



Food and Agriculture
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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 Local Initiatives for Biodiversity, Research and Development (LI-BIRD) - Nepal on 31 July 2019.

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 : Participatory Plant Breeding
- Date of submission: 31 July 2019
- Name(s) of country/countries in which the measure/practice is taking place : Nepal
- Responsible institution/organization (name, address, website (if applicable), e-mail address, telephone number(s) and contact person)

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- Type of institution/organization (categories): NGO/CSO
- Collaborating/supporting institutions/organizations/actors, if applicable (name, address, website (if applicable), e-mail address, telephone number(s))

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Description of the examples

Mandatory information:¹

- Short summary to be put in the inventory (max. 200 words) including:
 - Implementing entity and partners: Local Initiatives for Biodiversity, Research and Development (LI-BIRD)
 - Start year: 1997
 - Objective(s): To develop farmer preferred new varieties having useful traits of local varieties
 - **Summary of core components:** The core components of PPB includes i) identification of community, crop and need of local farmers, ii) selection of parents (one local and one exotic) for crossing, iii) crossing of the selected parents, iv) selection of segregating materials by farmers and plant breeders in the farmers field, v) quality and quantitative assessment of traits by farmers and breeders including post-harvest traits, vi) development of local seed supply system/farmer managed seed system and vii) registration/release from the national system.
 - **Key outcomes:** A new rice variety using a local rice variety as parent has been developed in the Kachorwa village of Bara district in Nepal. Kachorwa Community Seed Banks produce around one ton seed of the newly developed variety every year seed sell and distribute locally. Variety registration proposal has been submitted to the National Seed Board. Similarly, a new maize variety using local variety was developed in the Gulmi district of mid hill Nepal. The variety has already been registered from the national system and a community based seed producer group is producing and marketing seed of the newly developed variety every year.
 - Lessons learned (if applicable)
- Brief history (including starting year), as appropriate: Participatory Plant Breeding (PPB) in Nepal was started in early 1990s. Though plant breeders had already started using local variety as a parent for developing farmer preferred new varieties from the beginning of PPB, it was considered as a strategy for on farm conservation only in 1997. The global project “Strengthening the scientific basis of *in situ* conservation of agricultural biodiversity on-farm” jointly implemented by LI-BIRD, Nepal Agricultural Research Council and Bioversity International from 1997 to 2006 employed PPB as a method for conserving useful traits of local varieties. Later on, LI-BIRD employed PPB method for developing a number of rice and maize varieties in Nepal and Sri Lanka. In recent days, LI-BIRD is also planning to apply PPB method in the NUS crops.
- **Core components of the measure/practice (max 200 words):** Once the community is identified, a rigorous appraisal is conducted through group discussion, participatory four-cell analysis and positive and negative trait analysis of local varieties to identify the best local varieties for using as PPB parents. In this process, a clear breeding goal is defined and complementary parents are selected by plant breeders based on the breeding goal. Crossing of the selected parents is done often at the research station or by a trained person in the farmers' field. Because of the small number of seeds obtained from crossing, the first generation (F1) is carefully grown by the researchers at the research station or in the farmers' field. The second generation seed (F2), is then given to a few interested

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



farmers who have been trained in PPB methods. Nearer to maturity stage, plant breeders and farmers jointly select the farmer preferred lines, based on the breeding goal agreed upon. Once a few uniform farmer preferred lines are obtained, the lines are then tested for various qualitative and quantitative traits, screened for diseases and other agronomical and morphological traits as. Then, the best performing variety according to these combined traits is proposed for release or registration by the National Seed Board. The farmers or the farmer group involved in the breeding together with the plant breeder and other stakeholders involved in the process are considered the variety owners. The farmers or farmer group then produce seed and apply for the certification of the released/registered or pre-released/registered variety according to the provisions of the National Seed Regulation responding to demand in or outside the community.

