

Santilli, Juliana. “Farmers’ Rights”, Chapter 8 of Santilli, Juliana. *Agrobiodiversity and the Law: regulating genetic resources, food security and cultural diversity*, Earthscan, London, 2012

AGROBIODIVERSITY AND THE LAW, JULIANA SANTILLI

CHAPTER 8: FARMERS’ RIGHTS

8.1. HISTORICAL BACKGROUND

The realization of farmers’ rights is essential to ensure the conservation and sustainable use of agrobiodiversity, and a cornerstone of the International Treaty on Plant Genetic Resources for Food and Agriculture. Farmers’ rights include access to land and agrarian reform, water, natural resources, energy, appropriate technology and education, health care, political participation and freedom of association, among others¹. Although these rights are intrinsically linked. However, in this book, we will focus on farmers’ rights as set out in article 9 and in other provisions of the International Treaty, since we believe that such instrument provides an important opportunity to construct and implement farmers’ rights at the national level, since it is the first legally binding international agreement that explicitly recognizes farmers' rights. We do not understand that farmers’ rights are limited to those recognized by the International Treaty – it must be stressed – but these can be a starting point.

Currently, there is not an international instrument that deals specifically with farmers’ rights, and the responsibility for realizing farmers’ rights, as set out in the International Treaty, rests with national governments, according to their needs and priorities. There are no legally binding international standards on farmers’ rights. Via

Campesina (an international movement of peasants) has already called for an International Convention on the Rights of Peasants, arguing that there are already conventions to protect vulnerable groups of people, such as Indigenous peoples, women, children and migrant workers². However, such international convention still does not exist, and contracting parties to the International Treaty must adopt national laws and measures to protect and promote farmers' rights. Next, we will show how the concept of farmers' rights developed internationally and reached the formulation in the treaty. Then, we will analyze how farmers' rights can be implemented at the national level, and more specifically in developing countries.

The expression "farmers' rights" was coined in the 1980s by Pat Mooney and Cary Fowler, from the non-governmental organization Rafi³, to highlight the valuable contribution of farmers for the global genetic pool and food diversity. They defended the recognition of farmer's rights at the FAO Commission on Plant Genetic Resources as a measure for North-South equality and as a counterweight for plant breeders' rights, which already existed and were legally enforced. According to Mooney (2011), international NGOs insisted that "farmers varieties were the product of farmer genius and should not be treated in any way as being less than varieties produced by the public or private sector"⁴ Since then, the expression "farmers' rights" became widely used, and was included in several international instruments, but with few concrete results.

Farmers' rights were formally recognized for the first time in 1989, when the FAO Conference adopted Resolution 5/89, which endorsed farmers' rights as "rights originating from past, present and future contributions of farmers to conservation, development and availability of plant genetic resources, particularly those from centers of origin/diversity." These rights were "vested in the international Community⁵, as trustee for present and future generations of farmers, for the purpose of ensuring full

benefits to farmers, and supporting the continuation of their contributions, as well as the attainment of the overall purposes of the International Undertaking on Plant Genetic Resources for Food and Agriculture, in order to: a) ensure that the need for conservation is globally recognized and that sufficient funds for these purposes will be available; b) assist farmers and farming communities, in all regions of the world, but especially in the centers of origin and diversity of plant genetic resources, in the protection and conservation of their plant genetic resources, and of the natural biosphere; c) allow farmers, their communities, and countries in all regions, to participate fully in the benefits derived, at present and in the future, from the improved use of plant genetic resources, through plant breeding and other scientific methods."

Resolution 5/89 considers that: a) in the history of mankind, unnumbered generations of farmers have conserved, improved and made available plant genetic resources; b) the majority of these plant genetic resources come from developing countries, the contribution of whose farmers has not been sufficiently recognized or rewarded; c) farmers, especially those in developing countries, should benefit fully from the improved and increased use of the natural resources they have preserved, d) there is a need to continue the conservation (in situ and ex situ), development and use of the plant genetic resources in all countries, and to strengthen the capabilities of developing countries in these areas. Resolution 5/89 was the first international instrument to recognize farmers' rights, but it was not legally binding. It was adopted as an annex of the International Undertaking on Plant Genetic Resources for Food and Agriculture, along with Resolution 4/89, which also recognized plant breeders' rights as provided for under UPOV (International Union for the Protection of New Varieties of Plant). As Andersen (2005) points out, recognition of Farmers' Rights (under Resolution 5/89) was "clearly motivated by the need to create acceptance for the formulations on plant

breeders' rights, particularly among developing countries. Nevertheless, opponents of plant breeders' rights gained recognition of farmers' rights in exchange for something that already existed, i.e. plant breeders' rights". Two years later, a new resolution (3/91) decided that farmers' rights would be implemented through an international fund on plant genetic resources, to support plant genetic conservation, particularly, but not exclusively, in the developing countries. This fund, however, never materialized, which created frustration among developing countries.

In 1992, Agenda 21, a comprehensive plan of action to be taken globally, nationally and locally to promote sustainable development, approved during the United Nations Conference on Environment and Development (UNCED), also stressed the need to strengthen the Global System on the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture by, inter alia, "taking further steps to realize farmers' rights"⁶. In the Nairobi (Kenya) Conference which approved the agreed text of the Convention on Biological Diversity, on May 1992, Resolution 3 also recognised the need to seek solutions to outstanding matters concerning plant genetic resources, in particular: a) access to *ex situ* collections not addressed by the Convention, and b) farmers' rights. CBD does not explicitly recognize farmers' rights, but sets forth, in its Article 8 (j), that knowledge, innovations and practices of local communities and indigenous populations should be respected and application of this knowledge should be encouraged by means of approval and participation of its holders and benefit sharing with local and indigenous communities. In 1996, the Global Plan of Action for Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture, also included, among its long-term objectives the "realization of farmers' rights, at the national, regional and international levels." In 1999, a study by the Economic and Social Council about the right to adequate food submitted to the UN Human Rights

Commission, held that farmers' rights should be given attention by the human rights community and promoted, “since our future supply of food, and its sustainability, depend on such rights being established on a firm footing”.

Although the concept of farmers' rights has been incorporated into many international instruments, there was never consensus as to its meaning, the extent of its content and the adequate way to implement it. Some arguments for the recognition of farmers' rights are listed below:

1) It would be a measure of equity between the holders of plant germplasm (farmers, especially those living in centers of diversity of agricultural crops, in tropical and sub-tropical countries) and the holders of agricultural biotechnology (based mainly in the northern countries). There would be a moral obligation to ensure that farmers are compensated for their contribution to conservation of agrobiodiversity. While intellectual property rights – in the form of patents or plant breeders' rights – compensate breeders and encourage them to develop new commercial varieties, there is no compensation and/or support for farmers to continue to conserve and sustainably use plant genetic resources. Furthermore, intellectual property rights tend to compensate innovations regardless of the fact that, in many cases, these innovations are only the last step in inventions and knowledge accumulated throughout millennia by generations of men and women in different parts of the world.

2) It would be a way to promote the conservation of plant genetic resources and ensuring current and future food security. Recognition of farmers' rights would benefit not only farmers themselves, but humankind. Some farmers' organizations argue, however, that this is an utilitarian approach to farmers' rights, since they should contribute not only to the conservation of plant genetic resources, but also to the political empowerment and to the improvement of living conditions of farmers. It is a

reductionism to consider traditional and local agricultural systems as mere sources of plant genetic resources, to be used by conventional breeders (Bertacchini, 2008). They represent the basis of survival for nearly 1.5 billion people worldwide, and enabling farmers to maintain, develop and utilize crop diversity to meet their daily needs is critical to combat poverty and to eradicate hunger.

3) Farmers' rights would ensure sufficient legal space for farmers to continue saving, using, exchanging and selling farm-saved seed and other propagating material. They would prevent seed laws and plant breeders' rights from restricting such traditional farmers' practices. However, farmers' rights are much wider in scope than the "farmers' privilege", which is just an exemption to plant breeders' rights over protected varieties.

4) Recognition of farmers' rights would be, in reality, just a "formalization" or "codification" of practices, uses and customs traditionally adopted by local farming communities. It would be just a formal recognition of agricultural practices adopted by farmers for thousands of years.

Farmers' rights were one of the most controversial issues during negotiations of the International Treaty on Plant Genetic Resources for Food and Agriculture. According to Egziabher et al (2011), the major push for the inclusion of farmers' rights in the International Treaty came from the African Group, which threatened to pull out of the negotiations unless there was a clear position (from developed countries) to accept them. Negotiations on farmers' rights started with the U.S. delegation arguing that such rights should be left out of the International Treaty, since "international law protects only individual and not group rights, and trying to include group rights would destroy individual rights." However, many developing countries argued that if there were not going to be farmers' rights, there would be no access (to plant genetic resources), and

that the absence of goodwill in dealing with farmers' rights would remove goodwill from access too (Egziabher et al, 2011). Besides, they called for fair and equitable benefit-sharing and for support to farmers of developing countries who maintain and enrich plant genetic diversity and contribute to food security.

In 1996, developing countries presented a (common) proposal for the recognition of farmers' rights, and the European Union and the United States also presented their own proposals. These three proposals served as the basis for negotiations which took place between 1996 and 1999, when the articles on farmers' rights were finally defined and incorporated into the (draft) text of the International Treaty (which was finally approved in 2001). According to Bjornstad (2004), the proposal presented by the US did not mention farmers' rights, but affirmed that states and regional economic integration organisations (REIOs) should take measures to promote the efforts of their farmers to conserve and use sustainably plant genetic resources for food and agriculture. It also suggests measures related to plant conservation: strengthening national germplasm systems; programs which preserve and improve native germplasm; promotion of and research into crops that are not widely used; and activities that help to control the erosion of arable land. No references are made to whether conservation by farmers had benefited agricultural production. The U.S. proposal stressed that the support to farmers' activities to conserve and use sustainable PGRFA should take place "without restricting or disturbing trade" (Bjornstad, 2004).

The proposals presented by the European Union and by the developing countries had some points in common. Both proposals recognized that the enormous contribution made by farmers of all regions of the world, and particularly those in the centers of origin and crop diversity, for the conservation and development of plant genetic resources, constitute the basis for food and agriculture production throughout the world.

