministry of Agriculture and Forestry. CIDSE Laos provides support monitoring, backstopping and coordination for the implementation of BUCAP in the Vientiane Municipality. The National Agriculture Research Centre of the National Agriculture and Forestry Institute provides technical backstopping and breeding materials to farmer partners of BUCAP while Oxfam Solidarity Belgium provides administrative management and financial support.

In 1999, the Department of Agriculture entered into partnership with Oxfam Solidarity Belgium to implement the Biodiversity Use and Conservation in Asia Programme (BUCAP).

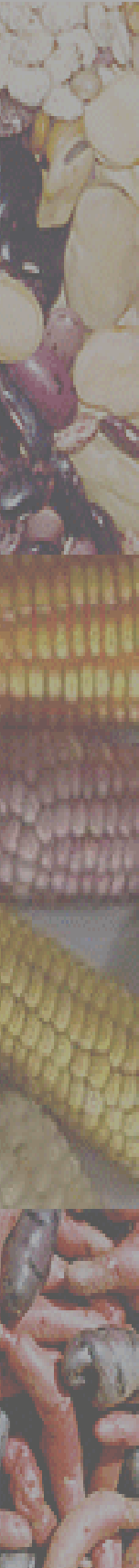
BUCAP aims to:

- Strengthen farmers' system of Plant Genetic Resources-Conservation Development and Use (PGR-CDU)
- Increase agricultural biodiversity; and
- Develop capacity of local institutions to implement and support farmer's PGR CDU management.

The main approach used by BUCAP in implementing community based PGR CDU is the Farmer Field School (FFS). FFS can be considered as a mode of technology transfer.

Material and Methods

In the FFS approach of BUCAP, community-based study groups are formed composed of 20-30 farmers. Extension workers or trainers provide technical inputs and facilitation. A group field is set-up as a common learning area from which hands-on exercises on ecological aspects of rice production are studied. The learning field provides the main learning material, and the field exercises and special topics are





rooted in the field, i. e., before starting any discussion or activity, the study group must first observe the field. FFS is more of an educational tool than a high-level research. The important aspect is the process of learning, where farmers discover the results on their own, through a simple field experiment.

This educational process was adapted in rice PGR CDU. The concept was further extended by engaging farmers in research whose outcome is not pre-determined. In the process, it generates new information which is not known to facilitators or to research institutions. At the same time, it develops the capacity of farmers to conduct crop improvement researches for improved production.

If the farmer group considers plant breeding, line selection, varietal evaluation, and seed rehabilitation as some of their important study fields, a field guide will provide information on what can be done to understand more about these topics. The field guide is intended for a first season of studies in which the group will meet once a week. For the succeeding season, the group makes a sustainability plan.

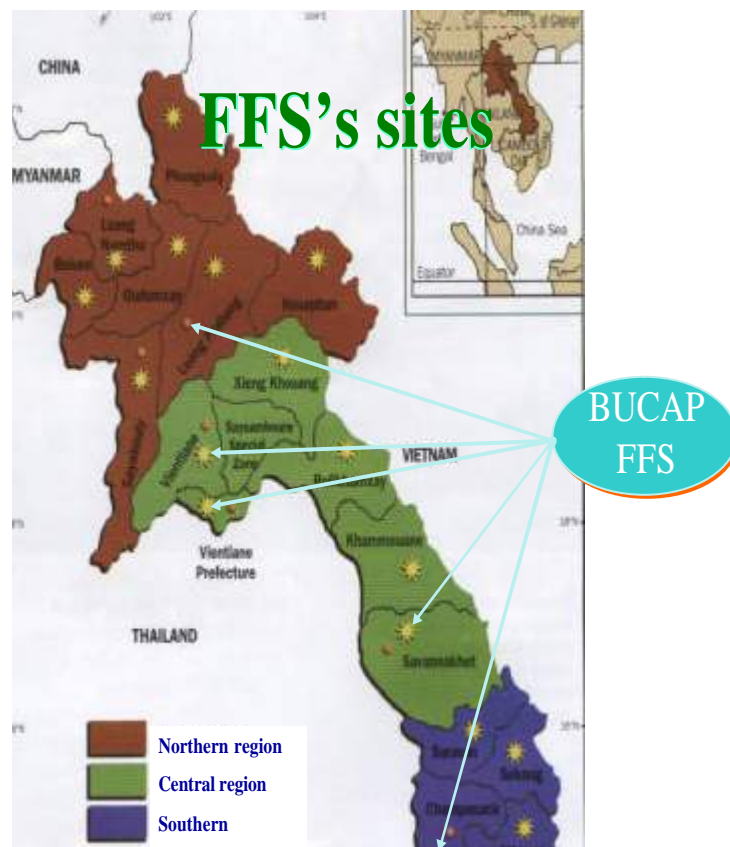
The community rice PGR CDU activities will require farmers to work together for several seasons. For this matter, it is important that farmers understand and appreciate the significance of local genetic resources and the limited choice of high-yielding varieties. The experience should encourage and equip farmers to take the lead by improving varieties through participatory varietal selection and plant breeding.

FFS' Curriculum in the Lao PDR.

FFS' is divided into seven main steps as follows:

1. Preparatory activities

Before starting an FFS for rice, the target community, participants and field site should be selected. FFS for rice PGR CDU Project in the Lao PDR is undertaken through the government's plant protection centres with support from non-government organisations and research centres. In year 2000, FFS was implemented in six sites from four provinces and one municipality. In dry season of 2003, the sites increased to 14 communities and 21 communities in the wet season. The villages are in Savannakhet, Champassak, Luang Prabang, Vientiane and Vientiane Municipality. Provincial implementation in Savannakhet, Vientiane and Luang Prabang is through the Province Agriculture Extension Section under the Province Agriculture and Forestry Service. In Champassak and another site in Luang Prabang, BUCAP is implemented by the Agricultural Colleges.



2. Baseline Establishment

Baseline information related to the status of PGR, specifically rice genetic resources in the community should be established prior to the conduct of actual FFS for rice PGR CDU. The baseline information will serve as the benchmark from which the impact of project will be measured. At the end of two cropping seasons, trainers of each FFS must run the baseline exercises again as impact monitoring exercises to gauge if the activities already influenced the local seed supply system and the status of rice genetic resources in the community. The objectives of baseline are:

- To determine the rice PGR situation
- To determine farmers' level of knowledge and skills on rice PGR management and breeding
- To understand farmers' perception on the rice PGR situation
- To facilitate farmers' data gathering and analysis on rice PGR
- To motivate farmers to analyse their rice PGR situation and recommend strategies to improve their situation.

Baseline exercises include map of rice genetic resources in the village, matrix of rice varieties, sources of rice plant genetic resources. Setting up the breeding objectives and assessing the farmers' skills are also conducted.

3. Planning meeting

The planning meeting is intended for the FFS participants and will make use of baseline information established with the community. Hence, it will be observed that the exercises will be similar to those carried out earlier. The planning meeting is a participatory approach to validate baseline information and narrow it down to essentials for the design of the rice PGR field studies and field schools.

4. Field Studies

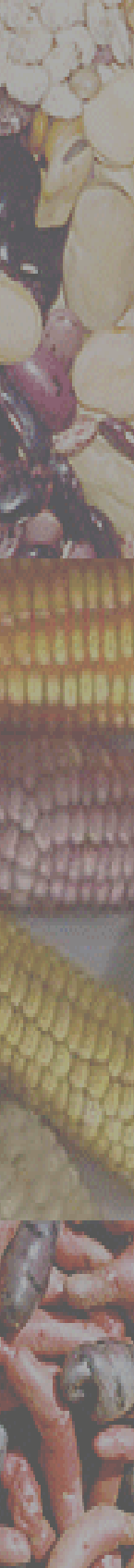


The field studies, although they can be undertaken independently, are linked into one process. The decision on the number and kind of field studies to implement will depend on the capability of farmers' groups to manage the activities. A small group of farmers will be assigned to take care and monitor one field each for an entire season. This will lead to the development of a core group of farmer with specialised skills on each of the topics, e.g., line selection, plant breeding, seed rehabilitation and varietal evaluation.

During the season, it is important for each small group in the FFS to share their experiences and understand how their studies are all linked together.

5. Group Dynamics.

Group dynamics provide additional activities to break the ice and set the mood for group work. The success of the FFS depends on the cohesion of the group involved. Thus, it is important to ensure understanding within the group.





6. Special Topics and Field Exercises

There are proposed weekly topics that the trainers can use in running the season-long FFS. Innovations should be encouraged and the weekly guides should only be taken as suggested topics and not imposed topics. Trainers are free to select the topics they think should be included in the FFS. The minimum topics that should be covered in the FFS are the baseline exercises, the topics on breeding cycle, selection of varieties, selection techniques and breeding. Additional topics are biodiversity and PGR, understanding loss of biodiversity, review of agro ecosystems analysis, conservation of PGR, the rice plant, and reproductive characteristics of rice.

7. Winding-up Activities

Near the end of the season, evaluation and sharing activities are carried out to wind-up the season. The Farmer's Field Day (FFD) is usually carried out near the end of the season to share the results of the study to other farmers in the community. Group evaluation and planning for the next season are also carried out at the end of the season.

In the next season, farmers usually opt to continue the group learning through field studies (FS). Unlike a full blown FFS, in FS, the number of meetings is less, depending on farmers needs.

Results and discussion

Activities carried out in Dry and Wet season 2003

New FFS sites. In Luang Prabang Province, there were four field study sites (FS sites) and another two FFS with the extension and agriculture college. In Vientiane Province, Provincial Agriculture Forestry Office (PAFO) implemented three FS sites and three FFS. Two FS were implemented in Savannakhet Province. In Champassak Province, they also have four FS and two FFS including the FS and FFS facilitated by the Agriculture College. All the field sites are presently under the responsibility of the Plant Protection Centre. CIDSE opted to give up its coordination and maintained its work only in one FS site in Santhong District, Vientiane Municipality.

The National Agriculture Research Centre (NARC) provides technical assistance and gives stable and segregating materials to the FFS and FS. It also assists in the conduct of the Observation Yield trial (OYT) and Replication Yield Trial (RYT) and in writing technical report.

The number of FS and FFS, farmers and trainers for all the BUCAP sites from dry season 2003 to wet season 2003. There has been an increase in the number of sites from nine to fourteen. There was also an increase in the number of farmers who participated, from 247 last year to 398 this year (Table 1). Only interested farmers continued with the FS group. Some farmers opted to use and evaluate the materials in their own fields.

Result from dry season and wet season 2003. Farmers were able to select 342 uniform varieties from 642 varieties derived from OYT selection evaluated in the sites (Table 2).



Table 1. Summary of the number FS and FFS established, number of farmer participants in FS, FFS and number of trainers per site for year 2003.

Province	FTOT	No. of FFS	No. of FS	No. of Farmers		Total	No. of Trainers		Total
				W	M		W	M	
Vientiane Pr.	5	3	3	23	97	120	4	2	
Luangprabang Pr.	7	2	4	36	80	116		6	
Savannakhet Pr.	2	0	2	14	26	40		3	
Champassak Pr.	4	2	4	24	98	122		4	
Vientiane M.			1					5	
Total	18	7	14	97	301	398	4	20	24

Note: FTOT - Farmers Training of Trainers

Number of Trainers – extension agents involved in BUCAP

Farmers selected from 454 segregating lines from 701 lines for planting in the wet season. Out of these, 342 lines became uniform lines and yielded 32 promising lines from all sites.



Promising varieties



Breeders' seed

Farmers in Boungnai village, Pathumphon district even selected seven lines which they like but which they claimed are not uniform yet. They plan to make the materials uniform for subsequent use and production. Fourteen crosses were bred by farmers and 108 farmers have taken the initiative to grow the rice seeds and conduct selection in their own fields.

Table 2. Summaries selected by farmers from FS and FFS in year 2003

Province	Breeding	Segregating lines		OYT		RYT		Promising lines
		Planted varieties	Selected varieties	Planted varieties	Selected varieties	Planted	Selected	
Champassak	0	227	89	199	42	14	14	2
Savannakhet	2	54	33	55	24	11	6	2
Vientiane	0							
Vientiane	2	197	197	202	202	0	0	6
Luangprabang	4	224	148	122	37	0	0	8
NARC				45	14			14
Total		702	467	578	319	25	25	32

Note: OYT – Observational Yield Trial

RYT – Replicated Yield Trial



SHARING OF EXPERIENCE

Mr. Kamkai Vonvichit

Farmer, Viantiane Province

In the last five years, he, along with other farmers in their community used high yielding varieties of rice which resulted to the displacement of local varieties. When BUCAP started to operate in their village, about 25 farmers including him, joined the different activities (FFS, farmers' meeting once a month, AESA, seed selection, and rice breeding)



From left to right clockwise: Value added of rice as beverage; processing of rice as food; storage hut; storage containers; and selection through roughing of off-types

TECHNOLOGY TRANSFER THROUGH FARMER MOVEMENT IN LATIN AMERICA

Luis Cifuentes, *Coordinator*
Latin America Regional Coordinating Unit, CBDC

Background

This presentation is an attempt to relate the CBDC experiences in Latin America and compare the technology transfer packages to a much more traditional way of sharing and communicating of knowledge and experiences within and among individuals in the communities. The objective here is to impart an idea of how information at the community level are considered, gathered, and discussed not only in relation to its practical, technical or objective uses but also in terms of cultural and political dimensions.

1. Technology transfer as a communication tool for establishing social movement

Technology transfer has been integrally link to one whole process. This process was introduced 150 years ago in England when agricultural experiment stations begun. This process moved on until the middle of the 19th century, where agricultural development was seen as a product of on-farm and inter-farm activities.

Historically, agriculture and its development were defined by science and its scientists. Farmers were not informed of the agricultural process. Political and economic decisions related to agriculture were officially made by experts and scientists. The assumption of this “scientific orientation” was based on a top-down relationship where scientists are recognized as experts and farmers as recipients of the technologies generated by the experts.

In fact, technology transfer became an investment for the spread of the Green Revolution in the past.

Assumption of “scientific orientation”:

There is knowledge and technology vacuum in the rural communities and science was developed as a response to fill that vacuum.

However,

- Technology is not culture blind and culture has a contribution to technological advancement;
- Transfer of technology should be horizontal, constant and continuous because farmers are creative, evolving;
- The resistance of culture to the Green Revolution due to its agro-ecological contradictions, created its own vacuum, making it more necessary for scientists to approach this vacuum using the same technology transfer packages that in the first place, culture have resisted.

Our assumptions:

- Knowledge is formed on a daily basis and continuously in the rural areas/ countryside.
- Technologies are cultural products.





- Academic knowledge interacts with the local knowledge. It is time for researchers and scientists to recognize the fact that much of their knowledge comes from the observations of various phenomena generated in the rural areas.
 - Local knowledge comes from observations while academic knowledge comes from interaction with local knowledge.
- Technologies are product of collective actions, both social and cultural.

2. Technology transfer as an instrument of change

Technologies and experiences build and transform social and political conditions. It is not the CBDC or any NGO that is equivalent to the social movement, but it should be a social movement that grows from mutual understanding, and interaction among individuals, that creates a situation and leads to the realization of the changes that are necessary.

However, the advantage of working as a network:

- To understand the global nature of the problems
- To coordinate and facilitate process for change

Conclusion

Even as CBDC experience closes at some point at its present shape, we can still continue to work as a network.

COMMUNITY SEED PRODUCTION AND TREATMENT AT THE LOCAL LEVEL

Erariño John Jingo
Farmer, Zimbabwe

Background of the Project Community

Our community participated in the CBDC program for the past seven years way back in 1997. About 1,000 families became direct beneficiaries of the program. The program is operating in two wards, namely Chiunze and Mawanza. A ward is a relatively large land area accommodating about six villages. In Zimbabwe, an average village is composed of 100 households deriving their livelihoods and income from the use of crop genetic resources. A village is headed by the kraalhead while several villages or wards are managed by chiefdom.

Rainfall, Agriculture and Crop Diversity

The whole of my village is comprised of communal land where small-scale subsistence agriculture is being practiced. Our climate is characterized by hot lower lying land subject to seasonal drought. The average rainfall ranges between 450 to 650 mm. The lower amounts of rainfall we receive make farming in most households too risky. It is the maintenance and cultivation of diverse drought tolerant varieties of cereals and legumes which make my neighbours survive in the desert margin type of environment. Cereals cultivated are sorghums, millets, rice and maize. Legumes include cowpeas, groundnuts, sugarbeans, and bambara nuts. A wide range of other crops such as bananas, sugarcane, yams, spider plants and sweet potatoes are also cultivated in home gardens. I have not exhausted the whole range of crops we are conserving and utilizing despite the marginality of rainfall.

There is coexistence of crops and livestock in our community. Types of livestock kept mainly cattle, goats, sheep and donkeys. From these we derive organic manure to fertilize our field and meat is relished as well. However, there is variation in livestock ownership among households ranging from zero livestock, and a few up to many. For cattle, average ownership per household is about three beasts for my village, up to a maximum of 25 in wealthier households. The recurrent droughts during the 1990's have reduced our herd significantly. My wish is to see the CBDC project considering livestock improvement, since they are directly linked to cropping as draught power.

Activities developed within the CBDC-Zimbabwe Project

a) Field schools to enhance seed availability

Before the introduction and implementation of the CBDC project through CTDT, my community had been experiencing serious seed shortages across various crops such as sorghums, millets, cowpeas, and local vegetables. The reasons for the shortages were:

- Seed losses through droughts,
- Seed consumed due to household starvation before the beginning of the rains,
- Lack of knowledge on seed production and storage management,
- Limitations in transporting products to major trading centres,
- Seed deterioration and storage.





To date, I can comfortably say, my community is seed-secure in terms of crops such as sorghum, millets, and groundnuts for the next five seasons. We have developed activities that have positively contributed to the respect of the word SEED among the farmers in the village. This has been achieved through training of most project beneficiaries through a technique known as “Farmer Field School”. This training has taught us on how to produce quality seed of preferred varieties on-farm. Our good quality seed enabled us to link to the formal lucrative seed industry. Now were growing seeds of sorghum for the whole nation and became a major achievement of the Zimbabwe CBDC program. In the past, farmers living in the village were not allowed to produce certified seeds. But now they can produce seed of open pollinated crops like sorghum, millets, and maize. Table 1 below shows the historical achievements in sorghum seed yields.

Table 1. Seed yields from a sorghum variety (Macia)

Year	Yield obtained in tons (seasonal total from all growers)	Seed recipients at 5 kg/ha/farmer
1999	1.7	340
2000	2.5	500
2001	4.2	840
2002	5.8	1160
2003	6.8	1360

The farmers’ management committee keeps surplus seeds of any crop at the local seedbank. The committee keeps record of all farmers participating in the project. They also regulates access to stored materials.



Community seed bank



**Farmers processing seeds fro storage in the
community seed bank**

b) Promotion of cost-effective seed storage techniques

Due to the increase cost of agro-chemicals used in seed treatment in Zimbabwe, we have been experimenting on the validity and efficiency of the traditional seed storage structures. The aim is to reduce and save on the cost of agro-chemicals for seed treatment in storage. We come up with effective seed storage techniques for various crop seeds as illustrated in table 2.



Table 2. Seed storage techniques used on various crops

Storage technique	Crops covered	Estimated viability period
Tree Ashes	Sorghums, cowpeas, beans	About 6 months
Hanging above fire place	Sorghum panicles, cowpea pods	6-12 months
Sealed clay pots and gourds	Millet, cowpeas, and beans	6 months
Sealed plastic bags	Maize, sorghum	6 months
In-house seed compartments	Finger and pearl millet	1-2 years

Most of the techniques maintain seeds free from diseases and weevils for a period of six (6) months it also ensures that most of the crop seeds survive throughout dry and winter months (June to August) until the onset of the rainy season.

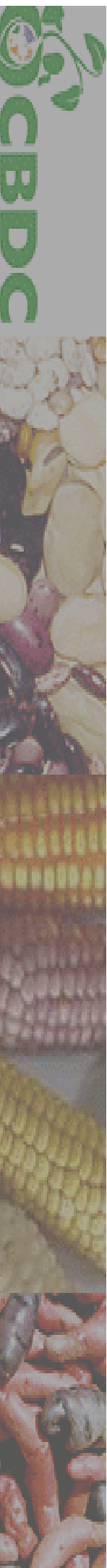
c) Community seed fairs

We have been organizing community-based seed fairs called “*fora*” where all seeds cultivated in the area are displayed and exchanged. This creates opportunity for the farmers with low diversity to build up their stocks as well as farmers with high diversity to enhance their own stocks. The introduction of seed fairs, benefited farmers as follows:

- Increased number of varieties grown especially for small grains and legumes,
- Increased seed exchanges and interactions among farmers,
- Developed a database of materials currently being cultivated and maintained by our farmer groups,
- The spirit and morale to conserve diversity have increased among farmers.

Conclusion

CBDC program should consider the development of the activities that will address issues of livestock management especially cattle which are important in field preparation (manure and ploughing). The program may look into the relationship of nutrition issue and awareness of the community regarding HIV-AIDS program in the community.



DECENTRALIZATION OF INSTITUTIONAL PLANT BREEDING: The case of Mekong Delta, Vietnam

Duong Thanh Binh

Technician, Seed Center of Soc Trang Province, Vietnam

1. Introduction

Mekong Delta (MD) is a flat and big plain with more than four million hectares of natural land area belonging to Vietnam. Vietnamese have conserved and developed diversity of food, foodstuff crops and vegetables. Rice is the most important crop occupying more than 1.9 million hectares of total land area. The Mekong Delta is called the “rice bowl” of Vietnam.

To utilize the potential of Mekong Delta, some international and national projects have strongly supported the rice breeding program. As a result, early maturing and high yielding varieties were released which greatly contributed to the increased of rice production. However, this also led to the erosion of rice genetic resources and threatened stability of agricultural production of the delta.

The decentralization of institutional plant breeding under CBDC project provided significant results which improved the diversity of on-farm rice genetic resources and decreased the risk for farmers.



2. Rice breeding systems before the CBDC project came

Rice selection

Rice varieties are plenty in the Mekong Delta. About 2,000 accessions of traditional rice varieties were collected and stored in the genebank of Cantho University. In the past, farmer's selection includes adaptation of new rice varieties to different agro-ecological conditions and local culture/ custom. Seed selection is done through traditional methods with simple techniques which can be divided into two main methods:

- **Variety selection:** Selecting individual plant or typical plant in population is a common method applied in rice. At the milk stage, farmers seek and harvest good plant(s) with suitable characteristics. In the next season, farmers grow them in a plot (one plant per plot) and compare plots (populations). Select a good plant and multiply its seed for production.

When a farmer plants a good variety, other farmers from different communities observe and exchange seeds. There are also different ways in naming a new variety. Breeder provide a name to a new variety that is easy to remember. For example, Mot Bui variety means that farmer selected from one plant, or Lun Can variety means Mr. Can selected this variety from short plants.

- ***Quality improvement:*** In selecting seeds, farmers usually choose a good area in the rice field at milk stage. Some reject off-type plants and harvest good plants for the next planting season. This process gradually improved the seed and cooking quality of rice. For example, Nang thom Cho Dao variety is maintained because of its good cooking quality.

Initiative of decentralizing rice breeding

The government's program rice breeding also started in early 1970's in the Mekong Delta by scientists from Agricultural Faculty of Cantho University. From 1980's, farmers were involved in rice selection but their participation was very limited. Farmers take care of some activities like testing varieties with care resistant to brown plant hoppers and were also involved in (or adaptation test). The initiative to decentralize institutional rice breeding is important in developing the informal seed supply system.

Access of rice genetic materials

Farmers could use some new varieties for production in two ways:

- ***Seed exchange:*** Farmers usually buy or exchange a good variety when they observed this variety on the field in their community. On the other hand, farmers could introduce a new variety when they visit their kin.
- ***Seed introduction:*** Government institutions have introduced new varieties to farmers since 1970's through the Department of Agriculture. This organization establishes a demonstration plot for farmer's observation. Farmers can select and buy seeds of good variety for production and selection. This activity has been strongly pushed for since early 2000 in the Mekong Delta.

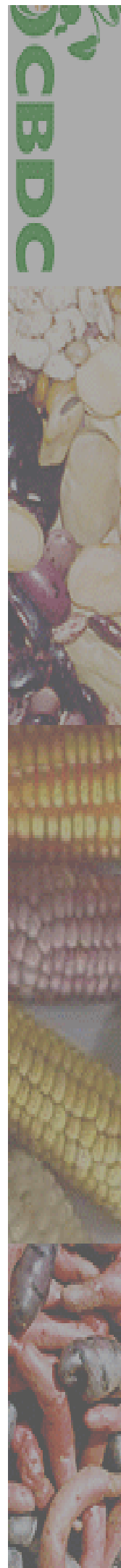
3. Decentralization of rice breeding under CBDC project

Farmers, have been participating in the plant breeding activities since 1995 through the assistance of the CBDC project and the Farming Systems Research and Development Institute. Farmer's participation is divided into two main periods:

Period 1 (1995-2000)

In this period, six farmer groups (communities) from four provinces in the Mekong Delta were established under CBDC project. There about 220 farmers who started the following activities:

- Collecting and describing local rice varieties,
- Conducting variety tests and selecting adaptation varieties,
- Selecting from segregating materials (F2, F3),
- Multiplying selected varieties and distributing seed for farmers in the communities.



At the start, farmers faced some technical problems and local policy constraints. Gradually, we developed alternative tools through "learning by doing" and through facilitation of policy. Initially, the group released and selected varieties for community consumption. One particular farmer, Mr. Tran Minh Canh, selected a new variety "SiC-1" from F2. Hence, affirming that farmers have the capacity to manage some simple field researches and assist other farmers in the access and conservation of plant genetic resources.

Period 2 (2001- present):

Late in 2000, CBDC project organized a technical training on participatory plant breeding and varietal selection methods (PPB/PVS) and established a network of farmer's in cooperation with the project. In addition, the group also was tapped for training on rice breeding and supplies seeds to the local agricultural organizations such as the Seed Center, Seed Testing Center, and Agricultural Extension Center. Staff and partners from these organizations comes frequently to provide technical assistance.



Variety adaptation trials



Rice breeding

Now, the network has 37 "Seed Clubs" with more than 1,000 farmers' participation. In 2003, its main achievements are as follow:

- Many new adapted varieties were selected and released community use.
- 11 stable lines were selected from the Seed Clubs have been incorporated in the formal variety testing system which includes, TH-1 which is very promising. If one of these lines will show good potential in terms of yield, quality and adaptation, farmer's varieties will be certified as provincial or national varieties. More than 100 other stable lines are tested in the communities.
- More than 14,000 tons of rice seeds were produced by the Seed Clubs and distributed to other farmers in the Mekong Delta.

Seed certification

Seed Clubs (SC), Agriculture Extension Center (AEC), Institutions participate in farmers' field day (FFD) for seed evaluation and certification of farmer's variety at province level.



Promising lines developed by farmers to undergo variety testing of the formal system

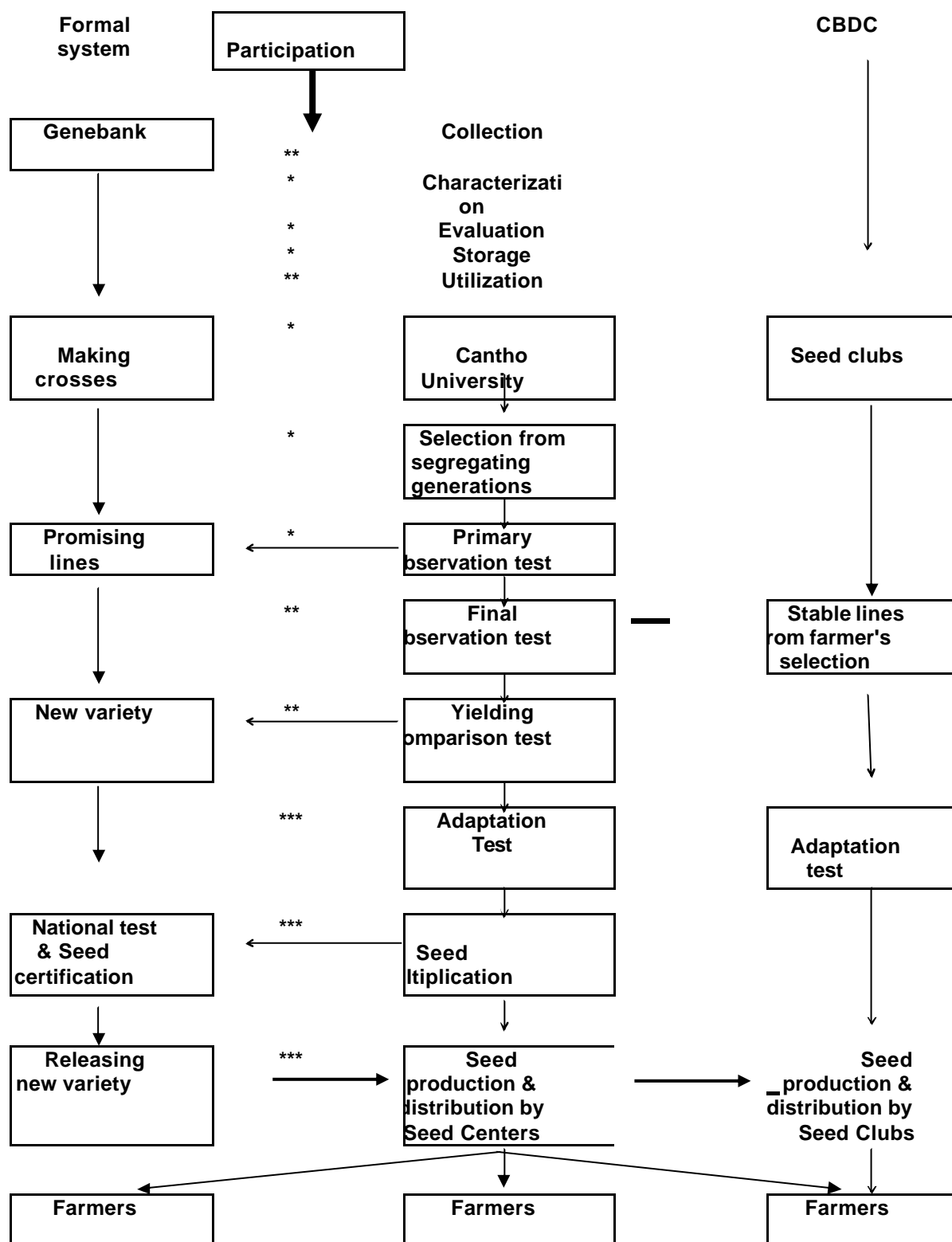
Assessment of the level of participation to the institutional plant breeding

Influenced by the CBDC project and the decentralization of the formal system for plant breeding, farmers of the seed clubs have contributed actively to the whole rice breeding process in the Mekong Delta. Levels of participation in each kind of work are different as indicated in Fig.1.





Fig. 1. Participation of farmer in plant breeding system in the Mekong Delta



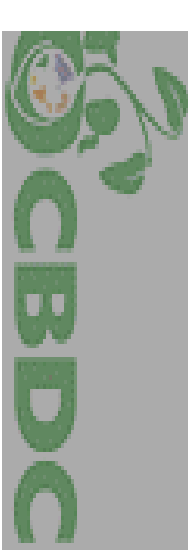
Level: * Implementation of core farmers
** Implementation of experienced farmers
*** Implementation of all members of the seed club

Assessment affecting the institutional rice breeding decentralization under CBDC project

Activities of farmers on PPB/PVS and Seed Supply System (SSS) have strongly affected the local policy on decentralization of institutional plant breeding in the Mekong Delta. It is focused on some main fields:

Kinds of decentralization	Development level	
	Before CBDC project	During CBDC project (1995-now)
1. Number of cooperative farmers	<ul style="list-style-type: none"> About 20 individual farmers 	<ul style="list-style-type: none"> 1995-2000: 229 farmers 2001 - now: more 1000 farmers
2. Technical assisted organizations which assisted farmers on rice breeding	<ul style="list-style-type: none"> Some scientists from Cantho University and local technicians and staffs from Extension Centers 	<ul style="list-style-type: none"> Scientists from Cantho Uni./ CBDC project staffs Technicians from Seed Centers, Agr. Extension Center and Plant Protection Departments Core farmers from Seed clubs
3. Farmer's access on plant genetic materials	<ul style="list-style-type: none"> Self-exchange Introduction from agr.extension centers (AEC) 	<ul style="list-style-type: none"> CBDC project/FSRDI Seed Centers AEC Seed clubs Among farmers
4. Seed club and farmer's variety certification	<ul style="list-style-type: none"> A little Not yet certified 	<ul style="list-style-type: none"> 37 seed clubs of CBDC network Many selected rice varieties are approved and used in the communities Farmer's rice variety is acceded into the formal variety test system and seed certification
5. Informal seed supply system	<ul style="list-style-type: none"> Not yet allowed by governmental policy Poor farmer participation Small amount of seeds 	<ul style="list-style-type: none"> Allowed by the government and helped in seed testing More than 1000 farmers participated Distributed more than 14,000 tons/year
6. Use of farmer's variety in the community	<ul style="list-style-type: none"> Self-selection Use of new variety from the formal system 	<ul style="list-style-type: none"> Selected varieties at seed clubs covered >80% rice land area in community





4. Impacts from decentralization of the institutional rice breeding under CBDC project

Activities on PPB/PVS and SSS at the seed clubs have had real impacts to socio-economic fields of communities as follows.

- Social impact
 - Participant: Number of participants increased at the seed clubs, from 220 to 799 and 1000 in the succeeding years of 2000, 2002 and 2003 respectively
 - Technical knowledge and application for seed selection and production were improving among CBDC partners at the seed clubs
 - Public awareness on biodiversity conservation at the community level is expanding
 - Community approval of farmer's selected varieties is high
 - Technical assistance among farmers strengthened relationships among neighbors in the community
 - Establishment of a network opened a good opportunity for sharing and exchanging relations
 - Close collaboration between the four main sectors (scientist-technician-local government-farmers)
 - Increase appreciation of the role of farmer in the informal seed supply systems by the formal system
- Economic impact
 - Farmers' income in the seed club have increased from seed production and distribution (as compared before CBDC project intervention)
 - Qualitative value of paddy product is also better and were sold at a higher price
 - Establishment of the seed club has facilitated investment from the outside, including commercial contracts, and loans from national credit programs
- Biodiversity conservation
 - The operation of PPB/PVS and SSS has contributed to the diversification of rice varieties in almost all communities.

Conclusion

Decentralization of institutional plant breeding is an important and useful strategy for strengthening farmer's roles and tasks in cooperation with projects. Support from the governmental organization and projects should increase to empower the communities in managing plant genetic resources.



OPEN FORUM

1. What are the criteria used by farmers in selecting varieties?

Farmers' usual criteria included good plant height, resistant to pests and diseases, and good eating quality.

2. Farmer partners in Brazil do not apply for seed certification because it aims to commercialise and restricts the registration of organic products. What and how is the registration scheme in Vietnam? How are varieties registered in Vietnam?

The process of seed certification is conducted by the Ministry of Agriculture and Rural Development. This institution is in-charge of testing the varieties and releasing them into the farmers.

3. The collaboration between the farmers and the academe/formal breeding institutions primarily resulted to the development of new varieties. Is there any form of agreement that would regulate how the varieties can be used by the formal sector? What are the conditions that would allow the public sector to use the varieties?

There is actually an active linkage between CBDC and the formal system including the seed centres. We collaborate even in our breeding activities i.e. adaptation trials, data gathering, etc. CBDC buys the seeds from the farmers and distribute these seeds to other farmers.

4. In East Timor, postharvest is one of main constraints to achieve higher productivity. How do you maintain the seed viability after harvest?

Farmers in Vietnam employ three croppings per year. Hence, storage is not a problem because it takes only a short time for storage.

5. From the breeding point of view, how do you classify the farmers' seed in Vietnam – breeder's seeds, foundation seeds, registered seeds or certified seeds?

Farmers seeds are considered certified or foundation seeds.



FARMER EMPOWERMENT THROUGH COLLABORATION

Jose Traverro, *Director, Research and Development CVSCAFT System, Zamora, Bilar, Bohol, Philippines and Technical Advisor, SEARICE-CBDC Project, Bohol, Philippines*

Introduction

Philippine Strategy for Sustainable Development is a framework which puts value on people participation in all levels of the development process. In fact, for two decades now, development circles have adopted “human centered” strategies which emphasize active participation of the people at the grassroots level. This is true in agricultural development.

Gajanayake and Gajanayake (1993) observed that there is growing acceptance of the community development approach which is a potential tool to address development issues and challenges faced by rural and urban communities in developing countries. However, they observed that such an approach has not made a significant impact on the poorest of the poor. This led to the emergence of a target-oriented approach focusing directly on disadvantage groups.

Resource-Based Sustainable Agriculture at CVSCAFT

Central Visayas State College of Agriculture, Forestry and Technology (CVSCAFT) is a state college in the island province of Bohol, Central Visayas, Philippines. Republic Act 8659 mandated the college to integrate the culture of research and extension especially in the fields of natural resources, namely agriculture, forestry and fisheries. Since its inception as a state college, the Office of Research, Development, Extension and External Relations (RDEER) was established as a response to the research and extension mandates of the college and to one of the goals of higher education in the Philippines to generate knowledge and transfer appropriate technologies responsive to the dynamically changing domestic and international environment.

CVSCAFT through its Ecofarm is among the pioneer advocates of a resource-based sustainable agriculture which employs a participatory target-approach in its Research and Extension functions. CVSCAFT RDEER operates independently utilizing available internal and external resources as benefits of collaboration and partnership with local and international networks.

CVSCAFT, even with its idealism to serve the community through its mandates, is greatly hampered by some realities in its financial environment and capabilities which is a natural phenomenon in the Philippine government especially in the education sector. Yet, it would not mean a dead end. CVSCAFT as an academic institution is encouraged to develop consortia and other forms of linkages with local government units, non-government organizations and other agencies both public and private, local and foreign, in the furtherance of the purposes and objectives of the academe especially its Research and Extension Programs.

CVSCAFT and SEARICE as Partners

Bilar is a rice growing village of more or less 20,000 people in the central part of Bohol which is one of the sites of the educational and technical services of the Southeast Asia Regional Initiatives for Community Empowerment (SEARICE). It is the same village

where the main campus of CVSCAFT is located where its major programs focus on agriculture and forestry.

SEARICE with its Community Biodiversity Development and Conservation (CBDC) Program is a non-government organization conducting participatory on-farm researches in the interior towns of Bilar, Batuan, Carmen, and Dagohoy, all in the province of Bohol. These areas are rice-based farming ecosystems. In its desire to mainstream its concepts and approaches, technologies, advocacies and experiences in to the academe, SEARICE has taken the initiative of collaborating with CVSCAFT through the RDEER. Likewise, CVSCAFT has adopted the strategy of collaborating to make the RDE Program dynamic. Hence, the CVSCAFT-SEARICE Partnership was a welcome idea.

After the series of exploratory discussions of the RDE and SEARICE staff on the pros and cons of this mutual undertaking, the parties finally signed a Memorandum of Agreement (MOA) on September 1999. It was a research collaboration aimed to facilitate and strengthen participatory on-farm researches by farmers towards a resource-based sustainable agriculture. The collaborative project was implemented in a newly identified farm villages, namely: Zamora in Bilar, and Katipunan in Carmen. The partners provided technical and indirect financial assistance for the improvement of rice farming enterprise of the local producers based on their identified needs.

PRA: The Take-off Point of Partnership

The initial activity of the collaboration was the conduct of Participatory Rural Appraisal (PRA) out of which the areas of concern or their needs were identified by the farmers themselves. The gesture of enthusiasm inspired the collaborating institutions to extend their assistance through the Farmer Field School (FFS). On-farm trials were conducted to address issues and concerns on the use of organic fertilizers, the ecological pest management, varietal selection and plant breeding.

A year after, cooperating farmers have organized themselves into a formal association while they continue their selection and breeding work. At this point the need for the production of organic inputs was seen and so the group decided to produce BOKASHI, an organic fertilizer.

Community-Based Rice Germplasm

As the association evolved into a service entity to farmers who are interested in their technology and the seeds they selected and developed, a rice genebank was established by the farmers with technical back-up of their assisting institutions from CVSCAFT and SEARICE. To back-up the efforts of the farmers, a center-based seedbank was established at CVSCAFT Main Campus. Continuous rejuvenation work was done with the spirit of cooperation as they have done in the community genebank.

As selection and breeding work continues, there evolved a participatory evaluation technique to select and characterize the strains using their own criteria. At present, CVSCAFT Rice Genebank has 147 holdings of rice varieties/lines which are selections from traditional varieties, farmer-bred, MASIPAG and formal released seeds. These seeds are available on request at the Genebank as starter seeds for all interested rice farmers within the service area of the college.





Mutual Benefits of the Collaboration

Obviously, there is a synergistic impact of the two institutions working together in the spirit of cooperation and a deep sense of commitment to work with the farmers. However, we have seen that the partnership is beneficial not only to the community but to the collaborating institutions as well. On the part of the CVSCAFT as an institution, it has increased its visibility in the countryside. It was an image-building of CVSCAFT that strengthened its public relation. On the part of the RDE Staff who were involved in the project, it was a capacity-building and enrichment of their skills especially in participatory process of community organizing and technology development. The partnership enables the RDE Staff to get in touch with recent issues and concerns which ultimately enriched their intellectual capabilities.

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FACILITATING THE LEARNING PROCESS THAT SUPPORT PARTICIPANT'S CREATIVITY

Alifah Sri Lestari, Staff

Farmers' Initiatives for Ecological Livelihood and Democracy (FIELD), Indonesia

Abstract

Three cases of experience in facilitating farmers to develop strategy and training tools are presented for sharing. First is how farmers can control white stem-borer using the long process of calendar as a tool. Second, farmers try to understand and develop the training tool of the soil ecology and third, initial effort to support farmers to become breeders. All these things show us that the farmers have creativity and are able to solve their problem. The role of facilitator or resource person is crucial in giving the farmers the opportunity to learn the basic concept of ecology rather than introducing or providing a better way to manage something. Throughout the rest of the process, the facilitator just helps in reframing the information or data to become an action strategy. Below are detailed explanations of the three cases.

Integrated Pest Management (IPM) on white stem-borer

Stem-borer is a serious rice pest in North Coast of Java. A lot of efforts have already been tried by farmers to solve the stem-borer problem including application of several kinds of pesticides. The farmers in Indramayu District also found that application of carbofuran in the seedbed does not guarantee an insect-free nursery and spraying insecticide during plantation it also does not stop the outbreak (Ooi, 1998).

After completing the Farmer Field School (FFS), farmer groups in Indramayu District – North Coast of Java continued their activities by doing research on white stem-borer. There were two kinds of research methods used: the Insect Zoo and the Study Plot, which allowed farmers to conduct experiment and collect data. To analyze the interaction between agroecosystem components, the farmers used Insect Zoo. On the other hand, to obtain further complex interaction, the farmers used the Study Plot.

The role of the facilitator is not to plan and conduct the experiment for the farmers as in usual researches, but to help in the experimental design and implementation. The facilitator helps the farmers to understand the basic ecological principles through study and assists them in combining the data or information they collected to become an IPM strategy.

From the combined information resulting from the studies, the farmer group developed the seasonal strategies to forecast the peak of white stem-borer flight. The general strategies were: 1). Predict the peak flight based on the first 20 mm effective rainfall at the beginning of rainy season. The prediction should be verified by observing the actual stem-borer flight on the 7th day after effective rain; 2). Avoid the susceptible phase (panicle initiation) of the plant that coincidence with the peak flight of the second generation of stem-borers by planting rice varieties of different maturity period or adjusting the time of nursery. 3). Organize other farmers to do the same strategy or otherwise the peak flight will not follow the common pattern and will be difficult to manage.

These strategies have been practiced since 1998 and proven satisfactory in controlling stemborers. The most effective result usually happens during the rainy season where stemborer attacks become a big problem after the fallow season. The limitation of these strategies is location-specific, and modification should be made by doing researches in different agro-ecosystem to ensure better result.



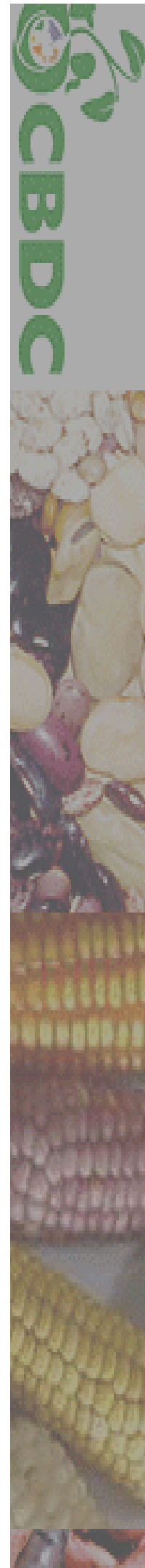
Table 1. List of study designed and implemented by farmer in Indramayu

Farmer Study	Result	Strategy
Spraying the moth inside the insect zoo	The moth died but still was able to lay eggs	Insecticides offer no guarantee to control stem-borer.
Application of carbofuran in controlled condition nursery bed	The results varied depending on the time match between the period of egg laying and time of carbofuran application	
Application of insecticide directly to egg mass	No pesticide was able stop the eggs to hatch	
Finding out where the flight moth at beginning of the rainy season come from	The stem-borer larva diapause on the stubble during dry season	Flight moth monitoring by light trap since fallow season
Measurement of the effective of rainfall that breaks diapause stem-borer	The moth emerged from stubble on the 7th day after 20 mm natural rainfall. But experiment with the same amount of simulation rainfall failed to demonstrate the effect of rainfall	Delay the establishment of seed bed after the 7th day of the first 20 mm rainfall
Observation and forecasting of the stem-borer peak flight	The peak flight of stem-borer has a certain pattern	Avoid the susceptible phase of rice that coincides with the peak flight.
Study on the life cycle of stem-borer	The complete life cycle of stem-borer was recorded	Basic information that are useful on designing the IPM strategy

Soil Ecology

Soil, fertilizer and soil fertility are never ending topics that are always discussed by farmers. Fertilizer, especially chemical fertilizer is applied almost all season by the farmers. Even the effect of fertilizer on yield is already well known to the farmer, but what fertilizer is and how the fertilizer affects the soil is not fully understood. If the chemical fertilizer gives better yield, does it still make sense to discuss how to make compost or other organic matter? This kind of question always hampers the development of organic farming or further utilization of organic matter in agriculture.

During their visit as IPM FAO short consultant to Indonesia on 1999, Sikora and Hallman from Bonn University, Germany, met several IPM farmer trainers and discussed about soil ecology. The meeting was fruitful, because it shifted the farmers' paradigm on soil. The important lessons that the farmers learned from the discussion were (1) the soil is not only preserved as growth media for the plant but like the plant,



it also lives. (2) We do not actually feed the plant but the soil in order to provide nutrients to the plant. Based on the result of the meeting and with the field guide written by Settle (1999) the farmer trainers from IIFA (Indonesian IPM Farmer Association) developed the curriculum training on soil ecology. The training was conducted in several districts and provinces. Compared to the IPM FFS in which the farmers can observe pest and natural enemies directly, soil ecology was more abstract. For example, it is not easy to demonstrate the cat ion exchange capacity, or how the farmers can justify their soil status compared to the ideal soil, and how the farmers describe the ideal soil. Another problem was how to bring the concept into real action or in what action the participants can implement their knowledge after the training.

Because of the soil ecology training conducted in several districts and provinces, different problems have been solved. In the next season, during the evaluation meeting, lots of new ideas came out. The table below shows the farmers' invented learning tools.

Table 2. List of example of farmer invented learning tool in soil ecology training

	Inventor	Description
Biolahang (local decomposer)	Farmer Study Group (KSP) in Ciamis District – West Java	<ul style="list-style-type: none"> Chop banana stem. Mix with fresh harvested palm sugar sap. Ferment for 7 days. <ul style="list-style-type: none"> It can be used as starter (decomposer) for decomposition of straw, cow dung, chicken manure. The chicken manure mixed straw can be decomposed in 15 days.
Conductivity Test		<ul style="list-style-type: none"> 100 Watt bulb lamp serves as indicator of the different conductivity of different organic mater. Two probe act as on/of switch of the lamp. Plug carefully the electricity and stick the probe to the sample. Observe.
Cat ion Exchange Capacity simulation	Mr. Jamali from Brebes. Central Java	<ul style="list-style-type: none"> Join two probes made from copper and lead to the VU meter. Attach the probe to the different soil organic matters. Read the results in the UV meter
Capillarity Test		<ul style="list-style-type: none"> Fill the plastic column with soil. Submerge the open end bottom of the column into the water. Compare the reaction of different soil to determine which has faster capillarity.
Water holding capacity		<ul style="list-style-type: none"> Slowly pour water into column filled with fine soil. Watch the movement of the water due to gravitational force.
Soil porosity test		<ul style="list-style-type: none"> Put the soil into the plastic column. Join the top end of column to the balloon. Submerged the other end into the water. Observe. Compare which soil has the balloon flatted the fastest
Nutrient holding capacity		<ul style="list-style-type: none"> Fill the plastic column with soil. Slowly pour the organic matter mixed with water into the column. Observe. If the water passing to the column becomes clear, it indicates that the soil has better retention



Soil porosity test



Capillarity and water holding capacity test



Test for nutrient-holding capacity of the soil



Conductivity test and cat-ion exchange capacity test

PEDIGREA

In Participatory Enhancement of Diversity of Genetic Resources in Asia program (PEDIGREA) the same approach was also utilized. The program was realized using the FFS model in which the farmer trainers became the backbone in the implementation of the program. Since the beginning, the farmer participants were involved in planning, designing and evaluating the program. It was clear to the farmer that the program was about farmer empowerment instead of technical breeding.

In the farmers' level, the main program consisted of three major components: Training of Trainer (TOT), FFS, and workshop for farmer trainers. The basic concept of participatory plant breeding was formed during TOT. The resource persons were invited in the TOT, where the farmer trainers were required to make their own field guide. The farmer trainer workshop is being conducted once a month. During the workshop, farmer trainers discussed and share their experience in facilitating FFS as well as plan for the next month.

The trainer introduced to the farmer the Rice Pollination Technique. During female flower preparation for crossing, it was observed that some local varieties that have thick husk fail to open their flowers even if the temperature was high enough. Knowing this, some farmers used 100 Watt bulb-lamp and placed the male flower close to the bulb. This strategy induced the rice flower to open whether it is done in the night or in the daylight.

Discussion

The important lesson learned from the case studies was that the farmers have the creativity and ability to solve their problems. In the first case study, the farmers were able to develop a strategy to overcome the chronic endemic pest problem. In the second case study, the farmer learned the ability to modify the complexity of soil ecology theory to become easy to understand training tools. The successful experiences of both cases will hopefully be followed by the third case which is a new program of our organization.

The farmer field school approach provides a lot of opportunity to the farmers to learn not only about agro-ecosystem but also on different subjects. One of the powerful learning tools is Insect Zoo. Insect Zoo gives the farmers the idea on how to conduct a research by analyzing the interaction between components of the system. The next important step after analyzing is reframing the data or information to become a strategic action

The role of a facilitator or resource person is to help the participants to understand the basic concepts, help in the design and implementation of the study rather than do a research for farmers or provide a better way of management practices. The facilitator or resource person gives the farmers a chance to learn by experimenting not by listening or doing something.

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OPEN FORUM

Question:

1. Where do you conduct this induction of flower opening – in the field or greenhouse?

The induction of flower opening is done in the field although farmers also grow plants in pots for comparison

Comment:

Regarding the use of the calendar for managing insect population, we must also consider the issue of global climate change which affects the ecosystem and in turn, affects the biology of the insects. We cannot easily determine the onset of rainy or dry season because of the disruption of the climate pattern. Hence, we need to study this pattern specifically in our own location. It should be location specific because an observation in one environment may not be the same with other environments. This irregular climate pattern is proven in the Philippines.

