Interreg Co-funded by the European Union

NEXT Black Sea Basin

SeedGuard

BSB00450, SEEDGUARD: Seed Guardians for Biodiversity, Agrobiodiversity, Ecosystem Services and Climate Adaptation

Module 2. Research on the CSCs – functions and operations

Activity 1.3. Trainings “Guardians of the Seeds”

Contents

A focus on conservation 4
Commercializing CSCs and CSBs 5
Combining conservation with access and availability 7
Furthering the CSCs and the CSBs activities' extension 8
Seed sovereignty 8
Farmers' access and benefit sharing (ABS) 9
Collaboration with governmental institutions, academia and other key players – important ingredient of the CSCs and the CSBs functions 10
How CSBs contribute to the establishment of the farmers' rights defined by the ITPGRFA 12
The farmers' rights concept 12
How are these rights, determined in the FAO's ITPGDFA implemented around the World? 13
Summing up on the CSCs and CSBs role for applying the ITPGRFA 16
Literature 18

Here, we will comment on general aspects of how CSCs and CSBs work and achieve sustainability. Principles, approaches and mechanisms for safeguarding traditional and heirloom seeds in CSCs, access to seed material and benefit sharing of seed producers and providers to the CSCs for storing, will be covered.

The functional and operational aspects of the community seed collections and community seed banks have a big number of variations in the World, depending on the specific social, economical, environmental and cultural factors in different countries and places.

Vegetable seeds are commonly normally regenerated each year. The practices, though, are different. Most often, according to our observations, they follow the agrobiodiversity and cultural traditions. In the recent decades, there are a number of examples, where the central governments, or the gene banks, the institutes, or the NGOs with a special focus on agrobiodiversity, environment and seed saving, support financially and organizationally the CSCs and the CSBs. Then, the community seed banks can be modernly equipped with the necessary physical infrastructure. In Europe, there are also tendencies to approach EU programs' resources, which, in our case, would be the best way to go after this project is over.

There are also many variations in the ways, in which communities apply participatory approaches, involve and organize the locals in the CSCs and CSBs crop management and plant breeding, as seen in the Survey of good practices.

Sustainability of the CSCs and the CSBs has several basic milestones. To name the key ones: capacity development for ensuring efficiency of operational management and planning; financial fundament to secure the smoothness of the operations, either as self-financing, or institutional, or program/project based, or involving several forms; existence of supporting ecosystem - political and legal environments; social support and physical infrastructure.

A focus on conservation

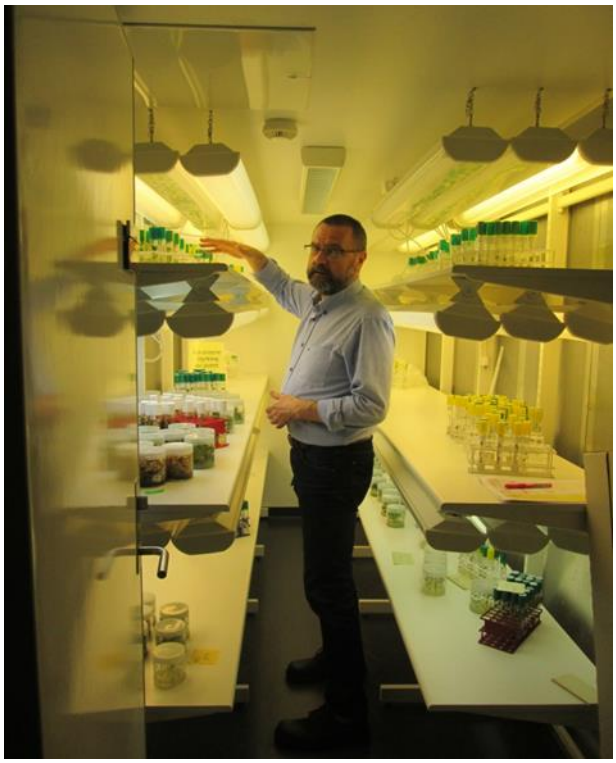
The most important task of the CSCs is to conserve the local traditional, heirloom vegetable varieties for food and agriculture. In parallel to that, the CSCs and the CSBs are conscious that their work will prevent the rapid loss of local varieties and will recover local crop diversity.

