



GFAR

GLOBAL FORUM ON AGRICULTURAL RESEARCH
FORUM MONDIAL DE LA RECHERCHE AGRICOLE
FORO GLOBAL DE INVESTIGACION AGROPECUARIA

Document No: GFAR/00/17-02
Distribution: SUB-PLenary 1
Date: 15 May 2000

GFAR - 2000
May 21 - 23
Dresden, Germany

Strengthening Partnership in Agricultural Research
for Development in the Context of Globalization

**KEY STRATEGIC ISSUES ON GENETIC RESOURCES MANAGEMENT:
A CONCEPT PAPER***

* Synthesis paper for presentation to the *GFAR-2000 Conference*, Dresden, Germany, May 21-23, 2000. Prepared by K. Riley as resource person of the "*GFAR Initiative on GRFA*". This paper summarises the main aspects and issues that have emerged from an active exchange of opinions and ideas among stakeholders of agricultural research, through meetings and electronic consultations, particularly via intensive use of e-mail.

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Genetic Resources Management For Food and Agriculture: Key Issues and Partnership Proposals¹

1. General Considerations

1.1 Scope

This concept paper, prepared for presentation and discussion at the GFAR Conference in Dresden, Germany, May 21-23, 2000, aims to highlight key issues that affect the conservation and use of plant genetic resources for food and agriculture (PGRFA), review the activities that have taken place to date in the *GFAR Initiative on Genetic Resources for Food and Agriculture*, outline planned activities and suggest partnership proposals. It is hoped that this paper can assist in developing common perceptions on these issues and in facilitating the emergence of consensus and concerted action. Genetic resources for food and agriculture includes animals, fish, forest species and micro-organisms, as well as plants. If there is sufficient interest, stakeholders are encouraged to convene after this session, and develop key issues and partnership mechanisms for these other areas.

1.2 Benefits

The importance of plant genetic resources for food and agriculture (PGRFA) can be understood from the range of benefits that can be realized through their effective management. Management of PGRFA includes both use and conservation. These benefits include:

- sustained production of adequate and nutritious food is based on plant genetic resources which are grown under sound farming systems;
- cultural identity of local communities and peoples are sustained and enriched by the diversity of plants which they have developed, used and conserved;
- the stability of agroecosystems are enhanced through the use of adapted and diverse varieties and landraces;
- future needs, such as those resulting from climate change, can best be met through the selection, evolution and deployment of new combinations of species, varieties, landraces and genes;
- important sources of income are provided by trade in a broad range of agricultural commodities, based on a diversity of plant genetic resources;
- agricultural development, and in turn national development, can be promoted through the effective management of plant genetic resources.

It is clear therefore, that the benefits accruing from the use of PGRFA are essential for the well being of our species and our planet.

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1.3 The Importance of Exchange

Exchange of plant genetic resources is a key element for their effective management. In genetic terms, continued introgression and incorporation of new diversity is necessary in order to allow for adaptation to changing conditions, and to optimise progress from selection.

For generations, farmers have participated in exchanges of plant genetic resources in various ways, whether through informal seed exchange from village to village, from one ecological zone to another or between countries and continents, as seed or plants accompanied migrating peoples. In most countries, a large part of agricultural production comes from crops which originated in other countries. For example, in the case of sweet potato, a crop originating in the Andes, over 90% of the world's production is in China. Conversely, Brazil and USA are the most important producers of soybeans, a crop originating from China. In addition, productive crop varieties which continue to be grown in their centre of origin incorporate genes or traits developed elsewhere. For example, the trait for high oil content in sunflowers, a crop of American origin, was developed in Russia. These genes for high oil content are now the basis of extensive oilseed sunflower production in the USA. Clearly, no country is self sufficient in genetic resources to sustain its agriculture and food production.