Both included measures aimed at ensuring that farmers could continue to conserve, manage and improve plant genetic resources. The European proposal established that contracting parties, “for the purpose of strengthening the role of farmers in conservation and sustainable use of PGRFA and ensuring fair and equitable sharing of benefits”, must, as far as possible and as appropriate, *inter alia*, “subject to its national legislation, respect, preserve and maintain the knowledge, innovations and practices of farmers relevant to the conservation and sustainable use of plant genetic resources for food and agriculture. The proposal of the developing countries stated that the responsibility for realizing farmers’ rights at the national level rests with both the national governments *and* the international community (Bjornstad, 2004)

Some of the main ideas of the developing countries’ proposal are described by Bjornstad (2004): - protection and promotion of the collective rights of farmers with respect to their innovations, knowledge and practices, - assistance to farmers, in different regions of the world, especially in centers of origin and diversity of plant genetic resources, in the conservation, improvement and sustainable use of such resources, - development of a *sui generis* system, at the international level and in each country, which recognizes, protects and compensates farmers and traditional communities for their knowledge, innovations and practices, and ensures fair and equitable sharing of benefits deriving from the use of plant genetic resources; - recognition and protection of the rights of farmers and their communities to save, use, exchange, share and market their seeds and any other plant reproductive material, including the right to re-use farm-saved seed; - guarantee that the prior informed consent of farmers and local communities is obtained before the collection of plant resources is undertaken; - guarantee that farmers and local communities fully participate in the definition and implementation of the measures and legislation on farmers’ rights

at national and international levels; - revision, assessment and, if appropriate, modification of intellectual property rights systems, land tenure, and seed laws in order to ensure their harmony with farmers' rights; - establishment and implementation of an international fund (aimed at promoting farmers' rights)

Many points in the proposal presented by developing countries are directly associated with other international instruments. The expressions "prior and informed consent," "fair and equitable sharing of benefits deriving from the utilization of plant genetic resources," as well as to the application of "knowledge, innovations and practices of local communities and indigenous populations", with the "approval and participation of its holders and benefit sharing with local and indigenous communities", are used in the Convention on Biological Diversity (CBD). The expression *sui generis* is employed in the World Trade Organization's Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS), more specifically in its Article 27.3.b, which sets forth that countries must grant protection for plant varieties, through patents or an effective *sui generis* system or a combination thereof. The rights of farmers to save, exchange, share and sell their seeds face, in many countries, restrictions imposed by seed laws and by plant breeders' rights (especially in countries which signed the 1991 UPOV Act), as Bjornstad (2004) points out. When the International Treaty was being negotiated, most countries were still in the process of implementing CBD and TRIPS at the national level, (some of them still are), and the concepts established in such instruments prevailed. The developing countries' proposal was based on the same bilateral instruments used by CBD, and on the limited legal space created by TRIPS for a *sui generis* system of protection of intellectual property rights over plant varieties. When the proposal was presented, very few alternatives to a bilateral system to protect farmers' rights were conceived. Even though the proposal mentions the "collective"

rights of farmers to their resources and knowledge, no collective benefit-sharing mechanisms are proposed. All benefit-sharing mechanisms require the identification of “providers” and users” of genetic resources, and the celebration of bilateral agreements. Besides, the proposal does not make a direct link between farmers’ rights and the treaty’s provisions on conservation and sustainable use of plant genetic resources, which later on were recognized to be in close connection with farmers’ rights.

The International Treaty on Plant Genetic Resources for Food and Agriculture incorporated some ideas of the proposal presented by developing countries, but left many of them out of the final text. Next, we will present the main provisions on farmers’ rights, as set out in the preamble and in article 9 of the International Treaty:

In the Preamble:

Affirming that the past, present and future contributions of farmers in all regions of the world, particularly those in centres of origin and diversity, in conserving, improving and making available these resources, is the basis of farmers’ rights;

Affirming also that the rights recognized in this Treaty to save, use, exchange and sell farm-saved seed and other propagating material, and to participate in decision-making regarding, and in the fair and equitable sharing of the benefits arising from the use of plant genetic resources for food and agriculture, are fundamental to the realization of farmers’ rights, as well as the promotion of farmers’ rights at national and international levels;

In article 9:

9.1 The contracting parties recognize the enormous contribution that the local and indigenous communities and farmers of all regions of the world, particularly those in the centres of origin and crop diversity, have made and will continue to make for the conservation and development of plant genetic resources which constitute the basis of food and agriculture production throughout the world.

9.2 The contracting parties agree that the responsibility for realizing farmers' rights, as they relate to plant genetic resources for food and agriculture, rests with national governments. In accordance with their needs and priorities, each contracting party should, as appropriate, and subject to its national legislation, take measures to protect and promote farmers' rights, including:

(a) protection of traditional knowledge relevant to plant genetic resources for food and agriculture;

(b) the right to equitably participate in sharing benefits arising from the utilization of plant genetic resources for food and agriculture; and

(c) the right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture.

9.3 Nothing in this Article shall be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seed/propagating material, subject to national law and as appropriate

There is a contradiction between the Treaty's preamble, which recognizes the need for promotion of farmers' rights both at the national and international levels, and article 9.2 of the treaty, which establishes that the responsibility for realizing farmers' rights rests with national governments. Although the treaty acknowledges that countries must adopt measures to protect farmers' rights, each country may decide which measures to adopt, and policies and actions listed in the treaty are merely illustrative, allowing countries to adopt others. The treaty did not establish international parameters to be necessarily adopted by contracting parties, which reflects the lack of consensus regarding how to implement farmers' rights. The treaty could have kept some flexibility, to allow countries to adapt farmers' rights to local contexts, but it should have set minimum international standards. The treaty merely listed illustrative measures that *may* be adopted by countries, which will make it difficult for the governing body to evaluate whether a country is implementing farmers' rights or not.

During the fourth session of the governing body of the International Treaty, held in Bali (Indonesia), from March 14th-18th 2011, many developing countries argued that they needed (international) financial assistance and technical advice for the implementation of farmers' rights. Besides, the Asian Region, the Near East and Norway supported creating an *Ad Hoc* Technical Committee on Farmers' Rights and Sustainable Use of Plant Genetic Resources for Food and Agriculture. The South West Pacific, the European Region and Canada stressed that the responsibility of realizing farmers' rights rests with national governments. The options of establishing a committee on farmers' rights or expanding the mandate of the *Ad Hoc* Technical Committee on Sustainable Use to include farmers' rights were discussed. A resolution establishing an *Ad Hoc* Technical Committee on Sustainable Use was approved by the governing body⁷, and this committee will also work on important questions related to the implementation of farmers' Rights. Contracting parties were also encouraged to continue submitting views, experiences and best practices on the implementation of farmers' rights to the secretariat, and they were invited to consider reviewing, and if necessary, adjusting their national measures affecting the realization of farmers' rights⁸.

Achieving a balance between international and national action in relation to farmers' rights is still a challenge, but progress was made, as the fourth session adopted a resolution on farmers' rights⁹. In its preamble, the Resolution establishes the context within which it was adopted:

- The Resolution recalls the recognition in the International Treaty of the enormous contribution that local and indigenous communities and farmers of all regions of the world have made, and will continue to make, for the conservation and development of plant genetic resources for food and agriculture production throughout the world;
- Recalls the importance of fully implementing article 9 of the International Treaty;

- Recalls that according to article 9 of the International Treaty, the responsibility for realizing farmers' rights, as they relate to plant genetic resources for food and agriculture, rests with national governments and is subject to national law;
- Emphasizes the link between farmers' rights under article 9 and the provisions on conservation and sustainable use under articles 5 and 6 of the International Treaty;
- Acknowledges that there is uncertainty in many countries as to how farmers' rights can be implemented and that the challenges related to the realization of farmers' rights are likely to vary from country to country;
- Recognizes that exchange of experiences and mutual assistance between contracting parties can significantly contribute to making progress in the implementation of the provisions on farmers' rights in the International Treaty;
- Recognizes the contribution the governing body may give in support of the implementation of farmers' rights;
- Recalls that Resolution 6/2009 called for regional consultations, to be convened by the secretariat, subject to the agreed priorities of the programme of work and to the availability of financial resources (Resolution 6/2009 was adopted by the governing body during its third session, held in Tunis, in 2009);
- Regrets, however, that the secretariat was not able to convene the regional workshops called for in Resolution 6/2009, due to lack of financial resources and capacity; and
- Notes the results of the international consultations on farmers' rights¹⁰, submitted to the secretariat by Ethiopia, that were carried out in response to the call for regional workshops in Resolution 6/2009.

The Resolution also:

- Invites each contracting party to consider reviewing and, if necessary, adjusting its national measures affecting the realization of farmers' rights as set out in Article 9 of the International Treaty, to protect and promote farmers' rights;
-
- Encourages contracting parties and other relevant organizations to continue submitting views, experiences and best practices on the implementation of farmers' rights as set out in article 9 of the International Treaty, involving, as appropriate, farmers' organizations and other stakeholders;
-
- Invites contracting parties to consider convening national and local consultations on farmers' rights with the participation of farmers and other relevant stakeholders;
-
- Requests the secretariat to convene regional workshops on farmers' rights, subject to the agreed priorities of the work programme and budget, and to the availability of

financial resources, aiming at discussing national experiences on the implementation of farmers' rights as set out in article 9 of the International Treaty, involving, as appropriate, farmers' organizations and other stakeholders;

- Requests the secretariat to collect the views, experiences and best practices submitted by contracting parties and relevant organizations, and the reports of the regional workshops as a basis for an agenda item for consideration by the *Ad Hoc* Technical Committee on Sustainable Use of Plant Genetic Resources for Food and Agriculture and to disseminate relevant information through the website of the International Treaty, where appropriate;
- Appreciates the involvement of farmers' organizations in the work of the governing body, as appropriate, according to the rules of procedure of the governing body;
-
- Encourages each contracting party to closely relate the realization of farmers' rights, as appropriate and subject to national legislation, with the implementation of articles 5 and 6 of the International Treaty, in particular the measures in Articles 5.1 (c,d) and 6.2 (c,d,e,f,g);
- Invites contracting parties and relevant organizations to facilitate and support the participation of farmers' organizations and relevant stakeholder groups in the regional consultations on farmers' rights;
- Encourages contracting parties to engage the participation of farmers' organizations and relevant stakeholders in matters related to the conservation and sustainable use of plant genetic resources through awareness raising and capacity building.

The Global Consultation Conference on Farmers' Rights, held in Addis Ababa in November 2010, produced an input paper to the discussion on the implementation of article 9 on farmers' rights¹¹. This input paper was submitted by Ethiopia to the secretariat of the Treaty, and was presented and discussed during the fourth session of the governing body. Among its recommendations, is the establishment of an *ad hoc* working group to develop voluntary guidelines on the national implementation of article 9 and related provisions, in a transparent, participatory and inclusive manner, with the effective involvement of farmers' organizations. The recommendation recognizes progress achieved by governments in the reform of the UN/FAO Committee on World Food Security, with significant improvements in the effective participation by farmers' organizations, and requests the governing body to consider adopting the

procedures agreed in the Committee on World Food Security as a template for new procedures that will ensure the full participation of all stakeholder groups. Civil society organizations present at the fourth session also expressed satisfaction with the new procedures for civil society participation in the Committee on World Food Security, and requested that a study regarding adoption of a similar approach for small-scale farmers be prepared for consideration by the fifth session of the governing body.