SYNTHESIS

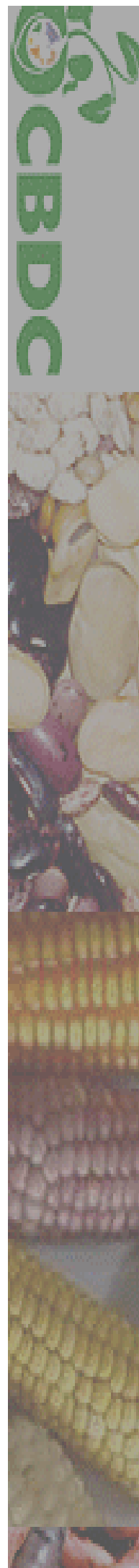
By: Andrew Mushita

Community Technology Development Trust (CTDT)

- Both the formal and informal knowledge are important in pursuing a successful transfer of technology. This is achieved through effective collaboration between formal and informal sector.
- The social and political movement at the community, provincial, national and even international level have also contributed in shaping up our methods and technologies that are most appropriate towards agricultural biodiversity conservation
- Farmer field schools, as an approach in technology transfer, must be adoptive to existing local condition
- Local integrated sciences must be evolving to adapt to the changing environment and situations. It must be location specific in order to ensure high adoption rate among communities.
- Challenge for CBDC:
 - To develop policy regimes that strengthens technology development of farmers at the local level
 - To design technologies that is compatible to the socio-economic, cultural, and environmental situations of the local community



***Initiatives to Protect
Farmer Innovations and
Agricultural Biodiversity***





COMMUNITY REGISTRY IN BOHOL, PHILIPPINES

Experiences in Collective Action against the Plant Variety Protection Act of the Philippines

Cisenio Salces

Farmer, Bohol, Philippines

Background

The Community Registry was a collective action of Filipino farmers in Bohol, Philippines against the Philippine Plant Variety Protection (PVP) Act. The Philippine PVP Act of 2002 or otherwise known as Republic Act 9163, is a sui generis system of plant variety protection signed by Pres. Arroyo on June 2002 in compliance with the Article 27.3b of the TRIPS Agreement of the World Trade Organization.

Implications of the Philippine PVP Act:

- Does not recognize farmers' as breeders and gives only this recognition and protection to breeders
- Does not give protection to farmers' on their rights over their seeds
- Threat to farmers' rights
- Threat to farmers' seed system – traditional practice of using, selling and saving/conserving of seeds

The Community Registry

How did the ComReg in Campagao, Bohol, Philippines come about?

- SEARICE in Bohol, Central Philippines embarked on an active information and education campaign and local discussions with farmer-partners to facilitate communities' understanding and analysis of the implications of the law
- As a collective response to the PVP Act, the Campagao Farmers' Production and Research Association (CFPRA) of Campagao village in the municipality of Bilar decided to **establish a community registry** as the community's way of asserting its control over and access to seeds and other genetic resources.



Community discussions on PVP and community registry

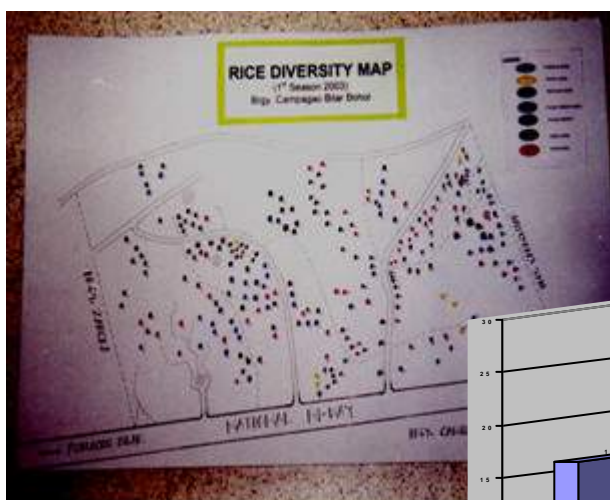
What factors affecting their decision?

- CFPRA members have been involved in rice breeding and varietal selection
- They have developed a number of stable varieties that are widely used among farmers in the local communities.

- The group recognized the implications and effects of the PVP Act on farmers' efforts in conserving and developing rice varieties considering that the law does not recognize farmers as breeders.

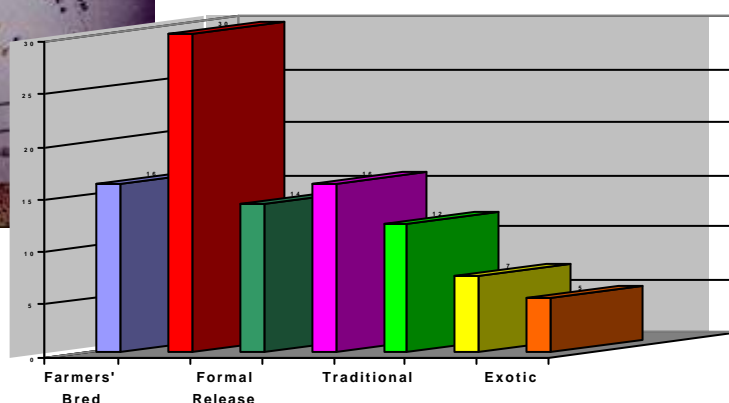
What process did the community undergo to come up with community registry?

- After a series of group meetings and discussions, the group formulated a COMMUNITY AFFIDAVIT declaring that all rice varieties maintained in their community shall be protected from the PVP Act, and that seeds of these varieties shall remain freely accessible to farmers for purposes of using, selling, saving and exchanging with other farmers.
- The affidavit also includes a list of names and kinds of rice varieties that the community has been using and continually developing since they started their efforts in participatory plant breeding. The registry also includes basic characterization of the varieties.
- The community affidavit is supplemented by a RESOLUTION passed by the organization that also details the process of how the entries in the registry will be updated every cropping season.
- The organization also successfully LOBBIED the local village council (*barangay* council) for the passage of a Council Resolution recognizing and affirming the community affidavit, and expressing full support to the efforts by farmers to protect local genetic resources.
- Each CFPRA member was assigned to list down the varieties existing in his own sub-village (INVENTORY OF VARIETIES)
- The group also make a PGR Diversity map wherein all the varieties planted in the community for that season are plotted (SEED MAPPING)
- SEARICE project staff assisted the farmers in identifying and documenting the rice varieties used in the community.



Rice Diversity map

Rice Diversity 1st Season 2003





What sets apart their ComReg process and idea from the other models around?

- SEARICE and CFPRA are also working closely with a local academic institution, the Central Visayas State College of Agriculture, Forestry and Technology (CVSCAFT) in Bilar, Bohol
- The institution provides back up storage and documentation of the farmers' rice varieties in the community, including the varieties in Campagao's community registry.
- CVSCAFT provides free access for farmers to the materials stored in the institution's seedbank and disseminates characterization information of these materials through rice catalogs.
- Farmers' access to the seeds and information from CVSCAFT helps ensure that farmers' materials remain in the public domain and strengthens farmers' efforts to establish the community registry as a means to protect their genetic resources from misappropriation and monopolization.



Community seedbank



CVSCAFT-SEARICE Center-based seedbank

Action Plans

Our future plans include:

1. Village/Municipal/Province-wide awareness on ComReg and recognition of farmers' seeds.
2. Lobbying at the municipal level for the CFPRA ComReg recognition
3. Tripartite agreement on farmers' seeds (CVSCAFT-SEARICE-FARMER PARTNERS).
4. Farmers' Rights Code at the province level (through Bohol Network for Farmers' Rights).
5. Farmers' Rights Bill at the national level.

“...these varieties should not be registered by any person on the reason that these are ours, and that our co-farmers through seed exchange can freely use these materials without any conditions and restrictions on its utilizations...” (CFPRA Joint Affidavit)

CONSERVATION OF BIODIVERSITY IN RICE THROUGH FARMER-LED RICE BREEDING

Mario “Tata Maca” Denito

Regional Technical Team, MASIPAG, Philippines

I. Introduction

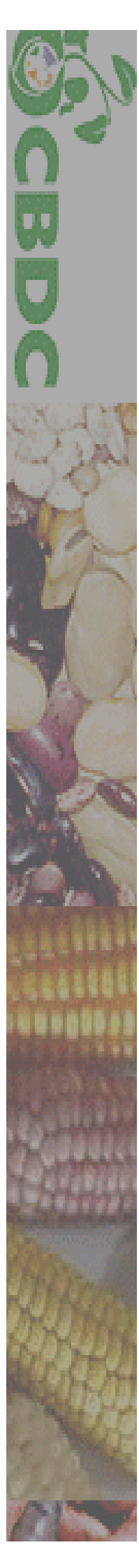
I am Mario Denito commonly called as Tata Maca by my friends and colleagues in the organic agriculture movement in the Philippines. I am 53 years old, a father of four and a young grandfather of six grandchildren. I came from a farming family in Botolan, Zambales, located in the Central Luzon region, former rice granary of the Philippines. However, due to the Mt. Pinatubo eruption in 1991 and with coupled rampant land use conversion, the province is no longer the rice granary province. However, Zambales retains its rustic rural environs and agriculture, particularly in the lowland farming which remains an important livelihood among the local population of the province.



Tata Maca doing his crosses

I have been engaged in promoting organic agriculture for the last 10 years among my neighbourhood farmers through my organization called the Botolan Farmer's Association (BOFASS). BOFASS is a member of MASIPAG a farmer-scientist organization. Although I do not own the land which I am tilling, I have endeavoured to make the land productive by practicing diversified and integrated farming system. Aside from rice, I am planting short-term crops like mungbean, taro, maize and sweet potato. I have the assistance of my family in managing the land. I also own two carabaos which means, I do not need to hire man-animal labor during land preparation activities.

For the past 10 years, I have been involved with MASIPAG. A former member of the Board of Trustees (BOT) of MASIPAG, and to date, one of the Regional Technical team members of MASIPAG-Luzon. As part-time worker of MASIPAG in Luzon, I help in the expansion and consolidation of the farmers' organizations within the network of MASIPAG in giving basic orientation, assisting farmers in the set-up of community seedbanks or what we call Trial Farms, the foundation of the farmer-led and participatory rice breeding of MASIPAG. I also give on-the-job coaching in the use of green manuring as an important strategy for soil fertility management. By doing this, I was able to help other farmers to convert in organic agriculture and therefore minimize on the cost of rice production in avoiding the use of chemical inputs. So far, I was instrumental for the set-up of 15 community seed banks managed by farmers' organizations. These seedbanks can be found in the provinces of Zambales, Kalinga Apayao and Pangasinan.



I am also one of more than 23 farmer-rice breeders of MASIPAG. I have actively pursued rice breeding because I believe that through this activity, I will be able to breed rice varieties adapted to my community, the farming areas of which were covered by the eruption of Mt. Pinatubo. Adapted varieties coupled with organic soil fertility management are bringing back the former productivity of my farm.

II. MASIPAG

MASIPAG is a Filipino acronym, which means Farmer-Scientist Partnership for the Development of Agriculture. It is also a Filipino term which means hardworking, a positive trait describing the Filipino farmers. In the MASIPAG orientations that we conduct, we always say that if you are using “*masipag*”/hardworking seeds, you must also be a hardworking farmer in order to get good or bountiful harvests.

MASIPAG is also a national network of farmers’ organizations, NGOs and scientists promoting sustainable agriculture in the Philippines. It was established in 1985 during the National Rice Conference wherein farmers presented their findings and recommendations from the Participatory Action Research they have conducted regarding the “Impact of HYVs on Small Farmers.” One important recommendation presented during that conference is the initiation of a program on rice research wherein farmers shall set the direction or thrust of the research and the scientists to provide the supporting role.

A. The Strategies and Principles of MASIPAG:

Bottom-up approach - a community knows and works best for its own development; any project must give priority to express the needs, problems and aspirations of the people themselves, and start with their own knowledge and capabilities.

Farmer-scientist partnership – a partnership of farmer organizations and the scientists from the social and natural sciences translates into reality a bottom-up approach of planning and implementation.

Farmers in different agro-environments and socio-cultural settings, encouraging them to become farmer-scientists do on-farm farmer-led research.

Farmer to Farmer and PO-to-PO mode of transfer – trained farmers reach out to the other farmers, conduct and facilitate trainings of MASIPAG in other farms and villages.

Advocacy on issues affecting farmers’ rights – MASIPAG farmers are imbued with the sense of mission to reform the present agrarian condition.

B. Programs

Collection, Identification, Maintenance, Multiplication and Evaluation (CIMME) of cultivars of rice, corn, indigenous vegetables, poultry and livestock. CIMME ensures that collected species and varieties are maintained in on-field seedbanks for farmers’ access.

- 859 Traditional Rice Varieties (TRVs) and 65 traditional corn varieties collected
- 826 MASIPAG rice selections, of which 35 are locally adapted in Luzon, 133 in Visayas and 59 in Mindanao
- Farmers groups and individual farmers have managed 286 MASIPAG Trial Farms in 41 provinces. Trial farms have a minimum of 50 TRVs and selections, and kept community seed banks where farmers study and select adaptive varieties; and

design cultural management practices suited to their particular agro-climactic conditions.

- Back-up Research Farms: Nueva Ecija (rice); Negros Occidental and Iloilo (upland/lowland rice); Bukidnon (corn, vegetables).

Breeding - Farmers select and breed rice, corn cultivars and livestock, enabling them to develop selections from traditional varieties that are adapted to local conditions and whose resistance are enhanced against adverse conditions such as droughts, soil, water salinity, certain pests and diseases.

Developing Sustainable Agro-Systems - Farmers both from upland and lowland ecosystems were encourage to shift from mono-cropping to diversified and integrated cropping from chemical to organic farming; and focusing from the individual farm ecosystem to community/agro-ecosystem-wide conversion. Technical support and information is provided on critical aspects such as soil fertility management, alternative pest management, cropping systems, diversification and farm integration.

Documentation and Dissemination of Farmer developed/adapted Technologies (FDATs) - The reaffirmation, systematisation and practical application of traditional knowledge systems in agriculture, giving members additional farm management options.

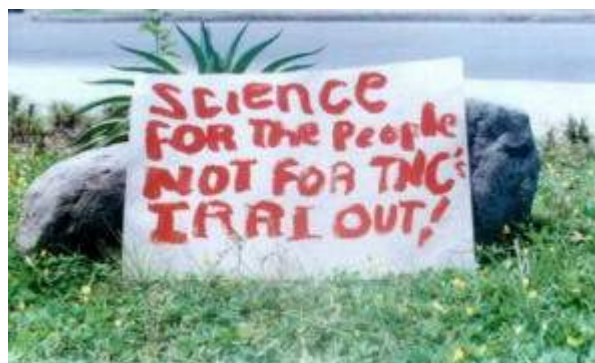
Local Marketing and Processing Support - Technical assistance is provided for the member organizations that are engaged in alternative and PO-managed marketing and processing initiatives. Current emphasis is on the development of Internal Quality Control Systems for organic farm products.

Education and Training – It enables to network members to acquire knowledge, skills and attitudes to make them better equipped to sustain MASIPAG program and activities at the levels of their organizations and provinces. On-farm trainings are based on needs of analysis and response to the farmers' actual situation.

Program/Project Benefit Monitoring and Evaluation System (PPBMES) - An internal database system for monitoring progress and assessing the socio-economic impacts of the project, serving as basis for improving project efficiency and effectiveness.

Network Strengthening and Consolidation - boosts internal systems and processes , it also builds the capacities of the various levels of MASIPAG – the member-organizations, Regional Project Management Teams in Luzon, Visayas and Mindanao, regional and national secretariats, and the Board of Trustees.

Networking and Advocacy – MASIPAG takes an active stand on national and global issues that affect the food security and sovereignty of resource-poor Filipino farmers, such as genuine agrarian reform, biopiracy and the patenting of life forms, genetic engineering and the entry of genetically modified organisms (GMOs) in the country.

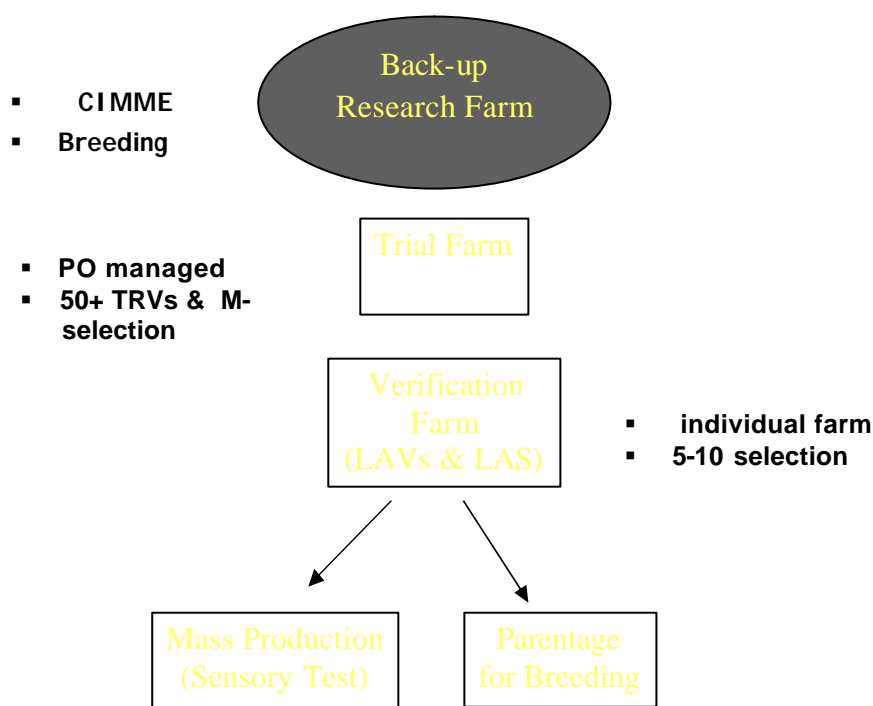




The MASIPAG Network has accomplished the following:

Number of POs: 542
Number of Church-Based Groups: 19
Number of Scientists: 12
Number of NGOs: 33
Number of TRVs collected: 859
Number of TCVs collected: 65
Number of farmer-bred lines: 57
Number of Masipag Selections: 826
Number of TFs/Community Seedbanks in Rice: 286
Number of Traditional Corn Varieties: 65

MASIPAG Seed Program



III. MASIPAG Rice Breeding Program

- Green revolution has not only promoted the use of the “Packaged Technology which includes the use of chemical fertilizer & pesticides. Yielding Varieties (HYVs) were also introduced which led to the diversity of rice. In the Philippines, over 4,000 traditional varieties were lost due to the strong promotion of these HYVs.
- The most obvious impact of green revolution is the environmental pollution caused by the use of chemical inputs. Soil, air, water and food are now invariably contaminated with agrochemical. However, the more insidious are the lost of traditional rice varieties. These, in turn resulted in farmers losing control over seeds and the related farming system.
- Farmers and farming communities are trapped in the debt cycle because of increasing cost of chemical inputs and the vague of the market for agricultural products.

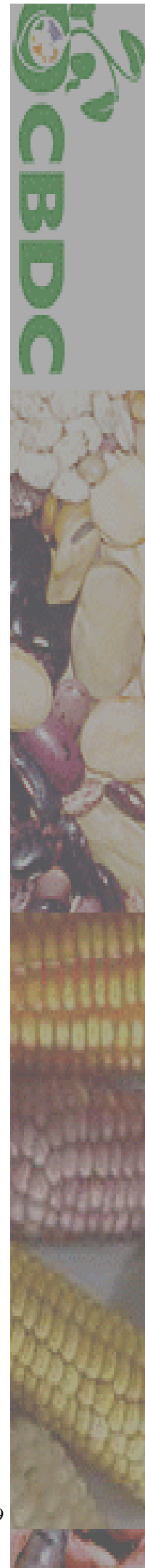


Table 1. Context of the MASIPAG Program

Impact of Green Revolution	Objective of MASIPAG
Loss of Biodiversity crops and animals	Bring back diversity in Rice & other crops including native livestock and poultry.
Corporate Control on Seeds & Agriculture	Farmers control of seeds to promote biodiversity
Environmental pollution caused by use of chemical inputs, GMOs, etc	Less negative impact to the environment & enhance resource base of agriculture (soil, seed, water, air, animals and the farmer)
Chemically tainted food	Safe food; Organically grown food
Farmers trapped in the Debt Cycle	Improvement of the Quality of Life of Farmers
Profit Oriented and Wealth Concentration in few Corporations	Promotes Social Justice

Table 2. Comparison of the MASIPAG Rice Breeding Program & Conventional Rice Breeding

Parameters	Masipag Rice Breeding Program	Conventional Breeding
Characteristic	Farmer-led, Participatory	No participation from farmers
Selection Process	Bulk Method	Pureline
Type of resistance Developed	Broad Resistance or Tolerance, wide genetic base	Vertical resistance, Narrow genetic base
Role of Farmers in the Development of Seed	Partners in the development of Seed	Market
Direction/Objective	Organic Agriculture	Industrial Agriculture

Importance of the PO-Managed Community Seed Banks and Trial Farms in Rice:

- Through the trial farms, farmers are able to select adapted varieties or MASIPAG selections which they can use for production or breeding.
- Being managed by farmers themselves, it serves as a venue through which farmers are able to show to other farmers their various innovations on organic agriculture.
- It ensures a continuous supply of rice seeds that are adaptable to the particular agroclimate condition in the given community.

Through the farmer-led breeding, farmers are able to appreciate the importance of biodiversity in rice as well as other crops. This is the foundation of rice breeding. This promotes varietal diversity in rice and encourages farmers to collect and maintain traditional rice varieties as parental materials for breeding.

V. Highlights of rice breeding initiative

- The farmers I have trained are now able to breed their own rice varieties. The bred lines are now in the third filial generation (F_3). At the same time, more farmers' organizations will soon be trained in rice breeding as more trial farms were established last 2003. They should able to characterize and select the varieties they would want to improve through breeding.

- I was able to make 13 crosses and got 20 selections from them. Once they are stable after F7, they will be ready for distribution and testing in the trial farms. Please refer to page 71.

VI. Insights

1. PO-manage Community Seedbanks (CSBs) of trial farms are the foundation for the farmer-led breeding program.
2. Rice breeding needs patience and time. It is fairly easy technology and principles are not difficult to grasp. Increase in number of farmer-breeders and CSBs ensures varietal diversity in rice at the farm and community-level as more and more farmers are engaged in rice breeding.
3. Most farmer have small farms, famer-breeders should serve as an important component in organized or community based breeding initiatives wherein other members of the farmers' organization trained in breeding can continue the selection process in their own farms. Meanwhile, the organization can set the objective of the rice breeding by selecting the parental materials to be used for breeding.
4. Once the genetic part of rice production is already taken cared of, which means, farmers have already bred or selected varieties adapted to their community, they must now focused on the improvement of their soil. For us in MASIPAG, this could only be done in an organic matter. For me, I am utilizing green manure as well as animal manure. Green manuring is especially important because it maximizes on the use of the land. I sow mungbeans in-between the rice cropping seasons therefore improving the fallow system. I am also planning to use a native *Sesbania* as green manure as this is more adapted to lowland irrigated condition compared to mungbeans.



Green manuring

SES FOR FARMERS BRED-LINES

Filial generation: F4

Plot size: 30 cm. x 25 cm.

Season: June – November 2003

Source of info: Mario Denito

Selection Code	Days to Maturity (from sowing to harvesting)	Plant Height (cm.) Ave. of at least 4 hills	Panicle length (cm.) Ave. of 4 samples	Productive Tillers Ave. of at least 1m row	Grain shape, color, length, etc.	Flag leaf (erect, drooping, etc.)	Stem Color	Parentage
1. MDZ-1-1R	120	80	18	9	Medium, oblong	Erect	Green	M45-1, M115-1R
2. MDZ-1-2W	120	80	18	9	Medium, oblong	Erect	Green	M45-1, M115-1R
3. MDZ-2-1	114	85	22	9	Medium, oblong	Semi-drooping	Green	M45-1, Milagrosa
4. MDZ-2-2	125	80	20	7	Medium, slender	Erect	Green	M45-1, Milagrosa
5. MDZ-3-1R	114	100	22	7	Medium, slender	Drooping	Green	M45-1, Malidang
6. MDZ-3-2	114	100	18	9	Long, slender	Semi-drooping	Green	M45-1, Malidang
7. MDZ-4-1V	114	80	20	4	Long, slender	Drooping	Green	M45-1, Malidang
8. MDZ-4-2V	125	80	18	6	Slender	Semi-drooping	Green	M45-1, Parirutong
9. MDZ-4-3	125	100	22	8	Slender	Erect	Green	M45-1, Parirutong
10. MDZ-6-1	130	100	22	10	Oblong	Semi-drooping	Green	M45-1, Parirutong
11. MDZ-6-1-1	130	95	20	10	Medium, oblong	Semi-drooping	Green	Pandan, Milagrosa
12. MDZ-6-1R	135	100	20	10	Medium, oblong	Drooping	Green	Pandan, Milagrosa
13. MDZ-6-2R	135	100	20	10	Oblong	Drooping	Green	Pandan, Milagrosa
14. MDZ-7-1V	118	100	22	8	Long, slender	Drooping	Green	Pandan, Kao-Kum
15. MDZ-7-2	130	100	18	9	Long, slender	Drooping	Green	Pandan, Kao-Kum
16. MDZ-8-1	133	90	23	9	Medium, oblong	Erect	Green	Pandan, Kao-Kum
17. MDZ-9-1	130	90	22	6	Long slender w/ awn	Semi-drooping	Green	Jap-3, Pandan
18. MDZ-9-2	130	90	22	7	Medium, slender	Semi-drooping	Green	Panda, Pungko
19. MDZ-11-1	133	90	20	8	Medium, slender	Erect	Green	Panda, Maludang
20. MDZ-12-1	125	100	20	8	Slender	Semi-drooping	Green	Abrigo

FARMER NETWORK ON PLANT GENETIC RESOURCES (PGR) CONSERVATION AND DEVELOPMENT

Sao Khammun-I

Farmer, Nan, Thailand

Background

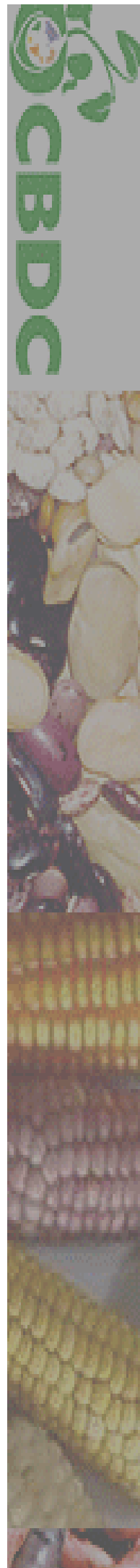
In the last 10 years, the practice of monoculture of high yielding varieties coupled with the use of pesticides and fertilizers by the farmers as encouraged by the Green Revolution led to the loss and displacement of traditional rice varieties (TRVs). This had very adverse impact to the environment.

This situation prompted the farmers to collaborate as a network. Group discussions among farmers were conducted to identify the problems and to really analyze the current situation. This led to the collection of seeds of different rice varieties as an initial step to address the problem.

CBDC initiatives

In 1996, the CBDC was started whose priority work concentrated on PGR conservation and development. The CBDC started conducting activities including:

- a. Strengthening farmers on PGR conservation and development – This is done through FFS, trainings, study tours and cross visits which provided a venue for sharing not only of seeds but also of knowledge and skills. The efforts expanded as indicated by the increase in the number of members supporting conservation and development.
- b. Application of FFS curriculum to formal education – In Thailand, the curriculum in the formal schools are set by the government. However, the existing curriculum does not incorporate the importance of culture, indigenous knowledge systems (IKS) and the environment. Hence, a discussion between farmers and teachers paved the way for the inclusion of these issues in the formal curriculum. Here, indigenous farmers became teachers.
- c. Application of FFS curriculum to informal education – This is especially targeted to children and women in the community.





- a. Application of the FFS Concept to the Tamboan Administrative Office's (TAO) plan – TAO is the committee that represents the communities in the local government. Their function is to take care of the concerns of the communities.



- b. Use of culture and belief on PGR conservation and development – This sprung from the Buddhist belief that rice is a holy seed. The “Bun Kaw Mai” or the rice ceremony is conducted. There are different kinds of rice ceremonies:
1. National ceremony – This is done by the King for the first seeds
 2. Ceremony indicating a respect for the land, soil and rice – this is done before planting
 3. Ceremony to shy away pests
 4. Ceremony after harvest – This is important because farmers do not only offer their produce to the temple, they also show others their seeds and innovations and share their knowledge to other farmers. Seed exchange is facilitated here.



Conclusion

“Bun Kaw Mai” or Rice Festival

Culture, beliefs and practices as expressed in different ceremonies have a significant contribution and therefore cannot be separated if we are to have an effective PGR conservation and development strategy.

OPEN FORUM

1. Could you explain or elaborate the role of men and women in the rituals?

Generally, in Thailand, women select the seeds for food while men are concentrated on the production aspect – planting or growing rice. Aside from preparing the food, they also prepare most of the program and activities of the ceremony.



AGRICULTURAL BIODIVERSITY CONSERVATION IN AFRICA: Challenges and opportunities

Dr. Joseph N. Musonga

Regional Coordinator, CBDC-Africa

Abstract

Africa is the most diverse continent in cereal biodiversity and to a lesser extent in other crop species such as legumes, tubers and root crops. Owing to a deliberate government policy that seeks to promote exotic varieties which are often expensive and poorly adapted, local diversity has been significantly eroded, creating deficit in community seed availability. The CBDC program has embarked on an extensive conservation initiative to restore and maintain agricultural biodiversity through creation of seed supply systems within communities.

Introduction

The world has realized that biological diversity is an invaluable asset to the present and the future generations for food security, economic survival and social justice.

The world has realized the importance of agro-biodiversity, particularly Community Biodiversity Development and Conservation Program (CBDC) as an important tool in sustainable development, and national food security. There has been a dramatic increase in the number of on-farm crop diversity programs as many governments and organizations are realizing the contributions by small holder farmers. This is a significant shift from large-scale commercialization drive, which resulted in the reduction of crop diversity on small holder farms. In order to promote agro-biodiversity, rehabilitation of vital traditional crop species such as *Sorghum bicolor*, *Pennisetum americanum*, cowpea, *Arachis hypogaea* Linn and okra is imperative (CBDC report 2001).

Genetic Diversity

Africa has a wide range diversity of cultivated and wild crop species with the majority of cereals having their centers of origin in Africa. The areas of greatest diversity are East Africa, (Ethiopia and Sudan) in particular where crops such as sorghum and wheat originated, (House, no date). Some races of *Sorghum bicolor* and *Pennisetum americanum* were found in West Africa with a secondary center of origin in Southern Africa. In Sierra Leone diversity of *Oryza sativa* Linn, cassava, *Ipomoea batatas* Lam and vegetables have been witnessed in the Lokomassama area, while *Sorghum bicolor*, *Pennisetum americanum*, bennie; cowpea, yam and black eyed beans are common in Toko-Limba area (Mid-term report 1997). The other crops common in most parts of Africa are *Zea mays* Linn, *Arachis hypogaea* Linn, bambara groundnuts, *Eleusine coracana* Gaertn, *Phaseolus spp* and fonio. These are common in most of the CBDC project area, except finger millet, which is prominent in Central and Southern Africa. In West Africa, Mali in particular, Sorrel sesame and okra are the common crops.

Significant amount of diversity of pearl millet and sorghum are also found in semi arid regions of Zimbabwe especially in the drier parts of the country, which include the West, North and South of the country. Zimbabwe is considered to be a secondary center of origin of *sorghum bicolor* species as a result of spillage from East and West Africa. The CBDC project in Burkina Faso is operating in three sites. These include Pobe-Mengao,



Tougori and Thaiougou, and the highest diversity of crops is noted in this area as it is an area of crop exchange of material among farmers from Togo, Benin, Ghana and Burkina Faso, where the three countries converge.

Constraints to Agro-biodiversity

The main drawback to the promotion of agro-biodiversity conservation facing many communities is inappropriate government policies, which do not adequately promote community-based conservation programs. In Zimbabwe maize is a staple food crop, the governments promote hybrid maize production at the expense of other crops therefore increasing farmers' vulnerability to drought and other calamities. If there is a policy shift towards traditional crop varieties, that are adaptable to the climatic conditions of the region and are pest resistant, sustainable food security can be enhanced.

Genetic Erosion

The process of replacing local, indigenous, traditional varieties or landraces with modern, high yielding varieties is often equated to the loss of genetic variation, and consequently is known as genetic erosion (Almekinders of Louwaars, 1999). The world at large has suffered from genetic erosion of agricultural crops; Africa is not an exception in this regard. This is as a consequence of land and environmental degradation. Genetic erosion undermines food security and promotes food insecurity throughout the third world (Salazar, 1992). Perhaps the most immediately and most threatened crop genetic resources in the region are the diverse landraces of all kinds of crops. These include indigenous types such as *Sorghum bicolor*, *Pennisetum americanum*, *Vigna unguiculata*, *Vigna subterana*; watermelon and also species introduced into the region over several centuries such as maize, cassava and beans (FOA 1995). The country's genetic diversity, especially farmers' land races and wild relatives are subject to serious erosion. The most important factors involved in the erosion are replacement of indigenous land races by genetically uniform hybrids and varieties, land use, destruction of habitats, droughts and pest (Worede, 1992)

In case of replacement, traditional farming allowed for the co-existence of many cultivated crop species and their wild relatives. These then intercross to create new varieties. Drought effects on genetic erosion results as poor growing conditions prevail by selective elimination of a given genotype in the crop. Land races can also be eliminated through breeding and selection since the land races are often low yielding; the breeder might select the high yielding new variety at the expense of the low yielding traditional variety.

Interventions

Over the years, governments have developed agricultural policies on breeding and seed production programs focused on large-scale commercial agriculture. These have largely focused on hybrid production ignoring the promotion of indigenous crops, which have sustained national food security for a long time. Such policies have resulted in the erosion of agricultural bio-diversity which in turn promoted shortage of seeds resulting in food insecurity. A CBDC program of informal seed production is imperative to promote agro-biodiversity, which should result in sustainable seed supply system.



Conservation Strategies

On Farm Biodiversity

The maintenance of traditional crop varieties by small holder farmers within their field is known as on farm biodiversity conservation. There is concerted effort to promote on farm conservation by enhancing landraces among farmers, scientists, extension workers and NGOs. The rationale behind this community-based approach is to encourage farmers to maintain landraces, varieties by improving their genetic performance. The farmers can be assisted in the mass selection to improve their landrace varieties, as well as develop and maintain elite landraces on farm.

Field Genebanks

Live genebank is the term used in Sierra Leone in their biodiversity conservation program. The term is nothing more than *in-situ* conservation which aims to maintain live forms in their natural habitat allowing evolution to continue while maintaining adaptation. These banks play an important role in biodiversity conservation in Sierra Leone particularly in the Lungi region. The live genebanks are established during the normal rainy season on several on-farm sites. Harvested materials will be established in the swamp area to develop another crop. Such genebanks are wholly being organized and managed by farmers on selected community plots. In this case agro-biodiversity is greatly enhanced, that is ensuring sustainable seed supply and food security. Throughout the region, farmers have always established networks to facilitate seed supply system including farmer to farmer seed exchange. In Burkina Faso there is a hive of activity by farmers in the Thiougou area in the southern part of the country, as farmers from Benin, Togo and Ghana converge to exchange seed material. This activity contributes greatly to agro-biodiversity conservation and seed supply system.

The role of genebanks in conservation

The original local and exotic collected germplasm is in the hands of national breeding programs, as they have been the custodians of the materials. Recently NGOs have come in the picture where they collect the germplasm together with the government partners. Then split the germplasm for utilization and storage. In Zimbabwe, Community Technology Development Trust (CTDT) is heavily involved in such activities. It has built seedbanks in communities to conserve and promote biodiversity where collected germplasm is stored. In Mali, USC-SOS program has genebanks where both crop and tree species are being stored to facilitate in the promotion of agro-biodiversity conservation. The private genebanks work hand in hand with public genebanks by exchanging genetic material and providing of training.

Participatory plant breeding and varietal selection

Farmers in the third world countries have been practicing mass selection breeding for years. However, work has not been documented. In Africa, they practiced mass selection in their farming systems until the introduction of hybrids and elite varieties, which did not require such methods of breeding, as they are uniform. Farmers have used fertility gradient to select more promising panicles, cobs, pods, and tubers, which ensure good germination. The collaboration initiated by such partnership as breeders, extension workers, farmers and NGOs has played a significant role in assisting farmers to develop meaningful participatory breeding varietal selection program to enhance sustainable agro-biodiversity. Participatory breeding is usually practiced during the flowering stages of the crop, while selection is carried out at heading time when most of the distinctions



are observable. This approach has enhanced agricultural biodiversity in the African countries where farmers have developed varieties of their choice in terms of maturity, adaptability, yield and quality.

In Burkina Faso farmers are working on the segregating populations of cowpeas selecting early maturing varieties and those resistant to striga, diseases and insect pest. In Sierra Leone more local rice varieties have been developed and are in the hands of the farmers being bulked and tried on farmers' fields. In Zimbabwe farmers who are participating in CBDC activities are well placed as they benefit from the seed material originating from participatory breeding and varietal selection from on-farm activities. The partnership between breeders, extension workers, farmers and NGOs has played a significant role in assisting farmers to develop a meaningful participatory breeding and varietal selection program to enhance sustainable agro-biodiversity.

Seed Supply Strategies

Seed availability is important to achieve sustainable agro-biodiversity for the community. Most national seed production programs have emphasized production of seeds of elite materials which originated from the national breeding programs while ignoring the informal sector where such seed is essentially for production and agro-biodiversity sustainability.

Community Seed Multiplication

Community controlled seed productions is important as it can provide alternatives to formal seed supply which largely focuses on the large scale enterprise. Local seed control is essential as it empowers small holder farmers who are the custodians of the larger part of agro-biodiversity. Since the local farmer has been working in isolation in seed supply systems, the farmer has to be equipped in the modalities of community seed production and supply.

Because of replacement of local landraces by the promotion of new high yielding varieties, and destruction of traditional crop species by war activities, crop variation has been reduced in most war torn states such as Somalia, Liberia, Rwanda and Sierra Leone. Commercial production of high breeds and development of high yielding varieties affected the promotion of traditional varieties. These events affected small holder farmers' seed supply systems, as what was available was not suitable for their needs in terms of quality, diversity and adaptation.

Interest in farmer community seed production and the recognition of local seed systems is of recent phenomena. Such a system is appropriate for small holder farmers. This system is being recognised as re-introducing the rapidly disappearing agro-biodiversity in the region. The program has been developed because of the food insecurity problem.

Strategies to enhance seed availability locally

Commercial seed production has become an important industry in recent years. Numerous large and small companies have ventured into this lucrative business. However the industry has over looked to address the needs of small holder farmers who posses the largest pool of gemplasm. The farmers in this category have recently experienced seed shortages both in quantity and quality. As a consequence of rapidly disappearing biodiversity, need has arisen that farmers be able to multiply their own seeds. This aggravated the need to train farmers in the modalities of on-farm seed multiplication.



Field School Training Clinics

Different countries have mobilized communities for field school training clinics on the modalities of community seed production. Farmers have been encouraged to form groups, which are given lessons on the field on seed multiplication and supply system.

The following procedures have been followed:

- ❖ Land Identification

Different programs have been working with community farmers in the identification of appropriate land for seed production. The major thing to consider is landscape which is suitable for seed production.

- ❖ Land preparation

The success of a good seed multiplication program depends on the land preparation which will ensure good seed germination. Poorly prepared seedbeds result in poor germination, which will affect result and yield.

- ❖ Isolation

When the farmers are dealing with cross-pollinated crops, isolation of the seed crop from the crop of the same species but different landrace or variety becomes important. Isolation is practiced in several ways and the most common is **distance isolation**.

- a) Distance Isolation

This is based on the number of meters from the target seed plot to the nearest seed plot. For cross-pollinated crops, distances vary from a minimum of 200 meters to as far as 300 meters.

- b) Time Isolation

This emphasizes staggered planting with two to three weeks after planting. The farmers from Burkina Faso prefer this method than distant isolation. In cases where land is limited this is a more practical method than other methods.

- c) Buffer Method

Farmers have been trained in this blocking method. This method promotes the establishment of a buffer zone between two different crop varieties so that contamination is prevented. The method is suitable for seed production where land is limited.

Seed Fairs

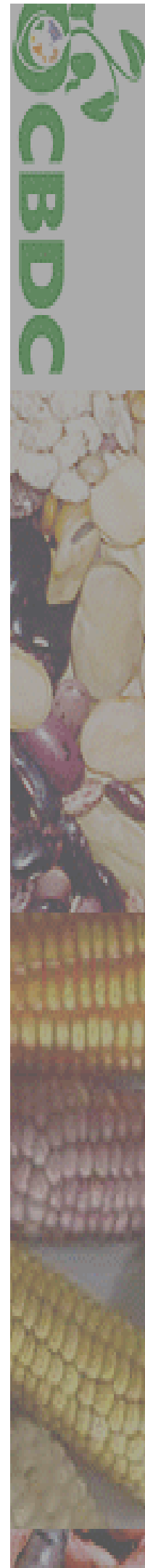
Another strategy in the promotion of community biodiversity is the seed fair program. This is the art of displaying all the seed material a farmer grows on his plot during the present and the past seasons. The purpose of the seed fair is to promote agrobiodiversity through seed display, exchange and sale among farmers. In countries like Zimbabwe where seed fair is communally promoted, diversity has been increased in areas of activity.

Conclusion

It is a fact that agro-biodiversity has been greatly affected by genetic erosion which occurred as a result of national policies which tended to promote synthetic varieties in hybrids which have not proven to be of high quality and sustainable. It is important therefore to find workable solutions, which will promote agro-biodiversity. One of these strategies is to promote use of local knowledge such as the promotion of farmer's traditional varieties, which are adaptable, and of high quality. The other ways of promoting diversity is to encourage on-farm conservation through working with farmer groups, which have faith in the use of landraces. Farmers have developed and promoted on-farm live genebanks, which is a type of shifting cultivation but with a purpose of agro-biodiversity conservation and seed production. With the new partnership between farmers, NGOs, government extension workers and researchers, it has become apparent that farmers need training on seed production modalities. Field school training clinics have been useful to assist farmers in the promotion of biodiversity through seed multiplication and production. Seed fairs have proven to be a useful vehicle for promoting agro-biodiversity through seed exchange and sales therefore concerted efforts are required to work together in this scenario to reclaim the lost agro-biodiversity.

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NON-CULTIVATED BIODIVERSITY: A CONCEPTUAL FRAMEWORK

The Transversal line on non-cultivated and semi-domesticated biodiversity

Alejandro Montero

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Background

Non cultivated biodiversity deals more on its orientation in relation to the cultivated biodiversity. It is important that both orientation (cultivated and non-cultivated) be appreciated within a similar broad point of view and introducing human aspects in both cases. In order to nurture biodiversity, there has to be human intervention.

Human beings must be placed on similar levels with all other forms of biodiversity. Therefore, humans cannot be separated from nature where cultivated and non-cultivated species exist.

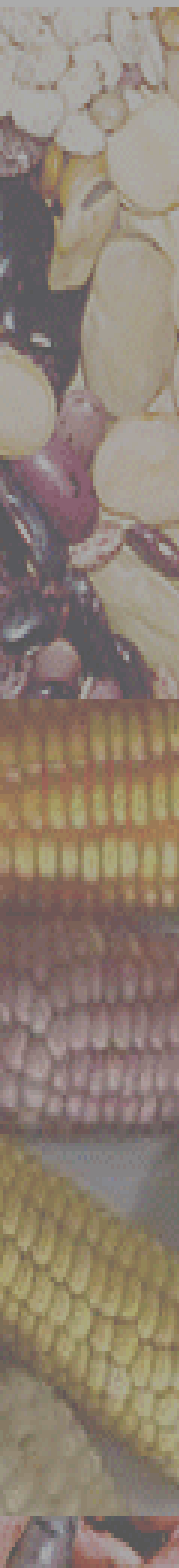
The main characteristic of the work of CBDC is that all partners are working on local situation, aimed in protecting, nurturing, and developing the local systems.

As a network dealing with policy issues, CBDC must determine its demands, capabilities and opportunities that can be utilized to achieve the goals set.

It is also important to define how partners can work together and what sort of self-organizing method as well as methods of control that will be effective to gain significant impact on CBDC work. It is also important to define the autonomy of the network.

Other important points:

- It is important to understand how CBDC defines its commitment to various issues.
- To evaluate the institutional environments
- To determine the ethical issues involved taking also into account the cultural aspects and the impacts from outside environmental forces
 - With this clear definition of ethics and culture, CBDC will be able to come up with a common position on the basis of its relationship with the community and their corresponding needs which will lead toward a democratization process at the local level.



REFOCUSSING SCIENCES IN AGRICULTURE:

Low input agriculture, Agro-biodiversity, and farmer participation

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Historical overview

1965 to 1989 - Cuba is a socialist country.

- It has high calorific and protein consumption
- Life expectancy is high
- Therefore, it was living like a first world country.

1989 – Socialist country collapsed

- Situation in the country changed in one day
- became dependent on high input agriculture, i.e. massive use of agro-chemicals

In the middle of the crisis, more than 60 % of Cuban rice comes from Cuban grassroots movements where there is limited scientific intervention. There is therefore a need to resort to low input agriculture.

Also, in the middle of the crisis, the presenter had a university mandate to finish his doctorate (PhD). He had designed his thesis for implementation at the experimental areas. However, there were many production constraints like: 1. lack of synthetic fertilizers; 2. no tractors and other machineries; and 3. lack of pesticides. This prompted him to move the experiments from the experimental station to on-farm condition.

Dynamic Plant Breeding

This started in one community – putting together the different varieties and allowing farmers to choose whatever varieties they want. Farmers then began experimenting in their own fields. The strategy worked and it spread to other farmers in the community. It was like an explosion.

Farmers later realized the need to organize themselves. Unlike other programs which organize communities as a tool to transfer technologies, dynamic plant breeding encouraged farmers to organize themselves after the intervention.

Lessons learned from decentralization of Cuba:

1. Farmers can become breeders
2. Low input agriculture is absolutely scientific.
3. Inserting plant breeding in the development context as a complement of the formal system.

Results of decentralized plant breeding:

- Diversity and crops increased exponentially
- Reduction in cost in terms of inputs (i.e. pumpkin breeding in Havana)



Changes made:

- The role of farmers changed from varietal decision-makers to agro-biodiversity facilitators.
- Farmers have low genetic diversity but they are effective disseminators. On the other hand, professional breeders have huge genetic diversity but incapable to disseminate.
- There is cooperation between farmers and breeders.

Conclusion:

Before 1954	–	Fidel Castro took power
1959-1989	–	Socialist countries supported Cuba
1990 – 2000	–	nobody supported Cuba
2000-2001	–	International Research and Development Center (IRDC) encouraged and supported Participatory Plant Breeding (PPB)

OPEN FORUM

1. *What is the correlation between the Socialist system and the PPB / PVS?*

It is actually only a paradigm shift in the minds of the people in Cuba because of the changes in the processes that took place. During the Socialist period, everything were provided by the Soviet Union. However, this suddenly changed when the system collapsed and we saw the need to refocus on low input agriculture.

2. *Did you lost genetic diversity during the Socialist era?*

Yes, our agricultural system was highly dependent on high inputs. Although the small scale farmers were able to maintain diversity, the formal system, on the other hand, were not able to meet the seeds or genetic diversity that the farmers need.

3. *What happened to Agrobiodiversity during the Green Revolution in terms of culture? What is going on now after the Green Revolution?*

The effect of the Green Revolution to local landraces was not that significant for they were discriminated. Moreover, culture was also discriminated. However, one important component of PPB is the cultural component, i.e. farmers can dance, sing, play the guitar, or do anything they want during varietal selection.

PROTECTION OF INDIGENOUS SEEDS: Sri Lanka Experience

Upali Gunaratne

Movement for the Protection of Indigenous Seeds (MPIS), Sri Lanka

Brief History of MPIS

The extravaganza generated by the miracle seeds of Green Revolution technology spilled over in 1970s and nothing had been recovered to confirm what happen in the genetic resources that sustained life until then. But there was someone to tell the tale. It was the time when the agricultural sector was basking in the sunshine of the Green Revolution. Two youths, however, having nothing else to do after the collapse of the 1971 insurrection, and avoiding the focus of the youth hunt, they tried there hands in farming in a distant village off Anamaduwa. Into their dismay, they found out that the seeds of indigenous varieties had vanished without trace. They gradually awakened to the reality that indigenous varieties had given way to hybrids and farmers have no longer saved seeds as in the old days.

Perhaps in Sri Lanka, at least, they were the first individuals to hear the death knell of the local people's life base, namely, seeds. And amidst the celebrating cacophony over high yields of hybrids, these young men roamed the distant corners looking for seeds of indigenous varieties and trying to induce a solitary cultivator to propagate them. Sometimes, the amount found did not fill a match box, in which event, they tried them out in flower-pots. No doubt, they were the butt end of jokes on the part of farmers who thought, with their miracle seeds, they were racing towards prosperity.

Steadily the youths increased their stocks of indigenous seeds together with their collection of traditional farming knowledge. More people joined the group and more farmers agreed to experiment with the seeds. With expanding work some form of organized activity was needed. So, they grouped together as the Movement for the Protection of Indigenous Seeds (MPIS). That was the year 1986.

The MPIS kept a low profile and worked with small farmers who after the harvest returned the borrowed seeds to the Movement and resumed the habit of saving them for the next season. When reminded, they were quick to grasp the traditional knowledge, which after all was the way of their parents.

Collection of Seeds

Discussions were alive with each farmer recounting with awe, the memories of how their ancestors worked and lived. The MPIS has collected and propagated the following varieties of rice: Rat suwandel, Kalu heeneti, Gonabaru, Murungakaayam, Pachchaperumal, Tatu vee, Ma vee, Pokuru vee, Heta panduru. (Table 1)

All these varieties are pest resistant, drought resistant and need no chemical boostets. Yield is measured not only in term of grains, but also in terms of straw, fragrance, durability, nutrition, and palatability. Even in grain yield vigor, some of them are equal to or even higher than hybrids, it is now known that low yields before the introduction of green revolution technology was due to flaws in the method of cultivation. This proves that hybridization per se does not increase vigor. (Table 2 and 3)

In Sri Lanka, MPIS was perhaps the first organization to sense, and reach to, the dehumanizing proposals in the Dunkel Draft of GATT. It seems to them as the legal





complement to the green revolution in the privacy of genetic resources and traditional knowledge. It campaigned to the extent that its resources permitted and warned the Sri Lanka delegates of the dire consequences of any gesture of support to the Draft. But by this time the state has already lost succumbed to the World Bank /International Monetary Fund (WB/IMF) and transnational corporations (TNCs).

International Activities

As a part of this campaign, MPIS took part in a massive demonstration and a public meeting in Bangalore. Vandana Shiva was a leading organizer and we had the blessing to discuss these issues with her intimately.

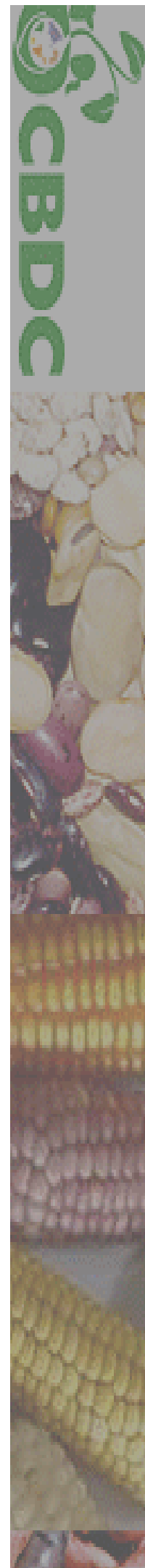
The debacle of the green revolution resulted in an acute shortage of seeds and spiraling prices of inputs. The number of farmers calling over for indigenous varieties has therefore increased progressively. MPIS sees seeds as the basis of life, which was why our ancestors valued them more than their lives.