With the advent of modern plant breeding the rate of introgression of new traits and progress from selection have increased, identifying genes for resistance to biotic and abiotic stresses, as well as improved productivity and quality traits, on the basis of inputs from many countries of the world incorporated into a single variety. A single high yielding variety of wheat, for example, may contain over a thousand different crosses made by many breeders, using scores of parents originating from over a dozen countries. Thus, continued exchange of genetic resources is essential if benefits are to be realised.

1.4 Recent Changes and Events

In the past 3 decades, several changes and events have occurred which are profoundly affecting the management of plant genetic resources.

a) **Genetic Erosion and Conservation.** The transformation of agriculture, using so-called "Green Revolution" technologies, including the rapid spread of high yielding, widely adapted varieties, raised concern that the diversity of traditional varieties and farmers' landraces were being lost. A global effort to collect this diversity, and conserve it in genebanks has resulted in over 6 million accessions now stored in 1300 genebanks maintained in national programmes, in regional collections and with 13 International Agricultural Research Centres. The International Board of Plant Genetic Resources (which later became IPGRI) was established, and is working closely with FAO, national programmes, and a variety of other partners to advance the conservation and use of plant genetic resources. More recently, the focus on collection and storage has broadened with the understanding that these resources must be used by farmers and breeders in order to effectively conserve them. The first report on the State of the World's Plant Genetic Resources was produced in 1996, which coincided with the adoption of the Global Plan of Action for Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture. These documents provide a global assessment of the areas of strength and weakness around the world in conserving and using plant genetic resources for food and agriculture, and a framework for action for their effective management in the areas of *in situ* conservation and development, *ex situ* conservation, use and capacity building.

b) **Biotechnology.** Intense research and development in this field is producing a wide array of new tools and exciting opportunities for improved management of plant genetic resources. Rapid advances in cell and tissue culture are being applied to *in vitro* conservation and cryopreservation of a broader diversity of species which cannot be readily conserved as seeds. Improved characterization and evaluation of germplasm is now possible with the advent of rapid DNA analysis and genomic library techniques. Genetic engineering and transformation technologies can be used to rapidly assemble genes from a wider gene pool into new varieties. More controversial is the increased use of

intellectual property protection in the form of patents both on these new processes, on functional gene constructs and patents on plant varieties. There is growing concern that some forms of protection may undermine or constrain the management of plant genetic resources and access to germplasm. The recently agreed Biosafety Protocol helps address concerns over environmental and health aspects related to the use of genetically modified organisms.

c) **Intellectual Property Rights (IPR).** Countries that have joined the WTO must implement Trade Related Intellectual Property Rights (TRIPS), which sets certain minimum standards for the implementation of IPR at national level. Article 27.3(b) requires that for plant varieties countries provide either patent protection, a *sui generis* system, or a combination of both. There is presently intense debate over what might constitute effective *sui generis* protection in national legislation; the need to balance such legislation with the recognition of traditional resource rights, indigenous knowledge and farmers' rights; and to insure that farmers, local communities and indigenous peoples can be empowered to continue to manage plant genetic resources, and equitably share the benefits. There are also concerns that broad forms of protection, such as plant patents and utility patents, may restrict research and germplasm flows and fail to recognize the roles of those who have developed the germplasm on which the patent is based.

d) **Convention on Biological Diversity.** This convention, aimed at the conservation and use of biological diversity, and the equitable sharing of benefits from its use, provides an important framework covering both cultivated and wild genetic resources. Under the CBD, these genetic resources are subject to National Sovereignty, which gives countries the responsibility both for the conservation and sharing of their own genetic resources, as well as the right to determine conditions of access, and arrangements for benefit sharing on mutually agreed terms. The Convention also recognizes the role of indigenous peoples in managing genetic resources. Many countries are now considering or enacting legislation to comply with these responsibilities, as set out under the CBD. There is concern that such legislation should recognize the special nature and distinctive features of agricultural biodiversity, so that exchange and flow of germplasm is not constrained.

e) **International Undertaking on Plant Genetic Resources.** The Undertaking was adopted in 1983. It is currently being revised as a binding international instrument in harmony with the CBD, through inter-governmental negotiations within the FAO Commission on Genetic Resources for Food and Agriculture. In these negotiations governments are developing a Multilateral System (MLS) for providing access to plant genetic resources for food and agriculture, and for the sharing of benefits. The Undertaking also addresses Farmers' Rights. The successful conclusion of the negotiations will result in a major new instrument regulating access and benefit sharing, essential for the effective management of plant genetic resources for food and agriculture.

