Food and Agriculture Organization of the United Nations

The International Treaty ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Views, Experiences and Best Practices as an example of possible options for the national implementation of Article 9 of the International Treaty

Note by the Secretary

At its second meeting of the Ad hoc Technical Expert Group on Farmers' Rights (AHTEG), the Expert Group agreed on a revised version of the template for collecting information on examples of national measures, best practices and lessons learned from the realization of Farmers' Rights

This document presents the updated information on best practices and measures of implementing Article 9 of the International Treaty submitted by Community Technology Development Trust (CTDT-Zimbabwe) on 19 July 2019.

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

Food and Agriculture Organization of the United Nations

The International Treaty ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Template for submission of

Measures, Best Practices and Lessons Learned from the Realization of Farmers' Rights as set out in Article 9 of the International Treaty

Basic information

Title of measure/practice: Policies and practices to facilitate the implementation of developed Strategic Action Plans for Plant Genetic Resources conservation and use for the improvement of food and nutrition security under changing climatic conditions

Date of submission: 5th of December 2014

Name(s) of country/countries in which the measure/practice is taking place:

Zimbabwe, Zambia and Malawi

Responsible institution/organization:

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- Type of institution/organization (categories):

  Civil Society organizations

- **Collaborating/supporting institutions/organizations/actors, if applicable:**

  ICRISAT Bulawayo.

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Description of the examples

Mandatory information:[1]

Short summary to be put in the inventory (max. 200 words) including:

While laws governing how seed issues are handled in Zimbabwe are still the same , CTDT has continued to work with the National Gene Bank, the Seed Services, Plant Protection and Crop Breeding Institutes to facilitate measures which have allowed farmers to access and benefit from disease free seeds of more than 10 crop varieties and segregating materials from government. CTDT signed a Memorandum of Understanding (MoU) with the Ministry of Lands, Agriculture, Water, Climate and Rural Resettlement, a document that has facilitated enhanced collaboration between the organization and relevant departments within the ministry of agriculture.

CTDT carries out joint germplasm collection missions in the country with the National Gene Bank (NGB) staff. These collections are deposited in the 14 community seed bank structures that farmers with CTDT's support have constructed and duplicate samples are deposited in the National Gene Bank. In a number of cases farmers have requested the NBG to repatriate to the communities after they had lost them due to recurring climate change induced droughts and recently cyclone induced flooding. In this context farmers benefit from the collaborative relationship that exists between CTDT and the National Gene Bank. The Crop Protection Unit of the Ministry of Agriculture assists farmers to conserve disease free germplasm into their seed banks by ensuring that only clean seed is deposited. Staff from this unit take samples of farmers' seed to their labs for testing and advises on the whether the seed is diseased or clean.

The Seed and Food Fairs are jointly organized by CTDT and the government agricultural extension department (AGRITEX) and held in communities where CTDT is promoting access to and exchange of local crop diversity. These seed and food fairs help to enhance the gene flow through seed exchange, knowledge sharing and technology transfer. Also, the seed and food fairs are used to facilitate multi-stakeholder interaction, with knowledge sharing between and among scientists, policy-makers, farmers, extension agents and development practitioners. At such occasions farmers contribute to decision making as they lobby and advocate for policy changes with policy makers that attend the functions.

Farmers have accessed new crop varieties and segregating lines of over 10 different crop varieties from the Ministry of Agriculture's Crop Breeding Institute. Using Participatory Plant Breeding (PPB), and/or Participatory Variety Selection (PVS) farmers have accessed new planting materials hence ensuring that they benefit from this increased crop productivity and food and nutrition security. CTDT established a seed company (Champion Seeds) that is producing and marketing crops and crop varieties that are not prioritized by the big multi-national seed companies hence ensuring that some of the small grain cereals such as sorghum, pearl and finger millets are availed to farming communities. Two new pearl millet varieties were released by the Crop Breeding Institute through after farmers (working in farmer field schools) evaluated the performance of 11 advanced stable lines over a 3-year evaluation period.

[1] This mandatory information is required in order for the measure/practice to be included in the Inventory.