The Movement works with the conviction that indigenous seeds constitute the answer to the piracy of genetic resources and traditional knowledge, and the brutal destruction of biodiversity. Use of indigenous seeds will lead to the creation of conditions for people to live contented lives in healthy environs.

**Table 1. MPIS PRODUCTION OF INDIGENOUS SEEDS VARIETIES
AT EPPAWALA CENTRE**

SERIAL NO.	NAME OF VARIETIES	NO OF DAYS
1	DAHANALA	115 DAYS
2	WANNIDAHANALA	110 DAYS
3	MORAGOLLA	110 DAYS
4	MURUNGAKAYAN	130 DAYS
5	PATCHAPERUMAL	135 DAYS
6	MURUNGA VEE	110 DAYS
7	SUDU MURUNGA	105 DAYS
8	MADAALU	113 DAYS
9	HATA PADURU	115 DAYS
10	KOTAHANDERAN	115 DAYS
11	MAHARAGAH	113 DAYS
12	RATHALL	120 DAYS
13	MUKALA VEE	112 DAYS
14	SUDUHANDERRA	120 DAYS
15	RABUTAN VEE	110 DAYS
16	SUDUMADAL	105 DAYS
17	SUDUBALAVEE	105 DAYS
18	GONABARU	115 DAYS
19	RATHRANVEE	115 DAYS
20	RANHEENATI	130 DAYS
21	KOTTIARAI	106 DAYS
22	KOTTIARAN	105 DAYS
23	DIKVEE	107 DAYS

SERIAL NO.	NAME OF VARIETIES	NO OF DAYS
	SUDURUSAMBA	130 DAYS
25	KAHATAVEE	117 DAYS
26	HEENDIKVEE	109 DAYS
27	HEENSAMBA	121 DAYS
28	KAHATASAMBA	124 DAYS
29	KURULUTUDU	120 DAYS
30	KALUHEENATI	90 DAYS
31	RATHUSAMBA	120 DAYS
32	MUKALAVEE	110 DAYS
33	MALAVEE	120 DAYS
34	THATUVEE	135 DAYS
35	SUDUMADALA	105 DAYS
36	SUDUHEENATI	90 DAYS
37	KOKKALIYA	102 DAYS
38	KIRIBATHVEE	90 DAYS
39	HERATHBANDA	120 DAYS
40	GUNARATHNAM	120 DAYS
41	HATYALL	110 DAYS
42	HEENRANKENDA	110 DAYS
43	WELLANKALIYAN	120 DAYS
44	MALAVEE	108 DAYS
45	MALTHORA	120 DAYS
46	RATHSUWADAL	70 DAYS
47	RATHALL	75 DAYS
48	MUTTHTHUSAMBA	90 DAYS
49	MALTHORA	110 DAYS
50	HIRUSSAVEE	110 DAYS
51	SUDURUSAMBA	120 DAYS
52	MUHUDUKIRIYALL	120 DAYS
53	RATHUHEENATI	110 DAYS
54	HETIPADURU	90 DAYS
55	THODARATHMAL	120 DAYS
56	GOLPE	120 DAYS
57	MAHAVEE	240 DAYS
58	MAHAMAVEE	240 DAYS
59	BOLVEE	120 DAYS
60	KEERASAMBA	120 DAYS





Serial No.	Variety of Paddy	Age/Days	Plants in bush	Height of plant	Seed in bunch	Yield of one acre
01	MAWEE	224	18	59	172	80
02	HORANA MA WEE	180	12	62	174	82
03	WELLWLANKAL	130	08	61	160	95
04	KONHAL	130	07	61	110	80
05	KAHATA WEE	117	09	59	96	91
06	HEENDIKWEE	117	06	52	87	70
07	HEENSAMBA	117	07	60	92	65
08	KAHATASAMBA	117	06	52	96	62
09	HANIAL	115	07	47	80	67
10	GUNARATNA	115	08	46	73	60
11	MURUNGAWEE	115	06	57	92	83
12	SUDU MURUNGA	115	08	58	98	85
13	MADAALU	114	06	52	88	72
14	MAHARAJA	113	07	51	96	88
15	RABUTANWEE	113	06	48	82	70
16	SUDUMADAALL	113	07	47	72	62
17	SUDUBALAWEE	110	06	42	80	72
18	KOTTIYARAN	108	09	62	97	85
19	HANDIRAN	108	05	52	80	68
20	KALUHEENATI	90	06	58	60	75
21	SUDUHEENATI	90	07	56	62	72
22	RATHELL	90	06	58	100	80
23	SUWADARATHALL	90	05	57	81	60
24	KURULUTHUDU	90	04	50	60	51
25	RATHU SAMBA	90	06	42	72	78
26	POKURU SAMBA	90	09	59	102	96

Table 2. 2002 YALA SEASON PADDY PRODUCTION

Table 3. 2002/2003 MAHA SEASON PADDY PRODUCTION						
Serial No.	Variety of Paddy	Age/Days	Plants in bush	Height of plant	Seed in bunch	Yield of one acre
01	MURUNGA KAYAM	135	12	60	180	110
02	MUKALA VEE	135	13	62	172	105
03	THATU VEE	135	08	58	151	80
04	RATHU HEENATEE	130	05	45	130	71
05	PACHAPERUMAL	135	14	62	190	85
06	DIK VEE	130	12	63	160	85
07	SUDUHANDIRAM	120	08	52	94	65
08	RATHRAN VEE	120	09	67	89	75
09	KOTAHANDI RAN	115	06	53	72	21
10	GONABARU	115	08	57	91	72
11	DIGANALA	115	09	53	92	81
12	HETAPADURU	113	12	62	110	108
13	WANNIDAHANALA	113	08	52	87	78
14	HATHIAL	112	06	51	82	74
15	HEENRANKUNDA	112	08	62	80	68
16	KURULU THUDU	90	04	50	60	51
17	KALUHEENATI	90	06	58	60	75
18	RATHAL	90	06	58	100	80
19	SUWADARATHAL	90	05	57	81	60
20	HERATHBANDA	90	06	61	95	82



CROP PRODUCTION IN TIMOR-LESTE

Deolindo da Silva

Crop Production Division, Ministry of Agriculture, Forestry and Fisheries, Timor Leste

General Information

- More than 90% of population are in rural areas
- Farming is largely subsistence level
- Rice and maize are major staples supplemented only by root crops
- Importing rice before conflict until now
- Total Area = 1.45 million hectares
- Less than 30 % is suitable for cultivation

Table 1. Annual rainfall data in East Timor

Zone	Annual Rainfall	Duration
Northern Lowlands (< 100 masl)	500-1,000 mm	4 to 5 months (Nov. to Mar.)
Northern Slopes (100 to 500 masl)	1,000 to 1,500 mm	5 to 6 months (Oct.-Mar.)
Northern Highlands (> 500 masl)	> 1,500 mm	6 to 7 months (Oct. to Apr.)
Southern Highlands/Slopes (100 to 500 masl)	1,500 to 2,000 mm	8 to 9 months 2 peaks (Nov. -Mar, May-July)
Southern Lowlands (< 100 masl)	> 2,000 mm	2 peaks (Nov-Mar, May-July)

Table 2. Food crop production in East Timor

CROP	Production (Mt/year)
Rice (milled)	27,000
Maize	64,900
Cassava	54,200
Sweet Potato	31,300
Taro	13,200

Source: 2001 TLSS

Rice Production

Irrigated Lowland Rice

- About 13,000 ha
- Less than 50% planted to 2 crops
- Average yield < 2.0 Mt
- Low average yields
- Popular varieties: IR-64, IR-8, C-4, Membramo, Maros, Batang Sumane,
- Variety preferences: early maturing, dwarf, high number of tillers, heavy panicles
- Common pests: field rats, stemborer, and rice bugs
- Interventions: in land preparation and nursery management, and seed purification



Rainfed Lowland Rice

- Rainfed Lowland Rice: ~ 6,000 ha
- Some are partially irrigated
- Varieties used are same as in irrigated rice
- Average yields are far less than irrigated areas

Upland Rice

Constraints in irrigated lowland rice production

- Poor access to farm equipment
- Unavailability of certified seeds
- Poor access to fertilizers and pesticides
- Late arrival of irrigation limits cropping intensity

Hilly Land Farming (mixed cropping)

- ♦ Favorable climatic conditions in southern highlands and slopes

Maize-based Cropping Systems

- Single crop (planted as early as Oct.)
- Mixed crop with beans & cassava
- Relay crop w/ cassava (southern slopes/lowlands)
- Maize Production ~ 40,000 ha @ < 1.5 Mt ha
- Constraints: limited choices of varieties, seed quality, pre- and post-harvest pests, poor soil conditions (calcareous soils, nutrient deficiencies, eroded hilly areas), strong winds in the southern highlands/slopes in February, occasional drought, pre-harvest pests and diseases, post-harvest storage

Other crops grown after maize

- Root Crops: cassava and sweet potato
- Legumes: *Phaseolus*, mungbean, soybean, cowpea
- Vegetables: pumpkins
- Coffee (Arabica at high elevation)
- Coconut (infested with *Aspediotus destructor*)
- Candlenut
- Peanut (as monocrop or intercrop)

Challenges

- Improve rice yield from the present <2.0 to > 3.0 within the next 5 years
- Increase cropping intensity in irrigated areas (from present <1.5x to 1.75x within 2 years)
- Increase cropping intensity in rainfed rice areas
- Improving maize yield from present <1.5 Mt/ha to about 2 Mt/ha within 5 years

Recommendations

For improving yield and productivity, we need to

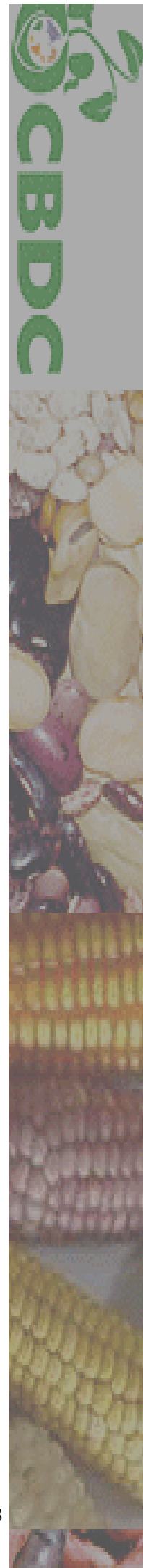
- identify better varieties of crops
- introduce better cropping systems
- introduce improved production practices
- develop research, development and extension (RD&E) capability of the Ministry of Agriculture, Forestry and Fisheries
 - technical manpower resources
 - physical resources

FARMER REACTION

*By: Sylvester Rogers,
Farmer, Sierra Leone*

Learnings from the day's discussion:

1. Seed is life. It is very important not only as part of our agricultural production system but also in the maintenance of our culture as a people.
2. Farmers are scientists. In the example of PPB, farmers are capable of improving, developing, and producing plant varieties. Farmers and scientists must also collaborate. It is only through working together that effective strategies can be implemented and goals can be achieved.
3. Seed production and conservation needs human intervention because there is a significant interaction between biodiversity and human culture.
4. It is also important to conserve and develop both cultivated and non-cultivated species. They are both part and needed in biodiversity conservation





SYNTHESIS

By: Jose Traverro

*Director, Research and Development
CVSVAFT System, Bohol, Philippines*

The presentation gave us the virtual picture of the power of farmer initiatives in the global scene and how we protect these initiatives. The initiatives shared to us will certainly bring us the desired CHANGES necessary for the sustainability of the life of the farmers and the life of this planet.

From the presentations, we learned that we can take alternative strategies or development tools to counter the present oppressive policies of the government and policies that favor the transnational corporations (or MNCs), open-up more challenges and opportunities in our present work on biodiversity conservation, both cultivated and non-cultivated.

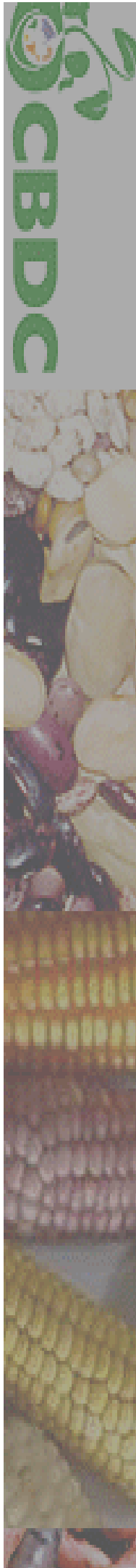
One presentation gave us an important insight that as agriculture development worker and scientists, we need to refocus our strategies from “control” to making the farmers self-reliant (the most reliable indicator of our success); from being a variety-decision maker to agro-biodiversity facilitators.

The presentations gave us the energies of HOPE!

- Hope that inspires us and gives us powerful energies to refocus and move forward for the cause of our farmers, our seeds and our land;
- Hope for development workers, farmers, and scientists, to work collaboratively in harmony with our culture, our traditional knowledge systems and the spirit of nature for the cause of sustaining life in our planet;
- Hope to globalize our struggles
- Hope to globalize our crusade for the seeds and life;
- Hope to globalize our efforts to protect and nurture the diversity and dignity of life.
- Hope for the sustainability of the human race in unity with nature in this one global village – a village without boundary.
- And finally, the hope to globalize our hopes

Because TODAY, we have in our hearts the seeds of hope.

Technofora





SYSTEM OF RICE INTENSIFICATION (SRI) IN CAMBODIA

Bao Vuthy

CEDAC, Cambodia

Background

- CEDAC has been working on rice intensification since 1998 with focus on improving soil and nutrient management practice.
- In 2000, CEDAC received more information on SRI from CIIFAD (Uphoff 1999 and 2000) which started the integration of the element of SRI (principle for water and plant management) into CEDAC's sustainable rice intensification program.
- Rice provided income and employment opportunity for around 65% of Cambodia's population. The average yield of rice is estimated to be 1.65-1.8 t/ha.
- SRI seeks to increase rice production through improved practices for plant, water, soil and plant management.

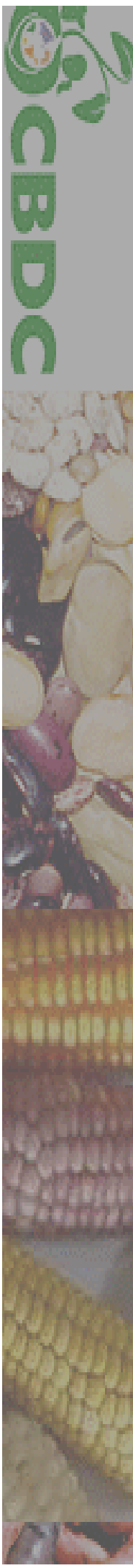
Differences between SRI and Traditional rice plant management

SRI	Traditional
<ul style="list-style-type: none">▪ Raising seedling under garden-like condition, & using low density of seed▪ Transplant young seedling, 8-15 days▪ Select vigorous seedling for transplant▪ Plant 1 by 1 the seedling, quickly and carefully▪ Transplant with wide space and square pattern (25x25)▪ Roots are placed into the soil shallow, 1-2 cm▪ Regular & frequent weeding▪ Transplant, the soil should be only moist & muddy▪ Improve soil aeration by drainage water from the rice field▪ Rotate crops on rice field in wet and dry season to improve soil aeration	<ul style="list-style-type: none">▪ Seedling are raised in fields & high seed density▪ Transplant seedling, more than 1-2 seedlings/ hill▪ Forceful uprooting of seedling▪ Seedlings are kept in transit▪ Transplant many seedlings per clump, generally more than 5▪ Roots are placed very deep▪ Transplanting is done with close spacing▪ No regular weeding is done, only when seen to be need▪ When field is flooded or saturated, this is good condition for transplanting and for growing the rice crop▪ The paddies are kept inundated permanently during the growth cycle of rice

SRI Principle and Practices Recommended by CEDAC from 2000-2004

A. Improved Seed and Seedling Management Practices

- select full sized grains as seed for sowing
- prepare bed nursery, similar vegetable bed
- sow low density of seed to ensure seedling are strong
- select strong seedling only for transplanting



B. Improved methods of uprooting and transplanting

- Uproot the seedlings gently and carefully
- Transplant quickly after uprooting, 15-30mn
- Transplant carefully and with shallow rooting
- Transplant young seedling, 8 to 12 days & less than 15 days old
- Transplant fewer seedling per clump, preferably one seedling per clump
- Wide spacing and transplanting in square pattern

C. Improved methods in water control

- During transplanting, the field should not be flooded or only with minimal standing water
- Avoid permanent flooding of the rice field during the vegetative stage

D. Improved methods of weeding

- Early and frequent weeding; 8-10 days after transplanting, and the number of weeding should be four (4)
- Use a rotary weeder or similar tool to ensure that soil is loosened



Use of rotary weeder

E. Improved methods in soil fertility and nutrient management



Composting

- Application of compost, preferably around 3-5 t/ha
- Use rice straw, rice stubble and rice husk for soil improvement
- Grow green manure and cover crops before and/or after rice harvesting

SRI Adoption/Adaptation in Cambodia in 2004

- After the first successful field experimentation by CF in 2000 & 2001, there is growing interest among practitioners in SRI.
- The result, there are 13 local and international NGOs which adopted and adapted SRI techniques.



Conclusion

- SRI appeared to be widely accepted by an increasing number of farmers and development organizations.
- Farmers become skillful in applying SRI, especially using young seedling, row transplanting and square pattern, and composting.
- Based on the result of SRI program, CEDAC expected that at the end 2004, there will be around 50,000 SRI farmers in Cambodia.

OPEN FORUM

1. Why do you need to transplant one seedling per hill? Isn't it very laborious?

It seems exhausting to plant one seedling per hill but, in our experience, the traditional transplanting technique is more laborious. In the SRI method, we only need 50-60 man a day/ha because it takes shorter time to uproot the seedlings. Young seedlings used in SRI are softer and easier to uproot compared to the old seedlings used in traditional transplanting. In addition, SRI has less seed requirement (8 kg/ha) because of the large spaces in between. Moreover, SRI allows only shallow planting compared to the traditional method where you have to push the seedlings in the soil during transplanting. Farmers have their own strategies to facilitate easy transplanting.

2. How do you address the problems of weeds considering that you have large spaces in between hills?

Because we employ 25 cm. x 25 cm. large spacing, it is easier to weed using rotary weeders. We use weeders/ rollers for controlling weeds.

3. Do you have problems in using large amounts of composts to sustain your production?

Farmers observed that when they used chemical fertilizers in SRI, their yields are lower compared when they used compost. We have big amounts of compost using rice straws and other materials. It is done in the field although some farmers do composts near their houses. The only problem we have is how to transport our composts in the farm

4. Where is the best area to implement SRI – in irrigated or in rainfed conditions?

SRI can be implemented both in irrigated and rainfed condition.

In Indonesia, the problem of SRI in rainfed condition is that you cannot be assured that water will be available anytime compared to the continuous supply of water in irrigated areas. We are still on the process of trying the SRI in the rainfed areas and so far, we have no result yet.

5. Is there a relationship between the application of SRI and the use of traditional varieties? Do you consider the use of other varieties, or do you only employ one variety? Is there an effect/impact on the use of a particular variety to the SRI method?

In SEARICE's experience, SRI is only a system of producing rice. You can choose what varieties you preferred to use. This is actually a response to the conventional rice production system (i.e. introduced by IRRI) which is dependent on synthetic inputs.

RICE BREEDING

Melchor Dulatre,

Farmer-Rice breeder, Philippines



What is the purpose of Rice Breeding?

Breeding in rice primarily aims to transfer desirable traits from one plant to a certain desired plant in order to combine, add and transmit new characters which are good and heritable.

In the beginning of the breeding program, it is important to know what characters you want to develop are or what are your objectives in doing hybridization.

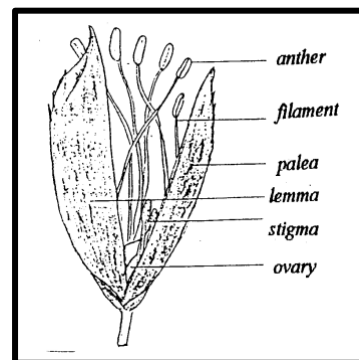
Materials to be used

- ♦ flowering stage of rice that is good breeding stock
- ♦ sharp, pointed scissors
- ♦ needle
- ♦ glassine bag or any small paper bag
- ♦ ball pen or any marker

Parts of the Rice flower

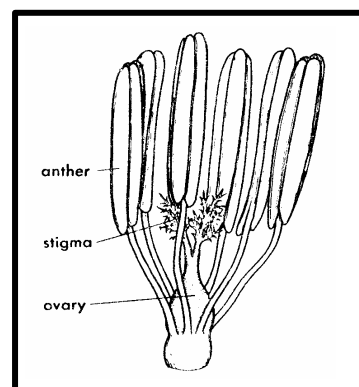
Rice is a self-pollinated crop. It has both male and female organs that are located in one spikelet or flower. Rice has the capacity to undergo self pollination without opening the stigma. This will result to formation of grains without the aid of other pollinators.

Stamen. There are two parts of stamen; one is the *anther* where the pollen is located and the other is *filament* where the anther is attached.



Pistil. It is the female part of the flower. There are three part of pistil: *stigma*, *style* and *ovary*. The stigma catches the pollen, passes through the style and settled at the ovary. The ovary will become the fruit (rice grain).

The small covering of the grain is called *palea* and lemma; it is the large portion husk that covers the rice.

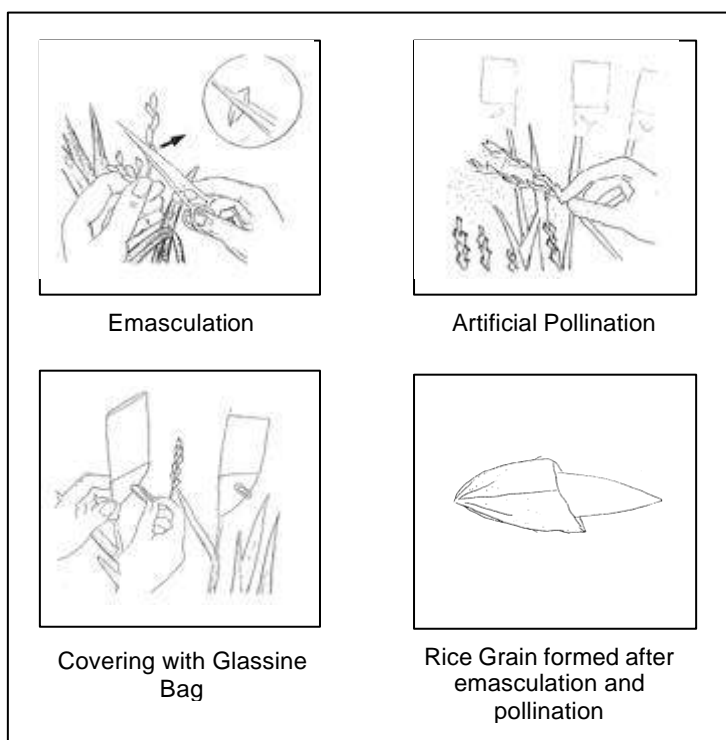


Emasculation

Emasculation is the process of extracting the anther of the stamen through the aid of sharp and pointed needle or forceps. This is done in the afternoon because the pollen is inactive and the flower is closed.

Procedure

1. Select panicle whose grains are fully opened in the morning. It can be easily detected since the third part of the panicles will emerge.
2. With the use of fine scissors, cut all immature florets at the base portion of the panicle. Discard also the florets with exposed anther above the middle portion since some were already pollinated.
3. Each spikelets will be cut obliquely from the middle up to the top of each floret. The six anthers will be carefully removed by the use of needle or fine forceps. Be careful not to damage the stigma.
4. Place a glassine bag to ensure that no extra pollen and other unnecessary things will enter in the open florets.



Pollination

Pollination is the transfer of pollen grains from the anther to the stigma. This is often done during 10:00 A.M. up to 12:00 noon. Sometimes, becomes late because of some climatic changes.

There are two types of breeding, the natural breeding and the artificial breeding. In *natural breeding*, florets are allowed to open, letting the anthers dehisce pollen before it will be cut from the mother plant. In *artificial breeding*, the panicle will be cut before the pollen will dehisce. After cutting, washed it with running water. This should be done when two varieties of rice are far apart, lack of time, or the weather is not good.



Note: Avoid pollination when there is a strong wind. If the weather is not good, the mother plant can be pollinated up to the next 3 days after emasculation.

Procedure for pollination

If the pollen starts to dehisce, be sure to remove all the pollen from the mother plant. Shake the emasculated panicle to check if it is free from its own pollen. Whitish color in the anther indicates absence of pollen grains.

Procedure

1. Remove the glassine bag that covers the panicle after emasculation. Carefully place the male parent to the top of emasculated panicle.
2. Shake gently the male pollinator, letting the pollen grains fall to the stigma of the emasculated female.
3. After pollination, place gently the glassine bag to the pollinated panicle.
4. Put tags at the bottom of glassine bag indicating the date of emasculation and pollination, and name of the crossed varieties. Put first the name of the variety emasculated signifying it was used as the mother plant.
5. The hybrid seeds can be harvested after 25 to 30 days after the breeding program. If there are grains formed, then the breeding procedure is successful.
6. Process the seeds for planting and seed increase.

Note: the seeds formed from breeding are called naked seeds.



OPEN FORUM

1. *What are the limitations of farmer breeding? At what generation do you think that the character you wanted to incorporate would be stabilized?*

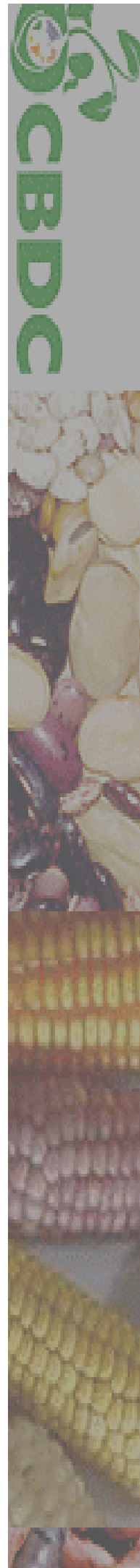
In the case of marrying the corn, farmers do not aim to stabilize the characters. It only aims to rehabilitate or revitalize the variety particularly if the farmers feel that the variety is already "weak". Rehabilitation takes two to three generations of continuous mixing of two different corn varieties.

2. *Is there a formal linkage between the farmers and international breeding institutions?*

There is no linkage between the farmers and other international breeding institutions. However, there is an ongoing negotiation for a tripartite agreement among farmers' organization in Bohol, NGO, and the academe. The academe serves as the back up of materials developed by the farmers in the field so that by the time they need the seeds, they can get it. It is therefore a formal and informal linkage. This initiative is also aimed to support farmers in their plans for local registration of the seeds they developed so that they can restrict others to claim "protection" on their seeds.

3. *Are traditional knowledge and varieties enough to carry out this rice breeding process or do you depend on other institutions like seed companies for the source of germplasms? What is the situation in the Philippines?*

We use off-types of traditional varieties and farmer selection varieties as parent materials in our rice breeding activities.



THE TECHNIQUE OF "FRESHENING CORN"

Jorge Enrique Giraldo Moreno

Program Coordinator, Instituto Mayor Campesino/ CBDC- Colombia

Introduction

Traditionally, corn (*Zea mays*) has been one of the most important crops for the farmers' communities because it is a fundamental pillar of their food security. In most of IMCA's working areas there are still many farmers who use corn, generally associated with beans, even though due to a variety of factors (i.e. the opening up of the national economy, the green revolution's influence, modern coffee cropping, etc.) maize loses its importance day by day, along with the loss of local varieties and the cultural practices associated with its use. Corn production in these areas has been basically for the farmers' own food, and to feed poultry, and the occasional surplus is sold locally.

Because of its importance to food security and its cultural significance to the farmers' communities, an effort to restore this crop begun within IMCA's CBDC project during the first phase of the program, applying the pertinent farming systems. Beginning with the sundry techniques used by the farmers, and in order to make a careful study of them, in August of 2002 an event was organized, A Gathering of Corn-seed Keepers, to reinforce the role of the seed keeper as guardian of the genetic food resources, especially corn. Activities included the exchange of experiences in cropping techniques, end uses, the management and preservation of this product and the knowledge associated with it, all from the different perspectives of cultural-ethnic groups.

During this gathering, apart from the exchange of experiences among farmers, it was determined that there was a need to recover some of the practices and techniques related to this crop, particularly the practice of "marrying corn", which is practically unknown nowadays by most farmers. The "marriage of corn" had been relegated to history, being considered as a technique used by the grandparents.

The Technique of Marrying Corn

The "marriage of corn", as a type of "freshening" methodology, is one of the most important improved practices realized by the farmers to favor the crop, but unfortunately it was not being practice gradually.

The objective is, as farmers say, "to look for a variety more resistant to plagues, diseases, winter conditions, drought, and with preferred cooking characteristics" that implies recovering the desired qualities of a seed when, according to some farmers, it is "tired".

Traditionally, the technique consists of crossing white corn with a yellow corn, planting them in a mixture, side by side. The corn is considered to be "married" when yellow and white grains appear on the same cob (in some cases there are purple ones, too). That happens at the second crop's harvest. Some farmers have demonstrated that crossing a yellow corn variety with another yellow corn



(or white with white) is also a marriage, but the difference is that there won't be a visible contrast between the yellow and white grains.

If you have a married corn, you can go back to a yellow or white corn by selecting the one you want to use. The selection is made according to the producers' judgment regarding the kind of grain, plant disposition, and so on. This selection is made repeatedly for two or three cropping seasons. In this period of time, a minimum of undesirable material appears. It is important to prevent planting seeds where they are not going to be selected.

If the selection is not wanted, the married corn can continue being planted as often as needed. In fact, in some rural communities married corn seeds are used and preserved.

The farmers consider married corn to be more productive than the unmarried corn, and its grains to be thicker. It is also affirmed that it is a good corn for human consumption, because its thick grain is appropriate for cooking certain special dishes. However, in most town markets, the married corn are not well accepted (are not desirable), and bring a lower price. According to the information gathered, the technique was used more intensely many years ago, when it was used to give the corn resistance.

Many farmers recognized the necessity of planting varieties separately with a good amount of space in between the different corn types to prevent them from crossing (marriage). For example, in the case of the village of "El Crucero", local yellow corn used as flour becomes hard and loses its special properties that are appropriate for the preparation of a number of recipes if married.

In relation to the corn's acclimatization (meaning the adaptation process of a new material within a region), we can inform you that it could last for about 2 years.

Camila Montecinos, from CET-SUR South of Chile, shows in her article "The Marriage of Corn: a Farming Selection Technique for Maintaining Diversity", published in Biodiversity, that the farmers' practice - according to a theoretical analysis - has an important potential to maintain, and perhaps create - diversity as an integral part of selection processes.

Recovering the Marriage Technique

One of the tasks suggested in the second phase of the Colombian CBDC project is to begin an activity that would help us understand and recover the "marriage" farming technique.

The proposals were implemented by the Colombian Association for Organic Coffee (ACOC) from Buga. The group participated in the Gatherings of Genetic Resource Custodians.

In the beginning, the locations of the different yellow corn varieties used in their original village were identified by the members of the group. During this process, a yellow corn variety was chosen to work with a variety that was used over 200 years ago in the village of Guadalejo. The other variety of corn selected for marriage was a traditional white corn variety used in the village of El Crucero.

The work was conducted in the village of Guadalejo, in the Municipality of Buga, Department of the Cauca Valley, which is in the Central Mountain Range of western Colombia. The villages at the foot of the mountains at 1200 masl with an annual rainfall of 1000mm, and an average temperature of 24°C.

This was done to study and recover the marriage technique for corn involves several stages. One is the identification of the two varieties in order to determine their characteristics. In the following season, the marriage is to be performed. At present, we are in the second selection cycle, and there is great interest and high expectation shown by the farmers directly responsible for the research.

The general objective of the project is:

- To begin a participative process of recovering the marriage technique with farm workers from the ACPC group in Buga.

The corn varieties were planted at a distance of 1.0 m between the rows and 0.40 m between the plants, putting three seeds in each location to later leave two plants.

The different cultivation chores (watering, manual weeding, raising soil around the plant, etc.) are done by the person directly responsible, depending on his experience and according to the particular characteristics of the place where the activity is being realized.

The size of the crop planted in each stage was determined by the amount of land and seed available.

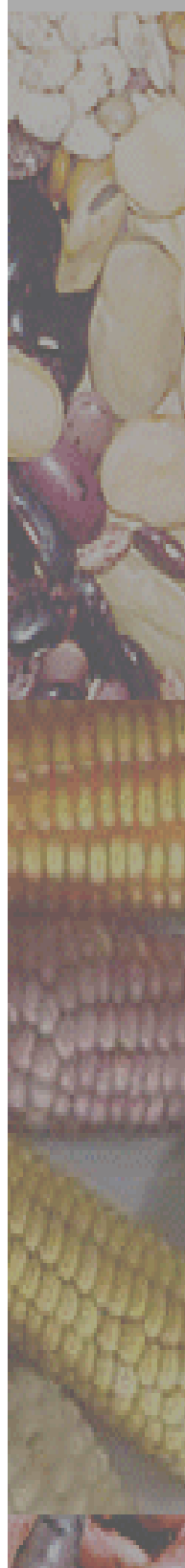
Some of the elements in the characterization process are:

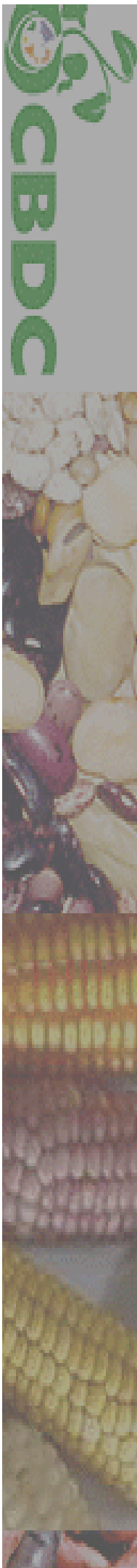
- Density of plants (Number of plants per hectare)
- Flowering days (When 50 % of the plants have stigmas from 2 to 3 cm high)
- Plant height.
- Cob length
- Total number of cobs
- Production (weight)
- Cob appearance

OPEN FORUM

1. What are the limitations of farmer breeding? At what generation do you think that the character you wanted to incorporate is stabilized?

In the case of marrying the corn, farmers do not aim to stabilize the characters. It only aims to rehabilitate or revitalize the variety particularly if the farmers feel that the variety is already “weak”. Rehabilitation takes two to three generations of continuous mixing of two different corn varieties.





LAGUNDI SYRUP PREPARATION

Charity Fordan

Farmer, Mindanao, Philippines

Introduction

- Lagundi syrup is a good medication for cough and fever.
- Herbal medicine preparation provides economic gain because its cheaper or free source of medicine.
- It frees the farmer and community in depending on pharmaceutical companies that sells expensive drugs. Hence, minimizing the control or monopolization of transnational corporations.
- Simple decoction can be done but the duration of the effectivity is shorter (expires about 24 hours from decocting). Syrup preparation is done to preserve the herbal medicine.

Procedure for preparing Lagundi syrup:

A. DECOCTION

1. Wash the herbs with water
If newly harvested & fresh herbs, select 3 leaves
2. Prepare 3 cups/glasses of clean water
3. Pour into clay pots then boil it (100°C). Allow to boil until 15-20 minutes
4. Remove and allow cooling
5. Strain it with clean cloth or use strainer

Directions for use: 1 cup/glass of decoction divide into 3 parts and drink 3x a day

B. SYRUP

1. Follow the method in making decoction.
2. Mixed brown sugar with the ratio 2:1 (2 cups/glass of decoction to 1 cup/glass of brown sugar).
3. Cooked in a clay pot until it becomes syrup.
4. Strain with a clean piece of cloth, and placed the syrup into sterilized brown bottles and cover tightly.
5. Place the bottles into a big container (clay pot or casserole).
6. Pour water into the clay pot or casserole make sure that the water is enough or in line with the bottles.
7. Sterilize - allow to boil for 15-20 minutes.
Sterilize again through steam.
8. Remove the bottles and allow to cool.
9. Seal tightly and label.

TIPS:

1. If the medication does not work in one take, you can drink more. It has no overdose or limitation in use because it is safe.
2. To ensure the effectiveness lasts long – one can put water above the brim and remove air by putting more syrup. The effectivity will still be the same.

REESTABLISHMENT OF POTATO PRODUCTION TECHNIQUES IN CAMPESINA COMMUNITIES IN PERU

Ricardo Claverias

Centro de Investigacion Educacion y Desarrollo, CBDC-Peru

Concepts behind the development or restoration of local technologies

- Technology and techniques cannot be dealt separately from policy issues
- Technologies are directly related to the agro-ecosystem and nature as a whole
- Need to consider the effect of the environment in all that the project are doing
- Must take into account the human element (family, community) and the threats that may exist (i.e. importation of food that threatens local production)
- Look into the importance in dealing with policies both in the national and international level because of the influence in the way of life and to local initiatives
- Should support policies that give importance to local production

Techniques

1. Seed storage should be under low light conditions instead of storing under dark conditions. This method is practiced by farmers in the Coastal areas of Peru for about 50 years.
2. Eliminate monocultures: replace with crop rotation.
With the advent of Green Revolution, farmers realized the linkage of monoculture to pests and diseases outbreak. Hence, they go back to crop rotation.
3. Employ a diversity of crops
4. Organic fertilization: modified manure, humus and compost
5. Pest control: manual removal of Andean beetles
This is usually done by women in Peru
6. Soil cultivation following harvest as preventive measure against Andean beetles
Direct exposure of beetles to sunlight kills them
The high temperature (20°C) during the day and the cold temperature at night (9°C) at night also kill the beetles.
7. Repellent crop barriers: "tarwi" (*Lúpulus sp.*)
A form of biological pest control
8. Application of lime to the soil as a preventive measure against beetles at planting
9. When the potatoes are being harvested, they are placed on top of a "manta" (cloth) so that any beetles present do not move back into the soil
10. Seed selection is done after harvest together with an exchange of knowledge gained during the period
This is accompanied by a blessing ceremony conducted by the Andean priest.

Conclusion:

- All these improvements are results of farmer exchanges and interaction in the community and have nothing to do with outside intervention.
- Outside influence often creates negative impacts – in terms of independence and creativity of the community
- There is a need to harmonize technical knowledge with the traditional culture of the community





OPEN FORUM

- 1. What are the criteria of farmers in the selection of potatoes? What is the method for selection?*

Farmers used different criteria like the formal seed system. However, the only difference is that for farmers, potato is not only a seed, but also a “sign”. Therefore they used different signs for selections, i.e. color, eyes of the tuber, adaptation to different kinds of climates

BRAZILIAN METHOD OF SEED STORAGE

Eloi Francisco Kottwitz

Farmer, Brazil

Background

- Program covers 22 municipalities with 55,000 household, 95% were composed of small farmers
- Program organized for different sectors – farmers, women, youth
- Mobilizations:
 - Year 1999 - organized workshop with 30,000 participants
 - Year 2001 – organized 20,000 participants in a campaign against GMOs as part of the campaign on seeds called “Seeds are the patrimony of humankind”.

TECHNOLOGIES

1. Sustainable Araucania forest management - including the conservation of Araucania tea which is the symbol of the culture of agriculture in Brazil
2. Ecological soil management
 - use of medicinal plants that provides bio-energy
 - use of plants that prevent soil erosion
3. Sustainable biodiversity management
 - started in 1993 which aims to develop technologies for conserving and increasing biodiversity
 - work with different agro-ecological practices
 - produce different seeds of various species (for winter and summer seasons)
 - method of exchanging seeds among farmers : 1 kg. of seeds are distributed to each farmer who returns 1.5 kg of seeds after harvests for distribution to other farmers
 - farmers conduct experiments in collaboration with the academe
4. Other activities:
 - a. inventory of seeds per area, development of biodiversity maps which identify the resources
 - Results: restored seed supply system through the development of 341 new varieties of different crops including: 141 beans 138 corn; 25 rice; 15 Mandioca; 12 potatoes; 8 wheat; and others (medicinal plants, vegetables)
 - b. trials – evaluation of the agronomic characteristics of plants; also including pest resistance, tolerance to adverse conditions and eating and cooking quality;
 - c. seed fairs – exchange of seeds usually done by women
 - d. special activity : phenotype characterization – evaluated 60 characters during production/ growing season in 99 varieties of corn and 40 varieties of bean
 - e. local seed multiplication
5. Activities in collaboration with the academe:
 - a. trials
 - b. heterotic grouping of crop varieties
 - c. karyotyping





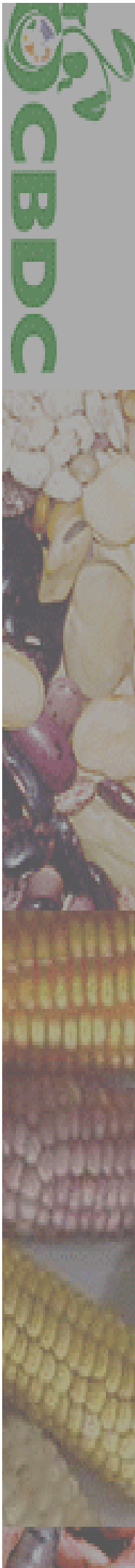
Conclusion:

- It is important to conduct both in-situ and ex-situ conservation.
- The approach should not only be technical, but also political.

OPEN FORUM

Comment:

1. *It is indeed possible to combine formal and informal knowledge. It is possible for universities to promote the knowledge of farmers. It is exciting to know that farmers are exposed to varied techniques like agroecological techniques, morphological, molecular, and heterotic analysis which determines what is visible in the phenotypic level. This can add to the level of confidence of farmers. This only shows that this level of knowledge is possible to be obtained and understood by farmers.*



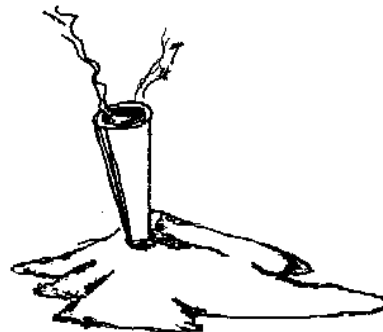
PROTOTYPE OF CRH CARBONIZER

Jeremias Rubilla

Farmer, Bohol, Philippines

What is Carbonized Rice Hull (CRH)?

Carbonized rice hull or more popularly known as CRH is a black substance with uniform particle size produced by incomplete combustion. It has the capability to retain and hold water (permeability), make the soil bulky and with a specific gravity of 0.1.



Why do we need to carbonize the rice hull?

Unlike the rice straw, rice hull takes time to decompose because of its cellulose content. We need to process the rice straw so that the soil and the plant can utilize it immediately.

Is CRH same as white ash?

The white ash from the rice hull is a product of complete combustion, while CRH is carbonization of incomplete combustion. The quality of carbonized rice hull is better than the burnt rice hull.

Why CRH?

- ♦ CRH has the capacity to hold water and absorb the heat from sunlight which is helpful in maintaining the temperature of the soil.
- ♦ It has the capacity to restore the air circulation in the soil because of its high air permeability and the capacity to soften and make the soil porous.
- ♦ It contains nutrients like Phosphorous (P), Potassium (K), Calcium (Ca), Magnesium (Mg), and other nutrients needed by the plant for their growth.
- ♦ CRH is sterilized and free from harmful microorganisms (pathogens).
- ♦ It is an excellent host for beneficial microorganisms.
- ♦ It is an excellent ingredient for organic fertilizer.
- ♦ It reduces the population of golden snail.

How much CRH is needed?

Soil Conditioner

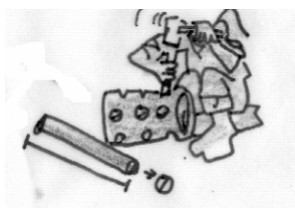
The principle “all things that we get from the soil shall be returned to the soil” has been practiced by farmers for a long time. That is why we need to replace the lost nutrients in the soil. For every hectare of land, we need 100 sacks (10kg/sack) of CRH.

Organic Fertilizer Production

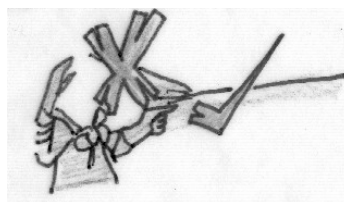
Thirty to fifty percent (30-50%) CRH can be mixed together with other organic materials.



Procedure in Producing CRH



1. Prepare the carbonizer



2. Select a level and dry place.



3. Build a fire out of small branches, dry leaves, coconut shell or paper.



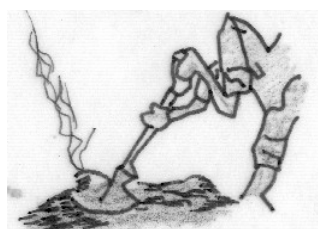
4. Cover the fire with the open-type carbonizer.



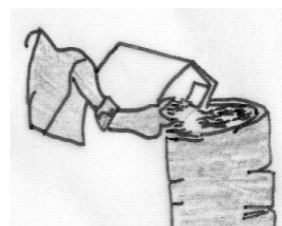
5. Spread the rice hull around the carbonizer until it reaches the 1 meter height or more, depending on the length of the chimney.



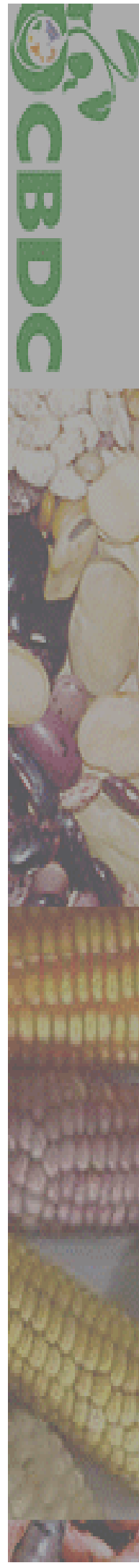
6. Wait for 3-4 hours before moving the rice hull from its mound position.



7. If the rice hull around the chimney is still burning, remove it by directing it downward and slightly sprinkle with water to extinguish the fire in the mound and to lower the temperature. Do not let the rice hull burn as it will turn into ashes.



8. Cool the freshly produced CRH and place in a sack or drum and cover it (banana leaves or trunk can be placed on top of the cover) so that no air will enter the container.



INDIGENOUS MICROORGNISM (IMO)

Lorna Torean

Farmer, Bohol, Philippines

Reasons of developing IMO

- To hasten the composting process for immediate application into the soil
- To restore and increase the microorganisms in the soil
- To reduce production costs due to synthetic fertilizers
- To protect the environment
- To rehabilitate infertile and acidic soils due to continuous use of synthetic fertilizers and chemical pesticides

Uses of IMO

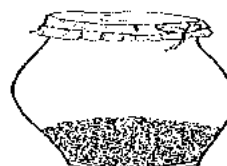
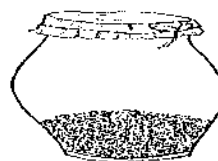
1. Restores the nutrients in the soil
2. Hastens the composting process
3. Restores soil and plant health

Materials

1 kilo cooked rice
1 kilo brown sugar
clay pot
Manila paper
string

Process:

1. Place the cooked rice in the clay pot or wooden box.
2. Cover with clean paper and tie with the string.
3. Place upside-down in a cool place or under banana plantation.
4. Remove after 3 days. Molds will form on top of the cooked rice.
5. Mix the sugar.
6. Cover with clean paper and tie with a string.
7. Bury the clay pot six inches from the ground for 7 days. After 7 days, this will yield a mudlike juice.



Method of Use:

Mix 2 tablespoon of IMO for every liter of water. Then spray on soil and plants.



IMO Trial in rice production
in Campagao, Bilar,
Bohol, Philippines

OPEN FORUM

1. In terms of economic aspect, what is the cost and benefit ratio?

It is cheaper compared to synthetic fertilizers because the materials are all available in the community including rice. Farmers only buy sugar.

Suggestion

In other areas like Indonesia, farmers used other indigenous materials other than sugar or rice, because these two are expensive commodities. You just have to apply the principle: use any material available in the community which can be sources of sugar and carbohydrate for fermentation, i.e. we can substitute rice banana stem for rice and palm sap (or from coconut flower) for sugar. In East Timor, farmers use one kind of wine and add it to the banana stem.

2. How much is the adoption rate of this technology in the community?

It has small adoption at present because it is still new in the community

STRENGTHENING CLIMATE CHANGE ADAPTATION OF RURAL FARMING COMMUNITIES IN VIETNAM



SOUTHEAST ASIA REGIONAL INITIATIVES
FOR COMMUNITY EMPOWERMENT

VIETNAM is currently one of the best-performing economies in the world, with agriculture as the major engine of its economic growthⁱ. Rice production, in particular, remains a very important pillar of its economy because it strengthens the country's food security and it provides two-thirds of rural employment. It has also secured Vietnam's position as the world's second biggest rice-exporting country.ⁱⁱ

However, Vietnam is also ranked among Asia-Pacific's most hazard-prone areas given its geographic location, diverse topography, and climate.ⁱⁱⁱ Geographically, its major rice-producing regions are found or are supported by two major river systems: Mekong and Red River^{iv}. Mekong Delta is one of the world's three most vulnerable deltas (together with the Nile Delta in Egypt and the Ganges Delta in Bangladesh) to sea level rising,^v a serious threat to agriculture, particularly to rice production.

With this situation, current practices and even policies on agricultural production that are geared towards increasing productivity should be adjusted to meet the demands of climate change especially because generally, agriculture and large-scale commercial agricultural production in particular, is one of the major drivers of climate change.

In October 2009, Olivier De Schutter, then UN Special Rapporteur on the Right to Food, called for more coherence and action for food security and climate change:

"The current input-intensive agricultural system is struggling under the combined pressures of climate change and food insecurity, exacerbated by large-scale agro-fuel production and increased speculation on land. This type of agriculture depends heavily on fossil fuels that generate excessive greenhouse gas emissions. It also leads to the expulsion of rural populations and to inefficient and wasteful food chains. This system does not provide equitable access to food. Policy makers have other choices."^{vi}

Rural Communities and Climate Change

Challenges

Farm productivity and livelihoods of many rural communities are seriously affected by climate change. Farmers who work on marginal farm lands in the mountainous regions of Vietnam are beset by more frequent and increasing incidence of pests and diseases, while those in coastal regions are plagued by floods and rising sea levels. **Indigenous communities** and **smallholder farmers** are extremely vulnerable and will not be able to recover from repeated crop losses. They are most likely to end up in a food insecurity trap, becoming the first losers of climate change.

A study conducted by SEARICE and its country partners documented observations and experiences of farmers regarding the effects of climate change. It was found out that warming temperatures and the variability of rainfall have altered availability of water resources such as rainwater, rivers, streams, and small-scale irrigations, consequently affecting the productivity of rice grown in the different parts of Vietnam.

The emergence of new pests and plant diseases beginning in the '90s was attributed to intensified crop production. In more recent years, pests such as rice black bugs, rice gall midge, and bacterial stripe spots have extensively damaged rice production in North Vietnam while brown plant hopper and yellow dwarf virus became serious problems in the Mekong Delta. Farmers in the said regions identified the warming temperature along with the heavy use of pesticides as the cause of the outbreak.

In Northern Vietnam, farmers who have to adapt to changed soil conditions after heavy use of chemical fertilizers also have to contend with the problem of diminishing land area for cultivation due to sand and saltwater intrusion in their fields.