To be able to determine the local factors, which are contributing to the loss of diversity of old vegetable varieties and landraces, and to prioritise them, the CSCs and the CSBs have to analise and formulate them.

There is a social pattern, which is often followed: I will do what my neighbours do, I will stop using the local variety and will grow the variety they grow. There could be an institutional push through subsidized promotion of improved and hybrid varieties, which neglects the loss of local varieties. The farmers are naturally tempted to consider modernly promoted varieties as the opportunity to increase their produce and revenues. The recently, clearly noticed effect of climate change on horticulture production, with the prolonged droughts and floods also causes drastic loss of local crops.

Another aspect is the lack of knowledge and awareness of farmers about the meaning and overall value of local varieties, as the fundament of agrobiodiversity.

The CSCs and the CSBs are focused on conserving local varieties on farm at the community level in the farmers' fields and home gardens. They normally start with establishment of a seed storage, collectively managed by the community as back up to their individual household seeds' storage of their individually preferred varieties, in small quantities. This ex situ seeds' saving corresponds to what the national and international genebanks do, but for a short period of time – one or a few years, depending on the vegetable variety, in the case of horticulture seeds. Local farmers and gardeners regenerate seeds each year, thus contributing to continuity of evolutionary plant breeding and climate change adaptation.



Photos: a CSB; seeds of old wheat variety. Source: CHI, NordGen

Commercializing CSCs and CSBs?

Many CSCs and CSBs consider access to and availability of seeds of traditional old varieties to other farmers and vegetable growers, who want them, as business to generate

income for upgrading and enhancing their activities. In these cases, the CSCs and the CSBs try to keep quantities of seeds and make them available to other farmers when required. They can sell the seeds, or loan them, requiring returning of the given quantity with a percentage above it. The procedure should be part of the regulation, set by the CSCs and CSBs operational management. The main argument when selling the seeds (on a competitive price) has to be **the service**, not the profit, which is the main motive of commercial seeds producers, like Monsanto, or BASF, etc. Most often, to reload the storage facilities of the CSCs and the CSBs, they lend the seeds with the condition that 50–100% more of the received quantity is returned after harvesting the crops. Al, the said above is a matter of the rules, set by the CSCs members and followed by them.

Commercializing the CSCs and the CSBs is a healthy scenario that contributes to increased access and availability of old and newly improved varieties. Commercial activities are taken to strengthen local capacity in variety and seed selection and management.

Photos: Food cooked from what the heirloom garden is giving; on-farm learning. Source: CHI, NordGen

There is an example, described by researchers in this context (https://libird.org/wp-content/uploads/2022/04/Community-Seed-Banks-in-Nepal.pdf) for the community seed bank at Kachorwa, Bara district in Nepal, which was involved in participatory plant breeding

and developed the rice variety Kachorwa-4 by crossing a local variety with a modern one. Use of this variety has now spread beyond Bara to the Dang and Doti rice-growing belts and elsewhere.

Another approach to making seeds available to seed savers and gardeners is used by the Toronto seed library in Canada. It is based on the principle of wanting to offer an alternative to the genetically modified seeds produced by large corporations. The seed library obtains seeds free of charge from individuals, seed companies, and seed stores and disseminates them to as many people as possible, also free of charge.

In addition to making seeds available in above mentioned ways, many community seed banks also promote informal exchanges through seed or diversity fairs and participatory seed exchange events. The motto of these events is usually – “the more seeds that circulate the better”.

Combining conservation with access and availability

Most of the CSCs and CSBs perform conservation, access and availability of traditional local seeds in parallel. These organize on-farm conservation of a large number of local varieties and provide high-quality varieties to farmers through sales, loans, or free of charge.

Production of local varieties and the seeds’ storage, cleaning, documenting, packaging, distribution, and selling are the common activities of the community seed banks. In general, they give preference to local varieties, but some also include farmer-preferred improved varieties released or registered by the national system. In Nepal, 15 community seed banks have conserved 1195 accessions of diverse crop species and more than 5000 farmers use seeds from these CSBs each year.