Implementing entity and partners: Community Technology Development Trust (CTDT-Zimbabwe) has been working with Community Technology Development Trust (CTDT-Zambia) and centre for Environmental Policy and Advocacy (CEPA-Malawi)

Start year:	December 2015
Objective(s):	To improve adaptation to climate change and enhance the food security of resource-poor farmers in Malawi, Zambia and Zimbabwe, by strengthening the sustainable management of plant genetic resources for food and agriculture (PGRFA).
Summary of core components:	Capacity building of smallholder farmers, government agricultural extension officers and other relevant stakeholders to implement climate change resilient crop production systems in marginal and low rainfall districts of Malawi, Zambia and Zimbabwe. Scientific and farmers assessment of climate change contexts and trends in project sites and further develop climate change adaptation strategies. Repatriation of lost PGRFA (crop varieties) from national and international gene banks and regenerated within the 8 project districts. Multiplication of seed, facilitate exchange or sale between and among smallholder farmers, holding of seed and food fairs Community seed banking activities Participatory plant breeding (PPB), participatory varietal selection (PVS) and participatory varietal enhancement (PVE) activities among smallholder farmers with support from national and international crop improvement programmes (ICRISAT)

Key outcomes:

- Increased number of crops grown by smallholder farmers (crop diversity) within their farming communities enabling them to adapt to the changing climatic conditions.
- Increased dietary diversity intake by smallholder farmers in the project areas hence reducing malnutrition and stunting among the under-fives.
- Higher crop yields among farmers in project areas compared to those outside.
- Increased awareness and knowledge among smallholder farmers within the project areas of national seed laws and regulations, regional and international instruments that should be

domesticated to facilitate improved access to and control of seed which is the key input to increased food production and productivity, food and nutrition security.

- Establishment of a small seed company where smallholder farmers are producing quality certified seeds of crops that are not prioritised by the big seed companies (sorghum, pearl and finger millet, cowpeas and groundnuts). The smallholder farmers are the shareholders of the seed company.
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Lessons learned (if applicable)

- The Farmers Field School (FFS) methodology is a very strong tool that creates learning and empowering environment for farmers to share information and knowledge between and amongst themselves. The FFS also helps farmers to experiment and solve problems that they face in their fields. Farmers working in the FFSs need to develop their study objectives at the onset of the season which guide them towards achieving their goals. Provision of technical backstopping enables farmers to solve technical challenges within their fields.
- Training on new topics such as Participatory Varietal Selection (PVS), Participatory Varietal Enhancement (PVE) and Plant Breeding (PPB) enables farmers to appreciate important traits in seed selection and multiplication. Extension approaches that involve lead farmers is an effective way of increasing adoption of technologies and the involvement of local leadership in key aspects of project implementation is key for project success and sustainability.

Brief history (including starting year), as appropriate

Core components of the measure/practice (max 200 words)

These include:

- Community seed banking. Farmers bank and withdraw local seeds in community seed banks built within their communities.
- Holding seed and food fairs (mostly at the seed bank structures) to display, exchange and sell seeds between and among themselves and other outsiders hence contributing to Farmers' Rights.
- Establishing demonstration plots to evaluate the performance of planting materials sourced from within and outside the communities e.g. from NARs and CG centres.
- Holding of field days to facilitate exchange of knowledge. Organizing exchange visits and look and learn tours to facilitate exchange of knowledge and
- Introduction of new planting materials sourced from national and international breeding programmes through farmer field schools (FFS). The FFSs were to access materials in the form of advanced lines, segregating populations and released varieties of pearl millet, sorghum, groundnuts, maize, cowpeas , mbambara nuts and finger millet .These were provided mostly by The Crop Breeding Institute (CBI) ,ICRISAT and CIMMYT. The smallholder farmers in the FFS groups carried out PPB, PVS and PVE to widen the genetic base in their hands in order to find

ways of "staying above the climate change curve" i.e. finding ways to adapt to changing climatic conditions in their farming communities.

- Seed multiplication and distribution among farming communities. Recently, (September 2017) CTDT established Champion Seeds (a farmer seed company producing and marketing high quality seeds) with funding support from Sida through Oxfam Novib
- Repatriation of materials stored in the National Gene bank to communities and "request" for these materials. This is not very common as many farmers are not aware of the existence of the national Gene banks.
- Awareness raising meetings on Farmers' Rights and how seed laws as currently provided hinder the provisions of some of these international legal instruments by farmers in the communities.