Moreover, in addition to natural disasters that farmers have observed to have resulted from climate change, other felt effects, particularly the changes in cropping patterns, low yields, death of livestock, higher demand for locally-adapted seed materials, and the need for more diverse breeding materials impinge on agriculture, biodiversity, and local seed systems.

Coping Mechanisms

With the adverse effects of climate change, farmers themselves have made innovations on the field as they develop different coping mechanisms. The selection and breeding of seeds suited to the changing/changed climatic conditions, intensified seed storage, adjustment in cropping calendar, farm or crop diversification, and efficient use of water, are among the practices adapted by the farmers.

These selection and breeding practices of Vietnamese farmers are their adaptation methods to climate change. Being participatory and community-based in approach increase their viability as responses to climate change. These coping mechanisms build resilient seeds and farming communities, thereby ensuring food security. These adaptation practices on seeds, which are based on the farmers' traditional knowledge, also increase agricultural biodiversity.

In the SEARICE study, farming households were found to adapt the following practices:

1. **Crop cultivation.** It reflects the adaptation to drought or flooding or extreme weather events. For instance, they choose the appropriate variety according to weather pattern, soil quality, yield and duration of maturity, among others in anticipation of flood or drought. Knowledge of the seed varieties which are adaptable to local condition is also important.

In the Mekong Delta, farmer's adaptation to climate change focused on selection and breeding for varieties that have short growth cycles, adapt to and tolerate unfavorable weather conditions/climate change. In particular, farmer breeders focused on developing rice varieties that can adapt to drought, salinity, and submergence. In North Vietnam, farmers are more

focused on seed rehabilitation as there are still traditional varieties available especially in the mountainous provinces, and breeding for saline-tolerant and pest-resistant rice varieties.

2. **Soil and Pest Management.** Land preparation and the application of pesticides and fertilizers are based on the observed weather or climatic condition. Regular field visits are conducted for early detection of pests and diseases. They conduct regular draining of excess water to prevent flooding especially during rainy season as well as the use of irrigation-ditch system in order to regulate the amount of water. In terms of soil management, they conduct regular de-acidification or desalination and deep harrowing and plowing of the fields. Soil bags are also used to prevent salt-water intrusion to their farms.
3. **Access to climate information.** Farmers are dependent on the weather for their livelihoods and are most vulnerable to climate change. Aside from weather forecasts they get from television broadcasts, farmers also rely on their own weather forecasting experiences through observation of animal behavior or cloud formation.

Government's Response to Climate Change

Vietnam is a signatory to the UN Framework on Climate Change Convention (UNFCCC) and the Kyoto Protocol. In 2008, the government approved the National Goal Program^{vii} which provided the century-long vision, goals, and national strategy on climate change adaptation and mitigation measures. The program seeks to develop the country's capacity on climate change adaptation and to cut down on its greenhouse gas (GHG) emission to secure the safety and property of the people. It further aims to develop a low-carbon economy and improve the quality of life of the people, guarantee national security and sustainable development in the context of global climate change and the global action of the international community in protecting the earth's climate system.^{viii}

Specific to agriculture, the following are the national goals in relation to the reduction of GHG:

1. to change methods of agricultural cultivation, use water, fertilizers, and cattle feed properly; manage and treat wastes from husbandry activities; develop and use biogas as fuels; and reduce and reject out-of date energy intensive agricultural machinery.^{ix}
2. to boost green agricultural production of low emission in order to guarantee sustainable development and national food security as well as facilitate poverty reduction. The reduction of greenhouse gas emission, agricultural growth rate and poverty reduction should be maintained at 20% every 10 years.^x

Achieving these goals is quite a challenge to Vietnam in view of its national target of becoming a modern industrialized country by 2020,^{xi} as this will entail raising productivity in various economic sectors which will inevitably raise the energy requirements and, consequently, increase GHG emissions.

Great caution is needed around adopting agriculture practices and techniques for climate change mitigation. Solutions to climate change are not necessarily technical in nature. Many of them are social, economic, and cultural and they require structural changes, not techno-fixes.^{xii}

The government's response to climate change is more focused on mitigation measures,

notably the reduction of GHG emissions. While these are important, there is a more pressing need now which is how to address the vulnerability of the majority of its population, particularly the farming communities.

Farmers have raised their concern of losing their traditional varieties as a result of industrialization of agriculture, which favors monocultures and dependence on a few high-yielding varieties and hybrids as dictated by the market. These varieties, however, depend on excessive use of fertilizers, pesticides, and irrigation. The expansion of monocultures in prime irrigated areas and even in upland areas often described as “marginal” has resulted in a number of local varieties and their wild relatives becoming endangered and lost.

According to the Food and Agriculture Organization (FAO), genetic resources for food and agriculture will come under further threat, as global climate change will erode genetic diversity and destabilize agro-ecosystems significantly. Yet, sustainable use of genetic resources for food and agriculture is the foundation for many of the adaptation strategies required in food and agriculture when facing climate change.^{xiii}

Reduced agricultural diversity makes it more difficult for farmers to develop new varieties that can adapt to the changing environment, reducing farmers’ resiliency and threatening food security. At the same time, important sources of nutrition and related traditional knowledge and practices are lost, increasing vulnerability among farmers and their communities.

Intellectual Property Rights (IPR) regimes along with related seed laws and regulations are becoming critical with regards to farmers’ access to genetic resources for food and agriculture. These are increasingly posing barriers to the conservation and sustainable use of agricultural diversity, reducing the diversity of seeds available, increasing seed prices, and thus limiting farmers’ capacity to adapt to climate change.^{xiv}

Recommendations

1. **Enhance and improve farmers’ knowledge and capacity.** Crop production remains the source of the household’s livelihood either through actual cultivation or by providing labor to agricultural production. Enhancement may be accomplished through the following recommendations:

- 1.1 *Institutionalization of Farmer Field Schools (FFS) for the improvement of farmers’ knowledge and capacity.* FFS runs for a whole cropping season, wherein the farmers act as learners and researchers at the same time, and they learn from every lesson through hands-on application in the field. The FFS culminates with a Farmers’ Field Day (FFD) where the farmers present their learnings and their findings and results of their experiments. The FFD serves as a venue to create awareness and draw the interest of other farmers in the community and neighboring communities, and representatives from the farmers’ association, commune people’s committee, and other interest groups and non-government organizations, as well as the policy makers at the local and national levels; to provide a space for relevant open forums and discussions; and to have an exchange and sharing of learnings and experiences^{xv}.

- 1.2 *Implementation of Participatory Plant Breeding (PPB).* It was noted in the study that lands in most provinces are affected by salinity and acidity of the soil and they do not have the appropriate variety to withstand such condition, hence crop failure is common place^{xvi}. Even the seeds available in the market are not suitable to such conditions. Hence, there is a need to develop the capacity of the farmers to develop varieties which are adaptable to their soil and environmental condition. Institutionalizing the Participatory Plant Breeding (PPB) as a form of capacity-building to farmers is very much desired. This will enable the farmers to develop their own varieties which are linked to the need of developing climate-resilient varieties. Public research institution can provide the necessary diverse PGR materials and technical support to enhance the farmers' breeding skills through extension service.
 - 1.3 *Provision of other farming-related technical trainings.* Farmers should also be provided with technical trainings on disease and pest prevention and handling and using fertilizers and pesticides towards ecological agriculture, among others.
 - 1.4 *Provision of climate information.* Investments should be provided for the acquisition of weather forecasting technologies that will generate information relevant to the agricultural production of farmers to enhance their capacity to prepare for and adapt to extreme weather events. It is important for these technologies to complement or supplement local or traditional knowledge of farmers in weather forecasting.
2. **Provide access to inputs.** Crop production is inextricably linked to food security.^{xvii} Rice and maize are the primary food crops. Households which draw income doing off-farm activities are found to be more food-insecure compared to those engaged in crop production. This indicates that farmers' who produce their own food have more chances of being food-secure. To be able to produce their own food, such as rice, farmers need to have access to productive inputs such as seeds, farm implements and infrastructure such as irrigation and production loans.
 3. **Provide support to ease labor intensive crop production.** Crop production is predominantly labor intensive which also indicates low use of mechanized farming on account of few owners of farm machines which are shared with the community. Increasing farmers' income by providing them the necessary extension support and subsidy in the form of provision of agricultural inputs and needed infrastructure such as dikes, irrigation and farming equipment has been identified by the farmers in the four provinces. Access to land by farmers is important in order to enhance their productivity and ability to improve their income.
 4. **Conserve and enhance traditional varieties.** Erosion of traditional varieties being used by farmers is also a major concern that needs to be addressed. This is alarming considering that traditional varieties are known to have high genetic diversity and are most adaptable to local conditions. As the study has noted, their loss would mean loss of parent materials or genetic material base that can provide resilience to new crop varieties to withstand adverse environmental conditions, including climate change^{xviii}. Enhancing the knowledge of farmers on Participatory Plant Breeding (PPB) will help farmers recover and improve traditional varieties which are suited to the environmental condition yet custom-fit to the selection preference of the farmers. The study recommended among others that there is a need to develop and lobby for the approval of appropriate policies for registration and certification of

locally adapted farmer-bred varieties; for farmer-to-farmer seed exchange and re-use; and for protection from theft by unscrupulous business people.^{xix}

5. **Strengthen the Farmer Seed System.** The study partly attributed the growing dependence on external source rather than on farm-saved seeds or seeds sourced through barter or seed exchanges to the imbalanced assessment of new varieties over traditional varieties which in effect has created a sense of dependence by farmers on external seed sources and has resulted in the continued marginalization and displacement of traditional varieties. In most developing countries, the farmer seed system is the predominant source of seeds of farmers for their crop production. Built around households and social networks within the rural communities, the farmer seed system enables farmers to reduce their cost of production and, at the same time, provides them a degree of independence from commercial seed sector in terms of access to seeds.^{xx} Under certain conditions though, farmers also source their seeds from the formal seed sector such as local traders or from the seeds provided by governments through agricultural extension support.

The importance of the farmer seed system is recognized by the National Government as manifested by the issuance in 2008 of Decision No. 35/2008/QĐ-BNN dated 15/02/2008 promulgating the Regulations for management over the seed production in peasant households. But there is a need to complement this with the necessary budgetary support for its implementation, information dissemination, and access to scientific information that will enhance the skills of farmers in breeding, selection, and marketing of their seeds.

6. **Explore policy options supportive of smallholder farmers and indigenous communities.** Investments in adaptation must be substantially increased to enable smallholder farmers to continue producing food not only for their own households but also for national food security. Approaches that reduce vulnerabilities, including strengthening of social safety nets, and development of mechanisms that ensure early action in slow onset crises are in critical need of support from policy makers. At the same time, there is a need for responses to policy challenges affecting the ability of farmers to adapt to climate change.

Agricultural practices, which increase agricultural diversity and enhance resilience of production systems, should be promoted. Conservation of crop diversity in farmers' fields is a key factor in strengthening climate resilience among poor farming communities. Resilient ecosystems in turn are fundamental to addressing climate change, water scarcity and food insecurity. The need to shift focus away from technology 'futures' promises to the readily available knowledge, experience, and resourcefulness of local communities is urgent and critical as displacement and de-skilling of such communities and small food producers rapidly transpiring.

Supportive policies that would ensure farmers' continued access to genetic resources is therefore essential. Government must facilitate the broader access to, and use of, genetic resources so as to maximize their contribution to adaptation for smallholder farmers and indigenous communities.

Policymakers are called upon to take into account the complex relationship between people and marginal lands and the crucial insights of the people for protecting water resources, biodiversity and the integrity of ecosystems, which are vital buffers against the impacts of climate change. It is therefore important to understand the multifunctional role of

agriculture and the importance of empowering, not marginalizing, farmers, especially women farmers, to manage resources and the need to recognize them “as producers and managers of ecosystems”.

7. **Pursue a new approach to research and extension.** A shift is needed from top-down research and extension to bottom-up approaches and local innovations. Climate change vulnerability assessment at the local level should be an integral part of research, development, and implementation and should be achieved through participatory processes which involve farmers and local communities. It is vital to focus on traditional farmer knowledge and build collaborative alliances between farmers and local research institutes whereby farmers can experiment with crop varieties, adapted to the local environment and to their social and economic conditions.

The Farmers’ Field School (FFS) is one such approach to capacity development. The National IPM Program of Vietnam, the Biodiversity Use and Conservation in Asia Program (BUCAP) which was implemented in 13 provinces of Central and North Vietnam, the Community Biodiversity Development and Conservation program implemented in all the provinces of Mekong Delta, and the “Putting Lessons Into Practice: Scaling Up Peoples’ Biodiversity Management for Food Security” currently implemented in Hoa Binh, Son La, Yen Bai, Thanh Hoa and Lao Cai have all proven the value of FFS as a learning methodology. There is a need to support this learning approach to develop the capacities of farmers for climate change adaptation.

The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) report, prepared by 400 scientists in a cooperative process between a wide-range of UN institutions and approved by 57 governments prior to publication, notes:

“A powerful tool for meeting development and sustainability goals resides in empowering farmers to innovatively manage soils, water, biological resources, pests, disease vectors, genetic diversity, and conserve natural resources in a culturally appropriate manner.”^{xxi}

Endnotes

ⁱ Vulnerability, Risk Reduction and Adaptation to Climate Change, Vietnam, available at: http://sdwebx.worldbank.org/climateportalb/doc/GFDRRCountryProfiles/wb_gfdr climate change country_profile_for_VNM.pdf

ⁱⁱ *ibid*

ⁱⁱⁱ *ibid*

^{iv} *ibid*

^v Vietnam Government Portal available at

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^{vi} Cordoba Declaration (2009): A Call from the Cordoba Group¹ for Coherence and Action on Food Security and Climate Change. <http://www.fian.org/news/press-releases/cordoba-group-calls-for-coherence-and-action-on-food-security-and-climate-change/pdf>

^{vii} The National Strategy on Climate Change was issued by Prime Minister Nguyen Tan Dung via Decision 2139/QĐTTg on December 05, 2011

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xii Helena Paul, Almuth Ernsting, Stella Semino, Susanne Gura and Antje Lorch. 2009. Agriculture and Climate Change: Real Problems, False Solutions. Report published for the Conference of the Parties, COP 15, of the United Nations Framework Convention on Climate Change in Copenhagen, December 2009. Econexus Oxford, UK

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xv Ibid p. 87

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xix Ibid p. 89

xx Louise Sperling and H. David Cooper, Understanding Seed System and Strengthening Seed Security: A Background Paper, available at <http://www.fao.org/docrep/007/y5703e/y5703e06.htm>

xxi IAASTD (2009): Summary for Decision Makers of the Global Report. Island Press, Washington, USA. http://www.agassessment.org/docs/SR_Exec_Sum_28050_8_English.htm

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SEARICE's Contribution to Sustainable Use of Plant Genetic Resources

The Community Biodiversity Development and Conservation and Biodiversity Use and Conservation in Asia Programme (CBDC-BUCAP) aims to strengthen the capacity of farmers to manage their plant genetic resources (PGR) and to secure their local seed systems through conservation, crop improvement and sustainable utilization. The Southeast Asia Regional Initiatives for Community Empowerment (SEARICE) is the regional coordinator of the CBDC-BUCAP program which is being implemented in the five rice-growing countries of Bhutan, Lao PDR, the Philippines, Thailand and Vietnam.

At the end of 2008, the CBDC-BUCAP Program has made a significant contribution to the conservation and development of PGR diversity, particularly in terms of building farmers' capacity to select and develop varieties that meet their needs and preferences. In the Mekong Delta alone, farmers have selected **250** new segregating lines and released new stable lines bringing the number of farmer varieties available in the communities to a total of **103** varieties. In addition, farmer plant breeders in Mekong Delta have made **60** new crosses, resulting in greater diversity of rice varieties available in the region. This translates to more choices for the farmers to consider, which in turn tends to increase the number of varieties being grown in communities at any time. In Bohol province of the Philippines, for instance, farmers are growing **15** to **29** rice varieties per community per season. Fifty percent of these varieties are farmer-developed. This is a big improvement compared to the 5-9 varieties being grown in the province at the start of the CBDC-BUCAP program, and to the 10-12 varieties found in communities not covered by the program.

Moreover, farmer-developed varieties meet the specific needs of the community since they were bred and selected using farmers' own breeding objectives and selection criteria, and were tested in farmers' own fields. In Vietnam, for instance, there are **4** farmer varieties which adapt very well to acid-sulfate soil; **8** farmer varieties that thrive well in acidic soil; and **7** varieties that do well in saline soils. In other countries, there are

farmer varieties that are tolerant to drought and flooded conditions; varieties that are suitable for organic farming systems; and varieties that are resistant to specific pests. This capacity of farmers to develop varieties that are adapted to specific local conditions and micro-niches shows how farmers are adapting to climatic changes and helping their communities develop resiliency.

Livelihood improvement through sustainable use of PGR diversity

The production of good quality seeds and use of better varieties (i.e., the result of farmer breeding and selection) translates to increase in yield. In Eastern Bhutan, farmers have reported a **30%** increase in corn yield due to improvements in seed selection. In the same region, farmers have increased their income by processing corn into *tengma* (corn flakes). Two farmer groups from two communities (Khalling and Dremetse) have been able to save **90,000 (US\$2,000)** and **45,000 Ngultrum (US\$1,000)**, respectively, from the sale of *tengma*.

Likewise, in Laos, farmers have reported a **10-20%** increase in rice yield as a result of using better varieties and good quality seeds. Aside from the use of farmer varieties and good quality seeds, the increase in yield has been attributed to the reduction in the use of external inputs and to improvements in the farming system. In Vietnam,

for instance, **8,000** hectares of riceland are under SRI (system of rice intensification) and the experience of farmers in this system is quite encouraging. SRI has reduced the amount of inputs used: **50-70%** less seeds; **80%** less pesticide; **20-30%** less urea; and **30-50%** less irrigation water. This has resulted in a **10-20%** increase in yield. In the Mekong Delta, farmers have reported a mean net income of **US\$645** per hectare resulting from the combined effects of an improved farming system and the use of good quality seeds

from their own varieties. This compares favorably with the **US\$257** per hectare income from conventional farming system using improved varieties.

Strengthened farmers' management of PGR diversity

The results on the ground clearly show that farmers are quite capable of managing their PGR. The training provided by the program to the farmers has further enhanced their knowledge and skills, which is now recognized not only by their own communities but by other communities and even by the government and the scientific community.

In Laos, initial results reveal that **90-95%** of the seed requirements in the communities where the project is being implemented are supplied by farmers within the community and that most of the seeds are varieties developed through

the program. In the Mekong Delta, Seed Clubs have produced and sold more than **83,000** tons of good quality seeds in 2008, providing **16%** of the seed requirement in the region. This is a major contribution considering that in the same year, the formal sector produced and distributed only **19,000** tons of seeds, thus meeting

only **3.5%** of Mekong Delta's seed requirements.

This capacity of farmers to produce good quality seeds has resulted in better access for all farmers in the community to seeds that are adapted to their local conditions. In Thailand, around **700** farmers in Nan province (and an estimated **1,500** farmers, including those from neighboring provinces) are using farmer-developed varieties. In North and Central Vietnam, more than **82,000** farmers have access to seeds produced

by farmer partners. In the Mekong Delta, more than **100,000** hectares are planted with farmer varieties, and around **21%** of the total number of varieties grown in the region (Mekong Delta) are farmer varieties.

The popularity of the farmer varieties can be observed not only among farming communities but also within the government and the scientific community. Currently, there are **16** farmer varieties in North and Central Vietnam and **14** in the Mekong Delta that are undergoing national testing for certification. The potential of these varieties has been recognized by government authorities as evidenced by government initiatives to test them for wider adaptation. Three out of 14 varieties in Mekong Delta are already registered (i.e. HD1, NV1 and HD4). **HD1** has already received provisional national certification status after passing national tests. HD1 had in fact been shown to be better than formal varieties when it survived the yellow dwarf

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disease and the brown plant hopper attack in 2008, which almost wiped out all the other rice varieties in Mekong Delta.

But more than material benefits, farmers claim that their enhanced knowledge and skills have helped boost their confidence. They take pride in the respect and admiration accorded to them by fellow farmers in the community and in the recognition given to them by government authorities and professional plant breeders.

Even the initial results of community self-assessment would show the overwhelming appreciation of the farmers for how the project has enhanced seed security in their communities. Farmers testify to the fact that they “can now produce the seeds that we need according to our own preferences and we are also assured of quality.” Other farmers also expressed relief that they no longer depend on external sources for their seeds.

Through the project, farmers were able to organize themselves into groups for collective action and joint efforts to further strengthen their local seed system. In the Mekong Delta alone, **21** new seed clubs were established in 2008, bringing the total number of Seed Clubs in the Mekong Delta to **325** with about **8,000** farmer members. Even in Bhutan, where it used to be illegal for farmers to organize into groups, there are now **6** farmer groups doing production and marketing of *tengma*.

Strengthened capacities of local institutions in supporting community management of PGR diversity

As farmers gain confidence in managing their plant genetic resources, extension agents, teachers, plant breeders and researchers who are supporting the work of farmers begin to recognize the tremendous potential of farmers to manage their own PGR and have started to look more closely at how best to support farmers instead of trying to do the work for them.

In Laos, stronger linkages with local research stations and seed centers have been formed in 2008. This has resulted in greater access to PGR materials and technical assistance for farmer

breeding and selection. Farmers are now linked with Pakcheang Rice Seed Station, Pon Ngam Research Station and Thasano Seed Multiplication Center all located in the provinces. Similarly, in Thailand, partners have expanded their network and strengthened their links with many research and academic institutions for continued support of community-based PGR management. There are now five Research Centers and other national institutions like the National Seed Bank and Agricultural Universities in Thailand that are providing support for the work of farmers.

In Vietnam, there is already an established network of institutions that are linked together and constantly providing support to the Seed Clubs (in Mekong Delta) and BUCAP Clubs (in North and Central Vietnam).

Positive policy changes and actions toward protection of farmers’ rights over their PGR



Above: Mr Nguyễn Văn Tinh with his H1 variety--adjudged the best variety in the dry season 2006-07 in An Giang Province

At the policy level, the project has gained recognition and support from local government authorities and even from key institutions at the national level. In Vietnam, the local support for on-farm conservation and development (both technical and financial) has exceeded what the project (CBDC-BUCAP) has managed to provide.

In the Mekong Delta alone, local support in 2008 (i.e., for various activities such as farmer field schools, farmers' field days, follow-up training, study tours, seeds, and agricultural equipment) has been valued at more than **US\$200,000**.

At the national level, the Ministry of Agriculture and Rural Development (MARD) had issued an order in early 2008 supporting on-farm seed conservation and development (Decision 35/2008/QĐ-BNN). This important ministry directive is a clear acknowledgment of the work of farmers in PGR management as well as an explicit expression of government support.

In Bhutan, the draft Plant Variety Protection (PVP) rules already contain a number of provisions on farmers' rights. This can be credited to the series of discussions with the drafting committee and other key stakeholders. The learning agenda and participatory approaches integrated into the drafting process has resulted in strong support of relevant Departments and Ministry in Bhutan for community based seed management. The need for and importance of on-farm PGR conservation are now clearly outlined in the 2008 Biodiversity Action Plan of Bhutan. Likewise, the PGR conservation, development and use (CDU) activities have been mainstreamed through the national planning workshop of Bhutan's Ministry of Agriculture.

In Laos, research exploring a *sui generis* form of plant variety protection is still on-going. This innovative policy process involving research and policy dialogues with farmers is a first in Laos and probably in the region (Asia).

The work with academic institutions has also advanced in 2008. In Laos, for instance, there is now an on-going process of institutionalizing the integration of PGR management in the curricula of agricultural schools in the country. This will continue in 2009 and by the end of the year, it is expected that all agricultural schools in Laos will be teaching PGR conservation and development using the modules that are currently being developed. #

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Farmers' Rights in International Law

BY **ANTONIO G.M. LA VIÑA, JAMES L. KHO AND
PAZ J. BENAVIDEZ II**

Humans began domesticating plants and animals some 10,000 years ago, as humans shifted from hunting and gathering to agriculture. In agriculture, the relationship between plants and humans became one of dependence. Our ancestors selected wild plants to propagate. After each cropping, they selected the seeds from the best harvest to replant in the next cycle. The process of selection and propagation changed the plants to produce more of the things humans needed. Farmers shared seeds and their knowledge freely as populations grew and spread. The changed (domesticated) plants were able to conquer new ground as humans moved across continents and environments.

Our early farmers were also the earliest plant breeders. They selected from the current crops the varieties that produced more of the desired traits. They saved the best seeds for the next crop. Farmers exchanged seeds, which grew side-by-side and crossbred, producing more choices for selection.

As demand for food grew and farming became large-scale and systematic, there came a shift in

the farm model. Governments encouraged research to produce better seeds to give to farmers for more efficient industrial scale production. Farmers either bought seeds or these were provided to them. The net result was that farmers no longer had to select and keep their own seeds, but relied on the seed producers. The roles of the farmer and the plant breeder became separate.

Seed production is big business, with high risks and large investments involved in developing high-yielding seeds. In order to protect the investments of seed producers, they started to restrict farmers from sharing the seeds they bought or harvested, even preventing farmers from replanting the seeds they harvested. Today, modern biotechnology is used to produce seeds with specific traits to increase production or resist diseases. Because of the huge investments and risks that go into research and development, seed producers feel an even greater need to protect their rights and restrict the use of their products. Protection of seed producers' rights takes several forms, including patents, plant variety protection and others.

What are Farmers' Rights?

For centuries, farmers have domesticated wild plants and made them suitable for agriculture. They

bred out the natural traits, “such as shattering of seed-heads prior to maturity or seed dormancy, that allow those plants to survive in the wild. They have also bred in new traits, such as higher yields and drought or disease resistance.” (Halewood and Nnadozie, 2008) These practices and materials have been freely shared by the farmers to humankind: an arrangement that has been shattered by the coming of the seed producers and the various protections accorded to them.

Farmers felt that seed producers had benefited from thousands of years of farmers’ experience and collective sharing of materials and knowledge. Farmers had traditionally shared their knowledge and planting materials freely, and they felt that seed producers should respect and follow that tradition and/or recognize and compensate farmers for the knowledge and materials on which modern seed technology were based. Thus, farmers’ rights became articulated as a response to the protectionism of seed producers. Farmers now want recognition and protection of their traditional knowledge and source materials, and to get benefit from these when used by others.

The conflict between farmers and seed producers is best illustrated by the Canadian case of *Monsanto v. Schmeiser* (2004 SCC 34). Schmeiser was a canola farmer. Monsanto sued him for violating its patent on the RT73 gene, which gave crops resistance to the Roundup herbicide. Apparently, the gene was transferred to Schmeiser’s crops through cross-fertilization, without his knowledge and without his consent. The Supreme Court of Canada ruled that by the mere act of harvesting his crops and replanting the seeds (which is the common practice of farmers), he violated the intellectual property rights of Monsanto.

Farmers’ rights have become an important topic in international law. However, there are several international regimes under which farmers’ rights are tackled, and each differs from the other in approach and effect as seen from the different angles of environment, agriculture, trade and property rights. The next section introduces the various international regimes and their interplay.

Farmers’ Rights in International Law

Farmers’ rights have become a significant issue in international discourse because of the global inter-

connections of agriculture and trade. There is also the issue of recognition and benefit sharing to farmers who provide the source materials and knowledge that are at the base of modern agricultural technology.

In this section we look at four of the most important international instruments that tackle farmers’ rights:

- A. International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)
- B. Convention on Biological Diversity (CBD)
- C. Convention on the Protection of New Varieties of Plants (commonly referred to as UPOV)
- D. Trade Related Intellectual Property Rights (TRIPS) Agreement.

In this section, we also look at the interaction among these international regimes.

A. International Treaty on Plant Genetic Resources for Food and Agriculture

The ITPGRFA creates a framework for sustainable use and conservation of plant genetic resources that are specifically limited to food and agriculture use. The Treaty is unique because it concentrates on defining and maintaining a commons, instead of means by which to fence off portions of it. The establishment of a plant genetic resources commons is intended to facilitate access for conservation, research, breeding and training, and to simplify benefit-sharing by giving back to the commons some of the financial benefits derived from the commercial exploitation of those resources included in the pool (Halewood and Nnadozie, 2008).

Plant genetic resources are at the base of agriculture, from the wild varieties that our ancestors domesticated as early crops, to modern biotechnological seed production that inserts genes from the same crop species or even different species to develop new varieties with more desirable traits. Realizing the global interdependence among farmers on genetic resources for food and agriculture, the Food and Agriculture Organisation (FAO) spearheaded the creation of an international system of cooperation for germplasm collection and conservation as early as 1968.

In 1983, at the 22nd FAO Conference, an *International Undertaking on Plant Genetic Resources for Food and Agriculture (IU)* was born. The IU was the first comprehensive international agreement deal-

ing with PGRFA, which explicitly declared “the universally accepted principle that plant genetic resources are a heritage of mankind and consequently should be available without restriction.” Several countries objected to IU because it did not recognize plant breeders rights, which at that time was already covered by the UPOV Conventions of 1961 and 1978. In order to address the objections, the FAO, in 1989, adopted Resolution 4/89, recognizing the countries who were parties to UPOV, the right to impose only such minimum restrictions on the free exchange of materials covered by the IU as are necessary for these countries to comply with their international obligations under the UPOV Conventions.

The IU underwent a transformation after the signing of the **Convention on Biological Diversity (CBD)** in 1992. The CBD recognized that States had sovereign rights over their biological and genetic resources. States, in particular, had the right to determine through local legislation, the means by which access to genetic resources were to be granted. In 1993, the FAO Conference requested the FAO to provide a forum in the Com-

mission on Genetic Resources for Food and Agriculture for negotiation among governments for the adaptation of the IU, in harmony with the CBD; consideration of the issue of access to plant genetic resources on mutually agreed terms, including ex-situ collections not addressed by the CBD; and the issue of the realization of farmers’ rights. After more than six years of difficult and contentious negotiations, the International Undertaking transformed into the International Treaty on PGRFA.

Recognition of Farmers’ Rights

The ITPGRFA has explicit provisions dealing with the recognition and protection of farmers’ rights:

Article 9 – Farmers’ Rights

9.1 The Contracting Parties recognize the enormous contribution that the local and indigenous communities and farmers of all regions of the world, par-

ticularly those in the centers of origin and crop diversity, have made and will continue to make for the conservation and development of plant genetic resources which constitute the basis of food and agriculture production throughout the world.

9.2 The Contracting Parties agree that the responsibility for realizing Farmers’ Rights, as they relate to plant genetic resources for food and agriculture, rests with national governments. In accordance with their needs and priorities, each Contracting Party should, as appropriate, and subject to its national legislation, take measures to protect and promote Farmers’ Rights, including:

- (a) protection of traditional knowledge relevant to plant genetic resources for food and agriculture;
- (b) the right to equitably participate in sharing benefits arising from the utilization of plant genetic resources for food and agriculture; and
- (c) the right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture.

9.3 Nothing in this Article shall be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seed/propagating material, subject to national law and as appropriate.

The Treaty itself does not define “farmers’ rights,” but FAO Resolution 5/89 previously defined it as:

rights arising from the past, present and future contributions of farmers in conserving, improving, and making available plant genetic resources, particularly those in centres of origin/diversity. These rights are vested in the International Community, as trustee for present and future generations of farmers, for the purpose of ensuring full benefits to farmers, and supporting the continuation of their contributions...

The ITPGRFA applies only to a limited number of plant genetic resources listed in its Annex I, composed of the most common food crops (35 crops including rice, maize, potato, sorghum, wheat, oats, banana, apple, carrot, coconut, citrus, etc.) and forage plants. But significantly, it included ex-situ collections that were brought into the common pool.

Under this treaty regime, the elements of the rights are identified (e.g., traditional knowledge, right to share in the benefits and right to participate in decisions). The Treaty recognizes that States have sovereignty over their PGRFA (Art. 10). However, through this regime, States agree to vest these rights not on the individual farmers, but on the International Community. The Treaty in effect declared the PGRFA as global commons.

The negotiations for the Treaty text took six and a half arduous years, with highly polarized debates between developed and developing countries. Some of the most contentious issues concerned the scope of crops and forages to be included within the multilateral system of ABS (MLS), the actual terms of benefit sharing, and IPRs. The scope of materials to be included in the MLS was one of the most contentious negotiating issues and it shifted considerably over the course of the negotiations of the Treaty. In the end, negotiators agreed upon a list of 35 crops and 29 forage genera to be included in the MLS. These are popularly referred to as 'Annex I' crops or materials since they are included in Annex I to the Treaty (Halewood and Nnadozie, 2008).

Access and Benefit Sharing

The Treaty provides that the protection of farmers' rights is to be done by national legislation. However, protection does not mean restriction of access. In fact, the Treaty is premised on allowing almost unrestricted access, provided that benefits from access are shared through a Multilateral System established under the Treaty.

Article 12.3 provides the conditions for access and benefit sharing:

- (a) Access shall be provided solely for the purpose of utilization and conservation for research, breeding and training for food and agriculture, provided that such purpose does not include chemical, pharmaceutical and/or other non-food/feed industrial uses. In the case of multiple-use crops (food and non-food), their

importance for food security should be the determinant for their inclusion in the Multilateral System and availability for facilitated access.

- (b) Access shall be accorded expeditiously, without the need to track individual accessions and free of charge, or, when a fee is charged, it shall not exceed the minimal cost involved;
- (c) All available passport data and, subject to applicable law, any other associated available non-confidential descriptive information, shall be made available with the plant genetic resources for food and agriculture provided;
- (d) Recipients shall not claim any intellectual property or other rights that limit the facilitated access to the plant genetic resources for food and agriculture, or their genetic parts or components, in the form received from the Multilateral System;
- (e) Access to plant genetic resources for food and agriculture under development, including material being developed by farmers, shall be at the discretion of its developer, during the period of its development;
- (f) Access to plant genetic resources for food and agriculture protected by intellectual and other property rights shall be consistent with relevant international agreements, and with relevant national laws;
- (g) Plant genetic resources for food and agriculture accessed under the Multilateral System and conserved shall continue to be made available to the Multilateral System by the recipients of those plant genetic resources for food and agriculture, under the terms of this Treaty; and
- (h) Without prejudice to the other provisions under this Article, the Contracting Parties agree that access to plant genetic resources for food and agriculture found in *in situ* conditions will be provided according to national legislation or, in the absence of such legislation, in accordance with such standards as may be set by the Governing Body.

Under the Treaty, **Article 13** sets out the agreed terms for benefit sharing within the MLS, recognizing that facilitated access to PGRFA itself constitutes a major benefit of the MLS. Parties agree that benefits arising from the use, including commercial, of PGRFA under the Multilateral System shall be shared fairly and equitably through the following mechanisms: the exchange of information, access to and

transfer of technology, capacity-building, and the sharing of the benefits arising from commercialization, taking into account the priority activity areas in the rolling Global Plan of Action, under the guidance of the Governing Body (Article 13.2). Further, the treaty recognizes that benefits arising from the use of plant genetic resources for food and agriculture that are shared under the Multilateral System should flow primarily, directly and indirectly, to farmers in all countries, especially in developing countries, and countries with economies in transition, who conserve and sustainably utilize plant genetic resources for food and agriculture (Article 13.3).

The monetary benefits go back to the MLS, not to any particular supplier (unless one characterizes the MLS as the supplier or source). This is where the ITPGRFA differs radically from the CBD, which recognized domestic regulations that are different in each country in benefit sharing terms and conditions.

Contracts, Enforcement and Dispute Resolution

The ITPGRFA also differs from the CBD in that it has a standard mechanism for contracting benefit sharing and enforce these agreements. A **standard materials transfer agreement (SMTA)** contains the basic terms of use.

On enforcement, the SMTA states that the parties agree that:

[The entity] representing the Governing Body and the MLS has the right, as a third party beneficiary, to initiate dispute settlement procedures regarding rights and obligations of the Provider and the Recipient under the Agreement. (Article 8.2).

To empower the entity representing the system's third party beneficiary interests, the SMTA provides that the entity has the right to request information from providers or recipients that are relevant to their obligations under the SMTA.

Pursuant to the SMTA, recipients and providers agree to a three-stage process for dispute resolution that includes negotiation, mediation and finally, binding international arbitration. The SMTA states that the "applicable law shall be the General Principles of Law, including the UNIDROIT Principles of International Commercial Contracts 2004, the objectives and relevant provisions of the Treaty and, when

necessary for interpretation, the decisions of the Governing Body" (Article 7).

Issues Moving Forward

One concern that a binding international arbitration could address is the issue of patenting genes isolated from MLS materials. Article 12.3(d) of the Treaty states that the recipient of the materials from the MLS "shall not claim any IP or other rights that limit the facilitated access to the Material provided under this Agreement, or their genetic parts or components, in the form received from the MLS." This provision is echoed in the SMTA. Opinions of experts vary on whether or not the article allows patenting of isolated genes.

The language of the article was deliberate during the negotiations, in order to present a careful compromise that would be acceptable if a treaty was to be agreed. The vague formulation will be subject to future interpretation. It would seem, however, that patents can be obtained over any isolated genes, but the same will not hinder access to the material in the form received under the agreement. What is critical is for the Treaty to recognize and allow farmers to remain free to practice their rights of saving, exchanging or reusing harvested seeds, and to have access to commercial markets for their varieties and products.

The Annex I list of crops could be expanded, and the issue is likely to be raised at some point in the future by the Governing Body. The European countries have called for the expansion of the list of crops in the Annex if the Treaty is to have maximum impact on world food security. The common pool system of the ITPGRFA is seen as a more efficient way of managing access to genetic resources than the bilateral system under the CBD, as discussed below.

The concern for food security and food sovereignty is material in the issue of Annex I list expansion. This should not, however, ignore the need for a better mechanism for benefit sharing to resource providers which should be negotiated under the Treaty.

B. Convention on Biological Diversity

The CBD was adopted in Nairobi on May 22, 1992, and signed by 150 countries on June 5, 1993 at the UN Conference on Environment and Development in Rio de Janeiro. It entered into force barely 18 months later, on December 29, 1993.

International experts had been promoting the idea of a global convention on biological diversity and working to develop its elements long before the intergovernmental negotiations began under the auspices of the United Nations Environment Programme (UNEP). The IUCN – The World Conservation Union had been exploring the possibilities for a treaty on the subject and from 1984 – 1989 had prepared successive drafts of articles for inclusion in a treaty. Its draft focused on the global action needed to conserve biodiversity at the genetic, species and ecosystem levels, on in-situ conservation within and outside protected areas. (Glowka et al., 1996)

In 1987, the UNEP Governing Council established an ad hoc working group (later renamed as the International Negotiating Committee for a Convention on Biological Diversity [INC]) to investigate “the desirability and possible form of an umbrella convention to rationalize current activities in this field, and to address other areas which might fall under such a convention.” (UNEP Governing Council Res. 14/26 [1987]). The first meeting of the group concluded that the existing conventions are piecemeal in nature, and hence did not adequately meet the needs of conserving biodiversity worldwide. It was the concern of the conservationist that existing international law for the protection of wildlife was a patchwork that covered only selected issues, areas and species (Bragdon, 2004). It was clear, however, that the concept of crafting an umbrella convention, which would absorb or consolidate the existing conventions was politically, legally and technically impossible. In 1990, the ad hoc working group agreed that a new global treaty on biodiversity conservation was urgently needed in the form of a framework treaty, building upon existing conventions (Glowka et al., 1996). Eventually, the Convention’s scope was not limited to conservation and to wild resources. In fact, the agreement embraces an ecosystem approach to conservation which embodies a broader concept of nature and its value, including the full diversity of life at the level of genes, species and ecosystems (Bragdon, Garforth and Haapala, Jr., 2008).

The CBD is the first global agreement that comprehensively addressed all aspects of biological diversity, and recognized biodiversity as the common concern of humankind. Article 3 of the Convention provides that states have sovereignty over their resources. When read in conjunction with Article 15(1), this includes state sovereignty over genetic

resources. This focus on national sovereignty is balanced by duties deriving from sovereignty itself and from the fact that the conservation of biodiversity is a common concern to the entire international community. The responsibility to conserve and use biodiversity sustainably within their jurisdiction is given to States through detailed responsibilities and obligations in Article 6 (General Measures for Conservation and Sustainable Use), Article 8 (In-situ Conservation) and Article 10 (Sustainable Use of Components of Biological Diversity).

In relation to farmers’ rights, the CBD incorporates provisions on access to genetic resources and benefit sharing as well as protection of knowledge, innovations and practices of indigenous and local communities, including encouragement for equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices. The relevant provisions in the CBD are as follows:

Article 8 (j)

Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices.

Article 15

1. Recognizing the sovereign rights of States over their natural resources, the authority to determine access to genetic resources rests with the national governments and is subject to national legislation.
2. Each Contracting Party shall endeavour to create conditions to facilitate access to genetic resources for environmentally sound uses by other Contracting Parties and not to impose restrictions that run counter to the objectives of this Convention.
3. For the purpose of this Convention, the genetic resources being provided by a Contracting Party, as referred to in this Article and Articles 16 and 19, are only those that are provided by Contracting Parties that are countries of origin of such resources or by the Parties that have acquired the genetic resources in

accordance with this Convention.

4. Access, where granted, shall be on mutually agreed terms and subject to the provisions of this Article.
5. Access to genetic resources shall be subject to prior informed consent of the Contracting Party providing such resources, unless otherwise determined by that Party.
6. Each Contracting Party shall endeavour to develop and carry out scientific research based on genetic resources provided by other Contracting Parties with the full participation of, and where possible in, such Contracting Parties.
7. Each Contracting Party shall take legislative, administrative or policy measures, as appropriate, and in accordance with Articles 16 and 19 and, where necessary, through the financial mechanism established by Articles 20 and 21 with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic resources with the Contracting Party providing such resources. Such sharing shall be upon mutually agreed terms.

Under FAO, access to genetic resources was seen as a vehicle for genetic resource improvement, increasing food productivity, and enhancing sustainability of people's livelihoods. Continued efforts of the international community to address these issues resulted in the establishment of the Consultative Group on International Agricultural Research (CGIAR) for purposes of collection, conservation, and provision for use of plant genetic resources through the setting up of gene banks worldwide. This mandate of CGIAR was later transferred to FAO under the IU in 1983. Hence, prior to CBD, access to plant genetic resources was free, as recognized in the IU. Within a few years after the adoption of the IU, countries began to restrict access to genetic resources under their control. During the drafting and negotiations on the CBD, free access to genetic resources was a critical issue. Under the CBD, access to genetic resources is no longer free, but subject to national legislation (IUCN, 2004). The CBD, through Article 15 (1), is the first international instrument that recognizes that the authority to determine access to genetic resources rests with the national government and is subject to national law (Garforth and Cabrera, 2004).

Article 15 is important, therefore, not just for its economic aspects related to benefit-sharing but also for how these are intended to also support the conservation and sustainable use of biodiversity. Article 15 (2) can be seen as a major shift in international law when it states that each Party is to endeavour "to create conditions to facilitate access to genetic resources" because no such obligation to facilitate access existed previously. This also suggests that Parties are to extend special treatment to each other. Moreover, under Article 1, Parties must not place restrictions on genetic resource access that run counter to the CBD's objectives. Unrestricted access to plant genetic resources has long been a prevailing and accepted concept as recognized in the 1983 FAO International Undertaking, but this time the debate over the issue extends to all genetic resources. (Glowka et al., 1996).

Article 15 (4) & (5) also state the general principles on which access must be granted, namely mutually agreed terms and prior informed consent. The phrase "mutually agreed terms" necessarily contemplates a negotiation between the Contracting Party granting access and another entity seeking access to and use of the genetic resources. Paragraph 5 requires that access may be conditional on the prior informed consent (PIC) of the Contracting Party providing genetic resources based on information provided by the potential genetic resource user, and given prior to access being granted.

Paragraph 7 requires the Parties to the CBD to take measures for sharing the benefits from the use of genetic resources with the Party providing access to such resources. The benefits to be shared are: research and development results, and the commercial or other benefits derived from utilizing the genetic resources provided. This list of benefits is expanded in Articles 16 & 19 with the inclusion of access to and transfer of technology using the genetic resources, participation in biotechnological research activities based on the genetic resources, and priority access to the results and benefits arising from biotechnological use of the genetic resources.

Traditional Knowledge, Innovations and Practices

Humans and biodiversity have long been linked and intertwined. Since time immemorial, communities throughout the world progressed by conserving and sustainably managing biological resources in their attempts to adapt to local environmental conditions.

In the process of dealing with their environment, a wide range of knowledge, innovations and practices was developed.

The traditional knowledge of indigenous peoples and local communities can be very valuable in helping to identify genetic resources of potential interest for research programs and product development. Also, because of their long-term association with, as well as sustainable use and management of, their local environment, indigenous peoples and local communities may themselves have contributed to the development of the genetic resources.

The FAO International Undertaking and the CBD processes both highlighted the critical importance of indigenous and local communities' traditional knowledge for the conservation and sustainable use of biodiversity in general. Annex II, FAO Resolution 5/89 of 1989 recognized and internationally established Farmers' Rights, as the rights arising from past, present and future contributions by farmers to the conservation and maintenance of PGRFA, explicitly recognizing the value and importance of farmers (communities') knowledge, innovations and practices related to PGRFA.

Building upon and progressing from the FAO debate, article 8(j) of the CBD has specifically determined that subject to national legislation, Contracting Parties should *"[...] respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the fair and equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices"*.

During the fifth meeting of the **Conference of the Parties (COP)** in 2000, the Parties adopted a program of work for Article 8(j) (decision V/16). The program of work contains a number of elements and tasks concerning participatory mechanisms for indigenous and local communities; the equitable sharing of benefits; monitoring; legal elements; traditional cultural practices for conservation and sustainable use; and exchange and dissemination of information.

In COP 7 (2004), the Parties adopted "Elements of a Plan of Action for the Retention of Traditional Knowledge, Innovations and Practices Embodying Tradi-

tional Lifestyles Relevant for the Conservation and Sustainable Use of Biological Diversity" (part E of decision VII/16). It includes the further development of *sui generis* systems to protect traditional knowledge based on customary laws of indigenous peoples. Efforts emphasized the development of technical guidelines for documenting traditional knowledge; indicators for the retention and use of traditional knowledge; methods and measures to address the underlying causes of the loss of traditional knowledge; and a Code of Ethical Conduct to ensure respect for the cultural and intellectual heritage of indigenous and local communities (SCBD, 2007).

Agricultural Biodiversity

There is no single article in the CBD that deals specifically with agricultural biodiversity. The recognition of the interrelationship between the CBD and the promotion of sustainable agriculture was in Resolution 3 of the Nairobi Final Act by which the final text of the CBD was adopted. Much of the work on agricultural biodiversity under the Convention has been carried out in collaboration with the FAO.

In decision V/5, the scope of agricultural biodiversity was defined to include:

... all components of biological diversity of relevance to food and agriculture, and all components of biological diversity that constitute the agro-ecosystem: the variety and variability of animals, plants and micro-organisms, at the genetic, species and ecosystem levels, which are necessary to sustain key functions of the agro-ecosystem, its structure and processes. (paragraph 1 of the Appendix to Annex 5 to decision V/5)

Further, the COP adopted a multi-year program of work on agricultural biodiversity with the objectives of promoting the positive effects and mitigating the negative impacts of agricultural systems and practices on biological diversity in agro-ecosystems and their interface with other ecosystems; promoting the conservation and sustainable use of genetic resources of actual and potential value for food and agriculture; and promoting the fair and equitable sharing of benefits arising out of the use of genetic resources (paragraph 2 of Annex 5).

Implementation, Compliance and Enforcement
Enforcement of contracts for the utilization of ge-

netic resources is beyond the ambit of the CBD. Developing countries with national ABS systems cannot easily monitor the use of genetic resources once they leave their jurisdiction and ensure compliance with the terms agreed to in a contract. The absence of user measures and mandatory obligations on users of genetic resources in the CBD and Bonn Guidelines as well as the unwillingness of countries that are home to commercial users of genetic resources to place obligations on these users has created a great deal of frustration among developing countries. National ABS policy and legal measures and jurisdictional limitations make control of the flows of genetic resources extremely complicated; therefore, international measures are necessary if the objectives of the CBD are to be fully achieved¹. At the CBD, this resulted in calls for an international legal instrument for regulating ABS, while in WIPO and the WTO it has led to calls for mandatory requirements for disclosure in patent applications.

The **Group of Like Minded Megadiverse Countries**, in particular, has played a critical role in calling for the negotiation of an international regime on ABS within CBD, WIPO and other forums. In 2002, at the World Summit on Sustainable Development, the Johannesburg Plan of Implementation explicitly acknowledged the need for countries to negotiate an international regime on ABS². Also, paragraph 42 (j) of the Plan of Implementation calls for, subject to national legislation, the recognition of “[...] the rights of local and indigenous communities who are holders of traditional knowledge, innovations and practices, and, with the approval and involvement of the holders of such knowledge, innovations and practices, develop and implement benefit sharing mechanisms on mutually agree terms for the use of such knowledge, innovations and practices”. “Although Paragraph 42 includes a qualifier (subject to national legislation), it constitutes another important international recognition of the importance of traditional knowledge and of the need to recognize specific rights over traditional knowledge as well as the need to ensure that if TK is used, benefit sharing effectively takes place with holders of this traditional knowledge.” (Ruiz, 2003).

In COP 7, the Parties authorized the elaboration and negotiation of an international regime on ABS. In 2006, during COP 8, the Ad Hoc Open-ended Working Group on Access and Benefit-sharing was requested to continue the elaboration and negotiation of the international regime and was instructed to complete its work at the earliest possible time before the tenth meeting of the Conference of the Parties (2010). In COP 9 (May 2008, Bonn), Decision IX/12 was issued which welcomed the progress made in the Ad Hoc Open-ended Working Group on Access and Benefit-sharing and decided that the draft international regime shall be the basis for further elaboration and negotiation of the international regime. It likewise instructed the Working Group to finalize the international regime and to submit for consideration and adoption by the Conference of the Parties at its tenth meeting an instrument/instruments to effectively implement the provisions in Article 15 and Article 8(j) of the Convention and its three objectives, without in any way prejudging or precluding any outcome regarding the nature of such instrument/instruments.

Another measure that is being considered by the Parties that could support disclosure requirements is an international certificates scheme. The international certificate shall be provided by the access provider to the user, attesting to the fact that the user gained access in accordance with the provider's rules on PIC and on mutually agreed terms. With these certificates, users could meet any disclosure requirements in the patent system or product approval process, or in the requirements of funding agencies or publishers, and so forth. The Group of Technical Experts on an Internationally Recognized Certificate of Origin/Source/Legal Provenance was convened in 2007 where it explored and elaborated possible options for the form, intent and functioning of such a certificate and analyzed its practicality, feasibility, costs and benefits (CBD, 2007b, paragraph 13). “The Group ‘recognized that the basic role of the certificate is to provide evidence of compliance with national ABS regimes. Thus, it found it practical to refer to the certificate as a certificate of compliance with national law, in accordance with the Convention’ (CBD, 2007b, paragraph 7 of annex).” (Brandon, Garforth and Haapala, Jr. 2008).

¹ For additional details on the proposed international regime see : *International Regime on Access to Genetic Resources and Benefit Sharing* . Note by the Secretariat. UNEP/CBD/MYPOW/6 (Meeting of the Ad Hoc Open Ended Working Group on ABS – 2003).

² Paragraph 44 (o)

The mandatory requirement for the disclosure of origin in patent applications does not sit well with most industry organizations. In particular, the Americal Bioindustry Alliance (ABIA) described its activities as “developing industry positions and programmes to counter the unprecedented global threat to biotechnology patents at the WTO Hong Kong Ministerial Meeting ... and beyond” (Garforth, 2006; see also New, 2006). On the other hand, the industry has a softer stance on certificates. “Industry organizations have a great many questions about how a certificates system may function but may be willing to support some sort of certificates mechanism if it results in legal certainty and does not create undue administrative burdens” (Brandon, Garforth and Haapala, Jr. 2008).

