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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 information on best practices and measures of implementing Article 9 of the International Treaty submitted by Alliance of Bioversity International and CIAT, Kenya on 18 May 2021.*

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



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## 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: **Enhancing capacity for climate change adaptation by helping farmers to access genetic resources from the multilateral system of access and benefit sharing**
- Date of submission **April 2021**
- Name(s) of country/countries in which the measure/practice is taking place: **Kenya Uganda and Tanzania**
- Responsible institution/organization (name, address, website (if applicable), e-mail address, telephone number(s) and contact person) **Alliance of Bioversity International and CIAT, Kenya**
- Type of institution/organization (categories); **National Gene banks, National agricultural Research Organizations, CGIAR**
- Collaborating/supporting institutions/organizations/actors, if applicable (name, address, website (if applicable), e-mail address, telephone number(s)) **Agricultural Research Organization's Genetic Resources Research Institute; National Agricultural Research Organization's Plant Genetic Resources Centre ( NARO-PGRC) of Uganda; Tanzania Plant Genetic Resources Centre**

#### Description of the examples

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

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

The project "Promoting Open Source Seed Systems for Beans, Millet and Sorghum for Climate Change Adaptation in Kenya, Tanzania and Uganda" was supported by the Benefit-sharing Fund (BSF) established under the International Treaty on Plant Genetic Resources for Food and Agriculture and implemented by The Alliance of Bioversity International and CIAT, National Plant Genetic Resources Centre (NPGRC – Tanzania), National Agricultural Research Organization's Plant Genetic Resources Center (NARO-PGRC)-Uganda, The Genetic Resources Research Institute (GeRRI) of Kenya's Agricultural Research and Livestock Organization, Hivos (The Netherlands), and Sustainable Agriculture and Natural Resource Management Africa (SANREM-AFRICA). The project began in 2016 and ended in October 2019.

The objective of the project was to improve adaptation to climate change and enhance the food and nutrition security of resource-poor farmers in Kenya, Tanzania and Uganda, through the availability, sustainable management and use of a wider range of quality plant agricultural biodiversity – including Sorghum, finger millet and beans. Through this project, the three gene banks of Kenya Tanzania and Uganda exchanged 749 genebank accessions of sorghum, finger millet and beans. From these, 63 bean and 44 finger millet varieties in Hoima, Uganda; 24 sorghum varieties in Hombolo and Singida, Tanzania; and 52 finger millet and 49 sorghum varieties in Nyando, Kenya were tested through various PVS methodologies both on-station and on-farm. From these potential varieties, farmers in Hoima, Uganda identified and selected seven bean and seven finger millet varieties, those in Hombolo and Singida, Tanzania selected ten sorghum varieties and in Nyando, Kenya, farmers selected ten finger millet and ten sorghum varieties. The identification and selection took place between 2017 to 2019 through crowdsourcing<sup>2</sup> and participatory varietal selection

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

<sup>2</sup> van Etten, J. et al. (2016) First experiences with a novel farmer citizen science approach: crowdsourcing participatory variety selection through on-farm triadic comparisons of technologies (tricot).



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Organization of the  
United Nations



The International Treaty  
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FOR FOOD AND AGRICULTURE

(PVS<sup>3</sup>). These varieties were further subjected to nutritional analysis – a report of the same can be found at: <https://cgspace.cgiar.org/handle/10568/111258>.

These best performing varieties were then put in catalogues and disseminated to various breeding programs and farming communities. A copy of the catalogues can be found at the following links

<https://cgspace.cgiar.org/handle/10568/111207?show=full>

<https://cgspace.cgiar.org/handle/10568/111212>

<https://cgspace.cgiar.org/handle/10568/111204>

Two community seedbanks were also established to enhance conservation in-situ but also to enhance access to seeds for over 3000 farmers who access these seedbanks. Related news available at:

<http://www.fao.org/plant-treaty/news/news-detail/en/c/1186267/>

<https://kijijiyeetu.co.ke/blog/nyando-community-seed-bank-open-in-jimo-village-kisumu-county/>

The Project established knowledge sharing and learning platforms both nationally and regionally and globally i.e Global Open Source Seed systems network - GOSSI

The project also contributed to key policy outcomes by engaging stakeholders in discussions around the implementation of Access and benefit sharing policies; registration of farmers' varieties and commercialization through QDS systems including open source seed systems. Some of the policy workshop reports can be found at:

<https://cgspace.cgiar.org/handle/10568/101278>

<https://cgspace.cgiar.org/handle/10568/101227>

<https://cgspace.cgiar.org/handle/10568/107216>

- Implementing entity and partners
- Start year 2016
- Objective(s)
- Summary of core components
- Key outcomes
- Lessons learned (if applicable)
- Brief history (including starting year), as appropriate  
The Project on Open source Seed Systems for climate change adaptation began in 2016 and was implemented in four sites in Nyando-Kenya, Hombolo and Singida in Tanzania and Hoima Uganda. These four sites were affected by climate change and loss of agro-biodiversity. They needed a new source of genetic materials to use for climate change adaptation, hence the project Open Source Seed Systems.