Native Seed/SEARCH in the United States holds a collection of 1900 accessions of domesticated crops and distributes more than 50 000 packets of seeds of local varieties each year. Combining conservation with access and availability, when managed well, gives the CSCs and the CSBs long-term sustainability.

Furthering the CSCs and the CSBs activities' extension **– by combining conservation, access and availability with seed and food sovereignty**

Matured CSCs and CSBs sometimes function beyond the scope of conservation of agrobiodiversity and providing seeds to the own and other farmer communities. The members of the CSCs and CSBs also work on authorization of communities, promotion of ecological agriculture, introduction of participatory plant breeding through cooperatives or other formats, establishing farmers' rights over seeds, and development of fair community-level benefit sharing mechanisms that may arise from the use of genetic resources, according to the ITPGRFA and Nagoya Protocol.

Seed sovereignty

Seed sovereignty is important to achieve, as it leads to food sovereignty, i.e., the capacity for citizens to maintain control and ownership over local food production, which is a strong market oriented approach and contributor to the economic sustainability of the community, at the same time, it works back for sustenance of arobiodiversity based on local seeds. The positive and growing tendency towards local foods compared with the ones industrially produces by corporations and distributed by big market chains has to be employed with wisdom.

Food sovereignty at local level gives a broader perspective to agricultural and food policies. It can promote ecological agricultural among farming households. The communities can establish a mechanism for the equitable sharing of benefits that may arise from the use of genetic resources and empower farmers to manage biodiversity locally, by strengthening biodiversity-based livelihoods.

Farmers' access and benefit sharing (ABS)

Farmers' access and benefit sharing (ABS) are addressed by two international documents, adopted by most of countries of the World - the Convention on Biological Diversity (CBD) and its Nagoya Protocol and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

These documents admit the role of indigenous communities in conservation of plant genetic resources for agrobiodiversity, food security and balance, and sustainability. The practical implementation of the clauses of the above mentioned documents appeared, though, to be not easy. The experiences proved, that it is difficult to implement the farmers' rights in access to seeds, despite the ratification of the Treaty by many national assemblies (Bulgaria – yes, what about the other project partner countries?). The implementation requires systematic collaboration and consolidated efforts of a number of central government institutions. In the case of Bulgaria, these are the Ministries of Agriculture and environment, the Agricultural Academy, the Institute of Plant Genetic resources and the National Gene Bank. The professional organisations of agri producers, especially in horticulture, NGOs, etc., have to be part of the brainstorming initiations for solving issues in access to seeds and equitable sharing of benefits for farmers and seed producers.

One of the reasons for difficulties in implementation of the ITPGRFA and Nagoya Protocol is, that there are no measures envisaged in these international documents for how to apply the farmers' rights. Other obstacles are hidden in political, legal and bureaucracy factors at national level of the countries. Sometimes it is an issue of national implementation capacity, or costs involved.

Anyhow, for the time-being, the CSCs and CSBs are the well working formats at local level for access to seeds and benefit sharing from their utilisation.

Collaboration with governmental institutions, academia and other key players – important ingredient of the CSCs and the CSBs functions

The operations of the CSCs and CSBs are determined by the fact, that their creation is a bottom-up driven process, where local farmers and gardeners are the main actors. The farmers and gardener, who decide to establish a seed collection believe, that the future of food security does not just depend on international seed/gene banks, but the great deal on the craftsmanship of the farmers, who maintain genetic diversity on a daily basis (Vanaja Ramprasad and Amelia Clements, Farming Matters magazine, 2016, BI). They are confident, that the access and sharing of seeds can take various forms in the rural community, where passionate and devoted seed savers can enhance old seeds' utilization and affirm their autonomy.

The CSCs and CSBs members are prepared to defend their rights to grow what they want to and to secure access to seeds themselves, because, as they state: they want "seeds of Freedom, seeds of sovereignty, seeds of resistance, seeds of authority, seeds of justice, seeds of the Past, seeds of Culture, seeds that LAST" – as was written on a protest poster in London in 2018.

A critical factor for successful operations of the CSCs is collaboration of farmers with governmental institutions and/or professional breeders. Experiences in some countries (Scandinavia, The Netherlands and others) demonstrate that the CSCs and the CSBs can work successfully with the formal multilateral ABS (access and benefit sharing) system under the CBD (Convention on Biological Diversity) and the Nagoya Protocol as well, when the central governments had created conditions for this.