C. UPOV

The UPOV Convention is the first international treaty that recognizes commercial plant breeders’ rights (PBR) over the plant varieties they breed. It, nevertheless, recognizes farmer’s rights as an optional exception to breeders’ rights as provided in the following:

Article 15 - Exceptions to the Breeder’s Right

(1) [*Compulsory exceptions*] The breeder’s right shall not extend to (i) acts done privately and for non-commercial purposes, (ii) acts done for experimental purposes and (iii) acts done for the purpose of breeding other varieties, and, except where the provisions of Article 14(5) apply, acts referred to in Article 14(1) to (4) in respect of such other varieties.

(2) [*Optional exception*] Notwithstanding Article 14, each Contracting Party may, within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder, restrict the breeder’s right in relation to any variety in order to permit farmers to use for propagating purposes, on their own holdings, the product of the harvest which they have obtained by planting, on their own holdings, the protected variety or a variety covered by Article 14(5)(a)(i) or (ii).

The UPOV Convention was adopted in Paris in 1961 and entered into force in 1968 after it had been ratified by three countries – The Netherlands, the UK and West Germany. It was revised in 1972, 1978 and 1991. The 1978 Revision entered into force in 1981, the 1991 Revision in 1998. All members, with the exception of Belgium, are parties either to the

1978 or the 1991 Revisions. New members are required to accept UPOV 1991, although exceptions allowing membership on the basis of the 1978 Act have been made.

The existence of UPOV has been attributed to two international organizations, namely, the [International Association for the Protection of Intellectual Property \(AIPPI\)](#), and the [International Association of Plant Breeders \(ASSINSEL\)](#). AIPPI is an organization consisting of activist legal practitioners, patent attorneys, trademark agents, scientists, engineers and corporations. It was the consensus among the delegates in the 1952 AIPPI Congress that plant varieties should be protected in some way. The German AIPPI group explained that “it is a normal requirement of patentability that other people skilled in the art should be able to reproduce the invention described in the specification (Wuesthoff and Wuesthoff, 1952). That is to say, following the instructions provided in the specification should result in the invention as claimed. But, as they explained, when it comes to plant breeding, being able reliably to reproduce the new variety from the beginning is difficult because it depends on natural processes over which breeders do not have total control and which are to some extent random. However, repeating the whole breeding process is not necessarily important or even necessary. What really matters is that the new plant that has been brought into existence can be directly propagated. For sexually reproducing plants, this means that they must breed true so that the offspring are identical to their parents.” (Dutfield, 2008).

There was, however, no agreement on the means of protection because “some of the patent lawyer members of the AIPPI opposed the patenting of plant varieties on the grounds that doing so would stretch basic patent law concepts like inventiveness to the point of undermining the credibility of the patent system.” In the 1956 Congress of ASSINSEL, its members decided to abandon the patent route and to call for an international conference to consider the possibility of developing a new international instrument for protecting plant varieties. Upon the request of ASSINSEL, the French government convened the International Conference for the Protection of New Varieties of Plants in May 1957 in Paris. The Conference established the basic principles of plant breeders’ rights that were later incorporated into the UPOV Convention. (Dutfield, 2008).

The UPOV Convention establishes plant breeders' rights (PBR) as an intellectual property right, provides a minimum scope of protection for these rights, and allows Parties to take national conditions into account in adopting implementing legislations. It deals with the plant varieties covered, the requirements for protection, the length of the protection term, the scope of protection, breeders' exemption, farmers' privilege, and whether or not both patents and PVP can be held on the same variety. Under the 1991 Revision, 'plant variety' is defined as "a plant grouping within a single botanical taxon of the lowest known rank, which grouping, irrespective of whether the conditions for the grant of a breeder's right are fully met, can be:

- ▶ defined by the expression of the characteristics resulting from a given genotype or combination of genotypes;
- ▶ distinguished from any other plant grouping by the expression of at least one of the said characteristics; and
- ▶ considered as a unit with regard to its suitability for being propagated unchanged."

To be eligible for protection, plant varieties must be new, distinct, stable and uniform. Novelty requires that the variety has not been offered for sale or marketed, with the agreement of the breeder or his successor in title, in the source country, or for longer than a limited number of years in any other country. In order to be a distinct variety, it must be distinguishable from any other variety whose existence is a matter of common knowledge anywhere in the world, implicitly including among traditional farming communities. A stable variety refers to that which must remain true to its description after repeated reproduction or propagation. "The uniformity requirement also shows the specific nature of the UPOV system, since this requirement cannot practically be the same for species with different ways of reproduction; self-fertilizing species can be much more uniform than cross-fertilizing crops. Therefore the uniformity requirement is made relative instead, in other words a new variety should be uniform when compared to the varieties of the same species."

In lieu of the disclosure requirement under the patent system, applicants are required to submit evidence that the variety meets the protection requirements (in the US, for example) or to submit the plant material for which protection is sought to the responsible governmental authority for testing to ensure that the above eligibility requirements

have been met. The scope of protection given refers to the breeder's right to authorize the following acts: 'the production for purposes of commercial marketing; the offering for sale; and the marketing of the reproductive or vegetative propagating material, as such, of the variety'. This was later expanded in the 1991 version in two ways. First, it increases the number of acts for which prior authorization of the breeder is required, namely: 'production or reproduction; conditioning for the purpose of propagation; offering for sale; selling or other marketing; exporting; importing; and stocking for the above purposes'. Second, such acts also encompass harvested material obtained through the illegitimate use of propagating material and so-called essentially derived varieties.

UPOV also upholds the right of breeders both to use protected varieties as an initial source of variation for the creation of new varieties and to market the resulting varieties without authorization from the original breeder (the 'breeders' exemption'). Many plant breeders are concerned about the effects of patents on free access to plant genetic resources, including varieties bred by others. Under the 1991 Revision, rights to varieties are extended to include those which are essentially derived from the protected variety. "So the breeder of PVP-protected variety A has the right to demand that the breeder of variety B secure his or her authorization to commercialize B if it was essentially derived from A. The main idea here is that breeders should not be able to acquire protection too easily for minor modifications of extant varieties produced perhaps through cosmetic breeding or genetic engineering, or free-ride without doing any breeding of their own, problems that the increased application of biotechnology in this field appeared likely to exacerbate." (Dutfield, 2008)

Farmer's Rights

The original text of the Convention implicitly created a "farmer's privilege," where farmers were allowed to save seed from a protected variety to use from one crop to the next without paying additional royalties due under the Plant Breeders' Rights, as long as the seed was not sold. Under the Convention, the breeder's prior authorization is required for at least three acts, namely, the production for purposes of commercial marketing; the offering for sale; and the marketing of the reproductive or vegetative propagating material, as such, of the variety. Countries that are members of the 1978 Convention are free to either uphold farmers' rights or elimi-

nate it. All UPOV member countries implemented the exemption for “private and non-commercial use” under the 1978 Revision to include the re-sowing and in some cases the local exchange or sale of seed. The 1991 Revision technically eliminated the privilege, but gave Parties the option to recognize it by limiting the scope of the PBR in national legislation. In the said version, although the scope of the breeder’s right includes production or reproduction and conditioning for the purpose of propagation (Article 14), governments can use their discretion in deciding whether to uphold the farmers’ rights which includes only the use of saved seed on the same farm (and thus excludes any type of exchange or sale of such seed) (Article 15).

The EC Regulation 2100/94 on Community Plant Variety Rights “restricts farmers’ privilege to certain crops, and breeders must be remunerated through the payment of royalties unless the users of the farmers’ privilege are small farmers, in which case they are exempted.... The US’s [Plant Variety Protection (PVP)] rules are less strict in this regard: seed saving must be restricted to the amount necessary for on-farm replanting, but it is not clear how the legitimate interests of the breeder are implemented since royalty payments on farm-saved seed are not required.” (Dutfield, 2008)

The diminution of the freedom of small farmers to use saved seed will not be good for them. The practice of saving, selling and exchanging seed among a very large portion of the farming population has been common in most developing countries and is essential for their survival.

PVP does not encourage breeding dealing with minor crops, which many small farmers cultivate, but targets major crops with significant commercial potential. As such, PVP is said to contribute more to and “encourage the development of monocultures of single agrochemical-dependent varieties, with the result that the range of nutritious foods available becomes narrower, and replace traditional diverse agro-ecosystems, consisting of a wide range of traditional crop varieties.” The UPOV system allows on-farm replanting, but it is limited to the freedom of farmers to buy seeds only from original breeders or their licensees. On the other hand, “non-PVP protected seeds or the traditional varieties are often disparaged and are likely excluded from government-approved seed lists that some countries maintain under their seed regulations. This limits necessarily the choices of farmers” (Dutfield, 2008).

Benefit Sharing

UPOV is not amenable to any revenue sharing mechanism that would ‘impose an additional administrative burden on the authority entrusted with the grant of breeders’ rights and an additional financial obligation on the breeder when varieties are used for further breeding’ UPOV believes that such a mechanism would run counter to the breeders’ exemption in the UPOV Convention.

D. TRIPS

The Agreement on Trade-Related Aspects of Intellectual Property Rights, also known as TRIPS, is the first international agreement that set minimum levels of protection to the creator of intellectual property covering the areas of copyright and related rights, trademarks, geographical indications, industrial designs, patents, and layout designs of integrated circuits, and include IP protection in international trade regime. Furthermore, under the TRIPS Agreement, Members are given the option to offer patent protection to all eligible inventions using genetic resources. It also extends mandatory protection to eligible inventions of micro-organisms. Moreover, it has been agreed upon that plant variety protection will have to be provided either by patent, some other *sui generis* system, such as PBRs, or a combination of both. Finally, Members have the option to exclude from patenting plants, animals and essentially biological processes for their production.

The provision in the TRIPS that has significant impact on agriculture, biodiversity and food security is Article 27.3 (b):

Members may also exclude from patentability:

(b) Plants and animals other than microorganisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by any effective *sui generis* system or by any combination thereof. The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement.

It may be difficult to imagine intellectual property rights (IPRs) relation to international trade, but trade in technology, which in many cases is protected by IPRs, has always been important to the economies of many countries. This relationship between IP

protection and international trade was already controversial at the birth of the modern international IP system. This was the situation when the first attempt to negotiate an international understanding on the protection of patents was made in the last quarter of the 19th century. The free traders argued that the recognition of patents in different national jurisdictions constituted trade barriers. The compromise made in those days was that each member country of the 1883 Paris Convention

Farmers' rights is the articulation of the need to protect the age-old agricultural practices of ordinary (mostly local rural farmers), especially in light of the continuing onslaught of protectionism on the side of large commercial interests

for the Protection of Industrial Property (patents, trademarks, utility models, industrial designs and unfair competition) countries could decide that if you did not produce what was patented in the country where the patent was sought, then the patent could be revoked or be subject to use by third parties via a compulsory license.

Another major instrument, the **Berne Convention** (1886) dealing with copyright, was adopted in the late 19th century that further strengthened international governance of IP. In the 20th century, much development happened in international IP, mainly in copyright and related rights, patents, trademarks, industrial designs and geographical indications, and agreements on the facilitation of IP protection in third countries, like the **Patent Cooperation Treaty** and the **Madrid System for trademarks**.

In the 1970s, many developing countries, including newly independent countries in Africa and Asia, questioned the international system and its relevance in developing countries for the dissemination of knowledge, access to advanced technologies and control of abuses of IP by right holders. A revision process for the Paris Convention was also initiated by a group of developing countries to respond to their concerns in the World Intellectual Property Organization (WIPO). However, all efforts to meet the objectives were unsuccessful. Similarly, in the Tokyo Round of the **General Agreement on Tariffs and Trade (GATT)** in 1970, a group of developed countries led by the US emphasized the

need for a code that will address trade in counterfeit goods, but no agreement was reached.

Also in the 1970s, particularly during the Reagan administration, a link was made in the US Trade Act between international trade and the protection of the interests of US firms in their IP dealings in third countries. Commercial sanctions were used to threaten countries that did not adequately protect IPRs from US titleholders.

WIPO's shortcomings in dealing with the enforcement of IPRs and the paralysis produced in the attempt by developing countries to revise the Paris Convention, together with the persistence by industrial groups for international IP measures in the US, Europe and Japan offered the opportunity for the major industrialized powers to claim that the IP system should be fully integrated in the new multilateral trading system that was taking shape in the second half of the 1980s.

The inclusion of IP within the WTO as well as the insistence for patent reform were further reinforced by the Draft Treaty Supplementing the Paris Convention as far as Patents are Concerned. In 1983, the Director General of WIPO launched a negotiating process for a patent law treaty within an expert committee, a process that continued from 1984 to 1991. The committee gradually expanded the limited initial scope of the treaty to cover other areas of patent harmonization. This process resulted in a diplomatic conference held in The Hague by the end of 1991. Many of the issues opposed by developing countries in The Hague Diplomatic Conference were finally accepted in the Uruguay Round negotiations on TRIPS because the final deal would be a single undertaking – which meant that countries had to accept all elements of the packets agreed (such as agriculture, services and textiles), even if they really only wanted some of them. The developing countries had no choice and had to agree to everything in the negotiating package. IP mat-

ters were finally fully incorporated in the newly established WTO. The TRIPS was part of the **Marrakesh Final Act of 1994**. TRIPS, with different modalities of application, entered into force on 1 January 1995.

Setting international standards for the protection of IP and its inclusion in the trade regime has always been pushed by developed countries. They “have argued that worldwide disparities in IP protection create barriers to trade by among other things allowing, for example, patented technology to be copied at a fraction of the cost required to originally research and develop it. It was their argument that the Paris Convention for the Protection of Industrial Property does not provide enforceable, minimum patent rights pursuant to internationally agreed rules, but only guarantees a right to national treatment; requires no specific subject matter protection; and, allows too freely compulsory licensing which, in certain specified instances, allows a patent to be used without the permission of the owner.” Developing countries, on the other hand, have argued that IPRs impede technology transfer and, consequently, impede development. It was their position that the level of patent protection should be tailored to a country’s economic and technological development and should, therefore, be determined nationally. (Glowka et al., 1996)

The negotiations on the TRIPS Agreement were dominated by a core group of developed countries, led by the US. Among that core group, it was the US that clearly advocated a strong position on including IP issues in the GATT system. It was the position of the US that the improvement of IP should be a GATT objective because inadequate protection of IPRs in a number of countries posed serious and growing trade-related problems. The US position essentially represented the interests of a number of large corporations from a few sectors, some of whose lobbyists helped draft the initial proposals (Sell, 2003). These lobbies also mobilized industry groups in the EU and Japan to support the TRIPS proposals.

On the other side, the developing countries, led by Brazil and India, opposed this expansive approach to IP. The developing countries believed that the protection of IPRs was a non-GATT issue and that consequently it was outside the realm of trade negotiations. From the beginning of the negotiations, developing countries were opposed to incorporating substantive standards of IPR protection in GATT.

However, based on the **Punta del Este Declaration**, there was acceptance of basic protection against trademark counterfeiting and copyright piracy. The initial resistance of developing countries to broader IPR standards was overcome through a combination of concessions offered by developed countries in areas such as agriculture and textiles and by threats of trade sanctions

The significant features of the TRIPS are as follows:

- ▶ It has a comprehensive coverage that includes the major IP disciplines through the establishment of minimum standards in each of them.
- ▶ It includes, for the first time, disciplines related to the enforcement of IP rights. WTO Members are required to set up mechanisms that would guarantee, through administrative procedures and civil and criminal procedures, including border measures, the appropriate means for the domestic enforcement of those rights.
- ▶ IP is incorporated into the international GATT-style trading system. This means that the most favoured nation (MFN) treatment among Members now applies to IP international treaties. Moreover, WTO principles for effective and expeditious procedures for the multilateral prevention and settlement of disputes between governments cover IP treaties as well.

TRIPS and Genetic Resources, Traditional Knowledge and Food Security

Article 27.3(b), also known as the “biotechnology clause”, of the TRIPS Agreement is one of the most controversial issues covered by the Agreement. The clause describes inventions that Members may exclude from patentability while, at the same time, specifically obliging them to protect micro-organisms and certain biotechnological processes. It allows for the exclusion from patentability of “plants and animals” in general. Consequently, Members may exclude plants as such (including transgenic plants), plant varieties (including hybrids), as well as plant cells, seeds and other plant materials. They may also exclude animals (including transgenic) and animal breeds. The patentability of inventions relating to plants and animals is left to the discretion of the Members, but microorganisms are subject to patent protection under the TRIPS.

For many developing countries, the provision has implications on the provisions of the CBD and on prior informed consent and benefit sharing that they feel uncomfortable with. The African Group in the

WTO has consistently raised concerns about the implications of this provision on life forms. It is their view that there should not be a possibility, within the framework of the TRIPS Agreement, of granting patents on micro-organisms as well as on non-biological and microbiological processes for the production of plants and animals (Roffe, 2008).

Moreover, the article requires Members to provide protection for 'plant varieties.' *While the Agreement is flexible about the form of protection of plant varieties, it is definite on the introduction of protection in an area in which most developing countries had none before the adoption of the Agreement. This obligation has raised concerns in some of those countries about the impact of IPR protection on farming practices (particularly the reuse and exchange of seed by farmers), genetic diversity and food security* (UNCTAD-ICTSD, 2005).

Protection of plant varieties under the Agreement may either be by patents or by an effective *sui generis* system or by any combination thereof. Protection by patent is straightforward because of the detailed treatment in the TRIPS. Protection by a *sui generis* system remains vague since this is not established in the text of the Agreement. In the report of the UK Commission on Intellectual Property Rights (IPRs Commission, 2002), it was concluded that developing countries should explore all the flexibilities provided by TRIPS and use different forms of *sui generis* systems for plant varieties. It recommended that:

Developing countries should generally not provide patent protection for plants and animals, as is allowed under Article 27.3(b) of TRIPS, because of the restrictions patents may place on use of seed by farmers and researchers. Rather they should consider different forms of *sui generis* systems for plant varieties.

The WTO Review Process of Article 27.3(b)

The TRIPS Agreement provides for a built-in review process that started in the TRIPS Council in December 1998. Members that were already under the obligation to fully implement the Agreement were requested to provide information on how the obligations under Article 27.3(b) had been addressed in their national legislation. Pursuant to the Doha Ministerial Declaration of 2001, two new related issues were incorporated into the agenda of the TRIPS Council, namely the relationship between the

TRIPS Agreement and the CBD and the protection of traditional knowledge and folklore.

In the TRIPS Council the review of Article 27.3(b) focused on patents, *sui generis* protection of plant varieties and transfer of technology. The discussions on patents centered on whether or not patent protection should be extended to plant and animal inventions. Australia, China, Japan, Singapore, Switzerland and the US argued in favor of extension of patent protection, while the African Group, led by India and Kenya, vehemently opposed the same. The various approaches raised in the Council on Article 27.3 (b) were as follows:

1. Exceptions to Article 27.3(b) are unnecessary and patent protection should be extended to all patentable inventions of plants and animals (US, Singapore).
2. Article 27.3(b) should be maintained as it permits countries to exclude plants and animals from patentability (Australia, Canada, China, Korea, the EC, Japan, Switzerland, Brazil).
3. Exceptions to Article 27.3(b) must be retained but subject to clarification or definition of certain terms, including the difference between plants, animals and micro-organisms (Brazil, India, Peru, Thailand, Zimbabwe).
4. Article 27.3(b) should be amended or clarified to prohibit the patenting of all life forms (Bangladesh, India, African Group)

The discussions on the *sui generis* protection of plant and animal varieties centered on the various arguments in favor of and against such protection. Some Members propose that a reference to the UPOV Convention could be included under Article 27.3(b). There are others that suggest that the minimum protection provided should be by any 'effective' *sui generis* system. Other issues include the relationship between the TRIPS requirement to have an effective *sui generis* protection system and the UPOV Convention and the relationship between the *sui generis* protection of plant varieties and traditional knowledge and farmers' rights.

The implications of patent protection for life forms and *sui generis* plant varieties protection for access to and transfer of technology have likewise been considered in the TRIPS Council.

During the review of Article 27.3 (b), other issues have been identified as significant for discussion for purposes of complete review of the article. These issues include the following:

1. The relationship between TRIPS and the CBD

The discussions revolve around the different opinions with respect to the relationship between the provisions of TRIPS and CBD. Developing countries believe that the two agreements are inconsistent because of possible granting of IPRS, based on or consisting of genetic resources, without observing the prior informed consent and benefit sharing obligations required in the CBD. They have repeatedly voiced concern about possible misappropriation of their genetic resources by developed country patent applicants. In order to address this issue, the proposal to amend the TRIPS was raised so as to require an applicant for a patent relating to biological materials or traditional knowledge to provide, as a condition for obtaining the patent:

- ▶ disclosure of the source and country of origin of the biological resource and of the traditional knowledge used in the invention;
- ▶ evidence of PIC through approval by authorities under the relevant national regime; and
- ▶ evidence of fair and equitable benefit sharing under the relevant national regime.

Developed countries, however, find the two treaties compatible. For the US, the proposed disclosure requirement is not an appropriate solution; rather Members should focus on remedies such as the use of organized databases, information material to patentability, and the use of post-grant opposition or re-examination systems as an alternative to litigation. Since the adoption of the WTO Doha Ministerial Declaration the issue has been included in the agenda of the TRIPS Council and is the subject of parallel 'dedicated consultations' under the responsibility of the Director General of the WTO.

2. The protection of traditional knowledge and folklore

The main issue concerning the protection of traditional knowledge and folklore deals with the questions of the right forum or for protection for traditional knowledge and the real need for international action on this matter. For developing countries, there is no other forum that could provide the appropriate means for the enforcement of these rights other than the WTO.

On the other hand, developed country-Members think that the issue is not ripe for international action and insist that the matter should be dealt with under WIPO auspices, i.e. in the International Committee on Genetic Resources, Traditional Knowledge and Folklore, or IGC.

3. National implementation of the TRIPS obligations

The patentability of biotechnological inventions and life forms is tackled in different ways in national laws, or is not tackled at all in others. For most developing countries, change in their national law is necessary, since most of them did not opt to protect plant varieties and life forms such as micro-organisms at the time of negotiation and adoption of the Agreement. Many of the developing countries have joined or are in the process of joining UPOV. Other countries have explored the development of non-UPOV modes of protection such as the Indian Plant Variety Protection and Farmers' Rights Act passed in 2001 and Peru's legal system for the protection of traditional knowledge associated with biodiversity. In Peru's legal system, indigenous and local communities can assert their rights over collectively held knowledge. For this purpose, the law obliges interested parties to obtain the PIC of those communities providing the biodiversity-related knowledge.

Interplay of International Regimes

CBD and the ITPGRFA

The CBD and ITPGRFA both require Parties to adopt national legislations or other measures to facilitate access to genetic resources and equitably share the benefits of their use. The CBD is centered on the recognition of national sovereignty over genetic resources. Hence, it provides a minimum framework for regulating ABS and leaves it to individual Parties to determine what their regulatory frameworks will cover and what procedures will have to be followed. The ITPGRFA deals only with plant genetic resources for food and agriculture, and thus, is more specific than the CBD. It establishes a list of food crops and forages and sets up a Multilateral System to govern access to the genetic resources they contain.

The ITPGRFA maintains that agriculture does not function well under bilateral, private sector and market forces approaches, but that agriculture is better served under a more "communal access" approach. Although the ITPGRFA is also based on the concept of national sovereignty, sovereignty is exercised in such a way as to maintain a relatively open system. It focuses on maximizing the public goods aspects of PGRFA. Its MLS "pools" these crucial plant genetic resources in a managed commons and makes them available under the **Standard Material Transfer Agreement (SMTA)**. Because these

genetic resources are pooled, there is no need for individual negotiations for ABS. Under the ITPGRFA, decisions are also expected to be made collectively and the benefits must be shared in a pooled, multi-lateral manner, under the direction of the Governing Body (Rajotte, 2008).

Consistent with its recognition of national sovereignty over genetic resources, the CBD's system consists of case-by-case determinations on ABS. Under the ITPGRFA, access should be fast and efficient, without the need to track individual accessions, either free or at minimal cost, and a standard material transfer agreement will be the document that sets out the terms for ABS. CBD allows discretion on this matter to the sovereign States.

The CBD talks about obligations for Parties to act in areas that are referred to as "monetary" and "non-monetary" benefits –incentives, research and training, technology transfer, information exchange, and financial resources. It states that technology transfer should be made on mutually agreed terms and that Parties should cooperate and facilitate research, training and information exchange, but Parties are left free to determine how that should be done. The ITPGRFA is more definite in terms of benefits that must be shared for using the plant genetic resources listed. These are exchange of information, access to and transfer of technology, capacity-building, and trust account for receiving and disbursing financial resources. The PIC and mutually agreed terms requirements under the CBD are incorporated in the MLS.

The rules of the MLS apply to countries that have ratified both the CBD and the ITPGRFA to those seeking to access the PGRFA list (Annex I of ITPGRFA) and the rules of the CBD to all other genetic resources. Countries that have only ratified the CBD, however, have no obligation to make the Annex I PGRFA available under the MLS and so can continue to apply the CBD rules for those seeking access to these resources. Parties to both ITPGRFA and CBD can actually choose the ABS system that will govern them, and since it is easier to go through the ITPGRFA system, it may always be the choice of most plant genetic resource users. Moreover, since the use of a plant genetic resource for purposes other than for food and agriculture is not always

clear, the applicability of the rules will be dependent on the choice of the resource user. It is possible, therefore, to have the same genetic resource subject to a different approach to ABS (CBD versus ITPGRFA) depending on the country in which it is located.

The ITPGRFA and TRIPS

The TRIPS Agreement is, undoubtedly, likely to have an impact on the ability to easily access or freely exchange genetic resources for food and agriculture and related technologies. However, the issues arising between ITPGRFA and TRIPS largely reflect the ongoing global debates on the relationship between genetic resources and IPRs.

Under ITPGRFA, it is acknowledged that access to genetic resources shall be consistent with the adequate and effective protection of IPRs and relevant international agreements³. Unlike the CBD, however, which sees the possibility of actively using IPRs to further its objectives, ITPGRFA "is more wary of their effects on its own objectives – prohibiting their use in the case of materials from the MLS to the extent that they would prohibit access to the materials in the form received, tolerating them where they will not constitute obstacles to access, and layering on an obligation to share financial benefits when they do. If countries sign agreements that oblige them to do away with breeders and research exemptions, the financial benefit-sharing clause of ITPGRFA will be triggered more frequently. That is the most immediate nexus between TRIPS and possible future UPOV amendments. Although the interactions may be somewhat different, it is expected that the IPRs–genetic resources nexus in the context of the Treaty will evolve along similar paths as in the CBD, with the highly polarized positions (loosely along North–South lines) manifesting themselves."

CBD and TRIPS

Article 27.3 (b) of TRIPS on patentability of life forms is the focus of debates on the relationship with the CBD and the protection of traditional knowledge. It has been the clamor of some developing country WTO members to amend 27.3 (b) by requiring proof of origin of biological and genetic resources and

³ Articles 12.3(f) and 13.2(b)(iii)

associated TK, of prior informed consent for access to them, and of arrangements for sharing the benefits of their use. Any amendment that would potentially restrict intellectual property rights, however, is being opposed by most developed country WTO members, but the latter do not dispute the need, or the right, of developing country members to protect TK. Another debatable issue under TRIPs that is potentially related to ABS is the question of incentives for transfer of technology to least developed countries (IUCN 2004, p.54).

The other TRIPs provisions that have an impact on ABS include:

- ▶ 27.2, exclusion from patentability on the grounds of public order or morality;
- ▶ 29, disclosure requirements as conditions for patent applications;
- ▶ 32, judicial review of a decision to revoke a patent; and,
- ▶ 62, standards for procedures.

CBD and UPOV

The Council of UPOV has adopted a position on ABS 'in order to provide some guidance on UPOV's views on the "process, nature, scope, elements and modalities of an international regime on access to genetic resources and benefit sharing"' (UPOV, 2003, paragraph 5). The position states opposition to the following:

- a. to mandatory disclosure of origin as a condition for obtaining plant variety protection as this would be contrary to the terms of the UPOV Convention (paragraph 8).
- b. to any certification requirements that would be a mandatory precondition to obtaining plant variety protection (paragraph 10).
- c. to any revenue sharing mechanism that would 'impose an additional administrative burden on the authority entrusted with the grant of breeders' rights and an additional financial obligation on the breeder when varieties are used for further breeding' (paragraph 12). UPOV believes that such a mechanism would run counter to the breeders' exemption in the UPOV Convention (Rajotte, 2008).

ITPGRFA and UPOV

Under Article 13(d) of the ITPGRFA, a recipient that sells a PGRFA product incorporating material from

the multilateral system must pay monetary benefits from commercialization for the following: (1) he/she owns a patent on the product and there is no exemption in the patent law of the relevant jurisdiction that would freely allow others to use it for further research and breeding, or (2) if access to using the new PGRFA product for research or breeding is blocked through technological means and/or by restrictive contractual provisions. However, PGRFA products protected under UPOV Convention-compliant laws (or more flexible *sui generis* models), which include research and breeding exemptions, would not trigger the benefit sharing mechanism.

Continuing Discourse on Farmers' Rights

Farmers' rights is the articulation of the need to protect the age-old agricultural practices of ordinary (mostly local rural farmers), especially in light of the continuing onslaught of protectionism on the side of large commercial interests. In the international arena, the issue becomes more expansive to encompass *food sovereignty*, that is 'based on the human right to food, to self-determination, on indigenous rights to territory, and on the rights of rural peoples to produce food for local and national markets. Food sovereignty defends agriculture with farmers, fisheries with artisanal fishing families, forestry with forest communities and steppes with nomadic pastoralists.' At the *Nyéléni 2007 Forum for Food Sovereignty in Mali* (see www.fao.org/righttofood/; www.nyeleni2007.org), the participants identified six pillars of food sovereignty: it focuses on food for people, values food providers, localizes food systems, puts control locally, builds knowledge and skills, and works with nature (Tansey, 2008).

Food sovereignty is as alternative to food security, and refers to work combating world hunger. Food security has become a "Trojan Horse" for creeping corporatization of the global food system. On the other hand, food sovereignty "valorizes common sense principles of community autonomy, cultural integrity, and environmental stewardship – i.e. people determining for themselves just what seeds they plant, what animals they raise, what type of farming occurs, and what they will ultimately eat for dinner. In fact, some would argue that genuine food security is impossible without first achieving food sovereignty." (Peck, 2005)

Advocates of food sovereignty argue that simple access to food is not enough: what's needed is access to land, water, and resources, and the people affected must have the right to know and to decide about food policies. Food is too important to be left to the global market and the manipulations of agribusiness: world hunger can only be ended by re-establishing small and mid-sized family farms as the key elements of food production. (Angus, 2009)

Food sovereignty does not require economic isolationism or a return to an idealized rural past. It is a program for the defense and extension of human rights, for land reform, and for protection of the earth against capitalist ecocide. In addition to calling for food self-sufficiency and strengthening family farms, the call for food sovereignty includes these points:

- ▶ "Guarantee everyone access to safe, nutritious and culturally appropriate food in sufficient quantity and quality to sustain a healthy life with full human dignity.
- ▶ Give landless and farming people — especially women — ownership and control of the land they work and return territories to indigenous peoples.
- ▶ Ensure the care and use of natural resources, especially land, water and seeds. End dependence on chemical inputs, on cash-crop monocultures and intensive, industrialized production.
- ▶ Oppose WTO, World Bank and IMF policies that facilitate the control of multinational corporations over agriculture. Regulate and tax speculative capital and enforce a strict Code of Conduct on transnational corporations.
- ▶ End the use of food as a weapon. Stop the displacement, forced urbanization and repression of peasants.
- ▶ Guarantee peasants and small farmers, and rural women in particular, direct input into formulating agricultural policies at all levels." (Angus, 2009).

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Farmers' Rights as Human Rights

BY **DANTHONG BREEN**

The rights of farmers are an expression of human rights which take account of the special circumstances of the life of farmers.

The rights of farmers are based on the philosophy of human rights expressed in the first article of the Universal Declaration of Human Rights (UDHR): "All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood."

The rights of farmers could be summed up by answering the following questions:

Are farmers free?

Are they equal to others in society, with equal opportunities and protection?

Is there a dignity to the life of farmers?

Farmers have the right of self-determination based on their own reason and conscience. The human community depends on farmers for the basis of life. The relationship must approximate that of brotherhood. Whatever the commercial structure of need and supply it can never be exploitative, or ruled only by so called "free market values."

Human rights are not based on a contractual agreement such as might hold between a manufacturer and a customer, or between the members of a voluntary association. The rights exist even in a state which is not a member of the United Nations. The most basic of rights, such as the right to life, liberty, and security, are inalienable. It is abhorrent to observe the denial of these rights to farmers, because their legitimate claims as farmers conflict with the interests of others. Abuse of these basic rights constitutes a crime against humanity and is indictable at any place and at any time.

Human rights as enumerated in the UDHR articles 4 to 21 relate to civil and political rights common to all citizens. They include freedom from slavery and servitude, freedom from torture, the right in justice to be presumed innocent, the right to freedom of opinion and expression, the right to take part in government and to have equal access to the public service of one's country. In the case of every member of the United Nations which has appeared before the Human Rights Council for assessment of fulfillment of its obligations regarding human rights, no nation has ever escaped criticism of its record. The task of winning rights for farmers and other citizens is unending.

MR. DANTHONG BREEN, chairperson of Thailand's Union for Civil Liberties (UCL), engages in the struggle for the right to life. He describes himself as "a student of color and chaos." Mr. Breen is also one of the founding members of SEARICE.

It would appear that the Universal Declaration was not written by farmers.

While the content is extraordinarily inclusive, the formulation is clearly bourgeois, and at best envisages citizens who belong to skilled or industrial labor.

Economic, social, and cultural rights to which everyone is entitled “as a member of society” are listed in articles 23 to 27 of the UDHR. While these rights are indispensable to human dignity, their operation depends on national effort and international cooperation. However, the resources of States differ and the levels of achievement are not the same everywhere.

The article having greatest promise to provide security to farming life is Article 25:

“1. Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.

2. Motherhood and childhood are entitled to special care and assistance. All children whether born in or out of wedlock, shall enjoy the same social protection.”

Economic, social, and cultural rights include the right to social security, the right to work, the right to equal pay for equal work, the right to rest and leisure, the right to a standard of living adequate for health and well-being, the right to education, and the right to participate in the cultural life of the community.

What do Farmers’ Rights consist of?

It would appear that the Universal Declaration was not written by farmers! While the content is extraordinarily inclusive, the formulation is clearly bourgeois, and at best envisages citizens who belong to skilled or industrial labor. Prominent in the drafting of the Declaration were the patrician Eleanor Roosevelt, who chaired the Commission on Human Rights, and the French jurist, Rene Cassin, who composed the first draft over a long weekend. It was not a time when the “people” were consulted about their interests!

Among the countries debating the draft were the U.S. whose terrible experience of the destruction of farming life after the Great Depression has been described in Steinbeck’s masterpiece, “The Grapes

of Wrath.” While the U.S. is the major exporter of agricultural produce, farm workers have been reduced to 1 percent of the population. One cannot even refer to the workers in agriculture any longer as farmers; theirs is not a life of dignity and self-determination where intelligence and conscience create a life style.

It was unlikely that the Soviet delegate would speak of the rights of a peasant class which had been sacrificed by Stalin—in the years of forced collectivization—with the aim of replacing them by a noble industrial working class that supplied the icons of the New Russia. The First World War had been fought by basically peasant armies that were sacrificed by the millions as so much cannon fodder. The Second World War was fought with machines, tanks, aircraft, heavy weaponry, ships. The loss in human life was much less than in the first war, but the true battle fields were the factories where a new industrial work force was forged. It was this new class of worker that demanded a return for their sacrifice and post-war politicians were aware that the aspirations of the members of this class must be met and their rights granted. Farmers became more and more a minor class, a quaint relic of a bygone age, whose turn would also come to be swept into factory-like farms where individuality would not be required and whose needs could be satisfied with adequate wage and reasonable leisure time.

Nevertheless, the principles of human rights were identified and it is not an impossible task to reformulate them to express the rights due to farmers. The original declaration is an ideal of the setting of basic principles rather than an attempt to cover details which would vary with location and require continual revision. However, while the reformulation is possible, the change of structure in society to make the application of these rights possible is an altogether greater task which will take long to fulfil.

Consider the right to education. In the developed and newly developing world, this would be interpreted as access by the children of farmers to the three levels of education. Recall the appearance of an elementary rural school in any less-than-developed country. If the school exists at all in a remote area, different grades and ages are combined under one teacher. Perhaps all are under a single teacher, or three classes might be under one teacher and three more under another. We have images of such schools in rural China where a stub of chalk is

a treasure to be husbanded, of children in Africa crowded on rough benches, learning by rote, without book or writing material. We know of schools where children have nothing to eat at midday, or who remain at home to avoid the shame of being shoeless or having no food to carry with them. Schools are few and far between so that children travel far on poor roads. The cycle of the school year ignores the cycle of the farming year where child labor is required at the planting or harvest seasons. Does the curriculum of education bear any relation to the life and culture of farmers? Rather it is heavy with content in areas of culture where the farmer is considered stupid, and educational content is ignorant of the wisdom of farmers themselves. Lu Shun, the revolutionary Chinese writer, wrote ironically of the stupidity of the peasant compared to the cleverness of a dog in towns, which had at least mastered the technique of crossing the road.

It is hardly necessary to pursue the principle of the right to education to secondary and tertiary level. In Thailand, graduates of provincial secondary schools can never compete with Bangkok contemporaries in gaining entrance to universities. There have been schemes to transplant rural students to urban universities with the argument that in an extra year of study they will overcome the deficiencies of their rural education at lower levels. They are dubbed "water buffaloes" by smarter urban students and, at best, gain an education which is a passport to exit rural life forever. Even when graduates from nursing schools, teachers training, technical, or agricultural colleges, return to serve rural communities, they enter rural society as a separate class of government servant. To realize even this single right for farmers is taking generations to achieve, and in truth is leading nowhere. In the suburbs of Tokyo, as in the province of Ayutthiya in Thailand, the elderly are abandoned on their farms as their sons and daughters opt for life on an assembly line which promises an assured wage and clearly defined working hours. They did not guess that the day would come when the lines cease to assemble while the need of land to produce food survives. To resume, the realization of any human right in a concrete context is no trivial task.

One could consider in equal detail the other universal rights. How far off from adequate health care are communities who live their lives without ever encountering a dentist, or even a medical doctor?

The Right to Land--Central to the Fulfillment of Farmers' Human Rights

When we come to the issue of land ownership we are at the heart of the matter of farmers' rights as a fulfillment of human rights. Article 7 asserts the right to own property! But property is one thing, land is another. I do not know the exegesis of this article. It may well be the compromise made with socialist countries unwilling to grant that ownership of a means of production could be an individual right. But the longing to OWN land is an atavistic longing for security and dignity which should be recognized. The right to own productive property overlays with the right to a just income which from the point of view of farmers' rights is very inadequately formulated in Article 23. What meaning does it have for a farmer to measure the right to free choice of employment before the right to just and favorable remuneration? And what, in the context of the life of a farmer, is the meaning of "equal pay for equal work"?

The occupation of farming is in crisis worldwide. Education and an escape from the misery of poverty have become synonymous with an escape from farming. Even in the most developed countries, farming is seen as a dead-end life. In Europe, there are farms which still project the image of an idyllic and independent life style, but where the reality is a life of indebtedness and unending drudgery, where suicide rates are higher than in any other occupation. At the other end of the scale are the under-developing countries sunk in a misery of life which is lower than classic slavery. Ownership of land which depreciates in value can mean little other than a halter of debt for mortgaged land. The tenant farmer or share cropper is at the bottom end of the scale of misery.

Rivers of blood have flowed in response to the slogan, "land or death," "land to the tiller." They call for an ancient right which remains unfulfilled. It may seem that the ownership of land is not always necessary; land can be leased, labor can be hired, technology can be bought. There are cooperatives or communes. Russia and China made vast experiments in the common ownership of land. But the needs of farms change, there is need to combine different plots, to dispose of some of the land. To meet such adaptation, China continues to make changes in the form of title deeds which depart from a socialist model and approach closer to the

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disposability of capital land holdings. Certainly, in the developing world there is no social structure which replaces the ownership of land as a source of income and security. In a moving documentary from Argentina which portrays the destruction of people's lives by globalization, farmers are shown endlessly singing the national anthem to block the auction of their lands lost in bankruptcy. The ownership of land remains an anchor of the human rights of a farmer.

The ownership of land has a spatial and temporal dimension. The acquisition of fields unites disparate units, allows access, provides water resources. The task of building up a viable farm may take generations of inheritance, marriage dowries, and the rest. It does not follow the roulette-like rhythm of the stock market or of start up companies. The comparison broaches on another dimension in the saga of farmers' rights.

Farmers' Right to Land and the Universal Declaration of Human Rights

One must affirm that the right to land is part of the rights of farmers, and with an urgency which makes it a matter of life and death. Once a farming community is destroyed it cannot be replaced. Examining the classical instruments defining human rights, one may conclude that the rights of farmers are contained in the Universal Declaration and its derived conventions. These rights are expressed in the clearest detail in Articles 6 to 15 of the Convention on Economic Social and Cultural Rights. Article 6 recognizes the right to work; Article 7 promises just and favorable conditions of work. The right to form

unions is declared in Article 8, social security and insurance in Article 9. Article 10 guarantees the widest possible protection and assistance for the family, especially mothers, children, and young persons. The standard of living must be adequate, with the highest attainable standard of physical and mental health. Education and participation in cultural life are the rights of all. There is an assumption that such rights must somehow be provided for those in an urban setting and with lives ordered by industrial rhythms. But rural people are considered to lead chaotic lives with indefinable needs and who must manage for themselves as best they can, enjoying quaint traditional dances when the harvest has been gathered in. While it is true that rural services may operate on more restrictive timetables due to the lesser numbers, nevertheless, there can be no compromise on the essential quality of services provided by the State which must adapt to the particular needs of rural people, guided by the two principles of equality of provision for all and protection of the right to self-determination.

One must greet a recent initiative to draft a specific convention on peasant rights, announced in the following declaration:

We, the delegates of the small farmers, women and men, of the International movement La Via Campesina, coming from 26 different countries attended from 20 to 24 of June 2008 the International Conference on Peasant Rights in Jakarta, Indonesia. After seven years of intense discussions on the content and strategies, our spirits are high and full of confidence that we will achieve a UN convention on peasant rights. This convention will be one cornerstone to sustainable life for all human beings in our planet.

Source: Final Declaration of the International Conference on Peasants' Rights, on the 60th anniversary of the Universal Declaration of Human Rights, we peasants demand our own convention Jakarta, 24 June 2008.

The Rise of Corporate Capitalism

In 1803 John Dalton unlocked the secret of chemical combination by constructing an atomic table which showed how atoms of increasing complex-

Rivers of blood have flowed in response to the slogan, "land or death," "land to the tiller." They call for an ancient right which remains unfulfilled.



ity were built up. The discovery prepared the way for the great chemical industrialization of the 19th century. In 1953 Crick and Watson decoded the double helix, the key to sequencing living matter. This second discovery introduced the possibility of the industrialization of farming, the consequences of which are still evolving. Farming on an ever-increasing scale appeared to have an economic advantage over small-scale and family farming. But when the life cycle of plants and animals could be adapted to match environmental conditions, to allow pest elimination and the promotion of favorable attributes in the products, there seemed no limit to the tailoring of farm produce to market needs. The traditional resources of farming could be plundered for richer strains, and the slow steps of plant breeding and husbandry could be bypassed for greater and faster profit. The new products displayed a uniform market quality suitable for the vast retail markets that perfected the art of display. If the small-scale producers were to market their products in the mass market, they too must buy the seeds with the magic genes. A first wave of alarm swept through the farmer community. Just as the spinners and weavers of rural India were persuaded to choose colorful textiles woven in British mills from their own cotton, rather than their own homespun cloth, so were populations being persuaded to turn to the foods grown, packaged and marketed by industrialized farming rather than traditionally grown produce. And if they wanted to continue to grow or consume their own, then at least they should use the superior seeds generated by industrial farming. Again capitalism displayed its awesome power to industrialize a form of production and to give rise to huge transnational corporations with all the superstructure of financial institutions, state support, advertising, and a benign image to make their products synonymous with their company logo.

A German-Austrian film made in 2005, "Our Daily Bread," is a wordless documentary made over one year of the food industry in Europe. It shows without commentary the uniformity of modern plant cultivation where the horizon is limited by vistas of identical plants, where animals are herded, slaughtered, and cleaned for the market by robot machines, where identical chickens are hatched and grown in vast warehouses and scooped to death by great vacuum machines. Immigrant workers who serve this huge industry sit silently in Spartan canteens eating burgers or other synthetic food. The animal breeding stock consists of misshapen crea-

tures that retain only the ability to slowly move and grow to their assigned size. The film is a horror film, because it reduces the existence of plants and living creatures to the single dimension of market product. The horror is that the film depicts present reality not some future world threat.

The growth of industrialized farming threatens human life by its restriction of biodiversity to achieve uniformity of production. It is unnecessary here to go into the dangers for human survival in abandoning to extinction the huge genetic inheritance of mankind which we need in the future, to evade unforeseen disasters, the effects on crops of the rapid climatic change which we already encounter, the new diseases and pests which have always appeared in the past and will appear again, and to cultivate traits the importance of which we had not realized before. The exploitation of the living world is applying the tools of genetic manipulation to explore further, making mixtures of genes that are not tested in the laboratory of evolution and which will certainly give rise to unforeseen consequences when the arbitrary mixtures enter the food chain to an extent which cannot be reversed. Cloning would be the ultimate tool of uniformity in production, but with the greatest cost to biodiversity. Agriculture has reached a world dimension, but in the name of food security, it must be managed with planetary consciousness. This aspect of farming concerns the most basic of all human rights, that to life.

Rights relating to Plant Genetic Resources

Consideration of the rights of farmers by gatherings of farmers themselves, emphasize the rights of farmers to land, education, security. Proposed are the right to a decent living standard, the right to agrarian resources, the right to seeds and to agriculture itself, the right to biological diversity and the right of freedom of association, among others. But discussion of the rights of farmers by human rights activists increasingly concentrate on the content, implications, and implementation of International Treaties on Farmers' Rights to Plant Genetic Resources, as if these were the sole issues of the rights. Farming communities were quick to realize that they had a claim to the genetic resources being marketed by agro-business. Genetic prospectors came to comb the resources of the genetically rich tropical countries for valuable genes to collect. The exploitation known as "Bio-Piracy" was identi-

Agriculture has reached a world dimension, but in the name of food security, it must be managed with planetary consciousness.

Corporate capitalism has been growing for 50 years or more, but its dominance has accelerated with the loss of all restraint since 1971. It is precisely in this period that the biotechnological revolution has taken place and what we call “globalization” has engulfed the whole world.

fied and condemned. When the bio-pirates could patent a process based on a transferred gene, farmers could even be obliged to pay an enhanced price for the resultant seed. The “new” Intellectual Property rights worked to the advantage of the exploiters, not to those who had selected the desirable characteristics over generations.

Property Rights and patents were in fact “only the most recent step of accumulative knowledge and inventions that have been carried out over millennia by generations of men and women in different parts of the world” (FAO conference 1995). Efforts began to protect the farmers’ ownership rights to plant genetic resources:

- a) The WTO Trade-related Aspects of Intellectual Property Rights (TRIPs) Agreement introduced intellectual property rules into the multilateral trading system for the first time. Protection of genetic resources could be legalized by patents or in cases where patents were not applicable, by a *sui generis* legal protection system. The form of protection offered is the responsibility of WTO member governments.

While the TRIPS agreement was ground breaking in introducing some protection of the rights to genetic resources, it offered protection to those appropriating genetic resources for marketing rather than to farmers.

- b) International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

This treaty which entered into force on June 29, 2004 provides that the implementation of farmers’ rights at national level should entail:

1. the “protection of traditional knowledge relevant to plant genetic resources of food and agriculture”;
2. “the right to equitably participate in sharing benefits arising from the utilization” of such resources; and
3. “the right to participate in making decisions on matters related to conservation and sustainability use of plant genetic resources for food and agriculture.”

The ITPGRFA built on The International Union for the Protection of New Varieties of Plants (UPOV) and the Convention on Biological Diversity (CBD) which set legislative procedures and access and

property rules regarding agricultural biodiversity. They established standard terms and conditions concerning the exchange of seeds by National Agricultural Research Institutes which might handle cooperation at government levels.

Nonetheless, a huge effort is required to codify the rights to genetic resources as applicable to human rights. The task is immense and long lasting.

Industrialization and Agriculture in Thailand

The issues of industrialization of farming and concomitant globalization are remarkably similar in North and South, East and West. The current situation of rice farming in Thailand may serve as an illustration. 2008 was the best year yet for the rice trade. Trade was huge and prices were high. Hom Mali rice reached an all-time export price of \$1,220 per ton. 8.34 million tons were exported, an increase of 36 percent on 2007 figures with an increase in value of 108 percent. Part of the surge in quantity and value was due to damaged crops in India and Vietnam. But of greater influence was the panic buying triggered by fears of world food shortages. The vultures of international trade, ever sniffing the air for the odor of greater profit, were making purchases in November 2007 for delivery in February 2008, thereby gaining \$200 dollars on the market price paid in November in comparison to the higher prices the following February. Waking up to the realities of rising prices, the Minister of Commerce advised farmers to hoard their stocks. Prices within the country rose. In response, the government introduced a short-lived cheap rice campaign. The holding capacity of farmers being limited, they again suffered sale losses and could not benefit from the 2008 rice sale bonanza. Farmers cannot succeed in the game of globalized marketing. World supplies are not much larger than consumption and only players with market knowledge, storage and supply capacities, as well as gambling financial reserves, can reap great profits.

Farmers are informed that Thailand has to change from a farm commodity producer to be a processed product manufacturer. Dhanin Chearavanant, manager of the massive CP food processing group, instructs that it is necessary to turn agriculture into a knowledge based sector and apply modern technology to agriculture, “The more new technology

The rights applicable to farmers must be proposed in a format that is not only relative to their lives but also as fully equal to those of other members of the nation. This struggle must be accompanied by a critique of the neo-liberal agenda to which we have been subject with a rejection of the 'imperatives of the market' as the ultimate criterion ruling our lives and denying the right to responsible freedoms of choice. Even though globalization is collapsing before our eyes, it will still require a huge effort to dismantle its tentacles, to identify the consequences of its assumptions, and to substitute the structures of openness and fair play which must shape a new era of co-operation and trade between nations. The struggle will not be easy nor is it likely that it will ever end.

is adopted in agriculture, the greater the capacity and productivity of farmers."

Mr. Dhanin goes on to point to the "yellow brick road" to riches: "risk from price fluctuations would be offset by private companies helping provide them with adequate marketing channels." The consequence, of course, is an acceptance of all the requirements of globalized standardization. A manager of TUF (Thai Union Frozen Products) recommends "increasing competitiveness through greater productivity efficiency development and cost savings." A U.S. non-government organization (NGO) has indicated the nature of "increasing competitiveness" in accusing TUF of using forced labor in the Thai shrimp industry! Where all this drive to increasing competitiveness leads to has been amply described by Susan George in her book, "How the other half dies," Rowman and Littlefield, 1977.

Most certainly, it does not lead to the affluence of farmers, who remain locked into poverty and in-

debtedness, increasingly forced to work as waged labor on the land which was once theirs and which is now integrated into the system of industrialized agriculture by the mega food processing companies.