8.2 FARMERS' RIGHTS TO SAVE, USE, EXCHANGE AND SELL FARM-SAVED SEEDS AND OTHER PROPAGATING MATERIAL

The preamble of the International Treaty refers explicitly to the rights that farmers have to “save, use, exchange and sell farm-saved seed and other propagating material”. Article 9.3, however, affirms that “nothing in this article shall be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seed/propagating material, subject to national law and as appropriate.” While the preamble affirmatively recognizes these rights, article 9.3 is neutral and sets forth only that the decision rests with each country, and according to its national law. Article 9.3 reflects the lack of consensus among countries which defended a positive recognition of farmers’ rights to save, use, exchange and sell farm-saved seeds and countries which were against such a positive recognition, which could lead to restrictions on plant breeders’ rights that are incompatible with the 1991 UPOV Act.

Article 9.3 does not, however, make any restrictions on the options that can be adopted by countries regarding the implementation of farmers’ rights at the national level, even if it includes limitations on intellectual property rights over plant varieties.

This is probably one of the most divisive issues regarding the implementation of farmers' rights. Neither the proposal submitted by the European Union nor the one presented by the United States made any reference to farmers' rights to save, use, exchange and sell farm-saved seeds. For agrobiodiversity conservation and sustainable use strategies, it is crucial to ensure sufficient legal space within seed laws, intellectual property legislation and access and benefit sharing laws for farmers to continue saving, using, exchanging and selling farm-saved seeds and propagating material. It is also important to consider that farm saved seed includes both local traditional varieties and improved varieties that have been further adapted and developed by farmers.

As Pelegrina and Salazar (2011) describe it: "Traditional agriculture depends on the constant exchange and movement of plant genetic resources to manage different biotic and abiotic stresses and to provide for the different needs of farming communities. These natural and farmers' selection pressures developed the plant genetic diversity that the world inherited today. Diverse, free and democratic management of plant genetic resources will allow greater options for climate adaptation. *The right of farmers to save, use, exchange and sell seeds is one of the most basic foundations of the farmers' system of plant genetic resources management. This is how plant genetic resources diversity is maintained and created*" (emphasis added)

During the consultations on farmers' rights, a prime concern expressed by participants (especially developing countries) is the need for support from the governing body of the treaty to develop or adjust national laws for the realization of farmers' rights, especially seed and intellectual property laws, which tend to undermine such rights.

There is a strong pressure for developing countries to adopt the 1991 UPOV Act, which restricts such farmers' rights (*see the chapter on the UPOV system for*

further details). Nevertheless, it is not only plant breeders' laws that impose restrictions on farmers' rights to save, exchange, use and sell farm-saved seeds. Such restrictions apply only to protected plant varieties. Seed Laws, however, regulate the production, marketing and utilization of seeds and propagating material of all plant varieties, and not only of protected varieties (*there are some exceptions, which will be discussed on the chapter on Seed Laws*). Seed Laws and Plant Breeders' Rights must be reviewed and adjusted, so that they take into account the need to: - broaden the genetic base of crops and increase the range of genetic diversity available to farmers, - promote the expanded use of local and locally adapted crops and varieties, - maximize intra and inter-specific variation for the benefit of farmers, especially those who generate and use their own varieties and apply ecological principles in maintaining soil fertility and in combating diseases, weeds and pests and - support the wider use of diversity of varieties and species in on-farm management, conservation and sustainable use of crops. After all, these are obligations that all contracting parties to the International Treaty have assumed, in accordance with article 6, on the sustainable use of plant genetic resources, which is strongly linked to farmers' rights. Article 6, *caput*, is very clear that contracting parties must "develop and maintain appropriate policy and legal measures that promote sustainable use of agrobiodiversity", and this includes, among other measures, "reviewing and adjusting breeding strategies and regulations concerning variety release and seed distribution" (article 6.2.g). Resolution 6/2009, adopted by the governing body during its third session, and the Resolution on farmers' rights, adopted during the fourth session, both invite contracting parties to "consider reviewing and, if necessary, adjusting its national measures affecting the realization of farmers' rights as set out in Article 9 of the International Treaty, to protect and promote farmers' rights". Besides, the second resolution encourages each contracting party to "closely relate the realization

of farmers' rights, as appropriate and subject to national legislation, with the implementation of articles 5 and 6 of the International Treaty, in particular the measures in Articles 5.1 (c,d) and 6.2 (c,d,e,f,g)". As Article 9 is not part of the multilateral system of access and benefit-sharing established by the International Treaty, it refers to *all* plant genetic resources for food and agriculture, and not only to those of Annex I.

It is important to ensure that a broad genetic basis of crops, and both seed laws and plant breeders' rights should contain exceptions allowing small-scale/local farmers to save, exchange, use and sell farm-saved seeds (of protected or public domain varieties) to other small-scale (local, traditional and agroecological) farmers, as long as it takes place in local markets and among local farmers. The definition of what constitutes a local" market is complex, and it must take into consideration not only administrative/political and agronomical aspects, but also sociocultural ones. Some proposals aimed at balancing intellectual property rights and farmers' rights to save, use, exchange, and sell farm-saved seeds (of protected varieties), have already been suggested by different stakeholders, such as: - limiting the farmers' right to save, use, exchange and sell seeds (of protected varieties) to crops produced for consumption at the national level, i.e. this right would not apply to export crops; - limiting the aforementioned farmers' right to crops used for human food or animal feed, i.e. this right would not apply, for instance, to ornamental plants. Both proposals are legally and politically feasible, and should be considered by contracting parties when they implement farmers' rights at the national level.

8.3. USE OF COMMERCIAL PLANT VARIETIES AS SOURCE OF DIVERSITY IN FARMERS' BREEDING: EXTENDING THE BREEDER'S PRIVILEGE TO FARMERS

As plant breeders, farmers must also benefit from the “breeders’ exemption”¹², which allows the use of plant varieties (including those developed by the formal sector and protected by plant breeders’ rights) as sources of diversity to develop new varieties. The breeders’ exemption must be extended to farmers who develop and improve their plant varieties, using their own breeding methods and techniques.

According to the UPOV Convention, the authorization of the breeder is not required either for the utilization of the plant variety as an initial source of variation for the purpose of creating other varieties or for the marketing of such varieties. Such exception to plant breeders’ rights must apply also to farmers/breeders. Some national laws already recognize the rights of farmers as breeders (such as the laws of India and Ethiopia). The European Seed Association, has also issued a position paper on farmers’ rights where it states that it “fully supports an open access to all genetic resources, including land races, gene bank accessions, wild relatives and protected varieties for breeding purposes by all breeders: farmers or companies alike. ESA is against any regulation which forbids or discourages farmers to breed or participate in plant breeding or to use other ways of improving the value of their crop”¹³.

Pelegrina and Salazar (2011) point out that, while more modern cultivars are often used by small-scale farmers, this did not stop them from creating diversity, using also introduced cultivars as raw materials for their selection. Thus, new types of varieties or populations emerged, selected from modern cultivars, landraces and local varieties. Pelegrina and Salazar (2011) give some examples: “Farmers in North Cotabato, Philippines, developed 120 farmer rice varieties in 6 years in contrast to the national release of only 55 inbred lines, in 10 years from public research institutions. In the Mekong Delta of Vietnam, there are more than 100 farmer varieties covering more than 100,000 hectares of rice area. In the North and Central parts of Vietnam, farmers

have developed more than 150 new farmer varieties. Due to traits that fit the market and intensive systems that most farmers now practice, their new rice varieties are also non-photo-sensitive, of short to medium duration, and are no longer tall. Furthermore, these new varieties carry adapted traits that fit the farming conditions of different macro and micro eco-systems. Saving, using, exchanging and selling seeds among themselves helped create these new cultivars. All traditional or introduced varieties constitute raw materials to be developed and adapted. If the rice varieties were protected with intellectual property rights that would discourage farmers from exchanging and selling among themselves, and these varieties would have not emerged". That is, even where modern varieties replace landraces, farmers do not lose their ability to innovate.

In a very interesting article, Rene Salazar, Niels Louwaars and Bert Visser (2007) also show that plant varieties conserved, developed and improved by farmers are not restricted to varieties commonly known as "local and traditional" (landraces), and that farmers continue to develop new plant varieties. These new farmers' varieties are developed and improved by farmers based on different sources of variation, which include not only landraces but also varieties developed by the formal (private and public) breeding sector. Rene Salazar et al. point out that, even in market-oriented and intensive production systems, farmers continue to create their own varieties. In many situations, modern varieties simply replaced local/traditional varieties as a source of diversity, but farmers' breeding was not abolished. Farmers often recognize attractive features of modern varieties, including high yields and novel resistances, but also identify various characters that are not appreciated, especially regarding taste, processing qualities, and resilience under less optimal growing conditions, so they promote interbreeding (crossing) of varieties to produce new varieties or lines with desirable properties. Rene Salazar et al. (2007) mention some examples of countries in

Southeast Asia, but point out that there are also accounts of these practices in other countries. (*see the Brazilian experience on the next part of this chapter*). Let us look at one of the examples mentioned by René Salazar et al.(2007):

The IR 36 rice variety developed by the International Rice Research Institute (IRRI) is one of the best disseminated and used by Asian farmers. On the island of Bohol, in the Philippines, local communities prefer rice grains with red color, because this characteristic is associated with better quality and greater satisfaction after the meal. Some time after introduction of the IR 36 rice variety, in Bohol, new phenotypes of this variety began to appear, with red-colored grains (in the original variety, developed by IRRI, grains were white). The Philippines Seed Board made molecular tests with the red grains and found that they descended from the original IR 36 rice variety. They had incorporated the preferred red pericarp trait, through an introgression of genes from traditional red rice varieties exhibiting this trait into the newly released Philippines Seed Board varieties. This is an interesting example not only of the use of a conventional variety as a source of variation in breeding carried out by farmers, but also of how a variety developed by the formal sector acquired a “local” trait due to its adaptation to conditions favored and determined by local communities. In different circumstances, where environmental and cultural factors favor a different trait (such as a certain taste or resistance to a certain pest), the same variety could have acquired other “local” traits, setting it apart from the original variety, due to improvement made by farmers.

Conducting research on genetic diversity of maize varieties in the Indigenous community of Cuzalapa, in western Mexico, Dominique Louette (1999) showed that farmers do not use only strictly local varieties, and that they regularly introduce exotic varieties and exchange seeds with other farmers. According to Louette, the assumption that traditional systems are “closed” and “isolated” with respect to the flow of genetic

material is clearly contradicted by the results of her research, which involved 39 farmers (one-fifth of all farmers in Cuzalpa), extended over a three-year period (1989, 1990 and 1991) and was performed in a center of origin and diversity for maize, close to the Sierra de Manantlán Biosphere Reserve (created especially to protect wild relatives of maize). She considers that the dynamic nature of agricultural systems precludes “freezing” local varieties into a static system, since local varieties exist as part of a dynamic system that extends beyond a single place. According to Louette, “traditional cultivars are not genetically stable populations that can be well defined for conservation purposes; rather, local varieties constitute systems that are genetically open”.