Description of the context and the history of the measure/practice is taking place (political, legal and economic framework conditions for the measure/practice) (max 200 words)

CTDT has been implementing work programmes covering the aspects highlighted above with funding support from Oxfam Novib (Sowing Diversity =Harvesting Security Programme https://www.sdhsprogram.org/, the International Treaty on Plant Genetic Resources for Food and Agriculture's Benefit Sharing Fund (BSF) project that is also being implemented Zambia (3 districts) and Malawi (3 districts). The FAO-BSF.

The socio and macro-economic situation Zimbabwe continued to decline during the past two decades affecting implementation of programmes in several ways. This harsh economic environment compounded by climate change induced droughts have caused serious loss of crop biodiversity as farmers in low rainfall parts of the country have failed to harvest in successive seasons hence losing their local seeds. CTDT has been working with plant breeders from Ministry of Agriculture, ICRISAT, CIMMYT and CIAT to access advanced breeding lines and segregating populations.

Several laws in Zimbabwe affect farmers and the maintenance of local genetic resources. The Seed Act [Chapter 19:13] regulates the production of commercial seed by seed companies but not the production and sale of traditional varieties. The Plant Breeders' Rights Act [Chapter 18:16] revised in 2001, also affects the implementation of Farmers' Rights. The Act limits the rights of farmers to re-use and sell seeds of protected varieties for the purpose of reproduction and multiplication. Farmers who cultivate less than 10 ha of land are allowed to re-use farm saved seed of protected varieties from their own holdings on their land but not to sell or exchange that seed. However, farmers who get 80 per cent or more of their annual income from farming on communal or resettlement land may multiply the seeds of protected varieties and exchange the seed with other farmers in this category.

Despite these exceptions, the Plant Breeders Rights Act does restrict the rights of farmers to sell, re-use and exchange seeds of protected varieties. And the community of farmers feels that it limits their rights to access plant genetic resources. The sharing and exchange of seed has traditionally been important in Zimbabwe. Seeds that has passed from farmer to farmer through generations is regarded as common property. The existing seed regulations created barriers to traditional practice of farmers sharing and exchanging seeds resulting to disappearance of local varieties.

In this context, wanting to promote the realization of Farmers' Rights, CTDT carried out several awareness-raising workshops and dialogues with farmers and policy-makers of relevance to

International Treaty. In addition to this, CTDT also work together with farmers on the practical implementation of Farmers' Rights and initiated the Community Seed Fairs.

The Seed Fair was aimed at promoting access to local crop diversity and to enhance the gene flow through seed exchange, knowledge sharing and technology transfer. Also, the Seed Fair was aimed to serve as an arena for multi-stakeholder interaction, with knowledge sharing between and among scientists, policy-makers, farmers, extension agents and development practitioners.

Based on Zimbabwe's Community Seed Fairs' experience, it could promote Farmers' Rights in various ways, such as: the seed fairs support traditional seed exchange practices and provided improved access to a wide range of seeds; as farmers were in need of better access to genetic resources, the seed fairs showed promise in terms of promoting benefit sharing; promoted conservation and sustainable use of crop genetic diversity, and contributed to crop productivity and food security.

Community seed banking

Realising the increasing loss of plant genetic resources[2] for food and agriculture in Zimbabwe, CTDT has been leading efforts to ensure food and nutrition security among poor households in low rainfall districts of the country through the construction of community seed banks. A total of 14 community seed banks [3] (CSB) have been constructed in different districts of the country with 11 of them having been constructed in the past 4 years. These facilities are providing options for small holder farmers who deposit their seed in order to conserve it and then withdraw the seeds especially at the beginning of each rainfall season and in cases of crop failures which result from climate change induced droughts. Farmers with seed banking structures have come to appreciate the important role that these facilities play in conservation and sustainable use of plant genetic resources. The need for establishing CSBs has become increasingly evident following the severe effects of 2016/2017 El Niño, which caused the worst drought in 20 years in Zimbabwe. This has had direct implications for the majority of the farmers in the FFS who not only lost their crops but also lost their seeds. In these situations, seed banks are critical in enabling farmers to plant for next year's season. For example, SD=HS farmers who had access to community seed banks were able replant up to two to three times during that season. This illustrated the strengthen that farmer seed systems can provide a safety net to smallholder farmers, which are increasingly needed as extreme weather events such as drought become the norm.