A Tide in the Affairs of Men

We are in the days of collapsing economies, falling prices, growing unemployment. One morning I woke to the world program news of two countries, one which said that the world economic system was collapsing, the other claimed that we were witnessing the death of capitalism.

Corporate capitalism has been growing for 50 years or more, but its dominance has accelerated with the loss of all restraint since 1971. It is precisely in this period that the biotechnological revolution has taken place and what we call "globalization" has engulfed the whole world. In 2002 a German President could affirm that at the end of the 1990s half of the German population had not heard the word "globalization." But less than 10 years later people accept hundreds of job losses in their town as due to globalization.

They accept limitations on national sovereignty. Politicians tell us that this "globalization" is irreversible and one must adjust to it. The price of farm produce is subject to globalization, as is the imposition of free trade obligations which force the import of the products of industrialized agriculture on countries which neither need nor want them. According to a so-called European business man of the year:

"I would define globalization as the freedom for my group of companies to invest where it wants when it wants; to produce what it wants, to buy and sell where it wants and to support the fewest restrictions possible coming from labor laws or social conventions."

(Quoted by Susan George in 'Another World is Possible', Verso, 2004)

There are two observations:

1. Despite invitations to adapt and benefit from the opportunities, it is already evident that globaliza-

The global allies of globalization, enforcers of the "Washington Consensus," the International Monetary Fund, World Bank, the World Trade Organisation, G8, are all threatened. *"Babylon is fallen, is fallen, that great city."*

It is time to fight back and to take advantage of the disarray of the global financial system.

tion was bringing an end to independent farming and individual farmers.

2. "Globalization" is not inevitable or irreversible, it is falling apart. Certainly, every effort will be made to patch it together again, possibly based on a coalition of about four currencies. But as each day passes, the great world banks and corporations fear for their very existence and what excesses may be revealed in their structures. The global allies of globalization, enforcers of the "Washington Consensus," the International Monetary Fund, World Bank, the World Trade Organization, G8, are all threatened. "Babylon is fallen, is fallen, that great city."

It is time to fight back and to take advantage of the disarray of the global financial system. Jurgen Habermas, one of the world's most influential philosophers has called for action:

"I hope that the neoliberal agenda will no longer be taken at face value, but will put up for negotiation. The entire program of uncontrolled subjugation of everyday life to the imperatives of the market must be put to trial."

This should be the form of struggle for the rights of farmers, a continued and increased struggle for the realizable, individual, community rights of all men as agreed and guaranteed in the Universal Declaration of Human Rights and its derivative Conventions. The fulcrum of the demands should be the issue of equality in society, the rights applicable to farmers being proposed in a format relative to their lives but fully equal to those of other members of the nation. This struggle must be accompanied by a critique of the neo-liberal agenda to which we have been subject with a rejection of the 'imperatives of the market' as the ultimate criterion ruling our lives and denying the right to responsible freedoms of choice. Even though globalization is collapsing before our eyes, it will still require a huge effort to dismantle its tentacles, to identify the consequences of its assumptions, and to substitute the structures of openness and fair play which must shape a new era of cooperation and trade between nations. The struggle will not be easy nor is it likely that it will ever end.

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Exploring the Legal Terrain for Farmers' Rights Advocacy and Plant Genetic Resources Conservation, Development & Use

BY CHRISGEL RYAN CRUZ

This paper focuses on five international treaties that determine and direct decisions and courses of action of member-countries insofar as activities and principles relating to the conservation, development and use of plant genetic resources (PGR-CDU) and farmers' rights (FRs) are concerned.

This paper goes on to survey current policies and legislation in five countries, namely, Bhutan, Lao PDR, the Philippines, Thailand and Vietnam, that were put in place to comply with the abovementioned treaties.

International Treaty on Plant Genetic Resources for Food and Agriculture

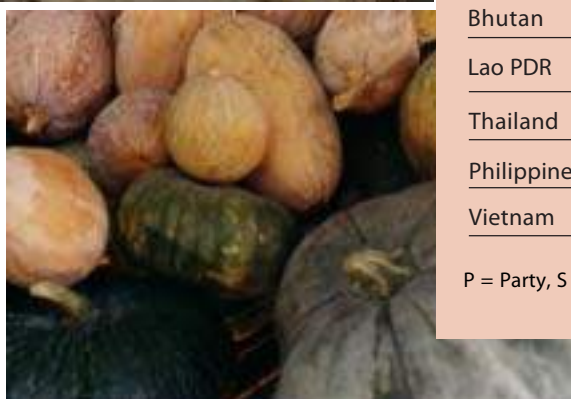
The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) is the most relevant international policy instrument insofar as plant genetic resources for food and agriculture (PGRFA) are concerned. It provides a general framework for the conservation and sustainable use of PGRFA, a multilateral system for facilitated access and benefit sharing, and recognition of FRs.

In regard to **conservation**, Article 5 of the treaty enumerates various means by which parties to the treaty can promote an integrated approach to the exploration, conservation and sustainable use of PGRs in their respective jurisdictions, as follows:

- a. Survey and inventory of PGRFA;
- b. Promotion of the collection of PGRFA that are under threat or have potential use, as well as relevant associated information;
- c. Promotion and support for farmers' and local communities' efforts to manage and conserve their PGRFA on-farm;
- d. Promotion of in-situ conservation of wild crop relatives and wild plants for food production by supporting efforts of indigenous and local communities;
- e. Cooperation to promote the development of a system of ex situ conservation and promotion of the development and transfer of appropriate technologies to improve the sustainable use of PGRFA;
- f. Monitoring the maintenance of collections of PGRFA; and
- g. Steps to minimize or eliminate threats to PGRFA.



Photos: SEARICE



Agricultural Biodiversity (Access to PGR and seeds)

Country	ITPGRFA	CBD	Cartagena Protocol
Bhutan	P	P	P
Lao PDR	P	P	P
Thailand	S	P	P
Philippines	P	P	P
Vietnam		P	P

P = Party, S = Signatory

Sustainable use of PGRFA is provided for in Article 6 of the treaty. Parties are required to develop and maintain appropriate policy and legal measures that promote the sustainable use of PGRFA. It also enumerates a non-exclusive list of measures, as follows:

- Pursuit of fair agricultural policies that promote the development and maintenance of diverse farming systems that enhance the sustainable use of agricultural biodiversity and other natural resources;
- Strengthening of research which enhances and conserves biodiversity by maximizing intra- and inter-specific variation for the benefit of farmers, especially those who generate and use their own varieties and apply ecological principles in maintaining soil fertility and in combating diseases, weeds, and pests;
- Promotion of plant breeding efforts, with the participation of farmers;
- Broadening of the genetic base of crops and increasing the range of genetic diversity available to farmers;
- Promotion of the expanded use of local and locally adapted crops, varieties and underutilized species;
- Support for wider use of diversity of varieties and species in on-farm management, conservation and sustainable use of crops;

establishment of strong links to plant breeding and agricultural development to reduce crop vulnerability and genetic erosion; and promotion of increased world production compatible with sustainable development; and

- Review and adjustment of breeding strategies and regulations concerning variety release and seed distribution.

Farmers' Rights are provided for in Article 9 of the Treaty, specifically in its recognition of the enormous contribution that local and indigenous communities and farmers have made and continue to make towards the conservation and development of PGRs. Parties to the treaty should consider taking measures to protect and promote FRs which include:

- Protection of traditional knowledge relevant to PGRFA;
- Right to equitably participate in sharing benefits from the use of PGRFA;
- Right to participate in making decisions on matters related to the conservation and sustainable use of PGRFA; and
- Rights to save, use, exchange and sell farm-saved seed/propagating material.

The Treaty also provides for a multilateral system of access and benefit-sharing, or a system of

sharing of PGRFA subject to certain conditions and processes provided under the Treaty (e.g. use of the Standard Materials Transfer Agreement [SMTA]), and ultimately aims to support the goal of conservation and sustainable use of PGRFA. Bhutan, Lao PDR, and the Philippines are members of the ITPGRFA, and as such are committed to implementing provisions of the Treaty in their national jurisdictions.

Convention on Biological Diversity

The Convention on Biological Diversity (CBD) is another important international treaty as regards biological diversity. Its objectives are the conservation of biodiversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including making provisions for appropriate access to genetic resources and technology transfer (Article 1).

The CBD has key provisions that are relevant and important to activities and principles related to PGR-CDU and FRs. Although the ITPGRFA has removed PGRFA from the scope of biodiversity under the CBD, a variety of activities and principles under the ITPGRFA is linked and related to key principles and activities covered by the CBD. These relate to access and benefit sharing, traditional knowledge, innovations and practices (TKIP), and agricultural biodiversity*. While activities and principles of PGR-CDU and FRs are clearly within the ambit of the ITPGRFA, there are aspects of these activities and principles which are not covered by the ITPGRFA and which CBD principles can better address.

In addition, certain principles of FRs are not sufficiently provided for or explained within the ITPGRFA; the CBD fills this gap, particularly through its provisions for the rights and obligations attendant to the promotion of the rights of local communities and indigenous peoples to biodiversity.

Bhutan, Lao PDR, Philippines, Thailand, and Vietnam are parties to the CBD.

Cartagena Protocol on Biosafety

The Cartagena Protocol on Biosafety is a subsidiary instrument of the CBD. It was agreed by the Parties (and entered into force) in order to focus on the reduction of the potential risks of Living Modified Organisms (LMOs) resulting from modern biotechnology. The Cartagena Protocol mandates the safe transfer, handling and use of LMOs that may have adverse effects on the conservation and sustainable use of biodiversity, taking into account potential risks to human health, and specifically focusing on transboundary movements. Considering its important links to food security, intellectual property rights (IPRs) and biodiversity, this protocol is relevant to PGR-CDU and FRs.

Bhutan, Lao PDR, Philippines, Thailand, and Vietnam are parties to the Cartagena Protocol, under the CBD.

Trade-Related Aspects of Intellectual Property Rights under the World Trade Organization

The Trade-Related Aspects of Intellectual Property Rights Agreement under the World Trade Organization (WTO-TRIPS) provides that the protection and enforcement of IPRs should contribute to the promotion of technological innovation and to technology transfer, for the mutual advantage of both producers and users, and to promote social and economic welfare. In this regard, the WTO-TRIPS requires WTO members to create minimum standards of intellectual protection, among other requirements, that pertain to institutional mechanisms and dispute procedures. Insofar as one provision of the WTO-TRIPS includes living organisms important for agriculture, biodiversity and food for intellectual protection, the WTO-TRIPS provides for measures to address concerns related to access rights to resources essential to PGR-CDU and FRs.

Article 27.3(b) indicates that WTO members may deny patent applications for plants and animals (except microorganisms), as well as biological processes for the production of plants and

* Defined as all components of biodiversity that are relevant to food and agriculture, and all components of biodiversity that constitute the agro-ecosystem: the variety and variability of animals, plants and micro-organisms, at the genetic, species and ecosystem levels, which are necessary to sustain the key functions of the agro-ecosystem, its structure and processes (COP decision V/5, appendix)

animals (except non-biological and micro-biological processes). WTO members are required to provide for the protection of plant varieties either through the grant of patents, or by an effective sui generis system, or a combination of both. The WTO-TRIPS also gives the Parties leeway in formulating enabling legislation so long as the minimum standards are met.

Protected intellectual properties (**Patents** or **Plant Variety Protections**, depending on the adopted legislation of a country) are subject to certain restrictions on their use for certain purposes, subject to the authorization of the holder of the patent or the plant variety protection.

The Philippines, Thailand, and Vietnam are members of the WTO and are subject to the obligations under TRIPS.

International Convention for the Protection of New Varieties of Plants

The International Convention for the Protection of New Varieties of Plants is an international instrument that provides a model law for **Plant Breeders' Rights**. It is governed by the International Union for the Protection of New Varieties of Plants (UPOV) for the purpose of protecting new varieties of plants under an IPR regime.

Although the UPOV has a rather small membership (67), it is regarded as a relevant instrument--especially its 1991 Act--for activities pertaining to PGR-CDU and FRs. This is due to the fact that considerable pressure is being brought to bear on non-member countries to adopt UPOV as a model plant variety protection in compliance with the WTO-TRIPS. Furthermore, the UPOV provides for plant breeders' rights, which have implications on access and use rights of farmers.

Key provisions of the 1991 Act include: protection

Country	Intellectual Property Rights		
	International		National
	UPOV	TRIPS-WTO	
Bhutan			X
Lao PDR			X
Thailand		P	X
Philippines		P	X
Vietnam	X	P	X

P = Party, X = Legislation

coverage (which plant varieties are covered); requirements for protection; protection terms (duration of protection); scope of protection (activities protected); breeders' exemptions; and an optional farmers' privilege.

Among the five countries covered by this paper, Vietnam is the only one which is a member of the UPOV.

Relevant General Policies and Laws on PGR-CDU and Farmers' Rights in Five Countries

The current policy environment in the five countries is separately illustrated by presenting the policies and laws which are existing and relevant to activities and principles of PGR-CDU and FRs.

Bhutan

Bhutan is a party to three international treaties previously mentioned: ITPGRFA, CBD, and the Cartagena Protocol.

There are two (available and accessible) main pieces of legislation in Bhutan which may be considered as relevant to PGR-CDU and FRs: **The Seeds Act of Bhutan (2000)** and **The Biodiversity Act of Bhutan (2003)**.

The Seeds Act of Bhutan (2000)

The Seeds Act of Bhutan was enacted to regulate the import and export of agriculture seeds in order to prevent the introduction of plants and diseases and to promote the seed industry in the

country, thus enhancing rural incomes and livelihood.

This Act may have certain implications on activities pertaining to PGR-CDU, subject to a further assessment of the provisions of the Act vis-à-vis identified PGR-CDU activities.

The Biodiversity Act of Bhutan (2003)

Bhutan has already taken measures to implement the CBD (particularly, towards achieving the 2010 target). Agricultural biodiversity conservation is partly ensured by the Bhutanese government by storing seeds at the National Biodiversity Centre and storing complete plants in field gene banks. In 2003, Bhutan enacted its Biodiversity Act.

The Biodiversity Act of Bhutan has three main features, two of which seek to implement its commitment under the CBD to provide for legislation on ABS (Chapter 2), and Protection of Traditional Knowledge (Chapter 3). This also provides for the protection of traditional knowledge under FRs.

A third feature of the law pertains to a Sui Generis System for the Protection of Plant Varieties (Chapter 4), which provides for potential compliance with WTO-TRIPS and constitutes a national attempt to recognize an aspect of FRs to propagate seed harvested on their holdings and to exchange on a non-commercial basis. This is an exception to breeders' rights, subject to determination by the Competent Authority. This may also have an impact on certain activities related to PGR-CDU. However, further assessment will have to be made in this regard upon a determination of the nature of the activities.

In support of the contributions of farmers, the Biodiversity Act also aims to provide legal recognition for plant variety improvements and innovations by farmers and non-protectable varieties, and to provide means for benefit-sharing when used. However, the Act does not clearly state how this objective is operationalized in its provisions.

Lao PDR

Lao PDR is also a party to three international treaties discussed previously: **ITPGRFA**, **CBD**, and the **Cartagena Protocol**.

There are numerous laws and regulations in Lao PDR which may be considered as relevant to activities and principles of PGR-CDU and FRs: the **Environmental Protection Law (1999)**; **Law on Agriculture (1998)**; **Regulation on the Use of Seed and Other Planting Materials in Agriculture**; and **Organic Agriculture Standard (2005)**. Aside from these laws and regulations, Lao PDR had promulgated and enacted in 2008 its Intellectual Property Law, which provides for the protection of new varieties of plants.

In regard to policy and strategy instruments, Lao PDR has a **National Agricultural Biodiversity Programme**, and a **National Biosafety Framework**.

Environmental Protection Law (1999)

The Environmental Protection Law of Lao PDR (Environmental Protection Law [1999] [02-99/NA]) specifies provisions for protecting the environment in order to protect human health. This also includes the protection of natural resources and wealth, and the promotion of sustainable socio-economic development of the country. While this law does not directly deal with PGR-CDU and FRs, it does provide for the protection of biodiversity, which includes plants that



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inhabit any part of nature (Article 15). The import and export of these resources are regulated.

Law on Agriculture (1998)

Lao PDR's Law on Agriculture (1998) (01-98/NA) defines principles and regulations for agricultural production, including the management and maintenance of agricultural products. It aims to achieve food security and food self-sufficiency, through the promotion of market-oriented production systems, and the development of agro-processing industries, among others.

The law identifies the various resources in agriculture, such as plant propagating materials or seeds, and defines and delineates their scope (Article 24) as well as regulations on their use, i.e., by promoting their production and use based on quality and adaptability to increase domestic production, and through the regulation of exports or imports (Article 26). Other resources identified which may be relevant to activities related to PGR-CDU are: use of fertilizers; insecticides; agricultural markets; technical cooperation; investments; promotion of production, among others.

While the law does not explicitly provide specifically for FRs, as does the ITPGRFA, it does define the various rights and duties of persons who undertake agricultural activities (Article 10).

Regulation on the Use of Seed and Other Planting Materials in Agriculture

The Regulation on the Use of Seed and Other

Planting Materials in Agriculture in Lao PDR (No. 0719/MAF) aims to regulate and control the export and import of planting materials in the country, to monitor the distribution and use of plant seeds, to encourage farmers to use certified seeds for production, and to prevent the spread of vulnerable seeds, diseases and pests.

As in most jurisdictions seeking to comply with sanitary and phyto-sanitary requirements to prevent the spread of pests and diseases among plants, this regulation provides for such control in the export and import of planting materials. It also provides for a means of certifying seeds and registering varieties for distribution but does not necessarily prohibit the distribution of uncertified seeds or unregistered varieties.

Organic Agriculture Standard (2005)

The Organic Agriculture Standard (2005) (No.1666/MAF) was issued by the Ministry of Agriculture and Forestry for the management of agricultural production in the country in accordance with the Agriculture Law and to promote "clean agriculture." This is based on standards set by the International Federation of Organic Agriculture Movement (IFOAM). It has adopted the general principle that Genetically Modified Organisms (GMOs) and their derivatives should be excluded from organic production processing and handling to the fullest extent possible (Article 8).

Intellectual Property Law (2008)

In 2008, the National Assembly of Lao PDR promulgated and enacted its Intellectual Property Law (2007) (No.08/NA), which includes the protection of new varieties of plants—defined as varieties which have never existed in nature and are the result of genetic engineering or biotechnology (Article 3(20)), and fulfill the criteria of novelty; distinctness; uniformity; stability; and denomination, as provided for by law. While the law minimally provides for a farmers' exemption relating to the exploitation of protected new varieties of plants, it prohibits non-owners of the new plant variety to cultivate it in the next season (Article 103). This poses limitations on activities of farmers and local communities in support of the conservation and sustainable use of PGRs as well as in furtherance of FRs. Specific implications of the law are subject to a further and more detailed assessment of the provisions of the law.

National Agricultural Biodiversity Programme (2004)

This Programme was endorsed by the Ministry of Agriculture and Forestry in 2004 as a policy document – a framework and long-term strategy for implementing a coordinated approach to improving the use, development and conservation of agricultural biodiversity, in support of two development priorities of Lao PDR—food security and rural development—and to enhance the government’s capacity to ensure the sustainable use of natural resources. This Programme is consistent with various strategies of the government, namely, the National Biodiversity Strategy (2020) and Action Plan (2010); the Strategic Vision for Agricultural Sector; the National Growth and Poverty Eradication Strategy; and other national sustainable development strategies and plans.

This Programme addresses the thematic component Crop and Crop Associated Biodiversity, which is directly relevant to activities related to PGR-CDU. It also includes a cross-sectoral component on Integrated Participatory Planning Approaches for successful implementation, which may address FR concerns and issues.

National Biosafety Framework

The National Biosafety Framework (Science Technology and Environment Agency, 2004) of Lao PDR contains various government policies related to biosafety and biotechnology research. It also provides for the country’s policies as concerns conservation (in situ and ex situ), access and benefit sharing, traditional knowledge, and IPRs, in recognition of the principles of the CBD.

This policy instrument elaborates the potential course or direction of the country as regards the mentioned themes, which may have implications on PGR-CDU and FR.

Philippines

The Philippines is a party to the **ITPGRFA**, **CBD**, the **Cartagena Protocol**, and the **WTO-TRIPS**. There are numerous laws, regulations and policy instruments in the Philippines that may be considered as relevant and important to activities relating to PGR-CDU and FRs. The following are considered the more relevant instruments.

Agriculture and Fisheries Modernization Act of 1997

The Agriculture and Fisheries Modernization Act of 1997 (Republic Act No. 8435) was enacted to develop agricultural production in the Philippines, specifically by providing for various institutional support, support services and entitlements for farmers. The role of PGR-CDU and FRs—while not expressly indicated under the AFMA—are considered relevant and important components.

Seed Industry Development Act of 1992

The Seed Industry Development Act of 1992 (Republic Act No. 7308) seeks to promote and accelerate the development of the seed industry, including the conservation, preservation and development of PGRs of the Philippines. It created the National Seed Industry Council, which, as part of its functions, formulates policies that aim to stimulate plant breeding activities for



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the development of the genetic resources of the country. This law is relevant to activities in PGR-CDU and FRs. It may however be said that the law is geared towards the development of the seed industry, whose role in PGR-CDU is highlighted, as well as of the certified seed sector.

Plant Variety Protection Act of 2002

The Philippine Plant Variety Protection Act of 2002 (Republic Act No. 9168) provides protection to new plant varieties in the Philippines, as part of the country's compliance with its commitments under the WTO-TRIPS. It follows the same requirements for protection, terms of protection, and scope of breeders' rights as the UPOV 1991 Act, but differs in that it provides for a non-optional exception in favor of the traditional right of small farmers to save, use, exchange, share or sell their farm produce of a protected variety (with certain exceptions and conditions), a gene trust fund, and a community registry, among others.

This law is relevant insofar as it limits an aspect of FRs to the use of propagating materials, and potentially affects access rights in relation to activities on PGR-CDU.

Magna Carta of Small Farmers (1992)

The Magna Carta of Small Farmers (1992) (Republic Act No. 7607) was enacted to prioritize the development of agriculture towards the realization of equitable distribution of benefits and

opportunities through the empowerment of small farmers, by providing necessary support mechanisms. This is very relevant to FRs, insofar as it seeks to provide numerous entitlements to small farmers in order to facilitate rural development and agricultural production. While the law does not elaborate on PGR-CDU, it recognizes to a minimal extent the need for farmers' access to resources.

Indigenous Peoples Rights Act (1997)

In order to recognize, protect and promote the rights of indigenous cultural communities and/or indigenous peoples, the Indigenous People Rights Act of 1997 (Republic Act No. 8371) was enacted. It provides for a means of access to biological and genetic resources, including indigenous knowledge related to the conservation, utilization and enhancement of these resources, on their ancestral lands and domains by ensuring that their free and prior informed consent is obtained in accordance with their customary laws. As concerns PGR-CDU in indigenous cultural communities and local communities and rights pertaining to these resources, this law may be viewed as providing protection, promotion and support.

Wildlife Resources Conservation and Protection Act

The Wildlife Resources Conservation and Protection Act (Republic Act No. 9147) provides for the conservation and protection of wildlife, as well as guidelines on access to biological diversity, in relation to relevant Administrative Orders. This law may be viewed as remotely related to PGR-CDU and FRs, but can provide enlightenment and observations on categorizing the treatment of biological resources as regards access issues, conservation and sustainable use.

National Biosafety Framework

The National Biosafety Framework (Executive Order No. 514) was issued in order to harmonize various components of biosafety rules being implemented by various government agencies, in consideration of the different issues concerning the entry and approval of GMOs in the country. Since there are numerous concerns as regards biosafety and modified organisms, this law may



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have implications on activities on PGR-CDU as well as FRs.

There are other instruments that have been issued in the Philippines which aim to promote the conservation of PGRFA, e.g., the establishment of a National Plant Genetic Laboratory as national repository of PGRs and depositary of germplasm of agricultural species; and the creation of a National Network on the Conservation and Sustainable Use of PGRFA.

Thailand

Thailand is a party to the **CBD**, the **Cartagena Protocol**, and the **WTO-TRIPS**.

In view of the limited availability of and access to primary reference materials on Thailand legislation and policies, the only relevant law to illustrate the policy environment of Thailand on PGR-CDU and FRs is its Plant Varieties Protection (PVP) Act (1999).

Plant Varieties Protection Act (1999)

Thailand's Plant Varieties Protection (PVP) Act (1999) (B.E. 2542) has two main features that provide for a categorized treatment of plant varieties, and the establishment of a plant varieties protection fund.

There are three categories of plant varieties under the Act: (1) New Plant Varieties which are registered to be protected after satisfying the criteria of newness and distinctness (aside from satisfying the plant variety criteria of uniformity, stability and distinctness), and providing details on origin and a profit-sharing agreement when applicable; (2) Local Domestic Plant Varieties which are also registered to be protected by a community/sui juris; and (3) General Domestic Plant Varieties and Wild Plant Varieties which are also protected and subject users to a profit-sharing agreement. The distinctions provided by the Act highlight variations in activities on PGR-CDU – when developed based on stricter criteria, when developed by a community, and when available generally and used commercially. The Act also recognizes variations in the treatment of rights of local communities and farmers as concerns new varieties, local domestic varieties, and general domestic varieties and wild varieties.

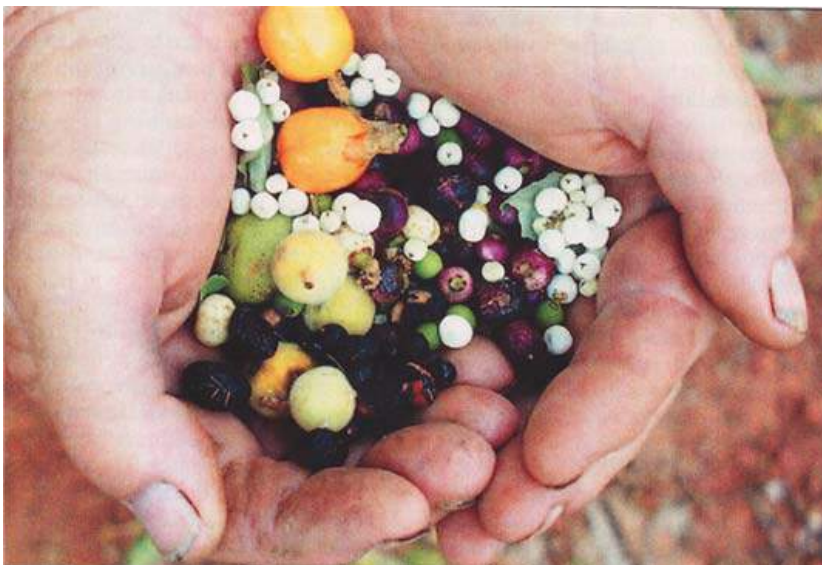


Photo courtesy of: Consumer International

The Act also establishes a Plant Varieties Protection Fund obtained from profit-sharing arrangements, registration fees, among other sources, to fund assistance and subsidies for activities of communities relevant to PGR-CDU, and to fund expenses of local government organizations for similar activities undertaken by communities. As such, the Act seeks to promote an enabling environment for PGR-CDU in the communities. This may also have implications on the treatment and application of FRs in the country.

Thailand also has sectoral policies and laws pertaining to access and benefit sharing in these sectors, i.e., the Fisheries Act, and the Protection and Promotion of Thai Traditional Medical Intelligence Act. Thailand, as part of its policy direction, has also been promoting community participation in afforestation by establishing local community networks, facilitating experience exchange, promoting organic farming and soil conservation and providing training to local communities, all of which work favorably for and indirectly towards activities on PGR-CDU and FRs.

Vietnam

Thailand is a party to the **CBD**, the **Cartagena Protocol**, the **WTO-TRIPS**, and **UPOV**.

In view also of the limited availability of and access to primary reference materials on Vietnam legislation and policies, the only relevant laws that reflect the policy environment of Vietnam on PGR-CDU and FRs are: the Ordinance on Plant

Varieties (2004); and Part IV of its Intellectual Property Law (2005) on Rights for the Plant Variety. Vietnam is also implementing its Agenda and National Strategy for Environmental Protection with a view towards fulfilling its objectives under the CBD.

Ordinance on Plant Varieties (2004)

Vietnam's Ordinance on Plant Varieties (No. 15/2004/L-UBTVQH) focuses mainly on the management and conservation of plant gene sources, and deals in particular with issues of access and benefit sharing as concerns plant varieties. Considering that this ordinance deals with Vietnam regulations and policies on plant gene sources management and collection, research and protection of plant varieties, including genetically modified plants (but subject to a separate guidelines), course of actions and decisions by Vietnam on these matters (e.g., conditions for production and trading of major plant varieties) it can impact on activities related to PGR-CDU, and potentially, on FRs.

Intellectual Property Law: Part Four: Rights for the Plant Variety (2005)

The Intellectual Property Law of Vietnam on Plant Variety Rights (Law No. 50/2005/QH11) has a more direct impact on an aspect of FRs. There is no express indication or recognition of FRs under the law or any explicit exemption or exception in the law for farmers. What the law specifically provides for as a limitation on the rights of the holder of the plant variety protection applies to production households and their propagation and cultivation in the next season of harvested products of the protected variety. Other parts of the law are patterned after the UPOV 1991 Act.

In 2008, the Ministry of Agriculture and Rural Development issued a [Draft] Decision on the Issuance of Regulations on On-Farm Plant Variety Production, in recognition of PGR-CDU activities among farmer households and communities, and in support thereof. Farmer households or communities can then register or tender for scientific researches on selection, creation and rehabilitation of new plant varieties, with government support. This decision could be viewed as representative of the government's response to activities on PGR-CDU, advantageously working towards supporting on-farm innovations by

farmer households or communities, although ambiguously making activities relevant to FRs fall within the restrictive corners on FRs under the Intellectual Property Law of Vietnam. This potentially presents concerns on access rights not only to protected new varieties under the Intellectual Property Law but also to on-farm new varieties registered under this decision, between and among farmer households and communities. As this may be viewed as having a potential impact on access, this may also be considered as potentially affecting activities on PGR-CDU.

PGR-CDU and Farmers' Rights in Five Countries

Bhutan, Lao PDR, Philippines, Thailand, and Vietnam have legislated PVP laws in their jurisdictions. There are however variations in the approach taken by the five countries in legislating such laws.

Thailand's PVP law provides for an enabling environment for PGR-CDU activities by local communities. This is similarly achieved in Vietnam with the government's decision to provide support for on-farm PGR-CDU by farmer households and communities. The two countries differ in their elaboration of FRs however: Thailand emphasizes access and benefit-sharing for farmers and local communities, and provides for a wider exception to the rights of the PVP certificate holder; in Vietnam, the law simply limits production households' right to propagate and cultivate a protected variety in the next season in their own field.

While Bhutan recognizes the PGR-CDU innovations by farmers and local communities as part of its objectives, its law is unclear as to how this can be implemented. The PVP part merely allows exceptions favoring farmers subject to certain determinations and conditions.

The Philippines also provides for exceptions for farmers, without promoting an enabling environment for PGR-CDU by local communities. Numerous laws in the Philippines may focus on PGR-CDU but they highlight more the role of industries and the formal sector without providing for complementary support for informal sectors, i.e., PGR-CDU activities by farmers and local communities.



Photo by: SEARICE

Lao PDR has policy instruments that seek to promote and support PGR-CDU in complementation with FRs. However, Lao PDR also has an Intellectual Property Law covering the protection of new varieties of plants, among others, which has clear prohibitions on activities that farmers may undertake as regards PGRs (particularly new varieties of plants protected under the law).

In terms of legislation on FRs, the Philippines may be considered to have a number of laws and policies that provide for and recognize various components of FRs under the ITPGRFA. Lao PDR has general laws which provide for general rights, but without anything direct and explicit on the components of FRs under the ITPGRFA. Thailand under its PVP has a strong access and benefit sharing component on FRs. Bhutan in its Biodiversity Act has similarly focused on access

and benefit sharing and traditional knowledge and the farmers' exemption. Vietnam has focused also on breeders' rights limitation.¹

Biosafety is another concern that may have strong implications on activities on PGR-CDU and FRs, in view of the adverse risks and/or benefits potentially presented by the introduction of LMOs. However, the potential impact on PGR-CDU and FRs has not been adequately explored.²

References:

1. "Agricultural Biodiversity in Lao PDR" (factsheet jointly published by the Ministry of Agriculture and Forestry of Lao PDR, and the Food and Agriculture Organization in December 2007).
2. Citations of laws/policies/programs used as reference in this paper are included in the text.

1 In view of limited available materials with which to make the assessment, these observations may not be fully accurate.

2 In view of limited materials, only the biosafety regulations in the Philippines and Lao PDR have been briefly discussed.



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COMMUNITY PROTOCOL:

An Instrument to Protect the Rights of Communities to Biological and Genetic Resources and Traditional Knowledge

Overview

It has been almost six years now since the Indigenous Peoples Rights Act or IPRA (Republic Act 8371) of the Philippines was approved by Congress in 1997 with only very few indigenous communities and support groups applauding. The administrative mechanisms for its implementation have been substantially weakened in the successive spate of questionable appointments to the National Commission for Indigenous Peoples (NCIP), the implementing body of the law, in 1998-2000. The change in administration in January 2001 also brought along new sets of Commissioners but it remains to be seen what strategies and approaches they have formulated to ensure that the rights of local and indigenous communities to their biological and genetic resources are protected.

With modern-day drugs and antibiotics losing their efficacy,

pharmaceutical companies see a lot of commercial potential for alternatives, especially those that are capable of fighting elusive human ailments like cancer, Alzheimer's, AIDS, and a long list of other diseases for which there are limited treatments and no cures¹. The pharmaceutical industries as well as natural products researchers are turning to the sea to look for novel compounds.

In the issue of access to biological and genetic resources, the same bureaucratic inertia is present. There is hardly any local and indigenous community representation in the Inter-Agency Committee on Biological and Genetic Resources (IACBGR), the implementing body of Executive Order 247, the country's regulation on access to biological and genetic resources. There could have been an opportunity provided by the drafting of the Implementing Rules and Regulations of the new Wildlife Act (Republic Act 9147), but the draft

implementing regulations as well the process that came up with it have failed to address the lack of participation of indigenous communities in decision-making processes affecting biological and genetic resources and traditional knowledge.

At the regional level, the Association of Southeast Asian Nations (ASEAN) continues to sit on the adoption of the **Framework Agreement on Access to Biological and Genetic Resources** which was formulated by technical experts from across the region and representatives from indigenous peoples and civil society organizations in 1998-2001. The document provides for general standards in access to biological and genetic resources, ensuring fair and equitable benefits arising from the use of these resources, and recognizing the rights of indigenous and local communities to these resources and traditional knowledge. The ASEAN timetable has set the adoption of

the Framework Agreement by 2004, but that remains doubtful in view of the track record of the regional body in acting on draft agreements related to biodiversity and the environment.

Despite these setbacks in the policy arena, there are indigenous communities that continue to assert their rights over their knowledge and biological and genetic resources. Among these communities are the Talaandig tribe in Mt. Kitanglad, in Lantapan, Bukidnon, Philippines and the Kadazan-Dusun tribe in Kampong Togudon, in Kota, Kinabalu, Sabah, Malaysia.

These communities have collectively asserted their rights based on the reality that the entry into force of the Convention on Biological Diversity (CBD) in December 1993 has ushered in a new era in the utilization of biological and genetic resources all over the world. While before these resources are seen as "common heritage of mankind", these are now subject to the national sovereignty of the country where these are found, and countries may come up with national legislation to determine how these resources may be conserved and sustainably utilized.

These communities have also taken note of the mandate of Art. 8 (j) of the Convention where the Contracting Parties are mandated to enact national legislation that will *"respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for*

the conservation and use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of benefits arising from the utilization of such knowledge, innovations and practices."

Concretely, this legalese means that aside from the international recognition accorded to the link between indigenous and local communities and their biological and genetic resources, a legal mechanism is needed to promote the use of their knowledge, innovations and practices while ensuring fair and equitable sharing of benefits to the originating communities whenever their resources are used.

There are also several international legal instruments that enhance this view, such as the International Labor Organization (ILO) Convention No. 169 which calls on governments to develop actions that will include measures for *"promoting the full realization of the social, economic and cultural rights of these peoples with respect for their social and cultural identity, their customs and traditions and their institutions."*ⁱ

Even indigenous communities themselves took some initiatives in promoting their rights, particularly with respect to their intellectual rights to biological resources. The *Mataatua Declaration* as well as the United Nations Draft Declaration on the Rights of In-

digenous Peoples have stressed the need to come up with mechanisms to protect the knowledge of indigenous peoples.

These initiatives have become more imperative with the implementation of the Trade Related Intellectual Property Rights (TRIPS) Agreement under the World Trade Organization which seeks to harmonize all laws relating to intellectual property rights (IPR) and providing a very limited option for countries to protect their plant varieties through patents or through an effective *sui generis* system. As the dominance of existing IPR system looms, there is an imperative to ensure that the knowledge, innovations and practices of local and indigenous communities are preserved and protected. More urgently, what is needed is an instrument that will protect the rights of indigenous and local communities to their biological and genetic resources, which in many communities include land.

The Special Case of Local Farming Communities

Another group that needs special mention are farming communities, who may either be local communities or indigenous communities. The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) approved in November 2001 by the Commission on Plant Genetic Resources for Food and Agriculture Organization (FAO) has provided for Farmers' Rights which are left for national govern-

ments to implement and actualize. However, instead of enacting legislation to realize the beneficial provisions of the Treaty, some developing countries, like the Philippines, went ahead towards adopting laws that institutionalize plant variety protection systems and ensure monopolistic IPRs to plant breeders at the expense of the rights of farmers to their seeds.

Alongside indigenous communities, farming communities need a mechanism where they can freely exercise their rights and existing socio-cultural practices with regard to farming and seed conservation and development, without being hampered by the exercise of legally-established plant breeders' rights provided by existing plant variety protection laws. In addition to this concern, farming communities may need to have a say on their country's positions in the drafting of the terms and conditions of the standard Material Transfer Agreement (MTA), an instrument that will be adopted by the Governing Body of the ITPGRFA to govern the transfer of plant genetic resources for food and agriculture to another person or entity, as well as to any subsequent transfers of those plant genetic resources for food and agricultureⁱⁱ.

Problems of Local and Indigenous Communities vis-a-vis the Use of Biological and Genetic Resources and Associated Knowledge

The rights of local and indigenous communities, including farming communi-

ties, to their biological and genetic resources and associated knowledge come into play when access and benefit-sharing agreements are entered into by users and appropriate government agencies. Access and benefit-sharing agreements are contracts that lay down the terms and conditions for the access to biological and genetic resources. These are usually drawn up before any bioprospecting activity may proceed under existing access regulations as mandated by the CBD. This agreement implements the mandate of the Convention to ensure the fair and equitable sharing of benefits from the utilization of biological and genetic resources.

Though it may appear that only countries that have adopted access regulations should be concerned with this matter, the points discussed in this paper are also relevant for countries which have not yet established nor have any plans for establishing access regulations. By their very nature, these agreements, aside from determining the terms and conditions of bioprospecting activities, deal with the issues of IPRs, especially when these resources are developed, commercialized and eventually patented.

It is important to note the interplay of current IPR system and its application over the resources and knowledge of local and indigenous the communities who have not been able to fully participate in decisions involving these issues, even in countries that have legally recognized their rights

such as the Philippines. This situation is brought about not only because the current IPR regime is inappropriate but also because there is no mechanism to bring to the discussion table the various concerns of indigenous and local communities. Among these concomitant problems are as follows:

Lack of Recognition of Communities as Parties to the Agreement

In international discussions concerning the rights of communities, we can always see governments speak in glowing terms about how protective they are of these rights and concerns at the national and local levels. However, a closer examination would reveal that these concerns are not part of government priorities when it comes to actual implementation at the community level. Oftentimes, it even gets sidetracked when urgent national interests are at stake. In some cases, indigenous communities are denied even of the most basic recognition of their existence.

Even in the Philippines, which is regarded in international discussions as "progressive" with regard to the recognition of the rights of indigenous peoples, the parties to the access agreements are not the communities but government line agencies who exercise legal mandate over these resourcesⁱⁱⁱ. As a result, communities, if they are mentioned at all, play a minor role in the discussions for benefit-shar-

ing arising from bioprospecting agreements.

Inappropriateness of the IPR System in Protecting Traditional Knowledge

The inherent difficulties in putting traditional knowledge under the scope of IPR protection are well-documented. Even the World Intellectual Property Organization (WIPO), the WTO and the CBD recognize this reality, and have organized series of seminars and fora to tackle the problem.

The basic reasons why traditional knowledge do not come within the rubric of IPR system is that these knowledge are held collectively by communities over generations, thus, the difficulty in identifying the actual inventor or innovator to which the right belongs and who could clearly claim the monopoly right over such innovation. Also, communities often do not possess any legal personality, which makes it difficult for them to be entitled to claim any right to their knowledge, and traditional knowledge is usually held out in the open since time immemorial, thus making the subject matter outside of the realm of patentability with its definition of novelty.

Absence of Institutional Mechanisms Where Communities can Assert their Rights to their Knowledge, Innovations and Practices

Even under existing national laws that recognize the rights of communities to their knowledge, innovations and practices, there are no institutional mechanisms that allow these com-

munities to articulate their responses to the regulations and concerns as regards their knowledge, innovations and practices. Many communities in such countries are not even aware of the existence of those laws that claim to protect their rights, in the absence of information and education platforms. This problem is magnified in countries that do not even acknowledge the existence of indigenous communities. What usually happens in such instances is that their rights are subsumed under existing IPR framework which is not the appropriate vehicle to protect these rights.

No Mandatory Scheme to Compel Benefit-sharing Even at the Local Level

Access and benefit-sharing agreements are regarded as an equalizing document where, through fair and well-meaning negotiations, parties can come to an agreement on how to protect their rights and equitably share whatever benefits that may come from the commercialization of biological and genetic materials and knowledge collected.

However, negotiations on the terms and conditions among the parties may not actually play out as easy as they sound. What usually happens is that the sharing of benefits is usually done only on a best-efforts basis on the part of the bioprospector, no matter how mandatory are the words used in the access regulations. Usually, the bioprospector's own laws on intellectual property are

cited as the reason for their inability to share a fixed rate of royalty sharing, much less to even share anything. What is more, the benefits, if ever they materialize, usually go to the government agency that signed on behalf of the government and who in turn, through the exercise of agency discretion, identifies the share of the concerned communities from the benefits arising from the agreement. What might happen in such instance is that the concerned communities are not recognized, much less identified, in the benefit-sharing stream that may be negotiated.

Absence of Institutional Mechanism for the Effective Participation of Communities in Prior Informed Consent (PIC) Consultations

One critical element of access and benefit-sharing agreements is the conduct of consultations for prior informed consent (PIC) among the communities and agencies involved before any collection of biological and genetic resources can proceed. The problem in this regard revolves on how to do these consultations and what are the mechanisms to ensure that the concerned communities, whose prior informed consent are required, get to participate and have their say in the consultations.

In the case of the Philippines, the ones who are often consulted are the local government officials or the members of the protected area management boards since it is they who are specified in the access regulation as the ones who will

issue the certification that the consultations for prior informed consent have been conducted.

Denial of PIC as an Inherent Right of Communities

It may also happen that since most indigenous and local communities are unorganized and unfamiliar in the ways of dealing with the government, they do not have the confidence to assert their rights. There are also cases when researchers dispense with the conduct of prior informed consent consultations as they see the process as a cause of delay in their activities. Such acts gloss over the fact that prior informed consent consultation prior to any collection activity is an inherent right of communities as the custodians of these resources and knowledge.

Lack of Sanctions for Non-Compliance or Non-Enforcement of Customary Laws and Practices

In spite of the efforts of some countries in implementing access regulations, there will still be violators who disobey and bring out genetic resources to their home countries. This is because local and national law enforcement authorities do not have a clear understanding of the issues and the gravity of the offenses involved that these transgressions often go unpunished at the local levels. In many cases, local law enforcers and communities are at a loss on what penalties to apply, since most still have the culture of freely sharing biological and genetic resources which is

deeply-ingrained in ways and practices of people. As a result of this "common heritage" mind-set, the acts of taking biological and genetic resources without the consent of concerned communities, are not often seen as offenses that merit any penalties.

The consequences of the above problems are as follows:

One, communities are completely left out in the application for IPR protection over traditional knowledge, innovations and practices. SEARICE has initiated preliminary efforts to examine some of the patents granted to natural products from Southeast Asia and not one patent has been granted to local or indigenous communities. This just confirms another observation made by a representative of an indigenous community to a WIPO workshop on traditional knowledge that just one percent of all patents in the world are granted to persons from underdeveloped countries even if it provides 90 percent of the germplasm, the basis for genetic improvement programs.^{iv}

Two, this gives rise to biopiracy which is the appropriation of knowledge and resources of local and indigenous communities through existing systems of IPR protection without the participation and involvement of these communities. Eventhough this latter concern may be of limited impact due to the observation of one expert that it is really not in the interest of collecting institutions to be labeled as such because of

the ensuing legal difficulties that may arise^v, it is still necessary to find effective legal means to stop biopiracy from occurring.

Three, the communities who are helpless in stopping these intrusions are weakened culturally, thus leading to further exploitation and degradation of the customary norms, practices and rituals of communities.

Four, in the case of farming communities, with the preference given to IPR systems, such as plant breeders' rights, the traditional practice of farmers to freely exchange seeds and planting materials will be impeded, with dire consequences on national food security, including peace and security.

Community Protocol: Opportunities for Greater Community Control over Biological and Genetic Resources and Traditional Knowledge

The above-discussed problems of communities vis-a-vis the application of intellectual property rights as well as access and benefits sharing agreements may be addressed if communities exercise collective actions in asserting their rights. This may be done by requiring a Community Protocol process before prior informed consent is granted to any bioprospecting activity.

Community Protocol involves a series of steps that are undertaken to achieve a desired result, which may consist of rituals, customs,

practices and customary laws that relate to the rights of communities over resources and the intellectual creations.^{vi} The desired result will depend on the objectives of the communities as they relate to access and benefit-sharing agreements that they or their government will enter into vis-à-vis the users or collectors of biological and genetic resources.

This Protocol has undergone exploratory implementation in Sabah, Malaysia and in the Bukidnon, Southern Philippines. For Sabah, the efforts were led by the Partners of Community Organizations (PACOS), a civil society organization working with indigenous communities in the State of Sabah, while in the Philippines, a Talaandig community in Bukidnon province in Mindanao, has formulated and implemented its own Community Protocol to govern access to the biological and genetic resources in Mt. Kitanglad Range Nature Park, which is part of their ancestral domain claim.

It should be noted that these instruments are mainly based on the community's own set of customary rules and practices, as may be gleaned from the integration of rituals in the process which are largely done with the participation of the community and their leaders.

How can the Community Protocol protect the rights of local and indigenous communities over their biological and genetic resources and knowledge?

First, the process is inherent to most indigenous

communities, and by the exercise of their customary rules and practices, it is expressed. Thus, community protocol does not need any external law from the national and local government for it to be exercised, and even if the governments deny or extinguish these rights, the existence of communities who adhere to these practices would be sufficient for them to exercise these rights. Members of local and indigenous communities need not have to turn to any outside authority for the exercise of the community protocol since it is already embedded in the community's customary rules and practices.

Second, the instrument is multi-purpose since the community can design or provide that the protocol can either be an instrument for securing the community's prior informed consent or serve as a *sui generis* (of its own kind, unique) right that can protect not only the intellectual creations of the community but also their resources from unauthorized exploitation. It can also serve as a penal statute, particularly if it puts sanctions on whatever wrongful acts that may be perpetuated against the community.

Third, it is versatile in form since it can be expressed in a community ritual, a tribal declaration, a monumenting activity, or a usual written document. The usual complaint of bioprospectors is that such activities relating to the exercise of indigenous rights usually take an enormous amount of time, without realizing that undergoing the process is

also a way of knowing the community or build community confidence on the activity and the proponents.

Fourth, the Protocol may serve as an instrument for facilitating access and benefit sharing or for restricting, if not denying, the rights of bioprospectors, based on the decision of the community. The Talaandig tribe incorporated a memorandum of agreement in their Community Protocol to embody various elements, as required under the IPRA.

Fifth, it may also be an instrument where collectors may be required to disclose the origin of all materials and traditional knowledge that they used in relation to any application for IPR protection. This can be done by making the collector prepare or write an undertaking that he will disclose where he obtained the materials whenever he submits any patent application for any research result arising from the use of the biological and genetic resources and knowledge obtained from the community.

Sixth, the Community Protocol will result to the revitalization and strengthening of community institutions and initiatives, thus enabling the community to cope more effectively with the problems related to its survival as they faced the problems and demands brought about by globalization. This is clear from the experiences of the Talaandig tribe in southern Philippines as well as the Kadazan-Dusun community in Kota Kinabalu, Sabah.

Implementation of the Community Protocol

At the community level, the Talaandig tribe in Mt. Kitanglad Protected Area in Bukidnon started to assert their community rights through the implementation of their own Community Protocol. An example of its implementation is the case of the DMD Agri-Ventures, an agribusiness company, which entered into a Community-Based Forest Management Agreement (CBFMA) with the Department of Environment and Natural Resources (DENR) in an area located inside the ancestral domain claim of the Talaandig tribe in the Mt. Kitanglad Protected Area. The Talaandig tribe, who were represented in the Protected Area Management Board, refused to give their approval to the project as the proponents have not complied with the Community Protocol of the community. The members of the community, in a collective direct action, blocked the entry of the representatives of DMD Agri-Ventures into the area which forced the DENR to reconsider its decision and brought the matter to the national office.

