



Food and Agriculture  
Organization of the  
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**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 Uganda on 31 July 2019.*

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



## 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**  
Strengthening Seed Delivery System for Dryland Cereals and Legumes in Drought-prone Areas of Uganda  
*Also code named "The Cluster Granary Seed (CGS) Project"*
- **Date of submission**  
12/7/2019
- **Name(s) of country/countries in which the measure/practice is taking place**  
Uganda
- **Responsible institution/organization (name, address, website (if applicable), e-mail address, telephone number(s) and contact person)**  
National Semi-Arid Resources Research Institute (NaSARRI). P. O. Box 56 Soroti; e-mail: [directornasarri@naro.go.ug](mailto:directornasarri@naro.go.ug) Telephone: +256 772 444767 and +256 753 444767  
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- **Type of institution/organization (categories)**  
A Public Agricultural Research Institute, under, the National Agricultural Research Organisation (NARO) – A Government Institution.
- **Collaborating/supporting institutions/organizations/actors, if applicable (name, address, website (if applicable), e-mail address, telephone number(s))**  
National Plant Genetic Resource Centre, <http://www.pgrcuganda.go.ug>, Entebbe Uganda  
World Vision Uganda  
IITA  
ICRISAT  
CIAT  
District Local Governments in Uganda

#### Description of the examples

#### Mandatory information:<sup>1</sup>

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<sup>1</sup> This mandatory information is required in order for the measure/practice to be included in the Inventory.



**Food and Agriculture  
Organization of the  
United Nations**



**The International Treaty**  
**ON PLANT GENETIC RESOURCES  
FOR FOOD AND AGRICULTURE**

- **Short summary to be put in the inventory (max. 200 words) including:**
  - Implementing entity and partners
  - Start year
  - Objective(s)
  - Summary of core components
  - Key outcomes
  - Lessons learned (if applicable)

This project implemented in Amuria, Kumi and Kitgum districts of Uganda led by the National Semi-Arid Resources Research Institute (NaSARRI) in partnership with World Vision Uganda, the National Plant Genetic Resource Centre and farmer groups. It started in 2016 with the goal to contribute to enhancing food security and climate-change adaptation in drought-prone areas by strengthening seed systems of target crops, including sorghum, finger millet, pearl millet, cowpea, pigeonpea, and groundnut. Specific objectives were to (1) assemble the diverse local and improved genetic resources of target crops; (2) establish an effective and sustainable seed delivery model for increasing access to quality seeds and (3) build the capacity of farming communities to produce and conserve such seed. Over 300 local and improved genetic resources of the target crops have been assembled and characterized through farmer-led demonstrations. Thirty farmer groups are now producing and conserving quality seeds for their communities. A 'cluster granary' seed delivery model was developed and operationalized by 30 farmer groups. Overall, 600 farmers have directly benefited; indirectly, over 1500 households have benefited through seed sharing, training sessions, voluntary visits to demonstration sites, National Agricultural shows, World Food Day Celebration, 'Plant Clinics' and other agriculture-related events.  
(200 words)

- **Brief history (including starting year), as appropriate**

The intervention began over 3 years ago to address challenges faced by resource-poor smallholder farmers in drought-prone areas of Uganda. Farmers mostly cultivate indigenous seed for sorghum, pearl and finger millets, cowpea, groundnuts, and pigeonpea for food security and income. The productivity of these crops has remained very low due to unreliable access to quality seed and less adapted varieties driven by ineffective seed delivery systems (MAAIF, 2010). Also, effects of drought, floods, pests, and decreasing soil fertility worsen the challenges. Specifically, a seed system designed to easily avail quality and affordable seed to resource poor farmers is non-existent, though, very limited sharing and exchange of seed occurs within communities. No crop genetic and seed conservation efforts exist in these communities. Thus, the need to develop a seed delivery model that will ease access to quality seed by the resource poor farmers in the country is important. Empowering farming communities with skills and knowledge to produce and conserve seed adaptable to effects of climate change will strengthen sustainable use. A deliberate effort to conserve diverse and adaptable genetic materials by involving farming communities, the National Public Agricultural Research Institutes, and other Seed Banks will strengthen the seed delivery system.
- **Core components of the measure/practice (max 200 words)**

#### **Understanding farming community knowledge and perception**

A baseline study was conducted using household interviews targeting 300 households and 3 focus group discussions. Information on farmer perceptions, local knowledge, attitudes towards climate change, practices mitigating effects of climate change, using diverse adaptable plant genetic resources, rights, practices and traditions pertaining access to quality seed was obtained.



### **Germplasm collection and characterization**

Diverse genetic resources of target crops were collected from local markets and farmers' fields with prior informed consent, in selected semi-arid agro-ecological zones. Some germplasm were obtained from research institutes and CGIAR centres guided by Standard Material Transfer Agreements. Passport data were according to the descriptors developed by IBPGR/FAO. Germplasm characterization and evaluation conducted on-station.