Collaboration with the academic world can also be beneficial for farmers. In China, farmers benefit from collaboration with the Academy of Sciences and enjoy improved availability of and access to quality seeds. They earn from income generated from seed production and marketing, and the provision of scientific and technical know-how through collaboration with the industrial seed companies as well.

There are also countries, e.g. The Netherlands, where the state invested for decades in potato varieties breeding and has fostered relationships of farmers with public and private

sector. The public-private partnership in The Netherlands proved that it can bring fruits, when set and managed in the interest of all parties involved.

Collaboration of farmers is important for family growers, who have no access to quality seeds of horticultural crops. Access to diverse PGR is essential and of strategic importance to them as it enhances their resilience to climate and other challenges. For this reason, the old vegetable varieties have to be included in the multilateral system of the ITPGRFA (The International PGR Treaty), https://www.fao.org/plant-treaty/areas-of-work/the-multilateral-system/annex1/en/

And, the industrial seed producers, who use the saved by the CSBs seeds, should contribute a fixed benefit sharing payment on an annual basis, for example.

The local CSCs and CSB as community organisations can play a leading role in the maintenance of the rich biocultural heritage expressed in local varieties through their self-organised access and benefit sharing mechanisms, which can be highly effective for family farmers. Governments have to support them and incorporate them into the overall seed security systems that allow family farmers to contribute to food sovereignty and nutrition in a long run. As it was done by the Brazilian government, which developed a seed bank policy in order to reinforce existing community seed banks, and donated seeds to them as incentive for communities to established new seed banks. A development took place there based on coordination of efforts of farmer networks, government institutions and academia.

In this way, the CSCs and CSBs became effective guardians of biodiversity, at the same time contributing to the PGR of the formal system (in Bulgaria – seeds of almost extinct local pepper variety, called “Shablenski piper”, were produced and delivered to the national gene bank in Sadovo, Plovdiv district, Bulgaria).

In the project partner countries, there are still areas where family farmers can get activated for establishing CSCs or CSBs aimed at conservation of local landraces and using them on their lands through agrobiodiversity practices. Thus assuring access and control over local biological resources while increasing resilience and food sovereignty. Knowledge holders – mainly women, still play a central role, because of their expertise and experience

in conserving and improving varieties and seeds. Also, because of their role for keeping cultural traditions, especially in preparation of local food.

How CSBs contribute to the establishment of the farmers' rights defined by the ITPGRFA

The issue is important from a point of view of access of farmers to vegetable PGR through the official multilateral system. It concerns the ways, in which there will be consolidation within science and regulatory institutions for recognition and support of the CSCs and the CSBs at national, regional and international levels.

That is why, how the issue of farmers' rights originated, matured and provoked discussions about how to implement farmers' rights in access to seed material, became central.

The farmers' rights concept

Historically, the concept of farmers' rights appeared as an international theme due to extensive debates of experts of the Food and Agricultural Organization (FAO) of the United Nations in 1979 over the unequal distribution of benefits from the sharing of plant genetic resources.

Plant and seed breeders have intellectual property rights and generate revenues, while the small farmers and indigenous communities who originally provided the genetic material to be used by them do not get any advantage from this.

To react on the situation, FAO published three resolutions for recognition of the plant breeders' and farmers' rights, at one and the same time and in parallel. The farmers' rights stated to be "*vested in the International Community, as trustees for present and future generations of farmers, for the purpose of ensuring full benefits of farmers and supporting the continuation of their contributions*" (Resolution 5/89). In this view, farmers' rights are becoming collective rights, belonging to the community, while the breeders' rights are individual.

The three resolutions of FAO established the fundament of the FAO's International Treaty of Plant Genetic Resources for food and Agriculture, ITPGRFA.

The ITPGRFA focuses on farmers' rights at the national level. There, as defined in Articles 9.2 (a) to (c) and 9.3 of the ITPGRFA, the farmers have the right to:

- save, use, exchange and sell farm-saved seed and propagating material;

- protect traditional knowledge relevant to plant genetic resources for food and agriculture;

- an equitable share of benefits arising from the use of PGR;

- participate in decisions, taken at national level, on matters related to conservation and sustainable use of (in our case), plant genetic resources.