It was the possibility of accessing seeds (in accordance with local customs and rules) and of using them as a source of genetic variation that gives rise to high genetic diversity. Restrictions imposed on the exchange of seeds imposed by 1991 UPOV Act (which prevents exchange and sales of seeds, even in local markets) and by seed laws (conceived only for seeds released by the formal sector) make experiences such as the described above almost impossible. Thus, there must be no legal restrictions for farmers to use protected varieties as a source of genetic diversity and for exchanging seeds among themselves. Otherwise, they will not be able to innovate and developing new varieties using both landraces and modern varieties, to the detriment of conservation and sustainable use of agrobiodiversity.

Farmers’ rights to save, exchange, use, sell, develop and improve seeds of local and/or commercial varieties must be ensured as fundamental conditions for on-farm conservation and management of agricultural diversity. If these rights are not ensured, agrobiodiversity conservation actions and policies will have limited impact, since they will always face legal restrictions imposed on local and traditional practices which are crucial for the sustainability of agricultural systems. How will a public policy aimed at

promoting agrobiodiversity be successful if seed laws forbid seed exchanges among farmers, through their social networks? How can sustainable agricultural systems be encouraged if sales of seeds which are adapted to certain socioenvironmental conditions in local markets are forbidden by law? How can public policies support traditional practices which are considered illegal by seed and intellectual property legislations?

8.4. PROTECTION OF TRADITIONAL KNOWLEDGE AND COLLECTIVE BENEFIT SHARING MECHANISMS

The International Treaty, in its article 9, also protects farmers' rights to traditional knowledge relevant to plant genetic resources for food and agriculture, which includes innovations, practices and knowledge related to seeds and agricultural systems. Traditional knowledge associated with agrobiodiversity include cultivation practices, biological pest and disease control, selection, development and improvement of locally-adapted varieties, maintenance of soil fertility etc. Local varieties, developed by farmers and traditional communities, incorporate such associated knowledge.

The distinction between tangible (or material) components (plant genetic resources) and intangible ones (associated knowledge) of agrobiodiversity tends to be artificial, since it is hard to dissociate local plant varieties from associated knowledge, which is incorporated in the biological resource itself¹⁴. As Laure Emperaire (2006) puts it: "Traditional knowledge associated with a plant which is domesticated and selected by local communities is expressed in the existence of the biological object itself, which is the plant. Without the agronomical knowledge of local communities, their techniques and experimentations in selection and conservation, these objects would not exist,

whether they are plants used for food, medicine, ornamental or others. Agricultural diversity is in itself an expression and materialization of traditional knowledge”.

Protection of traditional knowledge and the right to equitably participate in sharing benefits arising from the utilization of plant genetic resources for food and agriculture are both recognized as farmers’ rights, under article 9 of the International Treaty. These rights have inspired different proposals for their protection, which are sometimes defended separately and other times jointly. Some proposals aim to ensure benefit-sharing to farmers (for their knowledge and genetic resources) through the recognition of intellectual property rights for plant varieties developed by farmers, in the same way that these rights are recognized for plant varieties developed by the formal sector (private or public). According to such proposals, farmers should receive payments of royalties for their plant varieties in the same way that commercial breeders receive royalties for their protected varieties. According to them, intellectual property rights would avoid misappropriation of farmers’ varieties and agricultural knowledge, and oblige users of such resources and knowledge to share benefits with farmers.

There are many difficulties in implementing such a *sui generis* system of intellectual property. Intellectual property rights mean exclusion and monopolies over seeds, which tend to discourage the free circulation of agricultural resources and knowledge, undermining the bases of local and traditional agricultural systems. Farmers would not only be kept from using genetic resources due to intellectual property rights over commercial/modern varieties, but would also be excluding one another due to monopolistic rights. Furthermore, this regime would deny the collective and cumulative character of innovations produced by farmers, and it would be complex to define the holders of these rights, considering that exchanges performed by local communities take place through complex social networks and according to local rules and institutions.

Carlos Corrêa (2000) notes that it would be illogical to protect farmers' rights through the intellectual property system, since it was precisely this system which created the problems which the concept of farmers' rights seeks to solve.

There are other proposals based on bilateral access and benefit sharing systems, in accordance with the principles of the Convention on Biological Diversity (CBD). According to them, access to plant genetic resources conserved *in situ*/on-farm by farmers, as well as to traditional knowledge, should be subject to prior and informed consent and sharing of benefits arising from their utilization. Bilateral contracts should be celebrated between providers and users of seeds and traditional knowledge.

Andersen (2006) identifies two approaches to the understanding of farmers' rights: *the ownership approach* and the *stewardship approach*. She argues that there is a latent conflict between these two, and argues that the stewardship approach must prevail if farmers' rights are to be realized within the framework of the International Treaty. According to Andersen (2006), the *ownership approach* refers to the right of farmers to be rewarded for genetic material obtained from their fields which is used in commercial varieties and/or protected with intellectual property rights. The idea is that such a reward system is necessary to enable equitable sharing of benefits arising from the use of agrobiodiversity and to establish an incentive structure for continued maintenance of this diversity. Access and benefit-sharing legislation and farmers' intellectual property rights are suggested as central instruments. The *stewardship approach* refers to the rights that farmers must be granted in order to enable them to continue as stewards of agrobiodiversity. The idea is that the legal space required for farmers to continue this role must be upheld and that farmers involved in the maintenance of agrobiodiversity – on behalf of our generation, for the benefit of all mankind – should be rewarded and supported for their contributions (Andersen, 2006). She proposes the following working

definition: “farmers’ rights consist of the customary rights that farmers have had as stewards of agrobiodiversity since the dawn of agriculture to save, grow, share, develop and maintain plant varieties, of their legitimate right to be rewarded and supported for their contribution to the global pool of genetic resources as well as to the development of commercial varieties of plants, and to participate in decision making on issues that may affect these rights”.

Collective benefit-sharing mechanisms must be developed, and farmers’ rights must be recognized as essentially collective, and not individual rights. The most important benefit for farmers is probably the creation of legal space for farmers to save, use, exchange, produce and sell their seeds, free of legal obstacles and restrictions which do not consider the specificities of local/traditional systems (and are imposed by seed laws, intellectual property and, in some cases, by access and benefit-sharing laws). Other collective benefit-sharing mechanisms must be promoted, such as public policies aimed at valuing and strengthening local and traditional agricultural systems, and at adding environmental and cultural value to local/regional products, through geographical indications and certifications, participation in all decision-making processes (that impact agrobiodiversity) at the national, regional and local levels, strengthening of local/traditional farmers’ capacity to participate in local and national agricultural markets, participatory plant breeding, seed fairs and local seed banks, managed by farming communities, seed exchange networks, recognition of agrobiodiverse traditional/local agricultural system as biocultural heritage (Argumedo et al, 2011) and as cultural landscapes, with the adoption of measures to safeguard such systems, at the national and international levels, establishing of national benefit-sharing funds to support *on farm* conservation and sustainable use of agrobiodiversity (which would complement the international benefit-sharing fund created by the treaty),

collective payment for environmental services, creation of a special category of protected area aimed at conserving agrobiodiversity, etc.

Actions and policies aimed at supporting *on farm* conservation and management of agrobiodiversity are probably among the most effective and fruitful ways of sharing benefits arising from the use of plant genetic diversity. Such policies must include farmers' knowledge and practices, and ensure the continuity of biological, social and cultural processes which generate agrobiodiversity. Links between agrobiodiversity conservation and sustainable local development must be promoted and strengthened. *On farm* conservation actions and policies must focus on the agricultural system as a whole, with all its components, and not only on specific species or varieties, and consider its dynamic nature. The entire sociocultural system supporting agrobiodiversity must be considered, including local perceptions and values associated with genetic resources. Articles 5 and 6 of the International Treaty establish contracting parties' obligations in relation to conservation and sustainable use of agrobiodiversity, and they are directly related to the implementation of farmers' rights. *On farm* conservation accomplishes several functions, in addition to conservation in itself, such as the political and social empowerment of local communities, and the improvement of their living conditions.

Plant varieties developed by farmers must not be protected by an intellectual property system, not even a *sui generis* one. Sharing of benefits with farmers should not be linked to the sales of products developed through genetic material accessed in *ex situ* collections or collected in *in situ/on-farm* conditions, since the role of farmers in conservation of agrobiodiversity would be greatly underestimated: after all, farmers have conserved and managed agricultural resources for thousands of years, and considering that their contribution is limited to the genetic material used in the development of commercial varieties is a gross underestimation of their contribution to

the global gene pool. Besides, as Ramanna (2006) points out, rewarding and recognizing farmers for their contribution goes beyond tracking how much their innovations/material have been a part of patents or other intellectual property rights. Another danger of defining FRs as IPRs, according to Borowaik (2004), is that it may end up helping to legitimize asymmetries by creating the impression that there is parity among competing rights: breeders and farmers have parallel rights platforms to get their fair shares. However, as Borowaik notes, reality is much more asymmetrical and such systems could promote a further shift away from farmer-centered agriculture (Borowaik, 2004). Benefit sharing must benefit all farmers, and not only the ones that hold varieties that are used by plant breeders or the ones that are protected by intellectual property rights. (*National benefit-sharing funds are discussed on the chapter on implementation of the treaty at the national level*)

8.5. PARTICIPATORY PLANT BREEDING

According to article 6.2. c of the International Treaty, contracting parties must promote plant breeding efforts which, with the participation of farmers, particularly in developing countries, strengthen the capacity to develop varieties particularly adapted to social, economic and ecological conditions, including in marginal areas. Participatory plant breeding can also be considered a benefit-sharing mechanism.

Participatory plant breeding had already been included in the Global Plan of Action for Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture, adopted during the 4th International Technical Conference on Plant Genetic Resources, held in Leipzig, Germany, in 1996, and that is currently being updated.

According to paragraph 184, d, of the Global Plan, governments, and their national agricultural research systems, supported by the International Agricultural Research Centres, and other research and extension organizations must “explore and, in appropriate circumstances, make use of decentralized and “participatory” plant breeding strategies to develop plant varieties specifically adapted to local environments”. At the international level, several participatory plant breeding programs are being (or have been) developed, and the Working Group on Participatory Plant Breeding, established by CGIAR in 1996, has documented more than 80 participatory plant breeding programs worldwide.