From the above discussion, two points emerge for defining key issues and partnership mechanisms:

- The complex policy landscape in which genetic resources management must operate has resulted in difficulties in reaching agreement and developing effective legislation on access and benefit sharing, at national and global levels. Effective management of plant genetic resources may be constrained, unless policy capacity is strengthened.
- The Leipzig Global Plan of Action provides a realistic, comprehensive and globally agreed framework for undertaking priority activities for managing plant genetic resources for food and agriculture

2. The GFAR Initiative on GRFA

In October 1999 the GFAR-Steering Committee approved the *GFAR Initiative in Genetic Resources for Food and Agriculture (GRFA)*, to be carried out in close consultation with IPGRI and with FAO and with the active involvement of all stakeholders. Initial activities are aimed at developing a greater

understanding and agreement on key issues in relation to plant genetic resources for food and agriculture, so that these genetic resources can be effectively conserved and used, and benefits shared. It aims to articulate a consensus among stakeholders of the importance of the continued availability of PGRFA for breeding and development purposes, and to bring these concerns to the attention of policy-makers. This non-governmental initiative seeks to support and complement relevant Governmental process, particularly the negotiation for the revision of the International Undertaking in harmony with the Convention on Biological Diversity. Financial support for the various activities of this initiative is being provided by the Swiss Development Corporation (SDC).

The Objectives of this initiative are to:

- Document benefits of the multilateral system for access to and benefit sharing of GRFA
- Identify policy options for national access legislation to be compatible with the above
- Create awareness and help build policy capacity at national level
- Promote global/regional partnerships to implement the Global Plan of Action.

A series of initial activities have taken place or are planned. These include providing support for a workshop on the impact of Plant Variety Protection on the flow of rice germplasm. This workshop was held in February 2000 in the Philippines, organised by CORRA and IRRI.² Financial support was provided by USAID for this workshop. Other activities include: a series of studies on current issues related to genetic resource management (see micro-papers described in section 2.1); the development of a Declaration on Plant Genetic Resources for Food and Agriculture for consideration and possible endorsement at the present Conference (see section 2.2); and the identification of possible global and regional partnerships which will advance the implementation of the Global Plan of Action, promote access to GR and help to realise and share benefits (see section 3).

2.1 Micro-papers on Key Issues of PGRFA

A series of studies are examining key policy issues which affect access and benefit sharing of PGRFA, as well as the implementation of the Leipzig Global Plan of Action. The studies have now produced a series of “*micro-papers*”, each of 3-5 pages in length, with results of studies presented in full length papers. The main objective of these papers, aimed at policy makers and other GFAR Stakeholders, is to analyse eight key issues related to access and benefit sharing and the implementation of the Global Plan of Action. The papers which address these topics are available at this conference, and in the EGFAR website (http://www.fao.org/NARS/special/grfa_def.htm).

a) **CBD-Compliant National Access Legislation.** Article 15 of the Convention on Biological Diversity states that “...the authority to determine access to genetic resources rests with the national governments and is subject to national legislation.” In order to comply, many countries are now preparing legislation to regulate access. The first micro paper, entitled “*Implications of National Access Legislation for Germplasm Flows*” (http://www.fao.org/NARS/special/grfa_def.htm), prepared by Carlos Correa, consultant on IPRs and genetic resources from Argentina, provides a typology of such legislation presently being implemented, and argues that “dedicated” legislation which sets out conditions for bilateral exchange, may not be appropriate for agricultural biodiversity. It is argued that the Multilateral System of Access and Benefit Sharing, which is currently being negotiated under the FAO Commission, within the context of the Undertaking, can effectively balance the interests of all parties and strengthen the bargaining power of developing countries. The paper concludes that it is advisable for countries to consider an *exception clause* which legislators may include in national legislation, which would give the country the flexibility to participate in a Multilateral System. The paper suggests the wording for such a clause.