Local authorities, traditional leaders (chiefs and village heads), communities, government agencies (Agritex and the National Gene Bank of Zimbabwe) all support the construction of CSBsTo ensure that each farmer who deposits germplasm in the CSB continues to retain ownership of the germplasm, the depositions are properly documented in such a way that the management committees only release seeds and germplasm to the owners.

To which provision(s) of Article 9 of the International Treaty does this measure relate

Art. 9.1 ×☐

Art. 9.2a ×☐

[2]Plant genetic resources, includes crops, wild plants harvested and/or managed for food, trees on farms, pasture and rangeland species.

[3]*Community Seed Banks* (CSBs) are places of storage where indigenous seed varieties are conserved and managed by community members.

Art. 9.2b ×☐

Art. 9.2c ×☐

Art. 9.3 ×☐

Other information, if applicable

Please indicate which category of the Inventory is most relevant for the proposed measure, and which other categories are also relevant (if any):

No.	Category	Most relevant[4]	Also relevant[5]
1	Recognition of local and indigenous communities', farmers' contributions to conservation and sustainable use of PGRFA, such as awards and recognition of custodian/guardian farmers	×	×
2	Financial contributions to support farmers conservation and sustainable use of PGRFA such as contributions to benefit-sharing funds		×
3	Approaches to encourage income-generating activities to support farmers' conservation and sustainable use of PGRFA	×	
4	Catalogues, registries and other forms of documentation of PGRFA and protection of traditional knowledge		
5	In-situ/on-farm conservation and management of PGRFA, such as social and cultural measures, community biodiversity management and conservation sites		×
6	Facilitation of farmers' access to a diversity of PGRFA through community seed banks[6], seed networks and other measures improving farmers' choices of a wider diversity of PGRFA.	×	
7	Participatory approaches to research on PGRFA, including characterization and evaluation, participatory plant breeding and variety selection	×	
8	Farmers' participation in decision-making at local, national and sub-regional, regional and international levels	×	
9	Training, capacity development and public awareness creation	×	

[4]Please select only one category that is most relevant, under which the measure will be listed.

[5]Please select one or several categories that may also be relevant (if applicable).

[6] Including seed houses.

10	Legal measures for the implementation of Farmers' Rights, such as legislative measures related to PGRFA.	×	
11	Other measures / practices		

- In case you selected 'other measures', would you like to suggest a description of this measure, e.g. as a possible new category?

  _____

- Objective(s)

Target group(s) and numbers of involved and affected farmers[7]

The target groups of the interventions have been smallholder farmers (up to 500 000) within the target districts in Zimbabwe, Zambia and Malawi who benefited by exchanging seeds between and among themselves, accessing "old" and new planting materials from breeding institutions and the National Gene Bank of Zimbabwe through repatriation of seed of crop varieties that had been lost from their communities. Other groups targeted by CTDT's interventions on Farmers Rights included parliamentarians, technocrats from ministries of agriculture, legal and parliamentary affairs and academics from universities and agricultural colleges.

Location(s) and geographical outreach

[7] Any classification, e.g. of the types of farmer addressed, may be country-specific.

Resources used for implementation of the measure/practice:
Grants received from Oxfam Novib, FAO-International Treaty for Plant Genetic Resources for Food and Agriculture's Benefit Sharing Fund and Bread for the World of Germany have been used to support the implementation of these activities.