The above rights relate directly to the main functions of the CSCs and the CSBs.

How are these rights, determined in the FAO's ITPGDFA implemented around the World?

Biodiversity International organised a three-day international workshop in November 2015 to review and record the different approaches of how the CSBs around the world implement farmers' rights. Participants from international and national, government and non-government research and development organisations, dealing with the CSBs issues presented 16 case studies. They provided documentation of the activities, achievements and challenges of CSBs based on interviews with CSB members, field observations and publications. The case studies described the ways, in which the CSBs contribute to the effective implementation of the farmers' rights, determined in the ITPGRFA.

The cases descriptions showed big variations in the ways, the CSBs implement farmers' rights, depending on the environment, they are acting in and local circumstances, determined by history, functions, size, and scale of operations, governance and management, as well as the received assistance, the policy and legal environment.

The long-range resilience of the CSBs' proved to strongly correlate with the national political and socio-economic conditions, the regulation of agricultural practices, biodiversity and rural development.

The role of civil society organisations was crucial in some cases, as well as the availability of funding and support of international development and research organisations.

Depending on what is the level of assistance (or lack of assistance) provided to the CSCs and CSBs by the government and related institutions, i.e. gene banks, civil society, etc., in a specific country, the range of functions and capacity to express farmers' rights is different. Still, even if not assisted properly, the CSCs and the CSBs can put the problems on the table of politicians and decision makers, and initiate practical measures for of governments to implement farmers' rights.

In many countries, the activities of CSBs can go beyond the postulates of the ITPGRFA on farmers' rights and include seed and food security, ecology and responsible behavior.

Although, the ITPGRFA determines the farmers' rights, it does not address the obstacles, faced by the farmers, e.g. difficulties for recognition by the official system and restrictions on sales of seeds. Packaging and labeling of seeds for sale, geographic scope allowed for sale of seeds, etc., are not interpreted as well.

It is time, maybe, to lift all the restrictions on farmers' rights to produce and sell seeds! (an opinion of the author) and to fully support them at national level, as the carriers of the future – our food, health and agrobiodiversity. Such a policy will revive agro-economy to work on self-sustenance of the society (as the long term strategy of Norway for vegetable and fruit self-sufficiency envisages), will lead to supply of local agri-products and will reduce imports. It will also help to sustain productivity and food security in local communities.

Or, at least, to allow farmers to spread and promote protected seed that they have collected from their fields and gardens and to exchange them with others. In China, the 2015 revised seed law and the plant variety protection law, based on the International Convention for the Protection of New Varieties of Plants (1978), allow farmers to save and sell or exchange their own seeds, including protected varieties, but the venue of such sale and exchange is limited to local rural fairs.

It is a very important function of the CSCs and CSBs to protect traditional knowledge on growing old local varieties and how seed conservation has been done during the times. The CSBs and CSCs have to include this function in their activities. This function has to be part of the agreements with the CSCs and CSBs members.

The operations have to cover protection and promotion of traditional knowledge. The governments have to elaborate measures at national level to respect, protect and promote traditional knowledge, relevant to plant genetic resources and farmers' seed systems and recognise the validity of farmers' seed systems. Researchers (Vernooy, Shrestha, and Sthapit Citation 2015) give the example of the Vietnam's national biodiversity strategy and vision, which includes a mechanism for managing access to PGR, sharing benefits and protecting traditional knowledge.

The CSCs and CSBs can attract professionals to help them register local seed diversity properly, to help farming communities protect their traditional knowledge and recognize the value and utility of it.

Another example of farmers' rights, exercised by the CSCs and the CSBs, is to have the prior informed consent from the government to obtain access to plant genetic resources with acceptable requirements for provision of documents. There is a need for serious work at government level for implementation of the ITPGRFA's multilateral system of access and benefit-sharing and the CBD's Nagoya Protocol, to provide prior informed consent and make it a legal requirement.

There are huge variations of direct benefit-sharing for farmers-members of the CSCs and the CSBs, such as material use from taking part in participatory research for variety selection, improved access to PGR and knowledge and better access to genetic resources and related knowledge for farmers from national gene banks and the field research institutes.