² For a brief report on the workshop, see GFAR: “*Report on the GFAR Initiative on Genetic Resources for Food and Agriculture*”; Rome, March 2000, specially section 4 and Annex IV.

b) Policy Options in IPR Legislation on Plant Varieties and Impact of Patenting on Germplasm Access and Exchange. Two micro papers have been prepared in relation to this issue. The paper by Carlos Correa entitled "*Policy Options for IPR Legislation on Plant Varieties and Impact of Patenting*" (http://www.fao.org/NARS/special/grfa_def.htm), suggests that countries have a number of options to consider when developing and implementing patent legislation which may not restrict access to genetic resources. Options range from excluding genetic resources from patentability, strictly enforcing patenting regulations, preventing the granting of excessively broad patents, to limiting the rights of patent holders so as to allow experimentation on the protected material. The paper also suggests that germplasm accessions under the multilateral system might be excluded from IPR, thus allowing them to remain freely accessible.

The second micro paper by Ken Riley, Resource Person to GFAR, entitled "*Effects of IPR Legislation on the Exchange and Use of Plant Genetic Resources*", looks at the impact of patents on the exchange and use of plant genetic resources. It briefly reviews the difference between PBRs and patents and summarises three recent reports which raise concerns about the effects of plant orientated patents on access, and benefit sharing. This paper concludes with a recommendation that countries which are implementing IPR legislation should insure that such legislation allows for protected varieties or germplasm to be used for research and by farmers.

c) Benefits of a Multilateral System and Capacity-Building in NARS to be able to participate in it. The third critical issue is that of the value and benefits of a multilateral system given the "special nature and distinctive properties" of PGRFA, and a very important related topic which is that of the capacity that has to be developed in NARS in order to allow developing countries to participate in its benefits. Two micro-papers are being prepared on this topic. The first paper, prepared by a team headed by L. Visser of CGN in Wageningen, the Netherlands, provides the results to date from an ongoing study entitled, "*Transaction Costs of Germplasm Exchange under Bilateral Agreements*". The study examines expected transaction costs associated with bilateral exchange of germplasm of major food crops, such as costs caused by the negotiation of agreements between two parties, tracking of transactions and monitoring the agreed use of the germplasm. Although work is still in progress, the paper presents three preliminary conclusions: (a) the estimated bilateral transaction costs are high enough to expect that exchange of germplasm would diminish; (b) the high transactions costs entailed in bilateral exchange would likely impede the desired capturing of benefits, except for a limited number of actors; and (c) transaction costs from bilateral exchange of those food crops not covered by a limited multilateral system could still be quite considerable. Together the first and second conclusions reinforce the prediction that bilateral exchange would result in skewed distribution of gains and losses, with many developing countries expected to be the biggest losers. The avoidance of the high transaction costs of a bilateral system and the more rapid circulation of knowledge leading to a greater rate of scientific progress, are two of the most important advantages of a multilateral system.