How has the measure/practice affected the conservation and sustainable use of plant genetic resources for food and agriculture? Please describe the achievements of the measure/ practice so far (including quantification) (max 200 words)

Using the Farmer Field School (FFS) methodology smallholder farmers in over 400 FFS are evaluating and selecting the following number of materials sourced from national breeding institute, international research centers such as ICRISAT and CIMMYT: 11 stable lines of sorghum, 16 segregating populations of sorghum, 9 stable lines of pearl millet, 10 segregating populations of pearl millet, 6 stable lines of groundnuts, 33 stable lines of maize and 10 stable lines of cowpeas. Selection and evaluation is based on farmer preferred agronomic and morphological traits. During the 2017/18 agriculture season, 2 (two) pearl millet selections (PMV 4 and PMV5) were released as varieties by the Crop Breeding Institute. All these materials introduced to communities will increase much needed crop diversity. CTDT with funding support from Swedish Development Agency (through Oxfam Novib) established a Farmer Seed Enterprise which is multiplying these released varieties so that the rest of the farmers can easily access the seed. The Farmer Seed Enterprise is also participating in the government input support scheme (Command Agriculture) to ensure that the seed is accessed by small holder farmers in marginal areas.

Farmer Field Schools repatriated 5 crop varieties from the National Bank of Zimbabwe. The 5 varieties of maize *(garabha),* pearl millet *(nyati)*, sorghum *(gokwe, cimezela)* and groundnuts *(kasawaya)* were subjected to Participatory Variety Enhancement technique. Farmers successfully rejuvenated and restored the 5 varieties. The seed is going to be multiplied and distributed to more farmers through seed fairs.

The programme in collaboration with the National Gene Bank of Zimbabwe facilitated deposition of 100 accessions of bambara, sorghum, pearl millet and cowpeas into the Southern Africa Development Community Plant Genetic Resources Centre in Zambia. Copies of these accessions were also deposited in the national gene bank and community seed banks.

Other national level instruments that are linked to the measure/practice:

Are you aware of any other international agreements or programs that are relevant for this measure/practice?

Other agreements relevant for the implementation of these measures include the Commission on Genetic Resources under the auspices of the FAO, the Nagoya Protocol on Access and Benefit Sharing

and the Convention on Biological Diversity (CBD). CTDT closely follows these agreements and participates in global conferences under these global agreements.

Other issues you wish to address, that have not yet been covered, to describe the measure/practice

Climate change induced droughts have caused significant losses of especially farm saved seeds. The linkages between climate change and loss of crop biodiversity has not been well documented in many countries in Southern Africa including Zimbabwe. Advances in crop breeding and release of improved varieties is given as a viable alternative to the realization of food and nutrition security at the expense of promoting Farmers' Rights. Farm saved seeds are going to play a key role in the provision for food and nutrition security and ensure sustainable development.

Lessons learned

Describe lessons learned which may be relevant for others who wish to do the same or similar measures/practices (max 250 words).

- The Farmers Field School (FFS) methodology is a very strong tool that creates a learning and empowering environment for farmers to share information and knowledge between and amongst themselves and in the process help farmers to experiment and solve problems that they face in their fields. Farmers working in the FFSs need to develop their study objectives at the onset of the season so that farmers understand their goals from the onset. Provision of technical backstopping enables farmers to solve technical challenges within their fields.
- Training on new topics such as Participatory Varietal Selection (PVS), Participatory Varietal Enhancement (PVE) and Plant Breeding (PPB) enables farmers to appreciate important traits in seed selection and multiplication. Extension approaches that involve lead farmers is an effective way of increasing adoption of technologies and the involvement of local leadership in key aspects of project implementation is key for project success and sustainability.

- The Seed and Food Fairs provide a venue for local communities to showcase their seeds and products, allow stakeholders to buy, sell and exchange seeds. The fairs also provide opportunities for farmers and other stakeholders to interact and share knowledge. It also provides opportunity for farmers and extension staff of the Ministry of Agriculture to exchange and disseminate information. Seed and food fairs provide an important platform for farmers to not only interact with policy makers and advocate for Farmers Rights to save, exchange and sell seed but also to promote access and benefit sharing. The annual seed and food fairs organized by farmers in Zimbabwe in collaboration with CTDT have provided improved access to seeds thereby resulting to the recuperation, restoration and enhancement of local crop genetic resources; have enabled farmers to access cost-effective, adaptable crop varieties, thus contributed to increased productivity and food security. Farmers have learned about varieties and traditional knowledge previously unknown to them and commercial seed producers have been able to learn about farmers' needs, tastes, and concerns. The fairs have also created market linkages that might promote processing and value addition. Seed fairs must be farmer-driven and based on local ownership if they are to be sustainable in the long term and able to succeed under difficult circumstances.