In Sabah, PACOS has conducted several workshops among the Kadazan-Dusun indigenous community in Kampung Togudon in Kota Kinabalu, Sabah, Malaysia, which resulted to the adoption of a Community Protocol. In the process of formulating the Protocol, the awareness of the community on bioprospecting issues increased as they became more sensitive when-

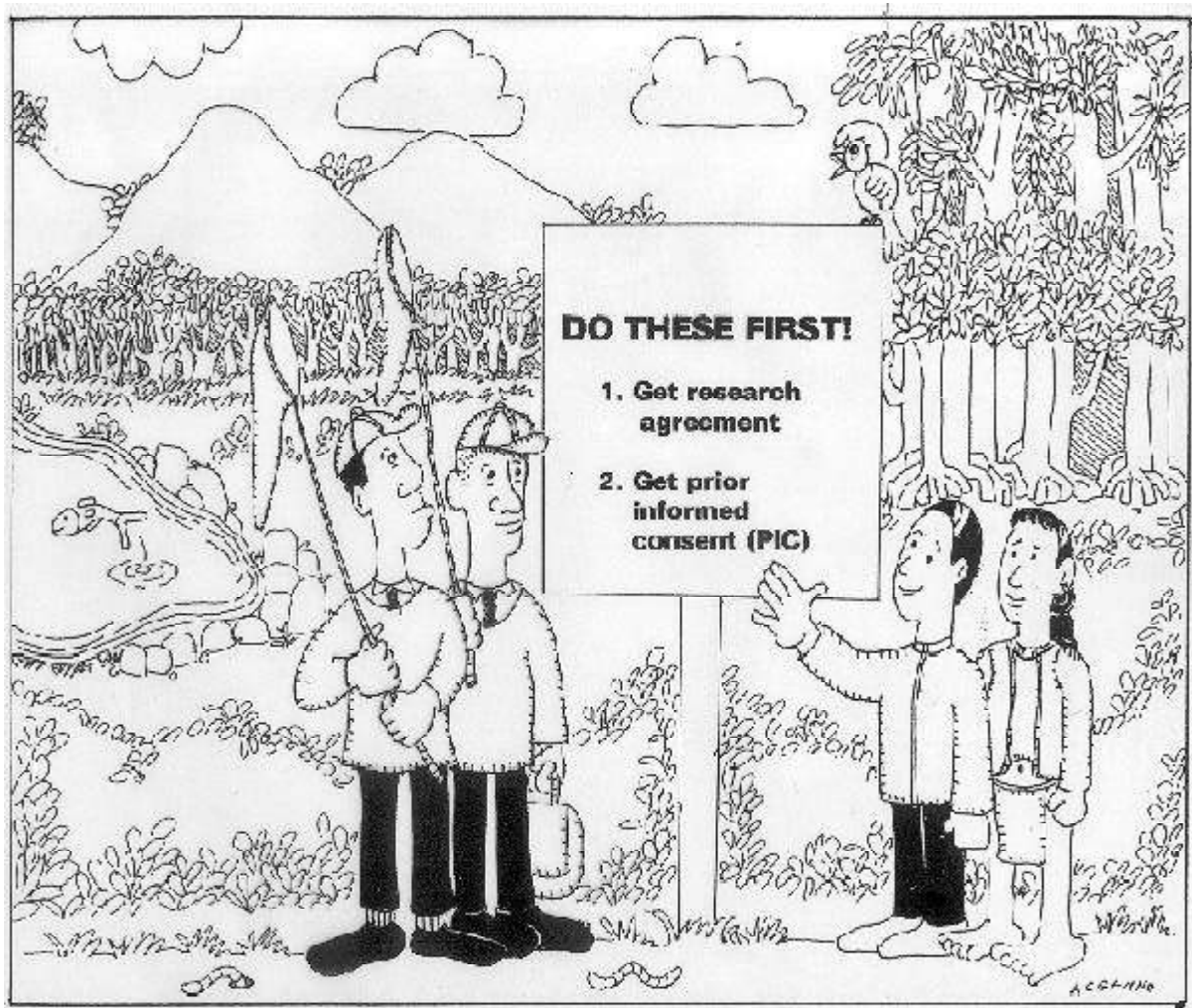
ever outsiders come into their areas to collect biological materials. The Protocol became a document referred to by the people whenever intrusion occurs in their community. In effect, the Protocol has become a local law on access and control that is within the reach of the members of the community.

As these examples have shown, the Community Protocol need not depend on any national legislation, although such legal authority can add to its legal enforceability. In the case of the Philippines, there are actually laws which strengthen the right and legal authority of local and indigenous communities to come up with their own Community Protocol. The IPR Code provides for a *sui generis* system of protection for community intellectual rights^{vii} and the IPRA provides for a more specific elaboration of these rights^{viii}. Another law, Republic Act 8371 that created the Philippine Institute for Traditional and Alternative Health Care (PITAHC) which, has in its implementing rules^{ix}, the duty to come up with a similar *sui generis* system of protecting indigenous knowledge, particularly in the area of traditional and alternative health care. This is also in consonance with its legal mandate to seek a legally workable basis by which indigenous societies would own their traditional knowledge of traditional medicine.^x

At the level of the ASEAN, the **Framework Agreement on Access to Genetic Resources** may be

discussed and finalized by 2004. This document can serve as a guide to help other ASEAN countries come up with access regulations that provide certain standards to enhance the competitiveness of the ASEAN vis-a-vis other similar regions possessing the same biological and genetic resources.

Finally, the decision of the Fifth Conference of the Parties to the Convention on Biological Diversity held in Nairobi, Kenya in May 2000 on the issue of access to genetic resources, calls for an assessment of user and provider experiences in access to genetic resources and study of complementary options and identification of approaches to the involvement of stakeholders in access to genetic resources and benefit-sharing processes^{xi}. The Community Protocol may be developed as such complementary option that can help bring together user and provider concerns on access to biological and genetic resources aside from enabling local and indigenous communities, particularly farming communities concerned, to get involved as a major or principal stakeholder in these discussions. Whether the countries or other stakeholders like it or not, this may be one way to move forward in the continuing effort to realize the protection and enhancement of the rights of local and indigenous communities not only to their biological and genetic resources but also to their traditional knowledge, innovations and practices.



End Notes

ⁱpar. 2 (b), Article 2, Convention Concerning Indigenous and Tribal Peoples in Independent Countries, 27 June 1989

ⁱⁱ article 12.4, International Treaty on Plant Genetic Resources for Food and Agriculture, adopted by the 31st session of the FAO Conference, Food and Agriculture Organization of the United Nations, Rome, 2001.

ⁱⁱⁱUnder the Implementing Rules and Regulations of Executive Order 247, the Department of Agriculture for agricultural, fishery and other resources (sec. 10.3.1.(a)), the Department of Health for pharmaceutical/medicinal research and development (sec. 10.3.4 (a)), the Department of Environment and Natural Resources for terrestrial wildlife (sec. 10.3.5 (a)), and the Department of Science and Technology for germplasm collection, documentation, conservation, evaluation and utilization and related bioprospecting activities (sec. 10.3.3 (a)).

^{iv}Antonio Jacanimijoy, Initiatives for Protection of Rights of Holders of Traditional Knowledge, Indigenous Peoples and Local Communities, *Roundtable On Intellectual Property and Indigenous Peoples*, World Intellectual Property Organization, Geneva, 23-24 July 1998, from <http://www.wipo.org/eng/meetings/1998/indip/rt98_4e.htm>

^vMichael A. Gollin, New Rules for Natural Products Research, previously published in *Nature Biotechnology*, vol. 17, September 1999, pp. 921-922, from <<http://www.venable.com/tools/ip/naturalproducts.html>>

^{vi}Elpidio V. Peria, It's Now or Never: Grappling with TRIPs In a New Era of Genetic Resources Utilization, *International Conference on Trade Related Aspects of Intellectual Property Rights (TRIPs) and the Convention on Biological Diversity*, Nairobi, Kenya, 6-7 February 1999.

^{vii}section 22, Intellectual Property Code of the Philippines, Republic Act 8293

^{viii}sections 32 and 34, Indigenous

Peoples Rights Act of the Philippines, Republic Act 8371

^{ix}Rule IX, Implementing Rules and Regulations of Republic Act 8423, the law creating the Philippine Institute of Traditional and Alternative Health Care

^xsection 2, Declaration of Policy, Republic Act 8423, the law creating the Philippine Institute of Traditional and Alternative Health Care

^{xi}paragraph 10, Decision V/26, Access to Genetic Resources, UN EP/CBD/COP/5/23.

FARMER-BRED VARIETIES: **FINDING THEIR PLACE IN THE SEED SUPPLY SYSTEM OF VIETNAM**

The Case of the HD1 Variety | 2013



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The Case of the HD1 Variety

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THE **SOUTHEAST ASIA REGIONAL INITIATIVES FOR COMMUNITY EMPOWERMENT (SEARICE)** is a regional development organization that promotes and implements community-based conservation, development, and sustainable use of Plant Genetic Resources (PGR) in partnership with farming communities, civil society organizations, government agencies, academic research institutions, and local government units in Bhutan, Lao PDR, the Philippines, Thailand, and Vietnam.

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TERMS AND ABBREVIATIONS

CVESC-S	Center for Variety Evaluation and Seed Certification - Southern Office
CBDC-BUCAP	Community Biodiversity Development and Conservation- Biodiversity Use and Conservation in Asia Programme
CTU	Can Tho University
DARD	Department of Agriculture and Rural Development
DCP	Department of Crop Production
DUS	Distinctness, Uniformity, Stability
FARES	Farmer-Agricultural Research and Extension System
FFS	Farmer's Field School
FFD	Farmer's Field Day
FGD	Focus Group Discussion
KII	Key Informant Interview
MARD	Ministry of Agriculture and Rural Development
MDI	Mekong Delta Development Research Institute
MOST	Ministry of Science and Technology
NCVESC	National Centre for Variety Evaluation and Seed Certification
PPB	Participatory Plant Breeding
PGR	Plant Genetic Resources
PVP	Plant Variety Protection
PVPO	Plant Variety Protection Office
PVS	Participatory Varietal Selection
SEARICE	Southeast Asia Regional Initiatives for Community Empowerment
UPOV	Union for the Protection of New Varieties of Plants
VCU	Value for Cultivation and Use

FARMER-BRED VARIETIES: **FINDING THEIR PLACE IN THE SEED SUPPLY SYSTEM OF VIETNAM**

The Case of the HD1 Variety

OVERVIEW

In the last two decades, the agricultural economy of Vietnam, its rice production in particular, showed a remarkable increasing trend, from 19.6 million tons in 1991 to 42.3 million tons in 2011. Over the last ten years, the average rice production growth rate was 2.9%, producing an average of 37.3 million tons (GSO Vietnam, 2012). Such an achievement has made Vietnam not only self-sufficient in its domestic rice supply, but more significantly, has positioned the country as the second largest rice exporter in the world, next to Thailand (FAOSTAT, 2012).

The increase in production is critical not only for the country's economy but for the food security of its people. With an estimated population of 92 million and a population growth rate of 1.05% (CIA World Fact Book, 2012), the government is hard-pressed to keep pace with its growing food demand by increasing food production, particularly in rice. Rice accounts for 90% of the food consumed, along with maize, cassava, and sweet potatoes.ⁱ

Adding to the challenge is the urgency of finding sustainable solutions to help farmers shield themselves against the risks of climate change. The country's long coastlines, the high concentration of population and economic activity in coastal areas, and a heavy reliance on agriculture, natural resources, and forestry makes it vulnerable to climate change.ⁱⁱ Of the ten countries most affected by climate risks from 1991 to 2010, Vietnam ranked 6th.ⁱⁱⁱ The effects of climate change may threaten the impressive economic progress the country has made.^{iv}

To keep its rice production in a healthy state, the Vietnam government adopted several key strategies, among which is the strengthening and enhancement of the country's formal seed system^v and, of late, its informal seed system^{vi} to provide high quality seeds.^{vii}

RATIONALE

Through the years, there have been efforts to encourage the government to help farmers boost their agricultural production in Vietnam. One of these was the Community Biodiversity Development and Conservation-Biodiversity Use and Conservation in Asia Programme (CBDC-BUCAP) which promoted participatory plant breeding (PPB) for farmers through Farmer Field Schools (FFS).^{viii} Implementation of the first phase was from 2006-2009 while the second phase was in operation from 2009 to 2011.

CBDC-BUCAP was a merger of two programmes with different thrusts but with the same end goals. CBDC (1996-2005) aimed to strengthen farmers' management of plant genetic resources (PGR) through new methods and approaches and affect policy changes. BUCAP (2000-2005), in addition to the CBDC objectives, intended to develop the capacities of local institutions to support farmers' management of their resources. The programme mobilized farmers, agricultural specialists, policymakers, and funding agencies in a convergence of efforts on the promotion of farmers' rights and empowerment towards proper management of PGR conservation, development, and utilization (CDU).^{ix} CBDC BUCAP further pushed for the development of the informal seed system, with the PPB helping build up the capacities of farmers for them to develop their own rice varieties and organize community seed clubs. Efforts continue with the implementation of the successor of the CBDC BUCAP Programme called Strengthening Farmer-Agricultural Research and Extension System Partnership or FARES which was implemented in 2011 and is set to be concluded in 2013. Thus empowerment

of farmers has been an ongoing undertaking that has produced significant impacts in the field of plant breeding.



Even from the CBDC days, significant accomplishments have been noted beginning with the development of farmers into farmer-breeders, with the rise in number from five in 2003 to 65 by 2012. The programmes also contributed in the formation and strengthening of 328 community seed clubs,

which have been playing a vital role in promoting the informal seed system, and contributing a significant share in rice seed production, distribution, and marketing.

The CBDC BUCAP saw the awarding of a national variety certification to HD1, developed by a farmer named Mr. Nguyen Van Tinh of Kien Giang Province. The accomplishment of Mr. Tinh for breeding the HD1, and then having this certified through the formal seed certification process is a major breakthrough for farmers, especially in a country which is oriented towards the global rice market. Significantly, this opened the door for farmers who have no formal training in agriculture to have their varieties recognized and accepted at the national level.

The varieties developed by farmers under the CBDC BUCAP have the potential of going the way of HD1 and earning economic and ecological returns for the country. In fact, another farmer's variety, the NV1 bred by Mr. Tran Thanh Hung of An Giang Province passed the prerequisite tests in 2012 and is set to undergo large-scale production trials until the summer season of 2015.

Community seed clubs for their part have shown ability to supply good quality seeds as demonstrated by the 7,030 farmer-members who produced 145,738 tons of seeds which benefited 725,000 farmers.^x A study by Tin, et al. (2008), revealed that the formal rice seed system accounts

for only 3.5% of the total rice seed requirement in the Mekong River Delta. This indicates that there is a wide room for farmer-bred varieties to step in to help fill in the gap in the supply chain and make significant contribution to the rice production system of Vietnam.

As proven by the certification of the HD1 farmer-bred varieties can have the same qualities, if not better, as those of certified seeds, and therefore have the potential of becoming part of the support system to the seed requirements in the country. However, the procedures that varieties need to go through before they are granted national certification status as well as the financial costs are much too stringent for farmer-breeders. With such a system, obtaining national certification remains unattainable for farmers despite the potential of farmer-bred varieties to support the country's agricultural production.

OBJECTIVES

In general, this study looked into more viable options for farmer-bred varieties to have the opportunity to be integrated in Vietnam's seed supply system.

In particular, it aimed to:

1. document Vietnam's policy environment on variety and seed certification system;
2. trace the processes by which the HD1 variety went through to become the first farmer-bred variety to pass the national seed certification;
3. determine the benefits and costs of obtaining national seed certification;
4. find out the parallel systems of seed certification adapted by farmers; and
5. formulate recommendations on alternative systems that may help both farmer-breeders and the government to meet the seed requirements of farmer-users.

METHODOLOGY

1. Data Collection

Primary data collection involved the use of research tools such as key informant interviews (KIIs), and focus group discussions (FGDs) with the key players/stakeholders in the formal national variety and seed certification system and the farmers' parallel system for seed quality control/guarantee.

The key informants and FGD participants included the following:

- Farmers who have been involved in or have undergone the formal national variety and seed certification
- National government agencies involved in the national variety and seed certification, seed multiplication, seed distribution and marketing
- Local government institutions (e.g. MDI) assisting the farmer in the formal variety seed certification, seed multiplication, seed distribution and marketing

- Local support groups (e.g., people's organizations, farmers' associations) assisting the farmers in the formal variety and seed certification or in the informal seed quality control system, seed multiplication, seed distribution and marketing
- Farmer users/buyers of certified seeds
- Farmer users/buyers of non-certified seeds

Secondary data collection involved literature review and collection of data and information from printed study reports and electronic copies of seed-related laws and policies, research studies, and other information materials.

2. Scope and Limitations

The study covers the policy environment on which Vietnam's national seed certification system is anchored. It presents a documentation of how the variety HD1 came to be certified and the views of Mr. Nguyen Van Tinh, the farmer-breeder of the variety, regarding his experience on going through the process of attaining certification.

Included too are farmers' seed clubs' parallel system of seed quality control for farmers' varieties and farmer-produced seeds.

RESULTS AND DISCUSSIONS

Part 1. Policy Environment of the Variety and Seed Certification System

The Formal Certification System

The Government Decree 7/CP of 1996 "Management of Plant Seeds" laid the foundation of the regulatory framework for certifying new plant varieties and management of crop varieties in Vietnam. This law stipulates that the State owns the country's plant genetic resources and governs the State management of its plant genetic resources for agriculture and forestry.

Further, the Decree mandates the Ministry of Agriculture and Rural Development (MARD) as the lead institution for carrying out and coordinating the State management of plant genetic resources of the whole country, which covers collection and conservation of genetic resources, research, variety selection and crossbreeding, developing new varieties, trial production, mass production, trading, importing, exporting, seed quarantine, and seed quality control. This also includes testing and registration, certification, and release of all new plant varieties developed by private or government plant breeding institutions or individuals. It also mandates the Ministry of Science, Technology and Environment (now the Ministry of Science and Technology [MOST]) for the variety copyright, as prescribed by law. In addition, it directs the People's Committees of the provinces or cities directly under the Central Government to be responsible in implementing and guiding the management of plant seeds through the State management system of the Agriculture and Rural Development in the provincial territory.

Circular No. 2/NN-KNKL/TT of March 1, 1997 issued by the MARD, provides the implementing guidelines for Regulation 07/CP of 1996. This circular governs the unified State management of the country's plant genetic resources, through the Science-Technology and Product Quality Department under the MARD. This includes the processes and protocols in variety evaluation and testing, trial production, and related procedures for variety approval and release, as well as issuance of permits for mass production, trading, import, and export.

On the other hand, the National Centre for Seed Evaluation and Seed Certification (NCVESC), per Order No. 72 of 1998, is mandated to conduct the testing and evaluation of varieties for certification at the national and regional levels.

However, these laws were amended and superseded by new laws that ensued as the Government pursued its accession to the 1991 Act for the International Convention for the Protection of New Varieties of Plants (PVP) and its eventual membership to the International Union for the Protection of New Varieties of Plants (UPOV) in 2006, as the 63rd member state.



From 2000 to 2005, the Vietnam Government charted the roadmap for streamlining its plant variety policies in accordance with the UPOV standards. The Government issued Decree 13/2001/ND-CP dated April 20, 2001 on the Protection of New Plant Varieties, also known as the Plant Variety Protection (PVP) Law patterned after the UPOV's PVP template. This law protects the interest of organizations and individuals that select, create, or have the

legitimate right to inherit new plant varieties, and encourages organizations and individuals from the economic sectors to invest in selecting, creating, and using new plant varieties for agricultural and rural development. It provides the principles, conditions, and the order and procedures for granting protection titles, as well as the obligations and sanctions for violations of the protection titleholders.

Following the issuance of the 2001 PVP Law was the establishment of the Plant Variety Protection Office (PVPO) under the MARD on February 19, 2002, although its official function started two years later, on April 1, 2004. This Office is tasked to prepare legal and technical documents in implementing the plant variety protection law. It examines the results of the Distinctness, Uniformity, Stability (DUS) Test based on the standards set by MARD, and recommends the granting, nullification or cancellation of new plant variety certificates and plant variety protection titles.

Part of the roadmap to the UPOV membership was the issuance of the Ordinance on Plant Varieties, also known as The Seed Ordinance (No. 15/2004/PL-UBTVQH) on 24 March 2004, which is a merger of Decree No. 7/CP/1996 on the management of plant seeds, and Decree No.13/ND-CP/2001, the New Plant Variety Protection Law. The 2004 Seed Ordinance provides for the updated regulations on the management and conservation of plant genetic resources, including research,

selection, breeding, assays for Value for Cultivation and Use (VCU) and DUS of the plant variety; recognition and protection of new plant varieties; evaluation, selection and recognition of maternal plants, initial plants, variety gardens, variety forests; production and trading of plant varieties; and the quality control and management of plant varieties.

Supplementary to the 2004 Seed Ordinance is the regulation on the certification of quality standard conformity of plant varieties, as established by MARD through Decision No. 52/2006/QĐ-BNN dated June 23, 2006. This Decision stipulates that MARD provides the order and procedures for registration, field expertise, sample taking and preservation, quality testing and certification, and post-inspection of seed lots on the list of plant varieties subject to certification of quality standard conformity; and designates the institutions responsible for the implementation of the said procedures.

In addition, the MARD issued a supplementary regulation (Decision No. 95/2007/QĐ-BNN dated November 27, 2007) that provides for the order and procedures for the recognition of new agricultural plant varieties. It includes the VCU and DUS testing, trial production, recognition, and naming of new agricultural plant varieties selected and created domestically or imported for inclusion in the list of plant varieties permitted for production and trading.

The current system and policies that govern the national certification of new plant varieties and seeds in the country are embodied in the 2004 Seed Ordinance. It states that all new plant varieties are required to register and undergo national evaluation, as stipulated in Article 15, sections 1-3, as follows:

Article 15. New Plant Variety Evaluation

1. *A new plant variety that has been selected, bred or imported and which has not appeared in the List of plant varieties permitted for production and business must be evaluated and released before putting in the List.*
2. *Types of evaluation for the new plant varieties:*
 - a) *All the new plant varieties belonging to the List of major crops which are selected and bred in Vietnam are as the imported varieties from abroad which do not exist in the List of plant varieties permitted for production and business must be evaluated by the national Evaluation;*
 - b) *The varieties belonging to other species will be evaluated by the breeder and the breeder will be responsible for the results.*
3. *Contents of evaluation include:*
 - a) *Evaluation of distinctness, uniformity and stability (DUS test)*
 - b) *Evaluation of value for cultivation and use (VCU test)*

According to the Seed Ordinance, for a new variety to be officially certified as a national variety, released, and legally mass produced and traded, it must have passed the DUS and VCU tests and multi-location and large scale trial production, must have a proper variety name, which are the pre-conditions for MARD to approve the variety, and must be approved, recognized, and included by MARD in the list of varieties for production and business (Article 15, section 7). Propagating and purchasing a seed, which is not included in the list of plant varieties permitted for production and trading is prohibited, as specified in the Seed Ordinance (Article 9 Section 2). Violation of the

provisions in the Seed Ordinance has corresponding administrative sanctions and monetary fines, as stipulated in Decree 114/2013/ND-CP.

It also directs the new role of modern farmers in the formal and informal seed systems, their livelihoods, the course of plant genetic resources development, conservation, and management, and the state of on-farm agricultural biodiversity.

But the Vietnam Government likewise recognizes and supports the informal seed system. In fact, the government's "Decision No. 225/1999/QĐ-TTg on Seed Programs for Crops, Livestock, and Forest Trees for the period 2000-2010" laid down the policy for farmers' right to do rice breeding and selection, and encouraged organizations and individuals to take part in rice breeding and production.^{xi} Another policy, "Decision 19/BN" , provided the guidelines for testing, certifying, and naming of new varieties, including the certification of farmer's variety as a national variety.^{xii} In addition, the Government expressed its support to farmers' saved seed production management through Decision 35/2008/BN issued by the MARD.^{xiii} Moreover, a national workshop related to the application of the seed policy and plant protection law, organized by the Department of Agriculture, concluded that the Government indeed aims to create good conditions for people's participation in rice breeding, selection, and production (as cited by Huynh Quang Tin and Nguyen Hong Cuc, 2009).

The National Variety and Seed Certification System in Rice

Rice, a self-pollinating crop, takes a minimum of seven to ten filial generations, or seven to ten cropping seasons to reach stability or uniformity of the traits in the particular cultivar being developed. Once this has been reached, that particular line or cultivar may be planted from season to season, exhibiting uniform traits in the specific agroecosystem where it has been bred and found suitable. The seeds produced by the plant breeder/research institution are called breeders' seeds.

To validate the performance of breeders' seeds, the plant breeder/research institution conducts an initial on-farm yield trials and multi-location testing replicated trials using a standard check variety to further evaluate the uniformity and stability of the traits. If the plant breeder/research institution is quite confident on the results of the initial trials showing uniformity and stability of the traits, then they may opt to have the variety registered and certified as a national variety and as a certified seed.

The first step involves the evaluation of the new plant variety for its VCU and DUS. The VCU test is aimed at establishing the differences in the productivity and performance of the variety, such as resistance to pests and diseases, growing suitability to a particular agro-climatic conditions, and other commercially important characteristics between the cultivar being evaluated and a standard variety.

The DUS test, on the other hand, is aimed at determining the distinguishing essential genotypic and phenotypic characteristics of the variety, which make the variety distinct from the others. Such essential characteristic/s has/have to be sufficiently uniform and stable, which means that these characteristics remain unchanged even after repeated cycles of propagation (UPOV, 2002).

These variety evaluation tests run for at least three seasons for the VCU and at two seasons with the same season name (two years) for the DUS, which means a total estimated duration of 3.5 to 4 years.

The National Center for Variety Evaluation and Seed Certification (NCVESC)^{xiv} carries out the testing according to the test guidelines for each plant species that is promulgated by the MARD. These include field inspection and pest control, seed testing and certification based on the seed standards set by MARD, and documentation of the test results. However, the plant breeder/research institution may conduct the variety evaluation itself, provided that they meet the minimum standard for a new plant variety evaluation office as stipulated in Section 1^{xv} of Article 16 of the Seed Ordinance of 2004.

To apply for the DUS and VCU tests, the plant breeder/research institution complies with a dossier of required documents^{xvi} to be submitted to the NCVESC. Once these have been complied with, the plant breeder/research institution pays a filing fee of 2 Million VND (USD 96) and the DUS and VCU testing fee, which ranges from 7.5 Million to 22 Million VND (USD 360-1,058), depending on the crop, whether it is seasonal, annual, or perennial (Nguyen Thanh Minh, 2008). For annual crops, such as rice, the DUS testing fee is 11 Million VND (USD 529) per variety.

Meanwhile, the variety can already be named prior to its approval and release as a national variety. There are rules in naming varieties, however, with the exclusion of pure numbers, morally unacceptable words, and duplication of existing names, as stipulated in Article 7 of the Seed Ordinance. Usually, the local seed agencies determine the variety naming system.

The test results are then reported to a local science and technology council for evaluation. If the test results are acceptable to the local scientific evaluation board, this is brought up to a multi-disciplinary approving panel, which is the Specialized Scientific Council of Agriculture Science and Technology under the MARD. The Department of Crop Production (DCP) under MARD facilitates this step. The evaluation is based on the submitted reports of the applying individual or research institution.

Once the test results are found acceptable to the MARD, the plant breeder or research institution conducts a large-scale trial production of the variety in the different provinces of country, covering a minimum aggregate area of 5,000 ha. To do this, the plant breeder or research institute seeks approval of the provincial-level Department of Agriculture and Rural Development (DARD) to conduct mass production trials of the variety in the province. Likewise, the trial production results are examined and approved by MARD through the Specialized Scientific Council of Agriculture Science and Technology. Based on the recommendation of the Council, the MARD will make the decision for approving and releasing the variety as a national variety.

Part 2. HD1: A Farmers' Variety Goes Through the Formal Seed Certification Process

The HD1 is the first farmer-bred rice variety in Vietnam which has gained immediate acceptance and popularity in the Mekong Delta. Bred by Mr. Nguyen Van Tinh, it underwent the breeding process from 2002 to 2006. The variety originated from a cross between a traditional variety, Nang Nhuan, and a high yielding variety, AS996//MTL156/Nang Nhuan, performed by the Mekong Delta Development Research Institute (MDI) in 2001. The cross, called L340, was given to Mr. Nguyen Van Tinh at F2 for his use as a segregating line in his field study under the FFS in 2002.

The HD1 variety was aimed at obtaining a rice variety that is tolerant to acid sulfate and saline soils. It has a short growth cycle of 90-95 days; has short height of 85-90 cm; produces an average

yield of 4.8 tons/ha during the wet season and 6.3 tons/ha during dry season; and of good quality non-chalky grains. Its fertilizer requirement is 70-40-50 kg/ha NPK. It is resistant to flooding and lodging, tolerant to grassy and ragged stunt diseases, blast, and brown plant hopper. Through the assistance of the Seed Centers of Kien Giang, Tien Giang, Soc Trang, and Dong Thap, NCVESC, and MDI, the HD1 variety successfully passed the national certification process.

The long process of certification

It needed a total of nine years for the HD1 to gain formal certification. A chronicle of the path it took to reach certified status is documented below:

Making a cross. The process began during the dry season of 2001-2002 with the MDI making a cross from AS996 and MTL156, with the product crossed with a local variety named Nang Nhuan. The objective was to produce a variety that is suitable in soils that contain acid sulfate and saline.

Selecting from segregating materials and conduct of observation trials. During the wet season of 2002 until the dry season of 2003-2004, Mr. Tinh began selecting from segregating materials through the conduct of on-farm trials for selection from F3-F6. The following wet season (2004-2005), he went on to conduct Primary Observation Trial with the production of stable lines at F7 (L340-1-2-1-1-1-1). Late observation trials which were conducted at My Lam Village with control variety OM576 followed in the dry season of 2005.

Yield trials were conducted in 15 CBDC sites with different agroecosystems using VND95-20 as the control variety during the dry season 2005-2006 and wet season of 2006.

Registration for national testing. The test for VCU was conducted in 13 sites in the Mekong Delta with control variety OMCS2000 during the dry season in 2006-2007, wet season 2007, and dry season 2007-2008. The DUS test was conducted during the wet season in 2008 and wet season in 2009.

Application for official certification of test for large-scale production in at least 5,000 ha. The NCVESC was in charge of documenting the development of the HD1 variety. On July 29, 2008 the research results were defended at the Local Scientific Board of Can Tho University (CTU) by the CBDC Project Staff and Mr. Tinh. Revisions based on the comments from the defense were made by the MDI. On April 11, 2009, the report was presented and defended at the Scientific Board of the MARD.

Official certification of test for large-scale production. On June 18, 2009, DCP issued the officially certified decision for testing production of the HD1 in the Mekong Delta. Seed multiplication and production in provinces were carried out by the seed club network and seed centers from 2009 to 2010. At the same time, CBDC Project Staff requested the DARD for the evaluation and large scale production (at least 5,000 ha) of the HD1.

Application for National Certification of HD1. At this point, CBDC Project Staff were preparing for the results of the large-scale production during two cropping seasons. The third defense of the research, this time at the Local Scientific Board of CTU was held on July 24, 2010. The last defense of the results was presented at the Scientific Board of MARD on December 13, 2010, with the final report submitted to the DCP on December 20, 2010.

Awarding of the National Certification of the new plant variety. Finally on December 23, 2010, the DCP issued the official certification decision for HD1 variety. The MARD then issued the circular letter on the addition of a new variety to the list of plant varieties for production and commerce in Vietnam.

Reaching the goal

After Mr. Tinh received the national certification of the HD1 variety, he pursued the commercialization of it through the My Lam Seed Club, of which he is the Marketing and Trading Manager. He led the registration of the Seed Club as a seed enterprise, and obtained permit to operate from the DARD and the provincial government.

In his first year of trading, he encountered problems on the promotion and marketing of his seeds, including unpleasant experiences dealing with several traders which led to his incurring losses.

Then through word of mouth of other farmers and product advertising by the MDI, the variety became known beginning the second year of production. He found it easier to sell seeds when these are certified with his market reaching almost the entire Mekong Delta, and farther to the southeast and central regions of Vietnam. His level of production has reached 8,000 tons/year from two cropping seasons in an aggregate 600-ha farm area of the My Lam Seed Club.

Mr. Tinh claimed that his income increased as a result of the commercialization of his variety. From his income, he was able to buy a motorcycle, a truck for transporting his harvests, and household appliances. He was also able to convince other farmers in his community to partner with him in the seed production of the said variety. He continues with breeding work and variety selection on his own, without external support from any project or from any government agency.

Benefits and costs

To have his own developed variety that is nationally recognized is a feat for any farmer, giving him a sense of accomplishment. Most of the farmers in the study appreciate the value of national seed and variety certification in affording recognition to farmers' work and contribution to science and development, uplifting their morale, and affirming their importance and role in PGR conservation and development. Of equal importance is the legal identity and protection for the farmer-bred variety that goes with the certification.

Being certified, a variety earns a reputation of having good quality, can be legally mass produced, and allows the plant breeder to do legitimate business. Since it is easier to sell certified seeds, the plant breeder can get a bigger market as he or she is free to sell these anywhere within the country and may even export them. Aside from being able to command a premium price for certified seeds, a farmer-plant breeder could gain increased income through the increased volume of sales of seeds, boosting his or her buying capacity, improves standard of living, and encourages other farmers to do the same.

But these benefits are offset by the financial and other costs of the long and tedious course that a variety needs to undergo to attain certified status. Farmers in the study showed willingness to

comply with the certification procedures, but are constrained to follow these because of various reasons.

Financial constraints. New variety testing would cost about 2.5-3 Million VND/variety (USD 120-144).^{xvii} For the registration and DUS and VCU testing fees alone, it would already cost a minimum of USD 625 per variety. In addition, the farmer has to shoulder the cost of conducting multi-location testing, yield trials, and mass production trials. With this figures, farmer-breeders could not afford the high cost of certification fees. Even research institutions that are willing to finance the farmer-breeder cannot just do it because they do not have the budget for it. The HD1 variety gained certification due to the CBDC-BUCAP Programme, from which the fees and money used to conduct the tests and production trials came.

The 2004 Seed Ordinance explicitly says that the State owns plant genetic resources and their management and development is the responsibility of the State (Article 10, Section 1). On this premise, the Government has allocated resources to invest on the development of the seed sector (Article 5, Sections 1 and 2), and encourages organizations and individuals to contribute to the management of PGR at the local level (Article 10, Section 3). The Government provides financial, infrastructure, manpower, and support services needed for the operations of these organizations, including the costs of variety and seed certification.

Yet, farmers who are directly performing the function of protecting, conserving, and managing plant genetic resources at the farm level and who are direct contributors to the country's seed security and food security are not benefiting from this Seed Ordinance. Only formal institutions such as private seed companies and government agencies which have sufficient resources and capability can afford to comply with the requirements of such a system.

Time element. Farmers have to submit to long, tedious, and stringent procedures in the certification process that have to be strictly complied with. As established by the experience of Mr. Tinh, developing a rice variety to be subjected to the national certification system would take a minimum of seven or eight seasons or three and a half to four years based on two cropping cycles per year. Once the variety is stable, the variety registration and seed certification process would take another four years. In addition there is foregone opportunity cost of their time and effort in complying with the very long procedure of certification.

Capacity. Besides the financial restraints and the long and complex process of variety registration and seed certification, many farmers are faced with other concerns in meeting the requirements, such as their lack of technical capability in documenting and analyzing the characteristics of their rice varieties and lack of time.

Uncertainty of performance. But the respondents in the study revealed their observation that a nationally certified variety does not necessarily guarantee good yields or good performance in their fields. Some farmers have actually experienced getting poor yields from certified varieties. They have expressed that they do not mind whether or not the variety that they plant is certified, as long as it will grow well and give good yields. They would still prefer their uncertified locally adapted varieties or improved varieties or farmer-bred varieties over certified varieties which are not adaptable in their farms.

Part 3. The Alternative System in Place

On the other hand, the Vietnam Government recognizes and supports the informal seed system. In fact, the government's "Decision No. 225/1999/QĐ-TTg on Seed Programs for Crops, Livestock, and Forest Trees for the period 2000-2010" laid down the policy for farmers' right to do rice breeding and selection, and encouraged organizations and individuals to take part in rice breeding and production (Thong, 2006, as cited by Huynh Quang Tin and Nguyen Hong Cuc, 2009). Another policy, "Decision 19/BNN", provided the guidelines for testing, certifying, and naming of new varieties, including the certification of farmer's variety as a national variety (as cited by Huynh Quang Tin and Nguyen Hong Cuc, 2009). In addition, the Government expressed its support to farmers' saved seed production management through Decision 35/2008/BNN issued by the MARD (MARD, 2008, as cited by Huynh Quang Tin, et al., 2011). Moreover, a national workshop related to the application of the seed policy and plant protection law, organized by the Department of Agriculture, concluded that the Government indeed aims to create good conditions for people's participation in rice breeding, selection, and production (as cited by Huynh Quang Tin and Nguyen Hong Cuc, 2009). However, the application of these policies needs clear-cut implementing guidelines, otherwise, they would remain only on paper (Huynh Quang Tin and Nguyen Hong Cuc, 2009).

The local agriculture department does not recommend mass production of seeds that are not certified (Huynh Quang Tin and Nguyen Hong Cuc, 2009). But there are cases where non-certified seeds coming from the formal seed centers are produced in large scale: MTL325, bred in many provinces; MTL364 and MTL243, produced in Soc Trang province; and MTL399, widely grown in Dong Thap, Tien Giang Province (Huynh Quang Tin and Nguyen Hong Cuc, 2009).

In practice, Vietnamese farmers choose varieties or seeds by word of mouth from fellow farmers. All the farmer respondents in this study indicated that they continue to do the traditional seed guarantee system for their traditional and local varieties, as well as for non-certified seeds, but do not operate independently of the State. They do conform and comply with the policies of State, particularly the Seed Ordinance.

The Farmers' Seed Guarantee System

After completing their training under the Farmer Field Schools, farmers form themselves into farmers' groups or what they call seed clubs. Initially, seed clubs aimed to produce seeds for their own use and for other farmers within their communes. They produce rice seeds, regardless whether these are certified, or non-certified farmers' varieties or traditional varieties, as long as they are in demand in the market.

The farmers, as individuals or as a group or as a seed club, guarantee the qualities of the seeds that they sell. It works on the principle of honesty and truthfulness of the declared seed qualities and credibility of the seller to gain the trust of the buyer. Accessibility and availability of the seeds are also the main operating factors that run the farmers' seed guarantee system.

The farmers' seed guarantee system is an age-old practice as the informal seed exchange system has been in existence even before the formal system of certification has been put in place. Thus, the seed clubs or other organized farmers' groups have modified their seed guarantee system to make a semblance of the formal seed certification system.

How a seed club's seed guarantee system operates

After the initial training on capacity building farmers form themselves into a seed production group with the aim of producing rice seeds and grains for commercial purpose and home consumption. Generally, the local government agriculture extension officers, the seed centers, as well as the MDI, provide mentoring and technical support to farmers to help them in establishing and sustaining their seed club.

The seed club organizational structure may include among other things, a research committee that handles breeding and field studies and testing and evaluation of new varieties; education and training committee that manages the training needs of the seed club members, e.g., seed quality inspection; seed production committee that leads and coordinates the seed multiplication or mass production; seed quality control committee that manages that seed quality inspection from the production field, down to postharvest, packaging, and release; and seed distribution and marketing committee that oversees the market supply and demand, and coordinates the overall marketing and trading system.

Variety Testing and Seed Quality Evaluation

After a stable line or variety is developed by a farmer or group of farmers, the farmer brings it to the seed club for performance evaluation. The members of the seed club meet to decide where to test the variety. This is equivalent to trial production in the formal system but without the multi-location setting. When they get good results from the trial production, they proceed directly to mass production and on to selling. The profit is shared based on the shares of stocks or contribution of members to the seed club. Seed quality evaluation is tasked to a unit within the seed club which is composed of farmers who have been trained by the Seed Center through the CBCD-BUCAP.

The procedure for seed quality evaluation follows the standard set by the MARD. After evaluation, the seed club's seed inspector labels the seed bag with the name of the variety and trademark, if any, for certified varieties, or the name of the local variety, or some identification codes for non-certified seeds. For both certified and non-certified varieties, it is the Seed Center that approves the seed quality and the subsequent release of seeds into the market.

Another way of testing the variety is by on-farm ocular observation. This is usually done during the Farmers' Field Day (FFD), where farmers from different communities are invited to see the standing crop. The farmer-breeder presents the characteristics of his variety and sometimes sets up a taste test of the cooked rice of the variety. The farmers who like the variety may pre-order or buy directly from the farmer-owner. In most instances, the farmer-breeder gives out sample seeds for other farmers to test these in their respective farms.

Seed Production

Before the start of the cropping season, seed club members meet to discuss and decide on what varieties to plant, the target volume of production, target farm size, and target planting areas. Their decision is based on the market demand or consumers' preferences and the suitability of the varieties to the climatic conditions.

The Seed Center, Extension Station, and the MDI provide the needed seeds and technical support, such as supervision and seed quality control throughout the seed production process. The seed club may opt to contract out the seed production to the Seed Center, in which case buys their produce.

Seed Distribution and Marketing

The distribution and trading of the seeds is usually facilitated by the Seed Club Leader, while all the seed club members can do the marketing or trading. In the Xuan Hiep Seed Club in Vinh Long Province, the farmers bring their seeds to the CBDC-BUCAP network of seed clubs. Fifty percent (50%) of the seeds produced are sold to farmers within the province; 20% to those outside; and the remaining 30% is reserved for their own use as planting materials. This seed club has 29 farmer members, who have produced 150 tons rice seeds in three seasons, in an aggregate 18-ha rice land. They produce certified seeds, foundation seeds, and farmers' varieties.

In most other cases, the Seed Center, Extension Station, and Farmers' Union facilitate the seed distribution and marketing, especially when the DCP asks the farmers to produce a particular variety in the province.

Strictly speaking, under the Seed Ordinance, selling of non-certified seeds is illegal. However, local government officials give some consideration and flexibility to farmers in selling non-certified seeds, but only in small volumes and limited only in their own community or outside their community within the district.

Since the seed clubs are able to produce good quality seeds, they usually are able to command a higher price compared to the commercial seeds available in the market. The seed clubs can put a mark-up price from 500 to 1,500 VND/kg (USD .028-.084), depending on the variety's characteristics.

The Sau Ri Seed Company

It started as a seed club in 2004, and was called “Binh My Seed Club”, with 32 farmer-members, covering an area of 36 ha. The main objective of the Club is to produce seeds for selling. Every cropping season, seed club members meet to decide on which variety (ies) is (are) suitable for production. They register at the An Giang Extension Center, and the Extension Station allocates the seeds of the requested varieties to every member.

As part of its support, the Extension Station provides 50% subsidy on the price of pre-basic seeds. There is, however, no subsidy for foundation seeds. The seed club follows the seed production process. It has its own seed inspection unit. Members exchange seeds with other farmers. They also sell seeds at 1,000-1,200 VND (USD .048-.058) per kilogram higher than the market price. Their estimated profit is about 4.5-5 million VND (USD 216-240) per hectare higher than the commercial rice.

They also set up demonstration plots for varietal screening of different varieties from various sources, whether certified or non-certified. At the end of the season, they conduct the FFD, where they invite farmers to evaluate the varieties.

In 2011, they divided themselves into two seed clubs. The new seed club was called “Binh My Seed Club”, with eight members, and this serves as the marketing arm, while the original seed club, with 24 members, serves as the seed production arm. Later, they registered the Binh My Seed Club as a seed enterprise, called the “Sau Ri Seed Company”.



The purpose of the seed company is to have a registered trademark for the seeds and grains that they produce and sell.

The An Giang Extension Center

An Giang Province is located downstream west of the Mekong Delta. It has a generally flat terrain embedded on crisscrossing rivers and canals, which has made it especially suitable for rice production, and hence it has become one of the top rice producing provinces in the Mekong Delta. An Giang covers a total land area of 3,500 ha, of which 70% is used for agriculture, mainly rice crop.

Since 1998, with the local government's strong support, the province has been experiencing increased rice production by planting three crops of rice per year. This has enabled them to export rice while meeting the grains requirement of the province. With a triple cropping system, the cultivated rice area has expanded from 2,570 ha to 4,770 ha in 2002 to 6,057 ha in 2011.

Prior to their introduction to participatory plant breeding, farmers in this province used poor-quality seeds. Realizing the need for good quality seeds to further improve farmers' productivity, the local government welcomed the CBDC-BUCAP.

From 2001 to 2012, 544 training courses on participatory plant breeding and participatory variety selection were conducted with 14,000 farmers as direct beneficiaries. Significantly, only 12 out of the 544 courses were funded by the CBDC-BUCAP; the rest were funded by the Local Government of An Giang Province.

From the An Giang farmers who have been trained from the CBDC-BUCAP emerged seed production teams, or the "Seed Clubs". An aggregate of 212 seed clubs were established over a 10-year period. These seed clubs are now providing an average of 90% of the rice seed demand of the province. Of these 212 seed clubs, 28 have evolved into seed companies. Having the legal status of an enterprise through registration in the government, they now legally produce and market seeds. But as registered companies they can no longer produce uncertified seeds. This limits the diversity of seeds that they produce.

These farmers do not only produce seeds for themselves and for exchange with other farmers in their community. Some of them have gone further to pursue field research and to become plant breeders. One of them is Mr. Tran Thanh Hung who developed NV1, a variety which has already passed the evaluation tests and is now undergoing the multi-location testing and large-scale trial production.

In addition, the support of the local government of An Giang has been evident in other capacity building programs through additional training programs such as Integrated Pest Management (IPM) and other farming techniques, information and education campaigns through print and broadcast media, institutional linking and building networks through the "Farmers' Field Day", market linking through public-private partnership (PPP), as well as provision of material resources, such as seeds and other farm tools and equipment.

The An Giang experience is a clear illustration of what committed support of a local government for the farmers' concerns can do. It also shows the significant role of local governments in steering the direction of development of the farmers and the agriculture industry.

Farmer-friendly Seed Certification System

Having witnessed the experience of their fellow farmer in undergoing national certification for HD1, the farmers in this study shared their ideas on how the system could be of benefit to more farmer-breeders and allow them to contribute to the seed requirements in the country.

Financial support. Mr. Tinh himself recommends that the MARD/DARD provide financial support to the certification of farmer-bred varieties, especially for the multi-location variety trials. An alternative recommendation is to waive the payment of the testing fees for farmers' varieties.

Although considered private individuals, farmers, like government research institutions, are the main actors who contribute to the country's food security. Therefore, as the government supports research institutions for crop breeding to improve crop production, so should the government also support farmers who do the same kind of work. Should a farmer-bred variety have the potential for adaptability to a wide range of agro-ecosystems, prompting the need for national certification, the following policy recommendations are presented:

- i. To develop a separate certification system for farmer-bred varieties, with minimum requirements purely to ensure quality; or
- ii. For the national and local governments to waive the certification fees for farmer-bred varieties.

Alternative system of certification. Seed club networks could play as channels for certification. During the FFD, other farmers could be given a small amount of the seeds of the varieties developed by the farmer-breeders, to be planted in their own farms for the testing of performance. This would serve as a simulation of the multi-location testing of the national seed certification system.

Acceptance of the farmers' traditional seed guarantee system of ensuring the quality of farmer-bred varieties and seeds as a legitimate alternate to the national seed certification will provide encouragement and incentive to more farmer-breeders. However, to operationalize a clean and honest guarantee system, some standards and check processes should be put in place to ensure factual declaration of the characteristics and quality of the variety and seeds being sold.

Another alternative proposed by the farmers is to have a separate local certification system for varieties which are aimed for local adaptation, and which have specific traits that address specific local adverse conditions, e.g., a drought-tolerant locally adapted variety. The local certification could be at different levels: provincial, district, or commune. This means that a variety adaptable to the provincial environmental conditions will warrant a provincial certification, which will then permit the mass production and selling of the variety within the province and nearby provinces that have the same eco-system characteristics; district certification means within the district, and commune certification within the commune.

This proposal adheres to the principles of biodiversity conservation, especially for *in situ* conservation of local varieties of rice, and allows the evolutionary adaptation of local varieties to climate change.

Capacity enhancement support. Farmers need to develop skills that are not part of their agriculture practices. As such, research and academic institutions are needed to guide and teach farmers on how to collect data, conduct trials, and document or prepare reports of the results of the variety testing and evaluation.

CONCLUSION

The national variety seed certification system of Vietnam is influenced and, in fact, patterned from the prevailing global framework such as UPOV. The going trend is towards harmonization of the systems whether regional or global. Hence, the prospect of seed certification leaning towards the UPOV and others is not a remote possibility. But there are flexibilities that can be explored.

While the national variety seed certification policy has good intent in ensuring good quality planting materials for improved crop production and economic development, it has, at the same time, become a bottleneck rather than a channel that facilitates easy access and availability of good quality seeds. The challenge is how to ensure quality without excluding the farmers' seeds and at the same time allowing farmers to participate in the market.

The provisions of the 2004 Seed Ordinance mean that any new variety that has not passed the national evaluation tests, trial production, and other pre-conditions for variety certification, will not be allowed to be produced and to participate in the market. Given this provision, it follows that the farmer-bred varieties developed by the FFS farmers under the CBDC-BUCAP, except for HD1, cannot be mass-produced and marketed because they are not certified. Moreover, the naturally diverse genetic composition of most farmer-bred varieties, and their specific adaptation traits, will certainly fail the required standards of the DUS and VCU tests and the multi-location adaptability tests.

Genetic diversity has been identified as the solution to counter food insecurity caused by climate change. But the increasing dependence on a few certified varieties defeats the principle of promoting genetic diversity, and counters the objective of developing varieties that will adapt to various needs of farmers considering the very diverse ecological conditions in the country. In such a case, a variety will increase its vulnerability to different kinds of environmental stresses, including pests and diseases, which will then require more external inputs to allow the variety to reach its potential productivity.

No variety is adaptable to all kinds of environment. The performance of a certain variety will always depend on its genetic properties and its interaction with its environment, i.e., where it is planted. This means that a certain certified variety may give high yields in a very favorable environment, such as one that has sufficient irrigation and fertile soil, but will not give the same yield if it is planted in a drought-prone and/or saline area.

Variety certification should not hamper the development of genetic diversity. The more diverse the genetic composition of a variety, the wider will be its capacity to be adaptable to changing environmental conditions. Thus, improving farmers' varieties to address specific local conditions, and allowing them to evolve and adapt distinctive traits suited in that particular locality will give more added value to enhancing genetic diversity of a certain variety and to the diversity of the rice gene pool in that certain locality. Rather than genetic uniformity, variety certification would serve

the farmers best by establishing the general identifying characteristics of a variety, with greater allowance for variability, reflecting the diversity of its genetic base, resembling a landrace,^{xviii} the kind of crop that farmers would like to have in their farms. In such a case, national certification may not be necessary, and a local variety certification system may be more appropriate.

A local variety certification can attest the adaptability of a particular variety to a particular locality that may be, as an example, drought-prone and with high salinity; and that it can generate good yields with minimal external inputs. Moreover, a local certification would allow mass production and trading of that variety in that particular area, and in other areas with similar environmental conditions, which in this case would need a good land use characterization and zoning. This will also reduce the incidence of crop failure, and therefore afford farmers with protection from using poor quality seeds, while at the same time, provide guarantee of access to good quality seeds.

The farmers' traditional practices of saving seeds for the next season, informal selling of seeds, seed exchange, and use of traditional varieties, in fact, play an important role in contributing to the country's plant genetic resources and agricultural biodiversity conservation and management, and in safeguarding seed security and food security, not only at the local level, but also at the national and global levels.

Finding Better Options for Farmers

At the least, farmers need to be given more opportunities to protect themselves from the onslaught of climate change impacts. The study recommends the following in considering the formulation of viable options for farmer-bred varieties:

1. Look into the farmers' guarantee system or the alternative as a system to determine and establish seed quality and the scope this can be applicable to in the Vietnam context.
2. Review policy coherence between the government's climate change adaptation plan and seed laws since the current seed certification system excludes farmers' varieties which are mostly uncertified but adaptable to local conditions.
3. The decision on whether or not to make two separate systems of certification for formal and informal seed system should proceed from the consideration of the following:
 - 3.1 determination of the characteristics of the informal seed system and its role as source of seed supply, the cost of regulation, such as market and non-market costs (conservation of agricultural biodiversity) vis-à-vis the benefit derived by the government in pursuing the current seed certification system.
 - 3.2 exploration of both market and non-market benefits in rationalizing the seed certification system without compromising equally significant national objectives such as conservation of plant genetic resources and enhancement of local and traditional knowledge.

4. Look further into the market and non-market considerations of farmers in undergoing or for not undergoing seed certification in order to articulate the farmer's perspective in rationalizing the current seed certification system.

For Mr. Nguyen Van Tinh, plant breeding work is based on the interest and passion of the farmer. It is not necessarily for profit. For him, being able to develop a variety, which has passed the tedious and stringent national variety and seed certification process, and being recognized for this achievement is a great honor. He said that he has found satisfaction in the product of his work, and he realized that he has an opportunity to improve his life and contribute to the country's development. But in order for him and other farmers to accomplish this, they have to be provided with capacity and policy support to contribute more to the country not only in its economy but more importantly in its agrobiodiversity.