The second micro-paper on this topic has been prepared by Marcio de Miranda Santos, based with EMPRAPA in Brazil, and asks the question "*How can Multilateral Systems for Plant Genetic Resources for Food and Agriculture Benefit NARS?*" This paper points out that national genetic resources programmes now must combine conservation with use. The paper outlines the requirements and measures that are needed for a multilateral system and the research capacities required at the national level in order to provide benefits to NARS.

d) Germplasm Flow: Data and Trends. There is the perception, based largely on anecdotal information, that the exchange of germplasm of the major food crops between countries or involving International Agricultural Research Centres may be constrained by the present uncertainty surrounding PGRFA policies. The paper, entitled "*Germplasm Flows Between Developing Countries and the CGIAR: An Initial Assessment*", is based on an extensive analysis of data by Cary Fowler, who is affiliated with the Agricultural University of Norway and IPGRI, and Melinda Smale, an economist with IPGRI and CIMMYT (see http://www.fao.org/NARS/special/grfa_def.htm). The study finds that developing countries receive a

massive amount of germplasm from Centres, mostly in the form of breeding materials. Developing countries receive substantially more material than they contribute. Developing countries also receive much more than do developed countries and distributions to the private sector are negligible. New accessions received from collecting material have decreased in recent years. Restoration of germplasm following disasters has assisted a large number of countries recover material which they earlier provided to the IARCs. A companion study, by the same authors, of germplasm flows in and out of several national genebanks is now in progress.

e) **Country of Origin.** Under the CBD, “*countries of origin*” are to regulate access to genetic resources. For domesticated species, country of origin is defined as the country where the genetic resources developed their “distinctive properties”. In his micropaper entitled “*Implementing access and benefit sharing procedures under the Convention on Biological Diversity : the dilemma of crop genetic resources and their origins*”, Cary Fowler points out the difficulty of adhering to this definition when providing access to PGRFA. He finds that efforts to apply the CBD’s definition will likely lead to reductions in access and use, and high transaction costs, without significant additional “benefits”. It is argued that a Multilateral System, such as that being negotiated at FAO, within the context of the International Undertaking, could address the special situation of PGRFA in a scientifically sound, sensible and politically acceptable manner. He concludes that “the goals of the Convention will best be met if the negotiations at FAO produce an agreement of broad scope addressing the particular characteristics and needs of plant genetic resources for food and agriculture. Such an agreement might then be brought under the Convention as a protocol, if the Parties so desire.”

f) **Policy making in PGRFA: Case Studies and Conclusions.** The complexity of various overlapping agreements that affect plant genetic resources has made it very difficult for countries to develop coherent and consistent positions and policies. A micro-paper summarizes a study entitled “*Why Governments Can’t Make Policy – The case of plant genetic resources in the international arena*”, undertaken by Michel Petit, Wanda Collins, Cary Fowler, Carlos Correa and Carl-Gustav Thornstrom. The results of eight case studies provide an explanation for the difficulties in policy making on PGR at the international and national levels. Differing social and cultural values attached to PGR, the complexity of the issues, and the actors involved are found to be contributing factors. The study concludes that severe consequences can be expected if the present lack of consensus continues. Concrete recommendations are made on how the effectiveness of policy making in this area might be improved. Both the micro-paper summary, and the full study are now available.

g) **Promoting Regional /Global Partnerships to Implement the Global Plan of Action.** The implementation of the GPA requires follow up at international, regional, national and local levels. A micro-paper by Ken Riley entitled “*Implementing the Global Plan of Action: Forging the Linkages*”, explores the complementarities of the GPA, the multilateral system and Farmers’ Rights in generating and sharing benefits. The paper concludes that there are good opportunities to develop projects and activities which link the implementation of the GPA with facilitated access, benefit sharing and Farmers’ Rights”.