- The collaboration with national (Crop Breeding Institute of Zimbabwe) and international crop breeding institutes is key in the introduction of new plant genetic resources in smallholder farming communities. The collaboration opened an avenue for researchers, academia, extension, policy makers and farmers to work together to promote access and benefit sharing agenda.
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What challenges encountered along the way (if applicable) (max 200 words):
The following challenges were (are) encountered during implementation of some of these measures:

- Resources limitations to carry out these measures in more communities
- Change of personnel in key government institutions and in parliament to allow CTDT to follow up on e.g. the domestication of the International Treaty on Plant Genetic \resources for Food and Agriculture.
- Climate change induced droughts which affected the development of breeding lines into new varieties in farmers' fields to allow them to fully benefit from project efforts. The poor start to the rainfall seasons affected crop performance. These were made worse by the long dry spells that were experienced in the first three months of the growing season. This resulted in crop established in the poor establishment of the FFS and demonstration plots.

- There was an outbreak of Fall Army worm *(Spodopterafrugiperda*) which affected the sorghum and pearl millet crops. Due to the high cost of army worm control chemicals, most of the crop were damaged as the project had not budgeted for such eventualities. The macro-economic environment (exchange rates, unavailability of cash and fuel) affected project implementation

What would you consider conditions for success, if others should seek to carry out such a measure or organize such an activity? (max 100 words)

The following can be adopted with adaptations if any institution seeks to carry out such measures:

- Getting to understand the farmers; problems and viewpoints, awareness raising on topical issues such as farmers' Rights and capacity building of key stakeholders such as farmers, project and collaborating institutions staff and lead farmers on important topics such Farmers Rights, community seed banking, germplasm collection and conservation in CSBs, PPB and PVS are critical as these efforts create a critical mass of resource persons and voices to take such issues to scale.
- The FFS approach is a useful tool that allows for farmer empowerment, experiential learning and knowledge exchange. Farmer Field Schools (FFS) create a conducive environment for sustainability among project beneficiaries as farmers come up with home grown solutions to their challenges.
- Analyzing climate change within communities with farmers and scientists gives them (farmers) a better understanding of climate trends taking place and allows them to develop local adaptation strategies to such challenges.

- Development of training materials (booklets, curricula and tools) are critical in transferring information and creating standards which strengthen communities' capacities to implement projects, programmes and initiatives as highlighted above.
- Field days, exchange visits and other farmer to farmer training approaches used in the project were critical in knowledge sharing, generation of interest to succeed. Farmer to farmer knowledge exchange was more effective through interactions with fellow farmers as they shared their experiences as compared to trainings by technocrats.
- Collaboration with gene banks, breeding institutions agricultural colleagues and universities is critical in availing "old" and new varieties and advanced breeding lines to communities to increase crop diversity at local levels hence allowing for benefit sharing as highlighted in the ITPGRFA.
- Seed fairs are critical platforms that can facilitate the exchange of seeds and knowledge among communities. Using such approaches, communities can to share seeds with people from distant places hence contributing to Farmers' Rights.
- Food fairs are critical to showcase how local crop diversity can be processed and utilized. This has a direct effect on the production of especially neglected and under-utilized crops and sharing of knowledge on conservation and use which is then passed on to the younger generations.

Community seed banks are critical in conservation and sharing of germplasm. Construction of seed bank formalized seed conservation within communities, moving it from a household initiative to communal. It is critical to identify champions of seed conservation in communities and involve and reward them by e.g. awarding certificates of excellence to them in seed banking process so that they are further motivated. Farmers' rights have been debated intensely, but their effective implementation remains a challenge. Community seed banks, with their multiple forms and functions, are good examples of effective implementation of those rights. CTDT experience has shown that community seed banks effectively establish the right to save, use, exchange, and sell farm-saved seed and propagating material; protect traditional knowledge relevant to plant genetic resources; and allow equitable sharing of the benefits arising from these resources**Further information**

- Link(s) to further information about the measure/practice

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Map of Zimbabwe showing districts in which some of the measures are taking place.