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<https://pdfs.semanticscholar.org/5ebb/c4eb3d46d7bd721bdfb25b7cd0f93edcbd56.pdf>

<sup>3</sup>Mubiru, D.; Recha, T.; Otieno, G. (2020) Sensory evaluation of finger millet and bean products in Hoima Uganda. Report of field work conducted 6-12 September 2019. Rome (Italy): Bioversity International. 25 p. ISBN: 978-92-9255-200-8  
<https://cgspace.cgiar.org/handle/10568/111258?show=full>



- Core components of the measure/practice (max 200 words)
  1. Component one is the exchange or genetic resources form the multilateral system (gene banks) through SMTA
  2. Component 2 – participatory varietal testing and selection using crowd sourcing methodologies
  3. Component 3 - Conservation and improving access to seeds through community seed banking
  4. Component 4 – involving dissemination of best performing accessions of sorghum, finger millet and beans through catalogues to farming communities and to breeding programs
  5. Livelihoods component involving strengthening seed systems through local seed businesses and through product value chains
  6. Knowledge sharing through platforms at the national level, regionally and globally
  7. Policy component specifically on the functioning of the multilateral system, farmers ‘rights, and the open source seed systems
- 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)
 

The measure/practice took place in East Africa in Kenya, Uganda and Tanzania in sites which are increasingly being affected by climate change and agro-biodiversity loss. As a result, farmers faced food and nutrition in security, low agricultural productivity especially affecting women farmers. At the same time farmers in these areas do not have adequate technical and financial support to adopt measures that will help them cope with climate change.
- To which provision(s) of Article 9 of the International Treaty does this measure relate
  - 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>4</sup>	Also relevant <sup>5</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		Yes
2	Financial contributions to support farmers conservation and sustainable use of PGRFA such as contributions to benefit-sharing funds	Yes	

<sup>4</sup> Please select only one category that is most relevant, under which the measure will be listed.

<sup>5</sup> Please select one or several categories that may also be relevant (if applicable).



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

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

Yes

- Objective(s)
  - To provide mechanisms for in-situ conservation of local landraces specifically integrating indigenous knowledge in the sustainable use and management of PGRFA
  - To improve access to seeds/seed security at the local level by ensuring seeds are available in close proximity to the farmers' fields
  - To improve resilience of seed and food systems by providing a wide range of diversity of seeds that farmers can rely on for production and diverse diets
  - to enhance complementarities between in-situ and ex-situ conservation also by linking the seedbanks to national gene banks
- Target group(s) and numbers of involved and affected farmers<sup>7</sup> Smallholder farmers in Hoima Uganda and Nyando- Kenya where a total of about 4000 farmers are benefiting from the seed bank
- Location(s) and geographical outreach

Hoima in Uganda and Nyando in Kenya

<sup>6</sup> Including seed houses.

<sup>7</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**  
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FOR FOOD AND AGRICULTURE**

- Resources used for implementation of the measure/practice – the seedbanks were established with support of the Benefit Sharing Funded project on Open Source seed systems for climate change adaptation in Kenya, Uganda and Tanzania. The project also received co-funding from the Climate Change Agriculture and Food Security CGIAR program (CCAFS) to establish the seed banks.
- How has the measure/practice affected the conservation and sustainable use of plant genetic resources for food and agriculture? The seedbanks have improved in-situ conservation. In Hoima Uganda, over 28 varieties, 23 finger millet varieties, 3 varieties of traditional leafy vegetables, one variety of sesame, one variety of pigeon peas and 2 varieties of cow peas conserved in the seedbank. In Nyando, the seedbank conserves over 100 finger millet, 100 sorghum, 20 bean and 5 varieties of traditional leafy vegetables varieties which they use for climate change adaptation.
- Please describe the achievements of the measure/ practice so far (including quantification) (max 200 words)  
The seedbank serves over 1000 farmers in 8 villages in Hoima and over 2000 farmers in 13 villages in Nyando-Kenya. The seedbank is managed by community members who receive special training on the management of small and medium enterprises and on the documentation of traditional knowledge. The project provides local farmers training in managing plant genetic resources for food and agriculture, and actively involves them in developing new varieties and other relevant technologies for climate change adaptation and strengthening food security. Farmers are also involved in on-farm trials and farmer field schools, where they receive training in seed multiplication, participatory breeding, in licensing their seeds as farmers' varieties, and in trading seeds under open source labels. The farmers also participate in Farmers' Seed Fairs, which attract hundreds of farmers and provide an opportunity for them to showcase and share local seed varieties cultivated and saved as a result of the OSSS project. These Seed Fairs also provide an excellent opportunity for farmers from different parts of Uganda to exchange seeds and share experiences and knowledge.
- Other national level instruments that are linked to the measure/practice NO
- Are you aware of any other international agreements or programs that are relevant for this measure/practice? The CBD/Nagoya protocol
- Other issues you wish to address, that have not yet been covered, to describe the measure/practice. NO

### **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 main lesson is to have a continuous engagement between farmers and different stakeholders including linkages with the National gene banks so as to have a well-coordinated and integrated in-situ ex-situ strategy in place and to provide technical support to farmers on measures they can apply to improve conservation activities but also to help their seedbanks become self -sustaining.
- What challenges encountered along the way (if applicable) (max 200 words)  
The main challenges encountered are related to policy and legislative frameworks especially in relation to direct use and/or commercialization of MLS or farmers' varieties which are not allowed under.  
The other challenge is on ensuring the sustainability of the established seed banks, and this we have tried to do through establishing seed cooperatives which are linked to the seedbanks. The main role of the cooperatives is to participate in local seed business when they sell quality declared seed of registered varieties to gain some profit which they can then use at the seedbanks. We have also engaged farmers in participation in seed and product value chains so as to have an income stream



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



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

from farming. We have also introduced off-farm activities through their producer groups of women groups such as basket weaving,

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 multi-stakeholder approach involving government agencies including policy makers, local NGOs and farmer groups is essential for the success of this intervention.

**Further information**

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

<http://www.fao.org/plant-treaty/news/news-detail/en/c/1186267/>

<https://ccafs.cgiar.org/news/future-banking-seeds-hoima-district-establishes-community-seedbank-strengthen-farmers-adaptive>

<https://ccafs.cgiar.org/news/nyando-climate-smart-village-launches-community-seedbank>

<https://allafrica.com/stories/202104140048.html>