The second micro-paper by Henri Roullé d’Orfeuil of France, entitled “*Global Collaboration for Genetic Resources for Food and Agriculture*” (http://www.fao.org/NARS/special/grfa_def.htm) outlines several operational process that are necessary for the GPA to be implemented. He points out there are many opportunities for GFAR involvement, including partnerships at local level and with NARS. GFAR involvement is also foreseen in implementing genetic resources networks and information systems, as well as partnerships in developing both regional and global activities, in collaboration with NARS, IARCs and other stakeholders of ARD.

h) **A Multi-level System for the Exchange of Germplasm.** A group of stakeholders from the South are complementing the above mentioned issues with a proposal aimed at the development of a multi-level system based on the concept that the access to germplasm can be structured on the basis of a differential access to different types of genera and of crops, based on a list of crops on which there

could be agreement on the need to facilitate access to them for food security objectives (see section 3.1 below on further comments on the development of this list). This could lead to an integrated system with different dimensions, in which the objectives of the multilateral system is achieved, while at the same time reflecting the requirements of developing countries and of national access legislations. This paper is only at its initial stage, and thus will not be available by GFAR-2000. Only an outline is available.

All participants are urged to read and pass on these papers to colleagues, policy makers and any others who are involved in these issues. These micro-papers are available at the Conference, and can be found on the GFAR website (http://www.fao.org/nars/special/grfa_def.htm).

2.2 Dresden Declaration on Plant Genetic Resources for Food and Agriculture

GFAR recognises that different stakeholders may legitimately hold differing points of view, particularly on issues related to access and benefit sharing of genetic resources. However, it is hoped that sufficient common ground can be identified to move ahead in resolving differences so that important global agreements can be finalized, consistent national positions on policy issues identified, and effective partnerships developed. A draft *Declaration* has now been prepared through the wide participation of stakeholders. The Declaration attempts to set out the common understanding and common concerns among all stakeholders and make clear their common determination to move ahead to resolve issues which may constrain effective management of PGRFA, now and in the future. All stakeholders are requested to carefully examine this draft and work together to resolve any differences in wording so that a Declaration or a consensus document can be adopted by the participants at this Conference. The adoption of such a document will help to raise awareness and give a clear message to policy makers on what we believe to be the way forward. The draft Declaration version, which was revised April 18, is being widely circulated and is available on the GFAR website (http://www.fao.org/NARS/special/grfa_def.htm).

3. Future Research Partnership Proposals

The initial activities in the *GRFA initiative*, described in the previous sections, have established the importance of partnerships among stakeholders of ARD to address two key areas: (1) strengthening policy capacity in the areas that affect Genetic Resources Management, and (2) collaborative activities that can help implement the Leipzig Global Plan of Action, and promote the generation and sharing of benefits. In order to follow up after this Conference and maximise the effectiveness of the initial activities so far undertaken in this GRFA initiative, several partnership proposals are being discussed among stakeholders of ARD, that are being presented to GFAR-2000 to be discussed by all interested parties. These partnership proposals are summarised in this section, organised around three main topics: (a) strengthening a research and policy management capacity in PGRFA, (b) strengthening informal seed production and distribution, and (c) global and regional partnerships aimed at improving characterisation and inventories of PGRFA. It is hoped that these suggestions will stimulate fruitful discussions among stakeholders, and endorsement at the GFAR conference of a set of proposals that can then be further developed and considered for funding and implementation.

3.1 Strengthening Research and Policy Capacity in GRFA:

Three concrete proposals are being presented in this first topic:

a) **Awareness Building Workshops.** A very important dimension of this initiative is to create awareness among research managers, policy makers, legislators, and stakeholders in general on the importance of these issues and on the policy options that are available in each case. A series of regional workshops, to be held in the coming year, will address the above key issues in a regional context and address other related questions, such as “how to strengthen capacity at the local, national and regional levels in order to respond to the changes facing the management of genetic resources,

and how can the management of IPR be translated into opportunities for strategic alliances, possibly including the private sector.