But what is participatory plant breeding? How does it differ from conventional plant breeding? According to the definition of CIAT (International Center for Tropical Agriculture), one of the CGIAR research centres, participatory plant breeding is “the systematic and regular involvement of farmers as decision-makers in all stages of a plant breeding program. Farmer involvement in plant breeding can take many forms, including: definition of breeding goals and priorities; selection or provision of germplasm sources; hosting of trials; selection of lines for further crossing; evaluation of results; planning for the following year's activities; suggestion of methodological changes; and multiplication and commercialization of the seed of selected lines”¹⁵.

According to CIAT, Participatory Varietal Selection (PVS) is the most familiar form of farmer participation in plant breeding. PVS traces its origin back to the farming systems research of the 1970s, with farmers becoming involved in the breeding process itself in the 1990s. In PVS, farmers are involved in evaluating a range of stable lines and selecting those most appropriate for their own uses for subsequent independent testing. PPB involves a significantly higher and more complex degree of farmer

involvement in decision-making at earlier and more fundamental stages of the varietal development process. With this higher level of participation comes much greater potential for farmer empowerment and for bringing about improvements in the livelihoods of rural people. PPB and PVS raise farmers' awareness of regulatory frameworks and pave the way for involvement in efforts to influence these, particularly when existing frameworks limit farmers' opportunities to access benefits from the genetic materials that they helped to develop. Participation of farmers in plant breeding programs offers important opportunities to safeguard and strengthen farmers' rights (Halewood et al, 2007; Cecarelli and Grando, 2007; Vernooy, 2003).

According to Brazilian geneticist Altair Toledo Machado et al (2007, 2008), participatory plant breeding was developed as an alternative to conventional plant breeding, and is used mainly in developing countries and in marginal areas, that are under environmental, social and economic stresses. Farmers of these areas did not benefit from conventional plant breeding programs and their improved varieties, which often require heavy doses of fertilizer and other chemicals, that most poor farmers can't afford. Besides, conventional breeding tends to focus on broad adaptability, and not on adaptability to specific environmental, social and cultural conditions, and it also tends to prioritize crops with a high commercial value.

As Gerry Mooney (1999) explains: Professional breeders, often working in relative isolation from farmers, have sometimes been unaware of the multitude of preferences — beyond yield and resistance to diseases and pests — of their target farmers. Ease of harvest and storage, taste and cooking qualities, how fast a crop matures, and the suitability of crop residues as livestock feed are just a few of the dozens of plant traits of interest to small-scale farmers. Despite this wealth of knowledge, in many cases farmers' participation in conventional breeding programs has

been limited to evaluating and commenting on a few advanced experimental varieties just prior to their official release. A goal of the participatory plant breeding is to build on farmers' knowledge, which involves clearly identifying farmers' needs and preferences and the reasoning behind them.

According to Machado et al (2007, 2008), participatory plant breeding includes the knowledge, skills, experiences and practices of farmers as essential components, and takes place in a decentralized manner, with participation of farmers in all stages of the breeding process. In conventional breeding, it is the (professional) breeder who defines the objectives and conducts all selection and evaluation processes; only evaluation of the genetic material is sometimes carried out with the participation of farmers, and the organization is fully centralized. According to Machado, participatory plant breeding has broader objectives than conventional breeding. It is aimed not only at high yield and productivity, but also at conserving biodiversity, developing locally-adapted varieties, evaluating them in a participatory way and diversifying systems and seed production.

Machado also describes the participatory plant breeding program developed in the farming community called *Sol da Manhã*, in the municipality of Seropédica, in the state of Rio de Janeiro (Brazil). The program lasted from 1986 to 2000 and its main objective was to characterize and select nitrogen-efficient maize varieties, and to increase yields, so that farmers could survive and produce in areas where soils are predominantly sandy, with low levels of organic matter and fertility. The program included the rescue, characterization, selection and conservation of maize varieties, with the participation of farmers in all stages of the process. A new maize variety was developed, and named *Sol da Manhã*. It is highly efficient in its use of nitrogen, and yield increased from 2,000 to 4,000 kilograms per hectare (Machado and Machado, 2007). This experience motivated the creation, in 1990, of a Maize Network, with the

participation of public institutions (EMBRAPA), the PTA Network (a network of non-governmental organizations active in the areas of agroecology and small-scale family farming, which acted in twelve Brazilian states) and farmers. Its objective was implement participatory strategies to use and conserve maize genetic diversity in farmers' communities. This network lasted until 1996, but several organizations, such as the Alternative Agriculture Projects - Assistance and Services (AS-PTA), Center for Alternative Technology of Zona da Mata Center (CTA), from Minas Gerais, the Center for Alternative and Popular Technology (CETAP), to name a few, continued their activities, always adopting a participatory and agroecological approach. In western Santa Catarina state, in southern Brazil, the town of Anchieta became known as the “Capital of Creole Maize”. Starting in 1996, the Union of Family Farmers of Anchieta (Sintraf/Anchieta), with support from the municipal government and some civil society organizations, started promoting actions for rescue, use and conservation of local varieties of many species, especially maize, which also inspired other initiatives. The 1st State Festival (Fair) of Creole Maize took place in 2000, promoted by the aforementioned union, in partnership with the Movement of Small Farmers (MPA) and the municipal government, and 5,000 people participated of this festival . The 1st National Festival (Fair) of Creole Maize was held in 2002, when 943 varieties of plant species, of which 228 were creole maize, were exposed. Approximately 20,000 people participated of the festival, which was also held in Anchieta. The same success has been achieved in the festivals occurring in the following years; they usually take place every two years (Vogt et al, 2007).

In Central America, one of the pioneer participatory plant breeding programs is the *Programa Colaborativo de Fitomejoramiento Participativo en Mesoamérica* (FPMA), developed through partnerships between governmental and non-governmental

organizations, farmers' organizations and national and international agricultural research centers. The program works with small-scale farmers from Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Cuba and Mexico, and is aimed at conserving, characterizing and improving varieties of maize, beans, sorghum and other plant species. Its first and second phases went from 200-2004 and 2005-2009. In its third phase (2010-2014), its main focus is on the management, conservation and development of agrobiodiversity, with a participatory plant breeding approach. Sustainable production of food and seeds is its main target. The program has already produced some significant results: in Costa Rica, 9 varieties of beans have been released; in Cuba, a maize variety has been released; in Honduras, 12 varieties of beans and 4 of maize have been released, and in Nicaragua, 6 varieties of beans, 2 of maize, and 4 of sorghum have already been released.¹⁶ Another important initiative of the program is the creation of the Seed Community Reserve of Quilenco (Reserva Comunitaria de Semillas de Quilenco), based in Chiantla, in sierra de los Cuchumatanes¹⁷, in western Guatemala. This reserve contains seeds of strategic local plant varieties, and maintains collections of maize, beans, fava beans, wheat, oats and medicinal plants, managed by farmers

Participatory plant breeding is not regulated in most countries. Access and benefit-sharing, seed and intellectual property legislations do not have specific provisions on participatory plant breeding. However, participatory plant breeding programs are spreading worldwide, and they have been more and more adopted by agricultural research and non-governmental organizations. It combines agricultural science and local knowledge and benefits small-scale farmers that were bypassed by the Green Revolution. As already mentioned, the International Treaty recognizes plant breeding as an important tool to promote sustainable use of agrobiodiversity. National laws must also create special regulation to encourage and support participatory plant

breeding programs; that is, seed, intellectual property and access and benefit-sharing legislations must consider the specificities of participatory plant breeding, and how it differs from convention breeding, in order to avoid legal obstacles to such programs.

Ownership of intellectual property rights over new varieties developed by participatory plant breeding programs has been discussed in several forums. If new varieties (developed through participatory plant breeding programs) meet the legal requirements to be protected by intellectual property rights (especially plant breeders' rights), who will be the holder of these rights? Farmers and/or professional breeders that have worked together? Two options are identified: not protecting such varieties (through IPRs) or establishing co-ownership of rights for all participants in the participatory plant breeding program, including scientists, farmers and others involved. However, a large number of co-owners of intellectual property rights would create serious difficulties for the exercise of such rights, since any activities related to the use of the new varieties would need the prior approval of all co-owners. Besides, the prior informed consent of all co-holders of such resources and knowledge would be necessary for access authorizations, and benefit-sharing contracts would have to involve all co-holders too (in countries that have approved access and benefit-sharing laws). Seed laws may also impose restrictions on the sale and production of seeds of such varieties, when they impose strict homogeneity and stability requirements, which may or not be met by varieties released by participatory plant breeding programs.

It would be better not to protect (through IPRs) new plant varieties, developed by participatory plant breeding programs. However, it is also important to ensure that they remain in the public domain, and are not misappropriated by third parties. This will depend, however, on the interest and willingness of local farmers and professional

breeders to keep such plant varieties in the public domain, and the compatibility between the public domain and local norms regulating the exchange and circulation of agricultural resources and knowledge. Another possibility is to make use of copyleft licences, similar (but adapted) to those used by the open source software movement. Copyleft licences allow uses for specific (non-commercial, for instance) purposes, restrict others and prevent misappropriation of resources and knowledge by third parties (*for further discussion, see the chapter of this book on open source software movement, commons and seeds*).

8.6. FARMERS' POLITICAL PARTICIPATION

Another important farmers' right is to participate of all decision-making processes that impact the conservation and sustainable use of plant genetic resources for food and agriculture. This includes participation of small-scale/family/local farmers' representatives in all political forums (National Councils, Commissions, Committees, hearings, etc, and in the work of the governing body of the International Treaty) that are responsible for agricultural and agrarian policies and legislations, to ensure that their needs and rights are duly respected and promoted. This includes all instances of power (international, federal, state, provincial and municipal) and all policy areas impacting farmers' rights (land reform, rural credits, subsidies and insurance policies, food and nutritional security, agricultural technology and research priorities, local/rural development policies, environmental policies, water management and use policies etc). Farmers' right to participate in decision-making must be interpreted in a broad and inclusive manner, including any political decisions with impacts on local agricultural systems and plant genetic resources for food and agriculture.

National access and benefit-sharing laws must also include the participation of farmers' representatives in decisions regarding their implementation. They must participate not only of decisions related to access authorizations to plant genetic resources and traditional knowledge, held by farming communities, but also in the definition of national policies on access and benefit-sharing for plant genetic resources. It is important that national authorities involve farmers' representatives in the implementation of CBD and of the International Treaty at the domestic level. In many countries, CBD implementation is the responsibility of ministries of environment, whereas the implementation of the International Treaty is with ministries of agriculture, which often creates conflicts. However, not only representatives of governmental organizations must participate of such implementation processes, but also other stakeholders, such as farmers and their representative organizations.

Besides, representatives of small-scale/family/local farmers must also participate of decisions regarding objectives and priorities of agricultural research. They must participate not only of participatory plant breeding programs, but also take part of decisions on the priorities of conventional plant breeding, so that these take into consideration the needs of small-scale/family/local farmers, and give more attention to locally adapted crops, varieties and underutilized species.