### **Establishment of community seed delivery model**

A Cluster Granary Seed Delivery model was developed and adopted. Farmers were mobilized into solidarity groups of 10 households to form small clusters (SCs), and 10 SCs forming large clusters in each of 3 districts.

### **Capacity building for quality seed production**

Farmers were trained on quality seed production and conservation through farmer-led method-results demonstrations gardens at project sites. Trainers of trainers were also trained in quality seed production, postharvest handling, safe use and handling of pesticides, record and book keeping.

- **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)**

According to UBOS (2010) in Uganda National Seed Policy 2014, over 80% of the country's 5 million households are dependent on agriculture. Households are segmented as commercial farmers (5%), semi-commercial farmers (27%), and smallholder farmers (68%) where women play a significant role. The latter category dominates the sector with an average land holding size of 1.1ha practicing low input / output farming systems. Though Uganda achieved economic growth averaging about 6% per annum in the past two decades, the agricultural sector is declining because most growth achieved is attributed to increase in cultivated area and not improved resource productivity. There is minimal use of external inputs like improved seed, fertilisers estimated at 1kg/ha/year (MAAIF DSIP-FIP, 2012 ) compared to 35 and 13kg/ha/year in Kenya and Tanzania, respectively, limiting transformation of current agriculture into commercial agriculture. Only 13% of planted area is planted with seed from seed companies dominated by maize seed (25%). Implying, the seed sub-sector is still under developed and majority of the farmers access seed through an informal system that needs strengthening. This is further confounded by the rapid climate change with limited efforts towards resilience adaptation.

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

The measure relates to all the listed provisions below.

Art. 9.1 ×

Art. 9.2a ×

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 <sup>2</sup>	Also relevant <sup>3</sup>
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		X
2	Financial contributions to support farmers conservation and sustainable use of PGRFA such as contributions to benefit-sharing funds		X
3	Approaches to encourage income-generating activities to support farmers' conservation and sustainable use of PGRFA		X
4	Catalogues, registries and other forms of documentation of PGRFA and protection of traditional knowledge		X
5	In-situ/on-farm conservation and management of PGRFA, such as social and cultural measures, community biodiversity management and conservation sites		X
6	Facilitation of farmers' access to a diversity of PGRFA through community seed banks <sup>4</sup> , seed networks and other measures improving farmers' choices of a wider diversity of PGRFA.	X	
7	Participatory approaches to research on PGRFA, including characterization and evaluation, participatory plant breeding and variety selection		X
8	Farmers' participation in decision-making at local, national and sub-regional, regional and international levels		X
9	Training, capacity development and public awareness creation		X
10	Legal measures for the implementation of Farmers' Rights, such as legislative measures related to PGRFA.		X
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?

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<sup>2</sup> Please select only one category that is most relevant, under which the measure will be listed.

<sup>3</sup> Please select one or several categories that may also be relevant (if applicable).

<sup>4</sup> Including seed houses.



**Food and Agriculture  
Organization of the  
United Nations**



**The International Treaty**  
**ON PLANT GENETIC RESOURCES  
FOR FOOD AND AGRICULTURE**

Gender considerations to enable ladies be in charge of seed production, conservation and diversity in households and other levels.

- **Objective(s)**  
Specific objectives were to;
  - ✓ Assemble the diverse local and improved genetic resources of the target crops
  - ✓ Establish an effective and sustainable seed delivery model for increasing access to quality seeds, and,
  - ✓ Build the capacity of farming communities to produce and conserve quality seed.
  
- **Target group(s) and numbers of involved and affected farmers<sup>5</sup>**  
Smallholder farmer (2,061): Women (833) and Youth (200)  
Field extension officers (3): Women (1) and Youth (3)  
Scientists (9): Women (2) and Youth (0)  
Input suppliers (3): Seed companies (4), stockists (6), etc.
  
- **Location(s) and geographical outreach**  
The project is implemented in three districts covering three agro-ecological zones; Amuria (Usuk sandy farm grasslands), Kitgum (Northern grass-farm-bush transition) and Kumi (Eastern Lake Kyoga basin) (Wortmann and Eledu, 1999).
  
- **Resources used for implementation of the measure/practice**
  - a) Funds (EU through the ITPGRFA)
  - b) Plant genetic materials: collection from farmers, released crop varieties from, introductions from other research institutes/CGIARs and breeding lines from the Research station.
  - c) Land: Farmers land and land offered by the Local Government Authorities in target districts
  - d) Agro-inputs: Procured through the Cluster Granary Seed Project funded by the EU
  - e) Labour provided by participating farmers
  - f) Technical knowledge provided by different experts in agriculture, research, engineers
  
- **How has the measure/practice affected the conservation and sustainable use of plant genetic resources for food and agriculture?**  
The practice has introduced a diversity of plant genetic resources, especially improved varieties into the target communities, it has improved community access to quality seeds, has provided avenue for conservation of genetic materials into national gene banks and community seed banks. Thus, access to quality seed by the rural poor farmers will be made easy. It is anticipated that there will be improved production and productivity of the target crops which will result in the overall agricultural sector growth ensuring food security for better livelihoods.
  