It could be, that the national policies in agriculture and biodiversity (of the Ministry of Agriculture and the Ministry of Biodiversity) include procedures for equitable sharing of benefits by the CSCs and CSBs members, corresponding to the global biodiversity strategy and national legal framework for implementation. Covering, for example:

- the fair and equitable distribution of the social, environmental and economic benefits derived from the use of the elements and biochemical and genetic resources of the biodiversity for all the sectors of society, with special attention to local communities and indigenous people.
- Certification of seeds of old vegetable varieties for local/regional/national (?) sale.

It is extremely challenging for smallholder farmers to apply their rights as defined in the ITPGRFA, as they are most often neglected and not invited to participate when mechanisms at national level are discussed and the decisions are taken. That is why, it is advisable that the CSCs and CSBs members and the local community build a network of supporters and constantly work on an ecosystem, which would act in their interest and insist on hearing the small farmers' voice. The NGOs can be very supportive, as they have th knowledge on how to organize public campaigns.

In a conclusion - the CSCs and the CSBs functions need to cover participation in decision-making, access to technology, PGR, finance and markets, creation of a favorable institutional environment to support them and build the members' capacities.

Summing up on the CSCs and CSBs role for applying the ITPGRFA

Having in mind the practices in farmers' access and benefit sharing, so far, the conclusion would be that this is a rather mutually dependent, complex and complicated process, where national institutions (regulation), civil society, regional and local governments and local agri- producers are involved. Especially small agri producers and family farmers have to be given the opportunity to voice their difficulties and insist on solving them.

The practices showed (Bulgaria, Norway, etc.) that the success of an official ABS system (access and benefit sharing) not only depends on effective mechanisms at central level, but a lot on learning and supporting CSCs and CSBs at a local or regional level as well.

Of course, farmers and the members of the community seed banks can work in their own way, based on their own access and benefit sharing. But, collaboration with academia and governmental institutions can contribute a lot for achieving the goals and final results and for strengthening local initiatives through adequate policy and mechanisms.

The autonomous functioning of the CSCs and CSBs in ensuring access to seeds and benefit sharing for local (family) farmers, hobby growers, etc., of traditional legacy in horticulture – local varieties and landraces of vegetables is helping to sustain local agrobiodiversity.

The seed saving initiatives and actions, next to the CSCs and CSBs can take the form of seed networks or the agroecology/biodiversity movements. These formats at local, national/international levels can become very powerful to position farmers as the world's custodians of genetic resources. This will be very useful for the 'formal' ABS system as well and make them collaborate more with family farmers.

Once again – based on the known experiences and analysis of their relevance, it could be concluded that the CSCs and the CSBs can be an effective platform for realization of farmers' rights as defined by the ITPGRFA.

The degree and depth will depend on the national context. We have to be realistic: achievement will not come immediately. It takes time and effort to build a CSB, achieve legal recognition, obtain technical and financial support, connect with other farmers and establish supportive relations with key actors and factors.

But, the mainstreaming of CSCs and CSBs in national policies is an absolutely needed for countries that have ratified the ITPGRFA and officially declared readiness to implement the farmers' rights.

Constant search and review of the CSCs and CSBs good practices can inspire national institutions to create policies, legal environment and practical measures that provide financial, organisational and technical support to horticulture farmers.

The numerous functions that CSBs around the World execute – conservation, exchange, crop improvement, seed production and marketing, and serve as a platform for farmer empowerment, demonstrate their usefulness for safeguarding agricultural biodiversity and sharing the benefits derived from its use. The operations of the CSCs and the CSBs contribute to food security, food safety and income for the farming communities. It should be recognized, that these formats produce credible authentic knowledge that is valuable for sustainability of our world.

Literature

1. Akther, F. 2015. Nayakrishi Andolon: Farmers Movement for Biodiversity Conservation and Food Sovereignty. Dhaka: Unnayan Bikalper Nitinirdharoni Gobeshona (UBINIG). Accessed 1 May 2019. http://ubinig.org/index.php/home/showAerticle/81/english/Farida-Akhter/Nayakrishi-Andolon-Farmers-movement-for-biodiversity-conservation-and-food-sovereignty

2. Andersen, R. 2016. "Farmers' Rights. Evolution of the International Policy Debate and National Implementation." In Farmers' Crop Varieties and Farmers' Rights: Challenges in Taxonomy and Law, edited by M. Halewood, 129–151. London: Earthscan.