Farmers must also participate in the elaboration and application of seed laws and regulations, which establish requirements and criteria for the utilization, production and marketing of seeds. They must also participate in decision-making processes related to variety release and registration, including criteria for the tests and assessments regarding value for cultivation and use (VCU), genetic homogeneity and stability, which are usually established in a top-down manner by ministries of agriculture and other

official/technical agencies. Such decision-making processes must occur in a collective and democratic way, and collective spaces must be created, such as commissions or committee on variety release and registration. In many countries, such decisions are taken unilaterally by official authorities, without any social participation, which is very anti-democratic. It is more inclusive and transparent to create seed commissions/committees, with the participation of all stakeholders, including farmers' representatives. This is the only way to ensure that such decision-making processes take into consideration the interests and needs of all agricultural stakeholders. It is also important to guarantee a balanced composition of such commissions, and that they include representatives of all categories of farmers, as well as representatives of governmental and non-governmental sectors. A democratic and inclusive participation of representatives of small-scale/family/local farmers could result, for instance, in the elaboration of specific regulations for the utilization, production and marketing of local/traditional seeds. Or maybe in the exemption of some plant species and varieties from certain legal requirements, such as genetic homogeneity and stability. Some plant varieties could be excluded from mandatory registration and specific requirements could be established for the registration of other varieties. Or a special registry for local/traditional varieties could be created. The same flexibilization/adaptation should apply to the determination of the cultivation and use value of local/traditional plant varieties. After all, if the main objective of seed laws is to ensure that farmers have access to good quality seeds, it is essential that they also participate in decision-making processes regarding standards and criteria for production, marketing and use of these propagating materials. Besides, conservation and sustainable use of agrobiodiversity would greatly benefit from the creation of a wider legal space for plant heterogeneity.

Some identity and quality standards that usually apply to the whole territory of a country could also become more flexible, and regionalized, specially in large countries, such as Brazil, where they are great social, cultural and environmental differences among geographical regions. Regional regulations could enable production and marketing of varieties adapted to conditions of specific geographical regions, even if they do not meet the standards for countrywide/national distribution.

Some initiatives for implementation of farmers' rights at the national level are discussed next.

8.7. INDIA'S PROTECTION OF PLANT VARIETIES AND FARMERS' RIGHTS ACT AND THE NEW SEEDS BILL

India's Protection of Plant Varieties and Farmers' Rights Act of 2001 is probably the most far-reaching legislation with regard to establishing rights for farmers to save, use, exchange and sell farm-saved seed¹⁸ (*see also the sub-chapter on the Brazilian Seed Law, which also creates some legal space for traditional/local varieties*). However, such rights are threatened by a new Indian Seeds Bill, of 2004, that is currently being discussed at the Indian Parliament (as of April 15, 2011) The Seeds Bill aims to regulate the sales of seeds in India, and to replace the Seed Act of 1966 (currently in force). However, it contradicts some provisions of the Protection of Plant Varieties and Farmers' Rights Act, of 2001, and has been heavily criticized by farmers' organizations, because it "compromises" the right of farmers to grow, sow, save, use, exchange, share or sell their farm seeds¹⁹.

India's Protection of Plant Varieties and Farmers' Rights Act combines aspects of the UPOV Convention, regarding plant breeders' rights, with the principles established in the Convention on Biological Diversity²⁰, on access and benefit-sharing. India is a member of the World Trade Organization (WTO), and has signed the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement, of the WTO, but adopted a national law which corresponds to neither of the UPOV Acts. India created a *sui generis* system of protection to plant varieties, allowed by the TRIPS Agreement²¹.

Agriculture is an essential economic activity in India: nearly 70% of its population depends on agriculture for their livelihood, and agriculture is the principal contributor to India's economic output, accounting for nearly 25% of India's Gross Domestic Product (GDP). While India has a large public sector system involved in various aspects of agriculture production, including breeding and research, the majority of Indian farmers depend on the informal agricultural system of trading, exchanging and reusing seeds. Approximately 80% of farmers rely on the informal seed system or farm-saved seed (Soni, 2007; Rammana and Smale, 2004).

The first Indian bill (on the protection of plant varieties) was presented in 1993-1994 and aimed solely at protection of plant breeders' rights over commercial varieties, which led to countless protests from non-governmental organizations which feared the effects of privatization of seeds agriculture on small-scale/traditional farmers. In 1994, when the WTO TRIPS Agreement was approved, protests became more intense throughout the country²². The bill was revised five times prior to its approval in 2001, and Indian civil society organizations demanded that the country adopt a *sui generis* system for protection of plant varieties which recognized and protected farmers' rights as well, not only professional breeders' rights. They also demanded the creation of a

registry of farmers' varieties and the participation of farmers' representatives in the implementation of the law. However, the recognition of intellectual property rights over farmers' plant varieties, even if by means of a *sui generis* system, ended up, in some way, legitimizing the position of private/trade seed sector representatives in favor of these rights (over commercial varieties). Farmers, nonetheless, obtained the legal recognition of the following rights in the approved version of the act:

- The act defines "breeder" as a "person or group of persons or a farmer or group of farmers or any institution which has bred, evolved or developed any plant variety". According to the act, a farmer who has bred or developed a new variety is entitled for registration and other protection in the same manner as a breeder of a variety. That is, farmers are recognized not only as users, but also as breeders and innovators. The act also establishes that a farmer who is engaged in the conservation of genetic resources of landraces and wild relatives of plants and in their improvement through selection and preservation is entitled for recognition and reward from the National Gene Fund (provided that material so selected and preserved has been used as donors of genes in registrable varieties) .

- It recognizes farmers' right to save, use, sow, re-sow, exchange, share or sell his farm produce, including seeds of protected varieties, in the same manner as he was entitled to do before the coming into force of the act. However, farmers cannot sell "branded" seed of protected varieties. "Branded seed" means any seed put in a package or any other container and labeled in a manner indicating that such seed is of a protected variety. That is, farmers can sell both farm-produced seeds and seeds of protected varieties, as long as they are not sold in packages with labels indicating that they are of protected varieties. Besides, the legal possibility of using a protected variety as an initial source of diversity for creating other varieties (the breeders' exemption) is extended to "any person" (a professional or farmer/breeder).

- The above-mentioned rights apply to all farmers, and not to only specific categories of farmers. Farmers are defined as "any person who cultivates crops by cultivating the land himself, or cultivates crops by directly supervising the cultivation of land through any other person, or conserves and preserves, severally or jointly, with any other person any wild species or traditional varieties or adds value to such wild species or traditional varieties through selection and identification of their useful properties".

- No suit, prosecution or other legal proceeding may be brought against farmers for any violation of plant breeders' rights, if it was done or intended to be done in good faith. This provision aims to protect farmers who were not aware of plant breeders' rights when they violated them.

- When any seed of a registered variety is sold to a farmer (or group of farmers, or farmers' organizations) the breeder of such variety must disclose the expected performance under given conditions. If such propagating material fails to provide such performance, farmers may claim compensation. The competent authority, after giving

notice to the breeder of the variety and providing him an opportunity to file opposition, may determine that the breeder of the variety pays compensation to farmers.

- Both professional (public and private) breeders and farmers/breeders may apply for registration of varieties before the National Register of Plant Varieties. A certificate of registration for a variety confers an exclusive right on the breeder or his successor, his agent or licensee, to produce, sell, market, distribute, import or export the variety.

- Varieties can only be registered if they conform to the criteria of novelty, distinctiveness, uniformity and stability. For “extant” varieties, novelty is not required. According to the act, an “extant variety” means a variety available in India which is notified under section 5 of the Seeds Act, 1966²³, *or* a farmers’ variety *or* a variety about which there is common knowledge, *or* any other variety which is in public domain.

- A “farmers’ variety” means a variety which has been traditionally cultivated and evolved by the farmers in their fields, *or* is a wild relative or land race *or* a variety about which the farmers possess common knowledge. Farmers are exempt from the payment of registration fees;

- Certificates of registration of varieties are published by the competent authority, in order to invite claims of benefit sharing to the registered variety. Any person or group of persons (as long as they are citizens of India), firms, governmental or non-governmental organizations (formed or established in India) may submit their claims of benefit sharing to such variety. On receiving such claims, the competent authority will send a copy of such claims to the breeders of the registered varieties and they may submit their opposition to such claims. The authority will then indicate the amount of benefit sharing (if any), for which the claimant will be entitled, taking into consideration the following matters: - the extent and nature of the use of genetic material of the claimant in the development of the variety relating to which the benefit sharing has been claimed; - the commercial utility and demand in the market of the variety relating to which the benefit sharing has been claimed. Such benefit-sharing will be deposited by the breeder of such variety in the National Gene Fund.

- Any plant breeder or other person applying for registration of a variety must disclose information regarding the use of genetic material conserved by any tribal or rural families in the breeding or development of such variety. If he fails to disclose such information, the registrar may, after being satisfied that he has willfully and knowingly concealed such information, reject the application for registration. Any person or group of persons (whether actively engaged in farming or not) or any governmental or non-governmental organization may, on behalf of any village or local community in India, file a claim affirming that the people of such village or community significantly contributed to the evolution of the variety, and is entitled to benefit-sharing (through the National Gene Fund).

- The authority responsible for the implementation of the act is called “the Protection of Plant Varieties and Farmers’ Rights Authority”, and consists of a chairperson and 15 members. In addition to representatives from governmental organizations, the following members participate: one representative from national or state level farmers’

organization, one representative from a tribal organization, one representative from the seed industry, one representative from an agricultural university, one representative from national or state level women's organization associated with agricultural activities. All these representatives are nominated by the central government.

The Indian law tends to adopt an ownership approach, with all its limitations and barriers (*discussed above*). One of its main achievements is the explicit recognition of farmers' rights to save, use, sow, re-sow, exchange, share or sell his farm produce, including seeds of protected varieties. The recognition of farmers as breeders and innovators is also important, as well as the participation of farmers' representatives in the national authority set up to implement the act.

However, a new Seed Bill, being discussed at the Indian Parliament, may restrict some farmers' rights. The new Seed Bill states that: "Nothing in this act shall restrict the right of the farmer to save, use, exchange, share or sell his farm seeds and planting material, except that he shall not sell such seed or planting material under a brand name *or which does not conform to the minimum limit of germination, physical purity, genetic purity* (emphasis added). That is, if the new Seed Bill comes into force, farmers will only be able to sell their seeds if they are registered and meet the same minimum standards prescribed for commercial seeds. The Protection of Plant Varieties and Farmers' Rights Act (PPVFR), of 2001, only prevents farmers from selling seeds of protected varieties in branded packages, and there are no other requirements for farmers to sell seeds. Registration under the PPVFR Act was voluntary, but the new Seed Bill makes it compulsory for all seeds. According to the new Seed Bill, every seed producer and dealer, and horticulture nursery, has to be registered with the state government. Farmers also become subject to the regulations provided for commercial producers, processors and stockers of seeds, who need to meet specifications regarding

infrastructure, equipment and qualified manpower. Any person who contravenes any provisions of the Seed Bill or imports, sells or stocks seeds deemed to be misbranded or not registered, can be punishable by high fines, including farmers. Under the PPVFR Act, the registration of a variety requires disclosure of the pedigree of the variety and the geographical origin of the parental material used. However, the new Seed Bill does not establish any obligation to disclose the pedigree of the variety under registration²⁴.