b) **Lists of Regionally Important Genera for Food Security.** The draft Multilateral System being negotiated as part of the International Undertaking on Plant Genetic Resources, is to cover “crops established on the criteria of food security and interdependence...”³. In the recent meeting of the Chairman’s Contact Group of the FAO Commission on GRFA, the need to establish lists of regionally important genera for food security was identified. In the discussions among stakeholders of how best to facilitate this process, it was suggested that the Regional/Sub-regional Fora could play a facilitating role in advancing a dialogue among their member NARS in the identification of which crops and Genera are important in each region, for inclusion under the Multilateral System.⁴ One of the options that could be considered is that RF/SRF could facilitate the development of these lists either through electronic conferencing among key stakeholders within a region (following the recent excellent experience of CORAF in strategic planning), or through agreement on a draft list during one of the next meetings of the Regional Fora. This is a good example of the Global Forum in operation through concerted action among stakeholders. GFAR-2000 could provide the venue to set the stage for these processes, and *EGFAR* could provide a website basis for electronic consultations in cooperation with the respective RF/SRF, if considered of interest by stakeholders.

c) **Research and Policy Capacity Building.** The need to develop and implement consistent policies to effectively manage Genetic Resources for Food and Agriculture at the local, national and international levels, has been a major theme of the GFAR initiative. Policy formulation and policy implementation capacity will continue to be needed, based at the same time on a research capacity to identify policy options and their implications, so that countries can implement national policies, and exert influence at the international level resulting in GR policies that can advance national needs and priorities. Capacity building is also an important part of the Leipzig Global Plan of Action. The *Crucible Project*, which in its first phase generated an interesting learning experience that is being presented in this Sub-Plenary of GFAR-2000 as one of the successful cases of research partnerships, has brought together a wide range of viewpoints on genetic resources policy. On the basis of this experience, the GFAR secretariat has been discussing with several stakeholders of ARD and with a group of donors the possibility of launching a series of research projects wherein the Crucible Group and GFAR would work in consortium. The common objective is that of developing a long term initiative aimed at building the analytical and technical capacity of southern actors engaged in genetic resources-related law and policy development. This proposal is presented in more detail in a concept note that has been prepared on this topic.⁵ To achieve this objective, the proposed initiative could undertake research, act as a clearing house for information, and co-host workshops. This proposal is being developed in consultation with Regional/Sub-regional Fora, IPGRI, IDRC and other donors who have indicated that they would be interested in supporting this initiative. If approved by GFAR-2000, the above mentioned concept note will be utilised as a point of departure for the preparation of a full project proposal that would be presented to a group of donors for their consideration.

³ Extract of the Chairman’s Elements, following discussion and broad consensus during the Montreux meeting January, 1999. Report of the Chairman of the Commission on Genetic Resources for Food and Agriculture on the Status of Negotiations for the Revision of the International Undertaking on Plant Genetic Resources, in Harmony with the Convention Biological Diversity; CGRFA-8/99/13.

⁴ In the case of the Latin America and Caribbean region, in the *First Regional Meeting of Follow-up to the Leipzig Plan of Action* (CIAT, September 1998), it was decided to establish a “regional mechanism” precisely to facilitate this regional dialogue and decision-making, as part of the Regional Forum (FORAGRO).

⁵ See “*Concept Note: Creating a long term Initiative Dedicated to Research and Capacity Building with respect to Genetic Resources Policy*”; April 12, 2000.

3.2 Strengthening Informal Seed Production and Distribution

While research and development efforts focus on strengthening of the testing, production and distribution of varieties and hybrids in the formal seed system, the majority of crops in the world are planted with seed saved by farmers and exchanged through informal systems. Strengthening of traditional or informal seed systems is recognised in the GPA as a means to assist farmers maintain diversity on-farm (Activity 2), and Activity 13 addresses “local level seed production of crops and varieties important to small farmers”. Other potential benefits from strengthening informal seed systems include: improved capacity to restore locally adapted seeds following disaster (GPA Activity 3); increasing equity and recognition of Farmer’s Rights; improved productivity through reduction of seed-borne pests and diseases (especially for vegetatively propagated species); and improved access to locally adapted varieties and land races. Recent studies suggest that many informal seed systems are constrained by several factors: a seed exchange that takes place only among particular groups of farmers; lack of information about the characteristics of the seed which may be exchanged; lack of pride or empowerment among farmers to maintain and distribute their seed; national seed legislation that discourages informal seed exchange; and extension and research systems which do not recognize informal seed systems.