3. Chaves Posada, J. 2015. Capacity Building Material for the Realization of Farmers' Rights in Malawi. Rome: Global Forum on Agricultural Research (GFAR). Accessed 1 May 2019. www.gfar.net/documents/capacity-building-material-realization-farmers-rights-malawi.

4. Development Fund. 2011. Banking for the Future: Savings, Security and Seeds. Oslo: Development Fund. Accessed 1 May 2019. www.utviklingsfondet.no/files/uf/documents/Rapporter/Banking_for_the_future.pdf

5. Esquinas-Alcázar, J. 1996. "The Realisation of Farmers' Rights." In Agrobiodiversity and Farmers' Rights, edited by M. S. Swaminathan, 2–25. New Delhi: Konark.

6. Koffi, K.E. 2015. "Agricultural Simplified Cooperative Society Man-Eyo of Yapi-Kouamékro (SCOOPSAMY): Case Study of a Community Seedbank." Paper prepared for the workshop on community seed banks and farmers' rights, 25–27 November, New Delhi, India.

7. Moore, G., and W. Tymowski. 2005. Explanatory Guide to the International Treaty on Plant Genetic Resources for Food and Agriculture. Gland: IUCN.

8. Mushita, A., P. Kasasa, and H. Mbozi. 2015. "Zimbabwe: The Experience of the Community Technology Development Trust." In Community Seed Banks: Origins, Evolution and Prospects, edited by R. Vernooy, P. Shrestha, and B. Sthapit, 230–236. London: Earthscan.

9. Ramanna, A. 2006. The Farmers' Rights Project — Background Study 4: Farmers' Rights in India - a Case Study (Report 6/2006). Lysaker: Fridtjof Nansens Institute. Accessed 1 May 2019. www.fni.no/publications/the-farmers-rights-project-background-study-4-farmers-rights-in-india-a-case-study-article762-290.html

10. Sabran, M., and S.I. Batta Torheim, eds. 2016. "The Global Consultation of Farmers' Rights 2016. Summary of Presentations and Discussions. 27-30 September, Bali, Indonesia." Rome: FAO. Accessed 1 May 2019. www.fao.org/3/a-bs767e.pdf

11. Secretariat of the ITPGRFA. 2018. First Meeting of the Ad Hoc Technical Working Group on Farmers' Rights. Rome: FAO. Accessed 24 April 2019. www.fao.org/plant-treaty/meetings/meetings-detail/en/c/1099122

12. Sobhan, M. A., J. A. Jony, R. I. Chunnu, and F. K. Liza. 2915. "Bangladesh: the Mamudpur Nayakrishi Seed Hut." In Community Seed Banks: Origins, Evolution and Prospects, edited by R. Vernooy, P. Shrestha, and B. Sthapit, 63–68. London: Earthscan.

13. UBINIG. 2018. Bangladesh: The Importance of Farmers' Seed Systems and the Roles of Community Seed Wealth Centers. Dhaka: Unnayan Bikalper Nitinirdharoni Gobeshona (UBINIG). Accessed 1 May 2019. https://cgspace.cgiar.org/handle/10568/97159

14. van Etten, J. 2011. "Crowdsourcing Crop Improvement in Sub-Saharan Africa: A Proposal for a Scalable and Inclusive Approach to Food Security." IDS Bulletin 42: 102–110. doi: 10.1111/j.1759-5436.2011.00240.x

15. Vernooy, R., P. Shrestha, and B. Sthapit, eds. 2015. Community Seed Banks: Origins, Evolution and Prospects. London: Earthscan.

The document is prepared by LP - UBBSLA in the frame of BSB00450 SEEDGUARD: Seed Guardians for Biodiversity, Agrobiodiversity, Ecosystem Services and Climate Adaptation

The responsibility for the content of this material is that of the author. The content of this material does not necessarily represent the official position of the European Union. Reproduction is authorized, provided the source is acknowledged, and any changes are indicated.