ENDNOTES

- i VietNamNet Bridge, Vietnam needs to change the approach to food security? 2012 at <http://english.vietnamnet.vn/fms/special-reports/52232/vietnam-needs-to-change-the-approach-to-food-security-.html>
- ii Tran Duc Vien, Climate Change and its Impact on Agriculture in Vietnam, Hanoi University of Agriculture, 2011 at <http://www.issaas.org/journal/v17/01/journal-issaas-v17n1-03-vien.pdf>
- iii Sven Harmeling, GLOBAL CLIMATE RISK INDEX 2012 WHO SUFFERS MOST FROM EXTREME WEATHER EVENTS? WEATHER-RELATED LOSS EVENTS IN 2010 AND 1991 TO 2010. Germanwatch e.V. November 2011.
- iv Dr. Tran Mạnh Hùng, FOOD SECURITY AND SUSTAINABLE AGRICULTURE IN VIET NAM, at <http://un-csam.org/Activities%20Files/A0902/vn-p.pdf>
- v Formal seed system refers to the organized system of seed production, distribution and marketing, including its legal machinery that has been developed and engaged in by formal institutions such as government research institutions, seed production centers, extension centers, and private seed companies.
- vi Informal seed system, also known as the “farm-saved seed system”, refers to the system of seed production, dissemination, exchange, barter, and trading, with its local customs, norms, and traditions established and engaged in by local people in the community, such as friends, neighbors, relatives, and the local informal institutions such farmer’s households, local organizations such as farmers groups or farmers associations, clubs, cooperatives, and the like.
- vii High quality seeds can be defined as a seed of an adapted variety with high genetic, varietal, species, and physical purity; high germination and vigor; free from seed-borne pests (fungi, bacteria, viruses, insects, nematodes, parasitic weeds); and properly cleaned, treated, tested, and labeled (Bishaw, et al., 2007, as cited by Tin, 2009).
- viii FFS is a learning process where farmers learn by doing simple field experiments and discover solutions to their farming problems. Its experiential nature allows farmers to relate the lessons with their own knowledge and experience.
- ix The Community Biodiversity Development and Conservation- Biodiversity Use and Conservation in Asia Program (CBD-UCAP): Farmers’ Rights in Practice, SEARICE. 2009. (Unpublished)
- x Strengthening Farmer Agricultural Research and Extension System (FARES) Partnership in Vietnam. Annual Report, 2012.
- xi Thong, 2006, as cited by Huynh Quang Tin and Nguyen Hong Cuc, 2009.
- xii As cited by Huynh Quang Tin and Nguyen Hong Cuc, 2009.
- xiii As cited by Huynh Quang Tin and Nguyen Hong Cuc, 2009.
- xiv Its main headquarters is in Hanoi, but it has five testing stations across the country, namely: Tu Liem station in Hanoi for testing of upland crops; Van Lam station in Hanoi for testing of rice and vegetables; Central Regional Centre in Quang Ngai province, with Son Tinh station in Quang Ngai province, and Central Highland station in Dak Lak province; and the Southern Region Centre in Ho Chi Minh City, with Southeast station in Ba Ria-Vung Tau.
- xv The application dossier consists of the application form for evaluation; a dossier of the plant variety, with its name, origin, quantity, economic-technological indices, and technical guide.
- xvi A new plant variety evaluation office will be recognized by the Ministry of Agriculture and Rural Development, and the Ministry of Fishery when they have satisfied the following conditions: a) Has the register for activities relating to the evaluation of plant varieties; b) Has a place which is suitable for the evaluation and for the growth and development requirements of each plant species, and in accordance with regulations of laws on environment protection, the laws on aquatic as plant protection and quarantine; c) Has enough special equipment for evaluation

requirements of each plant species; d) Has sufficient standard varieties in the same plant species to use as check varieties for the DUS test; e) Has employed technical staff trained in the procedures to evaluate new plant varieties.

xvii Thong Tin Tu as cited by Huynh Quang Tin and Nguyen Hong Cuc, 2009.

xviii A landrace is a group of plants or a population with distinct characteristics that define its identity as a unique cultivar, but with acceptable variability within the population, reflecting the genetic heterogeneity of the population, which gives it the characteristic adaptation capacity or resiliency to changing environments.

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VOICES FROM THE FIELDS



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PREFACE

Climate change adversely impacts global food systems. More often, these impacts are reported in terms of hectares affected, quantity of crop losses, and by other similar expressions of measurements. Rarely do we see any reference to the people mainly behind these food systems – the farmers. Often, they are just part of the accounting of population affected expressed mainly in numerical terms. With regard to response initiatives to climate change, their capacities to contribute to such actions are often disregarded, thus, their roles are usually relegated to that of being beneficiaries or recipients of aid.

“Voices from the Fields” was borne out of the advocacy for the recognition of farmers as important actors in ensuring climate resiliency that starts with the acknowledgment of their capacities to do so.

This publication shares their stories as they themselves narrated to the writers. It provides the readers glimpses to their lives, characters, struggles, transformations and to what they can contribute in ensuring their communities’ resiliency.

“Voices from the Fields” serves as a channel by which the messages of farmers to other farmers and local institutions shall be conveyed.

This is an initial attempt of SEARICE to come up with a publication of these contents. Coming out with this material is done with the intent for prospective replication.

The implementation in the Philippines of the project “Building Resilient Community-Managed Seed Systems Towards Climate Change Adaptation” contributed in great portion to the context of the information shared by farmers.

Due acknowledgement is given to the agricultural technologists, technicians and extension workers from the municipalities of Mangaldan (Pangasinan Province), Clarin (Misamis Oriental), Arakan (Cotabato), Maramag (Bukidnon), Libmanan (Camarines Sur) and the City of Bayawan (Negros Oriental), who gathered the materials and provided the initial write-ups from which the final texts of the contents were developed.

Utmost gratitude goes to the following farmers: Rosendo Magsipoc, Elmer Jangco, Romeo Bitco, Ronnie Librando, Doroy Dapitan, Ismael Moral, Hernani Terania, Pedro Yurfo, Joel Evangelista, Antonio Liza, Pedro Trinidad, Julie Azpa, Charles Vincent Micquibas and Antonio Villaplaza for entrusting SEARICE with the information they have provided that served as main contents.

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Unlearning to Learn



Learning and unlearning. That is how Ismael Moral, a participant in the *Farmer Field School (FFS) on Plant Breeding and Varietal Selection in Lowland Irrigated Riceland in Barangay Ibid, Libmanan, Camarines Sur* describes his experience.

Learning, as plant breeding and varietal selection are new concepts for him and the rest of the FFS participants. Learning how to make sound decisions through critical observation and thorough analysis of observed field occurrences that were taken for granted before having the opportunity to engage in an FFS. Learning by doing, doing to discover first hand, and learning to apply what was learned. Learning to change mindsets and believing in farmers.



Learning takes unlearning. Many of farmers' accustomed crop production practices need unlearning because they are wrong and oftentimes harmful to the environment. Indeed an enlightening reflection. Such is the case of the old farmers' belief that all insects should be eradicated by applying insecticides. Unlearning dependence on hybrids, learning diversification and PGR conservation, development and sustainable use.

Ismael's initial attempts at crossbreeding may have been unsuccessful but this did not deter him from continuing as he already looks forward to the next FFS season. The possibility of being able to develop a variety based on his own preferences is reason enough for him to continue his participation. Because now he has learned and that he can .

Continue learning and unlearning to learn.

Cause, Effect and Impact



The project “Building Resilient Community-Managed Seed Systems Towards Climate Change Adaptation” was implemented employing the Farmer Field School (FFS) approach. The FFS provided opportunities for learning for the farmer-participants. In the case of some farmers from the Municipality of Maramag in the Province of Bukidnon, it also served as an introduction to rice farming and new methodologies in crop management as well as an opportunity for enterprise development and an unlearning of accustomed practices.

For Joel Evangelista, Antonio Liza and Pedro Trinidad, the FFS made them aware that not all insects are pests and that there are those that are more helpful to plants. Further, from being accustomed to using chemical-based pesticides and insecticides immediately upon seeing insects in their fields, they adopted the introduction of alternative and organic pest control methods that not only minimized their production costs but more importantly ensured that helpful insects are not harmed. The FFS they say, contributed in making their produce safer to eat thus contributing to a healthier lifestyle. This also contributed in lessening dependence on business enterprises for crop management needs.



For Juliet Azpa, her participation in the FFS was an introduction to rice farming. She is a plain housewife but involves herself with other economic activities to contribute to their family income. She saw rice farming as an opportunity so she willingly participated in the FFS.

Similarly, Charles Vincent Micquibas, who rice farming as a viable enterprise. While he has a degree in agriculture, his specialization is horticulture, thus the FFS was an opportunity for him not only to learn rice farming but also plant breeding to develop his own rice variety of superior characteristics that can make small parcels of land productive enough to suffice as primary source of income. He intends to showcase to other farmers that given the right application of knowledge and technology, a small piece of land can be productive enough to suffice as primary income source.

In the case of 61-year old Antonio Villaplaza, his participation in the FFS made him realize that there is more to farming than what he already knows. Aside from being made aware of varieties that are tolerant to different stresses, plant breeding was one topic that was new to him and which captured his interest.

The farmers are one in saying that these accomplishments and the feelings of optimism and excitement were made possible because of the introduction of the project by SEARICE, the Local Government Unit and the local agriculture offices and the dedicated service shown by their FFS facilitators, they call Ma'am Anna and Ma'am Shy. A farmer intimated that he would name after Anna and Shy the variety he intends to develop to serve as gift and remembrance.



Farming and Plant Breeding: A Holy Calling

Farming is very important in life. It is not an ordinary job, but a holy calling by God for every farmer to fulfill.

This is how Arturo “Doroy” Lagarbe Dapitan views what he does for a living. Ka Doroy, as he is more popularly called, is a 64-year old farmer from the Municipality of Clarin in the Province of Misamis Occidental. Staying true to this view, Ka Doroy grabbed every opportunity to improve his farming skills and methods by involving himself in capacity building activities offered by the local government through the Municipal Agriculture Office. One such activity is the Farmer Field School or FFS where plant breeding was one of the knowledge and skills shared by the local agriculture office in partnership with SEARICE.



Ka Doroy's enthusiasm and peculiar interest for learning are observations shared by all agricultural extension workers that have worked with him. This enthusiasm has resulted to successful development of not just one, but several new rice varieties. Whoever said that “you can't teach old dogs new tricks” can either eat his or her words or can just be dismissed as really referring to dogs because Ka Doroy proved him/her wrong. He was not only able to learn how to develop rice varieties, he became good at it.

Plant breeding is commonly associated to the scientific community but Ka Doroy has proven that it could also be a realm for farmers like him. Successful crosses that resulted to varieties like *Turjack*, *Supremo*, *Ka Doroy*, *Alpha*, *El Turo* and *King Roy* are just some proofs that farmers can also do plant breeding.

While he never got any recognition from government bodies for his rice varieties, his gratification comes from being able to share his knowledge and skills on plant breeding to other farmers and in knowing that other farmers are propagating some of his varieties not only within his community but in other provinces as well. He believes that farmers can make it big even just through farming, that it is just a matter of positively changing one's mindset for a simple farmer to succeed in prospering economically. However, since farming is a holy calling from God, Ka Doroy stressed that the motivation should go beyond economic terms, but more importantly "on producing high quality crops and food that will supply the nourishment for life and health that we need today and the next generations". It is on these grounds where he based his plant breeding objectives.

Successful as he is in plant breeding, Ka Doroy stressed that farmers remain in need to be provided opportunities for learning and the needed support to continuously improve farm productivity and the development of more varieties. These, he thinks, could be instrumental in encouraging younger generations to pursue farming in light of the reality that the current crop of farmers are ageing and with the younger generations being more inclined to pursue other economic activities.



Dioni's Journey

Farming runs through the veins of Dionesio Miorong Frianeza or Dioni.



At an early age, Dioni has already been exposed to farm work. He lives in a farming community and his relatives are farmers. While not yet able to participate directly in the field, he was entrusted the task of taking care of their family's farm animals particularly carabaos (water buffalo) -bringing them to pasture areas before going to school and bringing them back home after school.

As he grew older, he was drawn closer to the fields. While the general track for someone after finishing high school would be to pursue a college degree, Dioni opted instead to be a full time farmer. Circumstances at that time were also influential in his decision. His father was more into doing carpentry jobs to support their family's financial needs, his siblings had no interest in farming and his grandfather had decided to stop farming.

Various agricultural programs were implemented in Dioni's community by the local agriculture office of the Municipality Mangaldan, Province of Pangasinan in the northern region of the Philippines. Dioni is among those who actively participates in such programs.



One such program was the *Farmer Field School on Farm Plant Genetic Resources (FFS- Farm PGR) on Rice* implemented by SEARICE, in partnership with the Municipal Agriculture Office of Mangaldan in 2012. The FFS-Farm PGR is a group-based learning process and is an approach that creates for an experiential learning opportunity for farmers where such includes the technicalities of plant breeding.

Despite having doubts on the idea of farmers becoming plant (rice) breeders, the idea of it as an opportunity to gain knowledge was more important for Dioni. He religiously attended the 16 weekly sessions and as the weeks prospered, doubts turned to excitement. This excitement became more pronounced when he conducted plant breeding-related processes as it became clearer to him that he and the other farmers can indeed become plant breeders.



Asked if he will ever stop, Dioni only has this to say:

"This is not a one time thing; this is a journey to forever."



It has been almost 3 years since those 16 weekly sessions ended, but for Dioni the learning and experimentations continue. With the continuous assistance provided by agricultural extension workers in his municipality, Dioni's patience and perseverance are now starting to bear seeds, literally.

Now at 43 years old (born in 1972), Dioni continues to till their land that now can be found planted with, among others, a rice variety that he is continuously developing since 2012. Now at 5th filial generation (F5), he intends to eventually name the variety as DMF1 (after his initials) once it has reached stabilization. He now intends to develop other varieties in the next cropping seasons.

From simply being one in-charge of farm animals, to a full-pledged farmer and now a farmer breeder, Dioni indeed has come a long way.

Ronie's Non-Illusive Dream



Ronie Librando is regarded by his peers to be a versatile farmer and a budding rice-breeder.

In his younger days, Ronnie dreamed of being an agriculturist someday. That is why he took up agriculture in his tertiary schooling in a community state college not far from their locality. Since he hailed from an underprivileged family, he needed to be a working student just to pursue his career. Still, he was not able to finish his race because they were beset with financial difficulties.

His family's main source of livelihood comes from maintaining three-fourths hectare of lowland rice farm where he serves as a tenant. Due to meager income generated from rice farming and with a family to support, he took on other jobs in order to augment their financial resources. He accepted various jobs even in construction works but mostly as hired labor in the farm just to earn a living.

Since the burning desire to be in the field of agriculture still reigns in his heart, during those times when there was really no job for him, he persistently attended the different trainings provided by the Municipal Agriculture Office and others like the Integrated Pest Management System Training. For his part, he felt that he can utilize these capacity building interventions he acquired to further improve his farm in economic and ecological terms.

"My legacy as a farmer is comprised of the new rice varieties I developed from the breeding and selection that I had made..."

—RONIE LIBRANDO
Makalangot, Arakan, Cotabato

Having also trained on rice breeding from *Farmers Field School on Plant Genetic Resources (FFS-PGR)*, he worked his way to develop new varieties of the leading staple food and began developing a system of seed maintenance for the new varieties he breeds. In his system, he makes sure to reproduce all of the best potential varieties he developed, planting them regularly for further selection and seed development. Currently, he maintains and develops varieties of lowland rice that have traits and properties of healing. Aside from his own breeding works, he also does varietal testing using organic fertilizer studying fertility improvements as an alternative to commercial fertilizer.

For his efforts, he was appointed by the Municipal Agriculture Office to be one of their local farmer technicians. At a young age of 37 years, he now teaches his fellow farmers, even years older than him, on how to do rice breeding and selection. He also provides technical assistance on other matters pertaining to organic agriculture, having been hired by their municipal agriculture office as a local farmer technician.



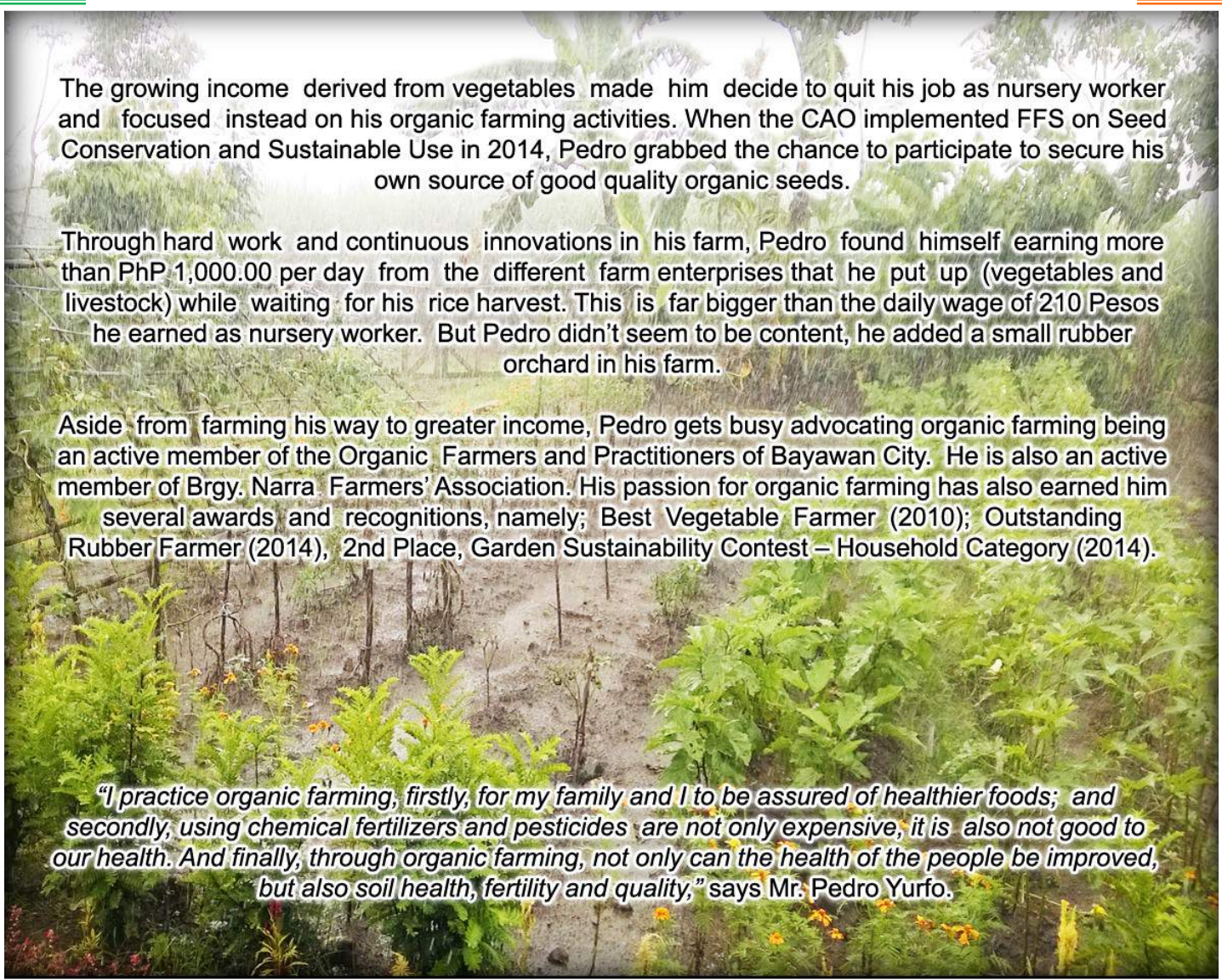


Farming The Way to Profit

Pedro Yurfo is a native of Sitio Nato, Barangay Narra, Bayawan City, married to a Barangay health worker, with whom he has three children. He worked as contractual laborer at the nursery of the City Agriculture Office (CAO) for eight years, a highly seasonal job known in Philippine LGUs as J. O., meaning job order. Although at times legitimate, JO has been, in most times, used by incumbents as an instrument to pay political debts, hence, the seasonality or uncertainty of the job because it is rotated among known political supporters.

While working as a nursery laborer, Pedro had the chance to attend different training programs and seminars sponsored by the CAO. Among the many training programs and seminars that he attended, he got more interested in organic farming methods, which he put into practice in his 2.6 hectare farm.

Aside from planting rice and corn as major crops, Pedro started planting different vegetables in the small area near his home lot. He used organic and recycled waste materials available in the farm to fertilize his crops and vegetables. Pedro's family started to consume organically grown rice and vegetables. The vegetables provide a diverse nutrient source to the family, kept in a 'living backyard refrigerator'. They also provide additional source of income for the family.



The growing income derived from vegetables made him decide to quit his job as nursery worker and focused instead on his organic farming activities. When the CAO implemented FFS on Seed Conservation and Sustainable Use in 2014, Pedro grabbed the chance to participate to secure his own source of good quality organic seeds.

Through hard work and continuous innovations in his farm, Pedro found himself earning more than PHP 1,000.00 per day from the different farm enterprises that he put up (vegetables and livestock) while waiting for his rice harvest. This is far bigger than the daily wage of 210 Pesos he earned as nursery worker. But Pedro didn't seem to be content, he added a small rubber orchard in his farm.

Aside from farming his way to greater income, Pedro gets busy advocating organic farming being an active member of the Organic Farmers and Practitioners of Bayawan City. He is also an active member of Brgy. Narra Farmers' Association. His passion for organic farming has also earned him several awards and recognitions, namely; Best Vegetable Farmer (2010); Outstanding Rubber Farmer (2014), 2nd Place, Garden Sustainability Contest – Household Category (2014).

"I practice organic farming, firstly, for my family and I to be assured of healthier foods; and secondly, using chemical fertilizers and pesticides are not only expensive, it is also not good to our health. And finally, through organic farming, not only can the health of the people be improved, but also soil health, fertility and quality," says Mr. Pedro Yurfo.

Not To Die Poor

"It is not our fault if we were born poor, but it is our fault if we die poor."

This is Farmer Hernani P. Terania's guiding principle in life.

Farmer Hernani was born to a poor farming family in Barangay Villareal, Bayawan City, Negros Oriental. Just like most children of farmers, he also dreamt not to grow old as a farmer. He wanted to become a seafarer but the family's financial condition could not sustain the required training. He enrolled in college one time, dropped out due to financial constraints, enrolled again five years after, then shortly stopped again for the same reasons. In 1998, he tried his luck in Manila, found a job as a construction worker, got himself a wife with whom he sired 2 kids. After six years of city living, Hernani went back to Bayawan with his family then resigned to a life of being a farmer.

Since 2005, Hernani took advantage of various trainings and seminars offered for free to farmers. Among the trainings he availed of were Farmer Field Schools (FFS) on Organic Rice Production, on Participatory Plant Breeding (PPB), Seminar on Natural Fertilizer and Pesticide Formulation and recently, he participated in the FFS on Seed Conservation and Sustainable Use conducted by the City Agriculture Office of Bayawan, in collaboration with SEARICE.

From the trainings and seminars he attended, Farmer Hernani enriched his knowledge and skills that allowed him to get out of his "jar of agony" and freed him from "slavery to debt".

In the small piece of land he tills, just 600 square meters, he practices sustainable farming. He used to plant the area to rice only. Then he complemented rice farming with animal-raising – carabao, cow, hogs and chicken. Now, he also grows an assortment of vegetables for the family's daily needs. He grows the vegetables organically, using animal manure and decomposed farm wastes as fertilizer.

Especially thankful to the Bayawan City Agriculture Office, the IPM-Kasakalikahan of the Department of Agriculture and SEARICE, Farmer Hernani is a “rice breeder”. He has successfully made a cross between a traditional variety called *Tisay* and *Dinalungan*, which he says is imbued with the following characteristics: good height and culm strength, high tillering, good eating quality, and resistance to drought. (The climate was very dry when he made the cross.)

The breed is now in stable stage. He switches between his own developed variety with another variety bred by a fellow farmer (GF18 X Japan Red) between cropping seasons and claims to yield 36-40 bags per cropping in only 300 square meter of land (or 4.8-5.3 tons/hectare)

With his acquired skills, and with great thanks and faith in God, Farmer Hernani is confident of being able to send his kids to school...and die a (little) richer.



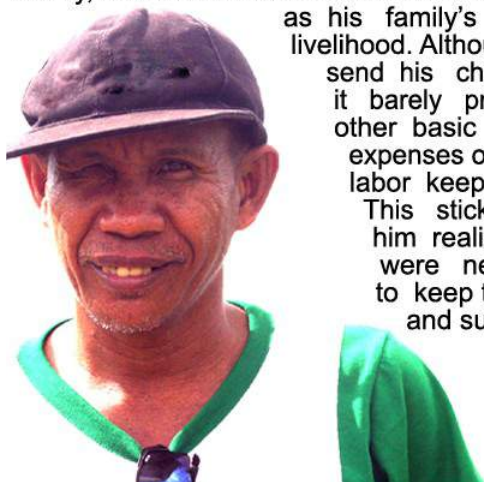
The IRON Will

"Being blind in my right eye will not dissuade me from what I want to do, where I want to go and what I want to accomplish... as long as I have the focus, the heart and the will."

-Rosendo V. Magsipoc Kinawayan, Arakan, Cotabato

Rosendo Magsipoc is not your ordinary type of farmer. He is a seed-curator and a farmer-scientist in his own right. Born to an underprivileged farming family, "Sendong", as he is fondly called by his peers, barely managed to finish primary school. Afflicted with an eye infection during his younger days, he became blind in the right eye. But his circumstance or misfortunes did not deter him to explore his skills and do on-farm researches. As a matter of fact, he sees them as his driving motivation to prove, not just to others but more to himself, that he can excel in whatever he does as long as he believes in himself.

At 51 years of age, Sendong, with the assistance of his family, maintains a 12 hectare water-scarce upland farm as his family's main source of livelihood. Although farming helps send his children to school, it barely provides for their other basic needs because expenses on production and labor keep on increasing. This sticky situation made him realize that measures were needed in order to keep the farm profitable and sustainable.



Equipped with inherent knowledge on rice farming, Sendong actively participated in the *Farmers Fields School on Plant Genetic Resources* facilitated by the Municipal Agriculture Office of Arakan and SEARICE held in their village of Kinawayan. He even volunteered a portion of his land as a Common Learning Area for the study in seed conservation and development.

This allowed him more time to visit the learning site even after each FFS class to do a more intensive research on the different rice varieties planted. He was constantly ahead of his class during practicum and examinations. Consequently, he graduated at the top of his class.

Right after the FFS, he began intensifying his own seed collection and upgraded its maintenance and storage system. The first thing he did was to pull together a little amount of all available varieties of rice, corn, legumes and vegetables in the community. He then reproduced all these seeds to have some sort of a "living seed bank" (in-situ collection) as his personal advocacy on seed conservation and agro-biodiversity.

He also performed off-type and varietal selections from which he got his other traditional cultivars. Presently, he maintains and develops varieties of upland rice that have medicinal traits and properties. He also grows selection and breeding materials using organic inputs as he also conducts several researches on how to minimize production costs.

Sendong also mass produced some top performing varieties like the "Pinkish Dinorado Rice" and sells them at a premium price to a local organic outlet and some well to do families. He became well-known for his grains and seeds that have relative advantages and high market demand.



Sendong, together with his family started to strengthen the diversification and integration of all the components in their family farm. He inculcated among the members of his family that each of them has a vital inter-related role to play to make the farm sustainable by maintaining agro-biodiversity.

What Sendong's family have is a symbol of an ideal Filipino family farm. Taking a closer look, one can see that the application of ingenious and sustainable farming practices has been harnessed by Sendong and his brood. In one portion of the farm are different vegetables, legumes and other cash crops planted using relay-cropping method. During the season of grains, a hectare of land is allotted to different cultivars of upland rice of varied colors and aroma. Fourth of a hectare is planted to his native lowland rice collection and about two hectares planted with different native corn composites.

"Pension trees" also surround the entirety of the farm, making it a demarcation of their land to that of their neighbors. At the uppermost portion of their land, Sendong planted different hardwood trees to serve as a watershed and sanctuary for wildlife.

Apart from the teeming lush greens, his family also maintains several heads of native swine, goat, native chicken and ducks. Everyone will agree that his farm truly embodies diversification, integration, sustainability and food security for his family.

Sendong does not also forget to help his neighbors, especially providing food and seeds to co-farmers from indigenous tribes during lean months and calamities. Moreover, he shares to them his skills, especially in plant breeding so that they can also reap what he does and they will not always be dependent of him.

Having served as a good role model and inspiration over what he has done with his farm, he was voted President of the famous "Arakan Community Seed Bankers and Breeders Organization" (ACSBBO), a group of farmers that conserves Plant Genetic Resources (PGR) and produces high quality seeds. The group is now supplying quality seeds of lowland and upland legumes and vegetables to government, non-government organizations and private individuals.

Truly, Sendong is a one of a kind farmer that rose above misfortunes early in life and managed to harness his full potential.



PATANOY



Elmer Dadivas Jangco, or “Patanoy” as his friends fondly call him, has been an organic farmer and an advocate of sustainable agriculture since his bachelor days. In fact, even when the government did not yet have a concrete program that promotes organic farming, he had already been passionately showcasing organic farming.

Now, having two kids and a proud husband to a high school teacher, he sees organic agriculture as not just a farming system but as a way of life.

Through reading different materials on how to improve his farming system, he discovered several farming techniques and strategies that he was able to apply to make his farm economically viable, ecologically sound and sustainable, all at the same time.

Gifted with a kind heart, he did not keep his acquired learnings to himself but rather shared them with his fellow farmers in the community, especially when he joined the local Irrigators association.

The member-farmers of the association found him to be a good role model and unanimously elected him to become their president.

Patanoy's farm served as an organic model farm not just in their community but to the whole Municipality as well. Even farmers and development workers from neighboring towns and provinces visit his farm. Visitors to his farm are always awed by the design, especially the way the farm demonstrates nutrient recycling processes to manage soil fertility. He would always show to them the different bio-dynamic preparations and natural farming concoctions that he uses.

And being a selfless farmer he even teaches how to prepare such concoctions and even gives out samples for free to the visitors. Apart from all these, he has already been doing seedbanking of several traditional varieties of lowland rice.



When SEARICE and the Municipal Agriculture Office (MAO) discussed with him the conduct of a Farmer Field School on Participatory Plant Breeding in the community in 2014, he did not waste time to convince his members to join. He discussed to them that such an initiative will further strengthen their access and control to seeds and technologies. His members readily agreed for they know that Patanoy's wisdom will bring them blessings. It would be just a matter of time before Patanoy's farm has the added novelty of growing Patanoy's breeds.



A recent feather in Patanoy's cap is being chosen as Most Outstanding Organic Farmer for 2015 in SOCCSKSARGEN or Region 12. The people of Arakan, through the Municipal Agriculture Office, endorsed him to vie for the award, which he no doubt deserves. Truly, noble deeds from noble hearts always bear sweet fruits.

Climate-Resiliency Begins With the Farmer



Farmer Romeo Bitco or “Buloy” is unmarried, but lives a fulfilled and satisfied life.

Born in Badiangon, Arakan, a place of abundant water, he has been an advocate of sustainable agriculture since he was young. Now 52, he has a different frame of thinking and proves that diversified and integrated farming system gives great rewards, with his entire family backing and supporting his initiatives.

When a *Farmer Field School on Plant Genetic Resources* was started in his barangay in 2014, he readily enlisted and became an active participant. He was very much interested in the project as it fits his plans for his farm.

Eager to apply the new knowledge he gained in the FFS to develop his farm, employing diversified and integrated farming techniques, Buloy sought advice from the FFS facilitators assigned in his barangay to help him design and craft a development plan for his farm.

He worked on the layout of his farm incorporating the suggestions of the Facilitators. He set-up different component projects that support each other, namely, 1) Agro-Forestry Nursery (Forest & Fruit Trees particularly Rubber, Coffee, Cacao, Coconut); 2) Vermiculture and Vermicast Production; 3) Inland Fish Production (Tilapia Hatchery & Production); 4) Food Crops Production (including seed production); 5) Small and Large Ruminants Raising; and 6) Tree Farming (Development of Forest Reserve).

Buloy has also been implementing measures in his farm that would allow it to withstand challenges and extreme weather events, among which are: 1) Seed collection and conservation and mass production of vegetables, cereal crops (e.g., rice, corn) and other food crops; 2) Windbreaks and firebreaks around and within the farm; 3) Contouring of hilly areas; 4) Reinforcement of watershed areas by planting bamboos and other water-holding forest trees; 5) Small water impounding or harvesting reservoirs.

After two cropping seasons, the farm showed marked progress that Buloy was so proud of the results of his efforts. He was so inspired and tried anything he thought would be effective and efficient. In no time, Buloy’s farm became a picture of sustainability and resiliency.

Although it seemed like a simple initiative, his farm has become a demonstration site, worthy of replication by other farmers.



Norad

The NORWEGIAN AGENCY FOR DEVELOPMENT COOPERATION (Norad) is a directorate under the Norwegian Ministry of Foreign Affairs. Its task is to ensure effective foreign aid, with quality assurance and evaluation.

It supports development projects of non-government organizations.



The SOUTHEAST ASIA REGIONAL INITIATIVES FOR COMMUNITY EMPOWERMENT (SEARICE) is a regional development organization that promotes and implements community-based conservation, development and sustainable use of plant genetic resources in partnership with farming communities, civil society organizations, government agencies, academic research institutions and local government units in Bhutan, Lao PDR, the Philippines, Vietnam, Cambodia, Thailand, Timor Leste and Myanmar.

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EDITING AND LAYOUT
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Norad

Women Farmer - Breeders



Community Biodiversity Development and
Conservation (CBDC) Programme



Southeast Asia Regional Initiatives for
Community Empowerment (SEARICE)

2005

FOREWORD

We cannot deny the important role of women in farm activities. They are the partners of the men in managing the farm and enhancing the agriculture sector. Despite, there remains a lack of recognition by our society of the role of women in agriculture, where usually it is the men who are given recognition. There is therefore a need to fully recognize the role of women in order to generate the needed support for them and to strengthen their voice as a sector in agriculture.

In this booklet, we learn of the experiences of different women farmers in Bohol in seeds conservation and development. We learn that it is not only the men that play an important role in seeds management but the women farmers as well. Each one who shares her experience affirms the belief that in each woman is the capacity to do the tasks that are normally believed to be the domain of men. What are needed are opportunities and the support to enable these potentials of women to develop.

We hope that these experiences will encourage more women to develop and be proud of their capacities in agricultural activities. Especially with the existing problems faced by farmers due to lack of support for agriculture, the opening up of our market to agricultural imports, and the passage of the Plant Variety Protection Act of 2002 which threatens the rights of farmers to seeds. There is indeed a need for women and men farmers to work together in order to enhance agriculture and to protect their interest and rights.

ELSA S. OMAC
Campagao, Bilar, Bohol

"We name our selections based on the source or the variety it is selected from, or based on the characteristics of the variety, and or based on the names of our children and name of my husband..."



Ever since I started farming, the common practices farmers use is the exchange of seeds with our preferred varieties. This is one method where farmers obtain their seeds for the next planting period. Other source of our seeds or planting materials is through the government programs. The government also distributed and subsidized new seed varieties for the farmers.

SEARICE conducted its season-long Farmers' Field School on Ecological Pest Management in 1996. I learned how to select offtypes from different varieties adapted to our local condition. During this period I also learned how to do actual rice breeding in order to develop a different type of variety. I was also able to develop a variety, which is adapted to our field conditions. In learning these methods, I didn't find difficulty in looking for planting materials to be used for the next season.

In our household, my husband and I helped each other in doing off-type selection, which is not our common practice before. Our main objective in offtype selection is to find a variety adapted to our farm. By doing offtype selection, we were able to have our own source of planting materials. The cost of production is minimized since we do not need to buy seeds anymore, which can sometimes cause problems if the variety is not adapted to our field.

In doing offtype selection, we also consider how we can help other farmers by considering the characteristics they prefer in a variety or their selection preferences. We also provide them with our selections (developed varieties) so they can also try these varieties in their field. The characteristics that we prefer in a variety are the following: short, with long panicles, high tillering ability, non-shattering, pest and disease resistant, drought resistant, good eating quality, and with compact grains.

We name our selections based on the source or the variety it is selected from, or based on the characteristics of the variety, and or based on the names of our children. Some of our selections are CRB-3 (the name of my 3 children: Cherrie, Razel, Bryan), a selection from MS 13; TDH (Tall variety, Dark color and Handsome) a selection from a Mindanao-variety; IR 66 Purple Red, a selection from IR 66-red; IR 66-selection, a selection from IR 66 white; Eloy selection, a selection of my husband from MS-2; RC 18-selection, RC 10-selection, Hubahib-Selection, EDSA-Selection, MS 29-Selection, White 77, named as such because it has the same characteristics with Red 77 but only differs with its grain color. Some of these selections are now at the production level and are widely used by other farmers. The M50-1-1-Selection, which is our latest selection, is still at our own production level.

One of the problems that we encountered in doing selection is the maintenance of our selections because of the limited and small parcels of land that we till. We are happy and we recognize the presence of the Center-based Seed bank located at the CVSCAFT Main Campus where our selections are stored. The center-based seedbank facilitated in the spread of our variety to other farmers from the different municipalities and provinces through Farmers' Field Days and Farmers' Field Visits/Exposures. Activities such as Farmers' Seed Fairs and Seed Exchanges also facilitated the spread of our selections. The biggest assistance that the Center-based Seedbank has provided is the maintenance of the viability of our selections.

With the Plant Variety Protection Act (PVP Act) or R.A. 9168, I am afraid that I might violate the law. I think the law will be a hindrance and will limit our efforts in doing selection and development of different varieties. Because of this situation, the members of our organization, the Campagao Farmers' Production and Research Association (CFPRA) feel that we have to pursue our Community Registry effort. Through this, we can show proof that the farmers owned these varieties (selections and developed-varieties) and have been in existence in their community for a long period of time, and no one can claim ownership on these varieties, other than the farmers. We, the farmers need to continue with our efforts on the development and selection of the different varieties of rice.

GUADALUPE Q. DISPO
Campagao, Bilar, Bohol

"...in the future I will be able to share to other farmers the seeds that I developed...this way, I can share to them not only the seeds but also the knowledge that I learned."



I started farming ever since I was young. Before, our primary source of planting materials is our own harvest and through exchange of seeds with the neighbors. I haven't heard or experienced rice breeding and selection of varieties even from the old folks and my parents.

In 1996, the government launched a program on agriculture called the Farmers' Field School – Integrated Pest Management (FFS-IPM) that I saw and recognized as one of the methods in developing agriculture in our barangay.

After the FFS-IPM, another season long Farmers' Field School on Ecological Management (FFS-EPM) was conducted by CBDC-SEARICE which discussed topics related to farming – pest management, soil fertility management, and rice breeding.

Since 1996 up to present, I conducted varietal selection in order to determine and develop a variety adopted to my field using only organic materials as fertilizers, in order to recover the fertility of the soil brought about by the long-term use of commercial fertilizers.

Through the activities of my co-farmers doing off-type selection, I was encouraged to do off-type selection from the trials of different new varieties that I conducted so that I can find and develop new varieties and to share these to other farmers.

My selection criteria, which also served as the basis for my off-type selection is to find a good variety adopted to the field condition which is high yielding variety and pest and disease resistant.

At present, I already have 3 selections: selection from Japan Red, TH1-selection and selection from the segregating lines of Cisenio Salces, a farmer-breeder. I selected these offtypes from the stable varieties I planted.

For me, doing selection or developing a new variety will help us in the economic, technical and social aspects in our farming. In the economic aspect, there is less cost of production (in terms of inputs) since the varieties that I developed are already adopted to organic farming practice. There is also no need for me to buy planting materials/seeds for the next cropping, since I already have my own varieties. In the technical aspect, I was able to select and developed varieties adapted to my soil condition. On the social aspect, in the future, I will be able to share to other farmers the seeds that I developed. In this way, I can share to them not only the seeds but also the knowledge that I learned.

With the Plant Variety Protection Act (PVP Act), I am worried that some "people" will own/claim our developed varieties. This will also limit us, farmers, in doing selection from the registered varieties. For me as a farmer, our developed varieties should not be registered and should always be in the hands of the farmers, since this will be of help to us in terms of our supply and source of materials. In case if prices of high yielding varieties or certified varieties are beyond the reach of the farmers, these farmers' varieties are always available in the community for free. Farmers should not lose hope, all we need is to help each other.

CARMEN BUCAR
Campagao, Bilar, Bohol

"...doing offtype selection helped me a lot in my farming because I was able to develop varieties I prefer ... and also helped in lowering the cost of my production since I don't need to buy the planting materials anymore."



Before, farmers' exchange their seeds with their preferred varieties within and among themselves. Seed exchange is the main system of sourcing of planting materials of farmers. At present, this farmer-practice still exists in the community.

My objectives for doing selection is to develop a new variety that is high yielding to augment my low production, to develop seeds adapted to my field conditions, drought resistant, marketable, and has good quality seeds. Other qualities of rice that I prefer should have long panicles, lodging resistant, should have regular and compact grains, and percent filled grains is high.

Ever since I started selection, only one type of variety was maintained (offtype from M94) because I am still in the process of doing selection. I was able to select few varieties, but I did not maintain it because my husband did not like its qualities. I used the modified bulk method of selection where offtypes with the same characteristics were planted again in the next season.

Doing offtype selection helped me a lot in my farming because I was able to developed varieties I prefer. It also helped in lowering the cost of my production since I don't need to buy the planting materials anymore. At the same time, I will be able to share and exchange my selections with my neighbors.

With the Plant Variety Protection Act (PVP Act), doing varietal selections will be limited only to those varieties that are not protected, and even farmers will not be able to plant these protected varieties without permission from the owners of these varieties. As for me, I also worry that they will claim and own the varieties that the farmers developed. But even with the PVP, I will still continue doing varietal selections, and continue our farmers' way of exchanging seeds.

FRANCISCA O. ANCOG
Riverside, Bilar, Bohol

"I also experienced the difficulties and tediousness in breeding... when I conducted rice breeding, I aspire to develop a new variety for all the farmers, and not only for myself."



Seed exchange and storage of our own harvest is the oldest and easiest method of sourcing seeds for planting materials. We also experienced buying certified seeds from the Department of Agriculture for they offer subsidies to interested farmers.

When SEARICE started their implementation in our barangay, I learned about rice breeding and it gave me inspiration to try to develop a new variety hoping that it will help me as a farmer. I aspire to develop a good variety that will be more productive and that other farmers will also prefer.

In breeding, I crossed MB, because of its big grains, lodging resistant, with IR 66 because of its long, big grains, and early maturity. I used the bulk selection method while the segregating materials were still in the F1-F3 generation and planted all after harvest. At present, the materials are still in the F4 generation and have not yet been distributed to other farmers. In naming the varieties that I will develop from my F4 materials, I will combine my husband's name and my name, Torning and Fransing. I also experienced the difficulties and tediousness in breeding. A lot of time is needed in maintaining the segregating lines. I have not yet influenced other farmers to do hybridization because for them rice breeding is time consuming.

Regarding PVP, I do not agree with the law because it impedes or stops the farmers from seed exchange and use of the protected varieties. When I conducted rice breeding, I aspire to develop new varieties for all the farmers and not only for myself.

RUPERTA D. MANGAYA-AY
Brgy. Zamora, Bilar, Bohol

"One of the things that gave me inspiration to create a new variety is the aspiration to develop a new variety from my own initiative... and share it with my fellow farmers. It also developed my self-confidence to do things like this even though I am already old."



When farmers wanted to have seeds to be planted, their practice was to exchange seeds with other farmers or simply to save seeds from their own harvest. It is also our common practice to store seeds so that we will always have a ready supply for the next planting season. Although sometimes during drought period, the seeds that we store will be used for consumption.

Even before, I know that my parents were doing offtype selection in rice and produced this at production level. I have knowledge about rice breeding based on what I learned from school, but I do not have any actual practice. I only had my actual rice hybridization when I graduated from the Farmers' Field School on Plant Genetic Resources (FFS-PGR), through the cooperation of CBDC-SEARICE and the Central Visayas State College of Agriculture, Forestry and Technology (CVSCAFT) Main Campus, a local institution based in our barangay.

One of the things that gave me inspiration to create a new variety is the aspiration to develop a new variety from my own initiative and so that I can have a legacy to my family. I also want to share it with my fellow farmers. It also developed my self-confidence to do things like this even though I am already old.

After our FFS-PGR, I started to do breeding with the objective of developing a variety that is pest and disease resistant, lodging resistant, high tillering ability, good eating quality, big grains, marketable, and high yielding. I conducted two types of crossbreeding. First, I crossed the MB variety (mother) to CC 13-3-4-3 (father) and the second one, I crossed CC13-3-4-3 (mother) with MB (father). I only used two rice varieties because I want to develop a new variety with characteristics coming both from CC13-3-4 and MB. The characteristics that I preferred in a variety can be found in MB and CC13-3-4.

My breeding of MB x CC13-3-4-3 and CC13-3-4-3 x MB was successful, 31 F1 seeds were produced: the F1 from MB x CC13-3-4-3 and F1 from CC13-3-4-3 x MB.

From the first to the fourth generation (F1-F4), I did not do selection because I mixed all the seeds formed, the F1 from MB x CC and the F1 from CC x MB. On the fifth (F5) generation, I started selecting the plants with the same characteristics. At present, I have 6 segregating lines from the breeding that I conducted.

Apart from breeding, I also do offtype selection with the same objective that is to develop a different variety of rice and my selection criteria include pest and disease resistant, lodging resistant, high tillering ability, good eating quality, big grains, marketable and high yielding. This is the same selection criteria when I conducted breeding. At present, I still don't have selections planted at production level and these are also not yet spread to other farmers.

By doing breeding and selection, it helped me a lot especially in the economic aspect. I don't have to buy seeds for my planting materials. I will also be able to sell my produce. Buyers will be the one to go to our house to buy rice or seeds because of its good quality that is aromatic and good eating quality. It will also help me in helping other farmers since it will give me the opportunity to share my knowledge in breeding and will be able to influence other farmers.

I find this work tedious so we need to be hardworking and to be careful in maintaining these segregating materials. I also experienced difficulties in actual breeding but it also gave me pleasure.

Despite these things, and because of the PVP, there is fear that other people will claim the varieties that I developed. If there will be attempts to claim our seeds, we need to protect our seeds through the Community Registry wherein all the varieties found in the barangay (present and past) are listed. We also need to continue and strengthen our efforts, like breeding and selection, and the seed exchange. It is also important to help each other.

GELYN QUIMPAN
Cansumbol, Bilar, Bohol

"One problem that I encountered was when my selection was mixed with the other varieties planted in the field... but still I continue doing varietal selection in order to develop a good, quality variety."

During planting season, our practice is to exchange seeds with our neighbors whenever we need planting materials. But if the variety is new, we observe the variety for three seasons before we exchange this variety.

Before, I don't have any knowledge and experience in rice breeding and doing selections from many varieties of rice. I learned about this processes when I joined the FFS-PGR (Farmers' Field School on Plant Genetic Resources) conducted by an NGO. Different methods in crop development and improvement, such as breeding and selection, were introduced to the farmers. We were able to do actual hybridization in our own fields.

Learning the methods for two years, I now have a varietal selection, which I was able to select from a Masipag variety. My husband and the neighboring farmers in our community find this kind of activity a tedious and tiresome one, and the very reason why nobody in my family members wants to do rice breeding.

As of now, I was able to select an offtype from the MS-29 variety. It is early maturing, has long panicles and high yielding. I was already able to plant this Selection at the production level under my field condition for three-cropping seasons, and which other farmers in the community are also using it. I was also able to cook and taste the eating quality of my Selection.

One problem that I encountered was when my selection was mixed with the other varieties planted in the field. These were mixed during harvest when nobody was supervising the harvesters to separate the different/trial varieties planted. But even if my selection was already mixed with the other varieties, I will still continue doing varietal selection in order to develop a good, quality variety.

With the PVP, the farmers will lose their freedom. But on my part, I will continue doing varietal selection and crop improvement. We, farmers should also continue on what we have been doing: free exchange and sharing of our seeds.



RUSTICA INTE
Zamora, Bilar, Bohol

"The experience I learned not only helped me but also the other farmers as well in the community. I was able to share to them the technology and the seeds that I developed. "

Seed exchange among farmers is the method or system that we are used to. I usually keep one sack of seed every harvest season to ensure that I will have seeds for the next cropping season. The seeds are stored for a year and still remain viable if planted for the next season. The Department of Agriculture also has a program wherein they provide seeds to the farmers and this also serve as our source for new seeds.

On my part, I don't have any experience in doing selection. Rice breeding methods was not taught to us even by the people in the Municipality or the DA. I only learned about rice breeding and selection when I attended a Farmers' Field School on seeds conservation and development conducted by one NGO in our barangay. I am able to select the type of rice adapted to my field and soil condition. At present, my husband and I are interested in doing selection, and we have already developed our own selection, Moros.

Moros, a selection from MS 29, is high tillering, with long panicles, compact grains, and short maturing. I named it Moros from the combination of the name of my husband (Momoy) and my name (Rustica). This selection is now widely used by farmers within and outside our barangay. Farmers have seen my selection when it was still in the trial phase in my field and during farmers' field day. In doing selection, I consider the characteristics of rice that will adapt to our local condition and also our mostly preferred traits/characteristics.

The experience I learned not only helped me but also the other farmers as well in the community. I was able to share to them the technology and the seeds that I developed. As of now, Moros has not yet been sold for commercial purposes.

In doing selection, I also encountered some problems since the variety that I selected (Moros) is susceptible to lodging because of its tall height. This is also what the other farmers have observed and experienced, but Moros is a high yielding variety in spite of this.

The benefit that I gained from my experience in varietal selection is the availability of seeds. I always have ready supply of seeds for the next cropping season. But with the PVP law, I fear that I will lose the seeds I have developed and selected, because according to the law, seed selection and seed exchange of protected varieties among farmers are no longer allowed. Farmers are not anymore allowed to do the system we are used to. What we should do is to ignore the law, continue what we have been doing, and continue our sharing system.

A plant variety protection (PVP) system is an administration procedure which an applicant complies with to secure a form of intellectual property right called the plant breeder's right. This right is a recognition of the efforts of the mind, or work of intellectual creation, as applied on plant varieties transformed through breeding, whether done the classical way or through modern technologies such as genetic engineering.

The plant breeder's rights is a form of exclusive right that enables the owner of the right to stop anybody from exploiting or using the protected plant variety without any permission or license from him or her.

On 7 June 2002, Pres. Gloria Macapagal-Arroyo signed into law an Act that criminalizes farmers' traditional rights to save, exchange and sell seeds. Republic Act 9168, otherwise known as the Philippine Plant Variety Protection Act of 2002, allows plant breeders to apply for protection and exclusive rights over new varieties they claim to develop or discover. The law makes it a crime for farmers to save, exchange and sell seeds of protected varieties without authorization from breeders who claim exclusive rights over these varieties. Violations of the said Act subject farmers or any person to imprisonment ranging from three to six years and fines of not less than P100,000.

IMPACTS OF THE PVP SYSTEM ON FARMERS

- Freedom of choice on what to plant is limited as it now depends on farmer's capacity to pay for the PVP-certified varieties
- Farmer's seed exchange is limited since exchange of PVP-certified seeds between and among small farmers is allowed but under conditions set by a national government body
- Farmers need to buy PVP seeds every cropping if they decide to use these, they do not have free access to these PVP certified-seeds
- Recovery from bad harvest is difficult since a farmer who loses out in one cropping of PVP-certified seeds finds himself saddled with debts
- Farmer may be jailed if he used PVP-certified seed without any license from PVP Certificate Holder
- Right to save seed is not clear since seed saving is strictly for non-commercial purposes
- Small farmers are allowed to use harvested PVP-certified materials as propagating materials in their own landholdings and excludes farmers who do not own the land
- Farmers will pay royalties on every purchase of PVP-certified seeds
- Farmers are prohibited from selling and exchanging protected seeds including planting materials that they harvest from protected varieties
- Only licensed growers can multiply the variety for sale



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