A GFAR partnership proposal might emphasise participatory research and development with farmers, extension personnel and researchers to understand local seed systems, address constraints such as those mentioned above, develop collaborative activities such as diversity fairs, farmers’ registers of local diversity, local characterisation and labelling, improving seed quality and genetic improvement of landraces through participatory breeding or possibly considering molecular methods to transform an adapted landrace with a desirable trait; and market research and development. Exchange of methodologies and approaches would take place through networks under the Regional Fora and GFAR. Participants are requested to consider the interest of such a proposal, and if endorsed, a full proposal would be prepared, and donors approached. Such a proposal would be developed in consultation with RF/SRF and with other GFAR stakeholders, and with organisations such as IPGRI, Overseas Development Institute and CGN in the Netherlands, as well as NGOs such as SEARICE and LIBIRD who have considerable experience in this area.

3.3 Improving Characterization and Inventorying of PGRFA

A partnership proposal to improve characterization, evaluation, inventorying and documentation could address three important issues facing many NARS. First, the Report on the State of the World’s Plant Genetic Resources found that although the number of genebanks have risen to about 1300, the collections held in most of these genebanks are poorly characterized and evaluated, resulting in the lack of use of these accessions. Consequently, these genebanks are often regarded as liabilities, rather than as assets. Second, in many of the “Gene rich” countries in the South most diversity of PGRFA remains uncollected, *in situ* in farmers’ fields’. Although countries have committed themselves to inventory this *in situ* diversity (Activity 1 of the GPA), much more work remains to be done. Third, there is wide concern that germplasm that originated from a given country, could be subject to inappropriate forms of IPR, particularly to broad patent claims, or so-called “biopiracy”. Because *novelty* is a requirement of a patent award, it would appear that *appropriate characterisation and inventorying* of both *in situ* and *ex situ* conserved diversity in a country, and the wide sharing of this information, would serve to pre-empt such patent claims, and act as a deterrent to biopiracy.

A partnership proposal would support the Regional Fora in collaboration with PGR Crop and Regional networks, FAO and IPGRI, to undertake a concerted effort with crop and regional PGR networks to assist member countries to develop and implement realistic plans to characterise, evaluate and inventory both their *in situ* and *ex situ* PGRFA. Specific attention would be directed to: develop minimum agreed descriptors taking regional priorities into account; develop agreed methodologies for documenting *in situ* diversity maintained by farmers, and for wild relatives; develop agreed procedures for computer-based documentation; and agreed mechanisms to share this

information, possibly through national, regional or global information systems; investigation of the legal protection afforded against biopiracy through the documentation of germplasm and exchange of this information. If the main ideas contained in this paper are endorsed, a full proposal could then be developed in consultation with GFAR stakeholders, PGR networks, IPGRI and FAO.

Additional Partnership Proposals: The three partnership proposals suggested above address priority issues which can result in improved management of PGRFA, and can produce benefits through the implementation of the Global Plan of Action. Stakeholders and participants are welcome to suggest additional proposals, which may also meet these criteria. . One of the micro-papers mentioned in the previous section elaborates these ideas more fully.⁶ This paper outlines concrete proposals that can be jointly undertaken through collective efforts by all stakeholders of ARD. Of all the micro-papers, this is the one that has more proposals in terms of PGR research partnerships

Questions for Discussion: In order to facilitate the discussion and decision-making at GFAR-2000 of these various partnership proposals, a set of *Questions for Discussion (QFD)* is being prepared for the respective Working Group.

⁶ See: “*Global Cooperation in Genetic Resources for Food and Agriculture*” April 2000, briefly summarised in paragraph (g), section 2.1, above.