8.8. FARMERS' RIGHTS IN THE AFRICAN UNITY MODEL LAW AND IN THE ETHIOPIAN PROCLAMATIONS

The African Model Law for the Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources was approved by the African Unity Organization in July, 1998, in Ougadougou (Burkina Faso and re-endorsed in July 2001 in Lusaka (Zambia). The African Unity Organization was replaced by the African Union in July 2002. The Model Law²⁵ is supposed to be followed by African countries to implement the Convention on Biological Diversity (CBD) and the World Trade Organization (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), particularly the provisions on protecting plant varieties. The African Model Law also incorporates some components of the International Undertaking on Plant Genetic Resources (which was still in force when the African Model Law was approved; the undertaking was later replaced by the International Treaty). Since the International Treaty on Plant Genetic Resources for Food and Agriculture had not been adopted when the African Model Law was being elaborated, it is based mainly in the principles of the Convention on Biological Diversity (CBD). It is a model law for protecting farmers' and plant breeders' rights and

community rights²⁶, as well as for regulating access to biological resources and to associated traditional knowledge.

According to the African Model Law, farmers' rights are “recognized as stemming from the enormous contributions that local farming communities, especially their women members, of all regions of the world, particularly those in the centres of origin or diversity of crops and other agrobiodiversity, have made in the conservation, development and sustainable use of plant and animal genetic resources that constitute the basis of breeding for food and agriculture production” Such rights are recognized and protected to enable farmers “to continue making these achievements” (articles 24 and 25). According to the model law, farmers' varieties and breeds are recognized and must be protected under the rules of practice as found in, and recognized by, the customary practices and laws of the concerned local farming communities, “whether such laws are written or not”. This is a very important recognition of the legal diversity existing in African societies, an expression of their cultural diversity. The recognition of the existence of multiple local legal systems within the same territory is known as “legal pluralism” and is opposed to legal monism, which only recognizes one state/official legal system. Many African societies are pluralistic, and the recognition of local legal institutions by the model law is a significant step toward the development of more legitimate legal systems, enrooted in the culture and livelihoods of local communities.

The African Model Law²⁷ also establishes that a plant variety with specific attributes identified by a community must be granted intellectual protection through a variety certificate which does not have to meet the criteria of distinction, uniformity and stability. This variety certificate entitles the community to exclusive rights to multiply, cultivate, use or sell the variety, or to license its use, without prejudice to the farmers'

rights set out in the law (article 25). Farmers' rights must, with due regard for gender equity, include the rights to (article 26):

a) protection of their traditional knowledge relevant to plant and animal genetic resources;

b) obtain an equitable share of benefits arising from the use of plant and animal genetic resources;

c) participate in making decisions, including at the national level, on matters related to the conservation and sustainable use of plant and animal genetic resources;

d) save, use, exchange and sell farm-saved seed/propagating material of farmers' varieties, as well as the new plant varieties protected under breeders' rights. However, farmers may not sell farm-saved seed/propagating material of a breeders' protected variety in the seed industry on a commercial scale;

e) collectively save, use, multiply and process farm-saved seed of protected varieties;

f) use a new breeders' variety protected under the law to develop farmers' varieties, including material obtained from genebanks or plant genetic resource centres;

g) breeders' rights on a new variety are subject to restrictions with the objective of protecting food security, health, biological diversity and any other requirements of the farming community for propagation material of a particular variety;

h) according to article 27 of the model law, any product derived from the sustainable use a biological resource must be granted a certificate or label of recognition, and a certificate of fair trade must be granted to a product derived from a biological resource or knowledge or technology, when a significant part of the benefits derived from the product go back to the local community. These measures are aimed at adding environmental and social value to the products of African cultural and biological diversity.

Plant breeders' rights are also recognized by the African Model Law. According to article 28, these rights "stem from the efforts and investments made by persons and institutions for the development of new varieties of plants" and are "the basis for providing recognition and economic reward". Plant breeders' rights include the exclusive right to sell, including the right to license other persons to sell plants or

propagating material of that variety, as well as the exclusive right to produce, including the right to license other persons to produce, propagating material of that variety for sale (article 30). However, plant breeders' rights are subject to the conditions provided in the Farmers' Rights part of the model law (mentioned above). The exemptions to the rights of plant breeders are established, so that any person or farmers' community may: - propagate, grow and use plants of that variety for purposes other than commerce; - sell plants or propagating material of that variety as food or for another use that does not involve the growing of the plants or the propagation of that variety; - sell within a farm or any other place at which plants of that variety are grown any plants or propagating material of that variety at that place; - use plants or propagating material of the variety as an initial source of variation for the purpose of developing another new plant variety, except where the person makes repeated use of plants or propagating material of the first mentioned variety for the commercial production of another variety; - sprout the protected variety as food for home consumption or for the market; - use the protected variety in further breeding, research or teaching; - obtain, with the conditions of utilization, such a protected variety from genebanks or plant genetic resources centres (article 31). Besides, farmers are free to save, exchange and use part of the seed from the first crop of plants which they have grown for sowing in their own farms to produce a second and subsequent crop, according to conditions specified in Farmers' Rights part of the model law (described above).

Namibia²⁸ and Uganda have drafted legal bills inspired by the African Model Law, which are still being discussed at the national parliaments. Zimbabwe, Malawi and Zambia have also discussed legal bills and public policies based on the African Model Law. In 2006, Ethiopia adopted Proclamation (482/2006), which regulates Access to Genetic Resources and Community Knowledge, and Community Rights, which draws

on the African Unity Model Law. This proclamation provides communities with the right to receive 50% of the share that the Ethiopian state obtains in monetary form from the use of genetic resources. According to this proclamation, communities have the right to decide over access to their knowledge, while the state has the authority to decide over access to genetic resources – on behalf of the communities. Communities do, however, have the right to disagree in cases where access to genetic resources affects their culture and their livelihood, according to Regassa Feyissa (2006).

Ethiopia also adopted a Proclamation on Plant Breeders' Rights (481/2006), which protects both improved and farmers' varieties and is inspired in the African Model Law. These are described as varieties having specific attributes, which have been "discovered, bred, developed or nurtured by Ethiopian farming communities, or a wild relative of a variety about which the Ethiopian farming communities have common knowledge". According to article 28, farmers have the following rights: (in relation to the use of plant varieties): a) to save, use, exchange and sell farm-saved seed or propagating material of farmers' varieties; b) to use protected varieties including material obtained from gene banks or plant genetic resource centres to develop farmers' varieties; c) to save, use, multiply, exchange and sell farm-saved seed or propagating material of protected varieties. However, farmers may not sell farm-saved seed or propagating material of a protected variety in the seed industry as a certified seed. According to Ethiopian Seed Proclamation 2006/2000, farmers can produce and sell certified seed to other farmers, but cannot engage in large-scale seed sales without being certified by the National Seed Agency.

¹ According to Pelegrina and Salazar (2011), in 2003, farmers and farmer groups in the Philippines defined farmers' rights to comprise 38 elements covering socio-political-economic and cultural rights.

² Via Campesina. '*Declaration of Rights of Peasants – Women and Men*', <http://viacampesina.net/downloads/PDF/EN-3.pdf>, accessed 15 March, 2011.

³ Pat Mooney, Cary Fowler and Hope Shand began working on the "seeds" issue in 1977. In 1984, the three co-founded RAFI (Rural Advancement Foundation International), whose name was changed to ETC

Group – Action Group on Erosion, Technology and Concentration, in 2001. ETC Group is a small international ngo addressing the impact of new technologies on vulnerable communities. . In 1983, Pat Mooney wrote *The Law of the Seed* and in 1994 Cary Fowler published *Unnatural selection: technology, politics and plant evolution*. Both publications are referential. Mooney’s more recent work has focused on geoengineering, nanotechnology, synthetic biology and global governance of these technologies as well as corporate involvement in their development.

⁴ For a detailed and interesting description of this international process, see: Mooney (2011)

⁵ Vesting farmers’ rights in the international community, as “trustee” for present and future generations of farmers, left unclear and ambiguous who were the holders of farmers’ rights. The International Treaty, in its article 9, clearly granted such rights to farmers themselves.

⁶ Chapter 14 of the Agenda 21 deals with the promotion of sustainable rural and agricultural development.

⁷ Source: Earth Negotiations Bulletin, vol 09, n. 550, 21 March, 2011,

<http://www.iisd.ca/vol09/enb09550e.html>

⁸ Source: Andersen, R. (2011)

⁹ Source: Earth Negotiations Bulletin, vol 09, n. 550, 21 March, 2011,

<http://www.iisd.ca/vol09/enb09550e.html>

¹⁰ These consultations were organized by the Fridtjof Nansen Institute, from Norway, and the process included an e-mail based survey conducted between July and September 2010 and a conference held together with the Institute of Biodiversity Conservation, Ethiopia, in Addis Ababa, 23–25 November 2010. The consultation process was supported by the Swedish International Biodiversity Programme (SwedBio), the Norwegian Agency for Development Cooperation (NORAD), the Norwegian Ministry of Agriculture and Food, the Development Fund, Norway, and the Spanish Agency for International Development Cooperation (AECID). An informal international consultation on farmers’ rights was also held in Lusaka, Zambia, from 18 to 20 September 2007, jointly organized and co-hosted by the Ministry of Agriculture and Food and the Fridtjof Nansen Institute, both from Norway, and the Zambian Agriculture Research Institute.

¹¹ Andersen, R. and Winge, T. (2011) The 2010 Global Consultations on Farmers' Rights, The Farmers' Rights Project, The Fridtjof Nansen Institute, Lysaker, Norway, <http://www.fni.no/doc&pdf/FNI-R0211.pdf>, accessed 15 March 2011.

¹² It is also called the breeder’s privilege.

¹³ European Seed Association (ESA). *Position on farmers’ rights*. Brussels, Nov. 28, 2008, http://www.euroseeds.org/position-papers/biodiversity/ESA_08.0773.pdf, accessed on March 25, 2011

¹⁴ In Brazil, for example, an authorization is required for access to traditional, local or creole varieties, due to the associated traditional knowledge incorporated into their genetic material.

¹⁵ Source: ‘Participatory Plant Breeding’,

[http://www.ciat.cgiar.org/ourprograms/Climate_Capacity/prga/Documents/PPB%20brief\(1\).pdf](http://www.ciat.cgiar.org/ourprograms/Climate_Capacity/prga/Documents/PPB%20brief(1).pdf), accessed 15 March 2011.