- **Please describe the achievements of the measure/ practice so far (including quantification) (max 200 words)**  
Information on farmer's perceptions, local knowledge and attitudes towards climate change, practices mitigating effects of climate change, use of plant genetic resources, farmer's rights, practices related to access to quality seed, was obtained from a baseline study. 1,137 germplasm was assembled and

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<sup>5</sup> Any classification, e.g. of the types of farmer addressed, may be country-specific.



**Food and Agriculture  
Organization of the  
United Nations**



**The International Treaty**  
**ON PLANT GENETIC RESOURCES  
FOR FOOD AND AGRICULTURE**

characterised; 110 cowpea accessions characterized for growth habit, drought tolerance, maturity, and yield; 120 sorghum, 25 pearl millet, and 20 finger millet accessions characterized for maturity, pest resistance, and yield; 738 pigeonpea accessions characterized for growth habit, flower / pod colour, yield, and maturity; and 124 groundnuts accessions characterized for maturity period, oil content, pest resistance, and confectionery. 154 accessions conserved with NPGRC, Entebbe. 90 Drought tolerant and 65 early maturing genotypes were identified for adaptation. 725 farmers (F 338: M 387) were mobilised into 30 groups, each having 10 households as a small cluster and 10 small clusters form a large cluster. These constitute a Cluster Granary Seed Delivery model operationalized in communities. Land for construction of 18 seed granaries was identified and secured. A total of 1,090 farmers (523 F: 567 M) trained on quality seed production and conservation, using 153 demonstration gardens. 573kg of starting seed was distributed to farmers to multiply and got 5,906 Kgs.

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

Organisations Bioversity International (CGIAR) and Integrated Seed Sector Development (ISSD), a local seed business organisation supported rural farmers to produce, access, and afford quality seed. Project farmers participate in important events such as the National Agricultural trade Shows, World Food Days, Plant clinics etc, for purposes of visibility and knowledge sharing.

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

Yes. NaSARRI, is to partner with a Kirkhouse Trust funded project to promote production of Stress Tolerant Orphan Legume crops to mitigate effects of climate change for improved food security and livelihoods of the rural poor. Bilateral Material Transfer Agreement (MTA) was signed to facilitate sharing of these genetic materials as they are not included in the ITPGRFA *Annexure 1*.

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

The practice needs scaling up, out, and in, for greater impact. Demand for quality seed in the neighbouring farming communities outside project area is high wanting participation as direct beneficiaries.

### **Lessons learned**

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

- 1) Capacity of farmers to produce in diversity and conservation of quality seed is gradually appreciated and built. Farmers have realised the importance multiplying and deliberate conservation of quality seed.
- 2) Planting seasons vary within agro-ecological zones, but can as well be dictated by the indigenous tradition of the natives who by their ways believe and decide to grow crops once in a year. Apparently, farmers have appreciated the possibility of having to grow some crops such as the early maturing sorghum twice in a year if such seed is availed. This has been observed from project beneficiaries in Kitgum and Amuria districts.
- 3) Improved crop varieties are more productive compared to most of the unimproved local crop varieties as observed by farmers from the method-results demonstration gardens.



**Food and Agriculture  
Organization of the  
United Nations**



**The International Treaty**  
**ON PLANT GENETIC RESOURCES  
FOR FOOD AND AGRICULTURE**

- 4) The project is changing the farmer's mind-set of expecting free hand-outs from charity organisations and embarking on production and save their own quality seed for future use in times of shortage / scarcity.
- 5) Capacity building through raining of farmers to improve their knowledge and skills is very important. Farmers have appreciated the importance and practice of planting small grain crops such as sorghum and millets in rows compared to broadcasting. Demonstration results of row planting excited them because it made field operations such as weeding, spraying and harvesting easy, with relatively higher yields.

• **What challenges encountered along the way (if applicable) (max 200 words)**

1. Erratic weather patterns eg, prolonged drought, less moisture etc, affected planning and execution of some activities as well as affected the quality of germplasm collected for on station evaluation.
2. Delayed disbursement of funds to facilitate implementation of activities affected the timing of our work-plan.
3. Limited means of transport at the Institute as well as project sites affected project operations.
4. Tractor break downs at the Institute affected timely field operations.
5. Remuneration to project staff - Site Coordinators is low, and needs to be revised upwards.

• **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)**

- a) Engaging farmers right from the start and ensuring that they are involved in decision making whenever there is a need to engage them (participatory approaches)
- b) Working together with local government authorities
- c) Partnerships with local non-government organisations, Government Ministries (Agriculture, Works, environment, gender etc)
- d) Capacity building of stakeholders
- e) Timely availability of resources during implementation

**Further information**

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

[www.nasarri.go.ug](http://www.nasarri.go.ug); [www.wvi.org](http://www.wvi.org); [www.naro.go.ug](http://www.naro.go.ug)