- **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):** PPB method is employed for developing farmer preferred new varieties where there is no reach of formal plant breeding programme or the varietal options provided by the formal breeding programme does not meet the requirement of farmers. Public plant breeding programme are mainly focusing on bringing already developed lines from CG system for testing and dissemination. There are rear examples of use of local plant genetic resources in the public breeding programme. So the PPB method is different as it uses at least one either local or a locally adapted variety as a parent. Initially, it was difficult to get the PPB breed varieties registered from the national system but when LI-BIRD produced good result in the field and did evidence based policy advocacy, the data collected using participatory methods were also accepted. Since then, LI-BIRD has been able to get the PPB breed varieties registered from the national system. Another important changes happened due to the PPB programme is ownership of the newly developed varieties using PPB methods. PPB is done in farmers' field and selection and evaluation of varieties are conducted jointly by plant breeders and farmers. Means, when such varieties are registered from the national system, the ownership also goes to the farmer (s) and their institution involved in the process.
- 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 ²	Also relevant ³
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 ⁴ , 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		√
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 farmers⁵
- Location(s) and geographical outreach

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

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

⁴ Including seed houses.

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



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- Resources used for implementation of the measure/practice
LI-BIRD has implemented a number of PPB program but we have not kept the cost per PPB separately. But it is important to note that a PPB program requires a good amount of resources and time. Depending on crop, 6 to 10 years.
- How has the measure/practice affected the conservation and sustainable use of plant genetic resources for food and agriculture?
PPB programs using local landraces have enhanced desirable traits such as chilling tolerance, blast resistance and adaptive traits and eliminating undesirable grain colour and quality. In Kaski, local rice varieties such as *Mansara*, *Biramphool* and *Ekle* were used as parent for crossing and developing new varieties. From the use of these varieties, new rice varieties having traits of local varieties have been developed and farmers are cultivating those new varieties. In Bara district, a new rice variety has been developed using *Dudhisaro* local variety. Now, *Dudhisaro* cannot be found in the farmers' field, but the new PPB breed variety called Kachorwa 4, which has similar traits of *Dudhisaro* is being cultivated by many farmers. In the case of PPB in Maize, two new maize varieties developed using local variety of maize called '*Thulo Panhelo*' has been released from the national system. The PPB group now is producing and selling seeds of new maize variety *Gulmi 2*.
- Please describe the achievements of the measure/ practice so far (including quantification) (max 200 words)
- 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 issues you wish to address, that have not yet been covered, to describe the measure/practice

Lessons learned

- **Describe lessons learned which may be relevant for others who wish to do the same or similar measures/practices (max 250 words).**
Our experience has proved that the PPB can be used as a method for on farm conservation of useful traits of local varieties. Farmers can play an important role in achieving the conservation goal using PPB method. Involvement of farmers from setting breeding goals is the most important step of PPB, which is often ignored in public sector plant breeding. PPB approach strongly supports strengthening local seed system and realizing farmers' rights of rights to save, use, exchange and sell farm-saved seed; rights to participate in benefit sharing; rights to participation in decision making process and rights to protect of traditional knowledge. Similarly, establishment and strengthening farmers' institution such as community seed bank or community based seed producer group is a must for the success and sustainability of PPB work and making local seed system stronger and work for many poor farmers.
- **What challenges encountered along the way (if applicable) (max 200 words)**
Normally, we get a short term project and it is difficult to develop new varieties within a short project period and sometime it is challenging to find project for completing the remaining activity. Registration of PPB breed variety from the national system is also tough. It is not possible to get approval without involvement of national plant breeding programme of the same crop but sometime such collaboration depends very much on the person. According to the seed law, the responsibility of maintaining breeder seed and foundation seed of the newly developed variety should be taken by the



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organization who owns it. It means, PPB varieties developed by LI-BIRD is own by LI-BIRD and communities. But LI-BIRD does not have resources to continue seed production of PPB breed varieties once the project is over.

- **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)**

It takes time and resources so the funding agencies need long term commitment. Farming community and plant breeder should also be ready to contribute for long time to get the result. So a rigorous discussion during the initial days of the project is key. A PPB programme can only be successful if it is fully owned by community.

Further information

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

http://www.libird.org/app/publication/view.aspx?record_id=62&origin=results&QS=QS&sortfld_221=Date&reversesearch=true&top_parent=221, pp 49-52