¹⁶ Source: [http://www.programa-](http://www.programa-fpma.org.ni/index.php?option=com_content&view=article&id=54&Itemid=61)

[fpma.org.ni/index.php?option=com_content&view=article&id=54&Itemid=61](http://www.programa-fpma.org.ni/index.php?option=com_content&view=article&id=54&Itemid=61), accessed 25 March 2011.

¹⁷ Sierra de los Cuchumatanes is the highest non-volcanic mountain range in Central America.

¹⁸ Source: ‘Success stories from the realization of the right to save, use, exchange and sell farm-saved seed. India’s Protection of Plant Variety and Farmers’ Rights Act’. The Farmers’ Rights Project, Fridtjof Nansen Institute, Norway, http://www.farmersrights.org/bestpractices/success_seed.html, accessed 10 April 2011.

¹⁹ Source: Jigeesh, A.M. ‘Anti-Farmer Seeds Bill has the left up in arms against government’, *India Today*, April 20th, 2010, <http://indiatoday.intoday.in/site/story/'Anti-Farmer'+Seeds+Bill+has+the+Left+up+in+arms+against+govt/1/93642.html>, accessed 10 April 2011; Chaudhary. P.K. ‘Seeds Bill to hit farmers, agriculture: Nitish’, *Times of India*, March 15th, 2011, http://articles.timesofindia.indiatimes.com/2011-03-15/patna/28691032_1_seeds-bill-hybrid-seeds-seed-production, accessed 10 April 2011; ‘India’s new Seed Bill’, GRAIN, with contributions from Dr. Devinder Sharma, <http://www.grain.org/seedling/?id=338>, accessed 10 April 2011.

²⁰ The National Biodiversity Act, 2002, based on the Convention on Biological Diversity, regulates access to and use of genetic resources in India. This act also focuses on benefit sharing, protection of traditional knowledge and prior informed consent.

²¹ According to article 27.3.b. of the TRIPS Agreement, member countries may exclude from patentability plants and animals other than microorganisms, and essentially biological processes for the production of plants and animals, other than non-biological and microbiological processes. However, members must provide for the protection of plant varieties either by patents or by an efficient *sui generis* system, or by any combination thereof. India has asked to become UPOV member in 2002, but as of 15 April, 2011, this request had not been approved, which shows that UPOV is not likely to accept a *sui generis* system different from the one established in its convention.

²² Sources: www.genecampaign.org; www.navdanya.org; www.sristi.org/cms/en and <http://www.mssrf.org> and www.sawtee.org, accessed 30 March 2009.

²³ According to the Seeds Act of 1966, only varieties notified by the government need to be registered. However, if the Seeds Bill of 2004 is approved, all seeds for sale will have to be registered.

²⁴ Sources: Madhavan, M.R. and Sanyal, K. 'Seeds Bill 2004', <http://www.indiatogether.org/2006/jun/law-seeds.htm>; Bala, Ravi, S. (2009) 'The conflict between Seed Bill and PPVFR Act of India', <http://www.sawtee.org>; http://agricoop.nic.in/seeds/seeds_bill.htm, accessed 15 March 2011.

²⁵ A model law is created as a suggested pattern for law-makers in national governments to consider adopting as part of their domestic legislation.

²⁶ Community Rights are defined as "those rights held by local communities over their biological resources or parts or derivatives thereof, and over their practices, innovations, knowledge and technologies". Community Knowledge or Indigenous Knowledge is defined as "the accumulated knowledge that is vital for conservation and sustainable use of biological resources and/or which is of socio-economic value, and which has been developed over the years in indigenous/local communities". According to the model law, states must recognize the rights of communities over: - their biological resources; - the right to collectively benefit from the use of their biological resources; - their innovations, practices, knowledge and technologies acquired through generations; -the right to collectively benefit from the utilisation of their innovations, practices, knowledge and technologies; - their rights to use their innovations, practices, knowledge and technologies in the conservation and sustainable use of biological diversity; - the exercise of collective rights as legitimate custodians and users of their biological resources. Any access to a biological resource, innovation, practice, knowledge or technology, must subject to the prior informed consent of the concerned community or communities, ensuring that women fully and equally participate in decision making.

²⁷ The complete text of the African Model Law for the Protection of the Rights of Local Communities, Farmers And Breeders, and for the Regulation of Access to Biological Resources can be consulted at: http://www.opbw.org/nat_imp/model_laws/oau-model-law.pdf, accessed 18 March 2011.

²⁸ For further information about the legal bill proposed by Namibia, see: Dhar (2002)

REFERENCES:

- Adhikari, K. (2008). *Intellectual Property Rights in Agriculture: Legal Mechanisms to Protect Farmers' Rights in Nepal*, Forum for Protection of Public Interest and South Asia Watch on Trade, Economics & Environment, Kathmandu, Nepal.
- Andersen, R. (2011) *Farmers' Rights in the ITPGRFA: the Fourth Session of the Governing Body*, The Farmers' Rights Project, Fridtjof Nansen Institute, Lysaker, Norway, http://www.farmersrights.org/about/fr_in_itpgrfa_5.html, accessed 10 March 2011.
- Andersen, R. and Winge, T. (2009) *The Plant Treaty and Farmers' Rights: Implementation Issues for South Asia*, South Asia Watch on Trade, Economics & Environment, Kathmandu, Nepal, http://www.farmersrights.org/pdf/SAWTEE_ITPGRFA%20and%20Farmers'%20Rights_2009.pdf, accessed 10 March 2011.
- Andersen, R. and Winge, T. (2008) *Success Stories from the Realization of Farmers' Rights Related to Plant Genetic Resources for Food and Agriculture*, The Farmers' Rights Project, The Fridtjof Nansen Institute, Lysaker, Norway, <http://www.fni.no/doc&pdf/FNI-R0408.pdf>, accessed 15 March 2011.
- Andersen, R. (2007) *Towards a Common Understanding of the Contents of Farmers' Rights*, in: *FORMAL INTERNATIONAL CONSULTATION ON FARMERS' RIGHTS*, 18 - 20 September 2007, Lusaka, Zambia. Co-hosted by the Ministry of Agriculture and Food and the Fridtjof Nansen Institute, Norway, and the Zambia Agriculture Research Institute of the Ministry of Agriculture, Food and

Fisheries, pp49-56, http://www.fni.no/doc&pdf/farmers_rights_lusaka_consultation_final_report.pdf, accessed 10 March 2011.

Andersen, R. (2006) *Realising Farmers' Rights under the International Treaty on Plant Genetic Resources for Food and Agriculture*, The Farmers' Rights Project, The Fridtjof Nansen Institute, Lysaker, Norway, <http://www.fni.no/doc&pdf/FNI-R1106.pdf>, accessed 10 March 2011.

Andersen, R. (2005) *The History of Farmers' Rights: a Guide to Central Documents and Literature*, The Farmers' Rights Project, The Fridtjof Nansen Institute, Lysaker, Norway, <http://www.fni.no/doc&pdf/FNI-R0805.pdf>, accessed 10 March 2011.

Argumedo, A., Swiderska, K., Pimbert, M., Song, Y. and Pant, R. (2011) 'Implementing Farmers' Rights under the FAO International Treaty on PGRFA: the Need for a Broad Approach Based on Biocultural Heritage'. IIED, Asociación ANDES (Peru), Centre for Chinese Agricultural Policy and Ecoserve (India). Paper prepared for the Fourth Session of the Governing Body of the International Treaty of PGRFA, Bali 14-18 March 2011, <http://pubs.iied.org/G03077.html>, accessed March 22, 2011.

Bertachini, E. (2008) 'Coase, Pigou and the potato: whither farmers' rights?' *Ecological Economics*, no 68, pp183-193.

Bjornstad, S.I. B. (2004) *Breakthrough for "the South"? An Analysis of the Recognition of Farmers' Rights in the International Treaty on Plant Genetic Resources for Food and Agriculture*, The Farmers' Rights Project, The Fridtjof Nansen Institute, Lysaker, Norway, <http://www.fni.no/doc&pdf/FNI-R1304.pdf>, accessed 15 March 2011.

Boef, W.S.; Ogliari, J.B (2007) 'Seleção de variedades e melhoramento genético participativo', in: Boef, W.S. , Thijssen, M. H., Ogliari, J.B. and Sthapit, B. (orgs.) (2007). *Biodiversidade e Agricultores: Fortalecendo o Manejo Comunitário*, L & PM, Porto Alegre, Brazil, pp77-93.

Borowaik, Craig (2004) "Farmers' rights: Intellectual property regimes and the struggle over seeds, *Politics & Society*, vol 32, no 4, pp511-543.

Brahmi, P., Saxena, S. And Dhillon, B. S. (2004) 'The Protection of Plant Varieties and Farmers' Rights Act of India', *Current Science*, vol 86, no 3, pp392-398.

Brush, S. (org.) (1999) *Genes in the Field: On-Farm Conservation of Crop Diversity*, International Plant Genetic Resources Institute, IDRC and Lewis Publishers, Washington, U.S.

Ceccarelli, S., Guimarães, E.P. and Weltzien (2009) *Plant Breeding and Farmer Participation*, FAO, Rome, Italy.

Ceccarelli, S and Grando, S (2007) 'Decentralized-participatory plant breeding: An example of demand driven research, *Euphytica*, vol 155, pp349-360.

Christinck, A, Weltzien, E. and Hoffman, V. (eds.) (2005) *Setting Breeding Objectives and Developing Seed Systems with Farmers: A Handbook to Practical Use in Participatory Plant Breeding Projects*, Margraf Publishers, Weikersheim, Germany

Correa, C. (2000) *Options for the Implementation of Farmers' Rights at the National Level*, South Centre, Geneva.

Desclaux, D. (2006) 'Sélection participative: spécificités et enjeux', in Gasselin, P. and Clément O. (coords). *Quelles variétés et semences pour des agricultures paysannes durables?*, *Dossiers de L'Environnement de l'Inra*, no. 30, pp119-127.

Dhar, B. (2002) *Sui generis systems for plant variety protection: options under TRIPS*, Quaker United Nations Office, Geneva.

Egziabher , T.B.G., Matos, E. and Mwila, G. (2011) 'The African Regional Group: Creating Fair Play between North and South', in Frison, C., López, F. and Esquinas-Alcázar, J.T. (eds) *Plant Genetic Resources and Food Security: Stakeholder Perspectives on the International Treaty on Plant Genetic Resources for Food and Agriculture*, Earthscan, London

Ekpere, J. A (2000). *The OAU's Model Law: The Protection of the Rights of Local Communities, Farmers and Breeders, and the Regulation of Access to Biological Resources*, an explanatory booklet, Organization of African Unity, Scientific, Technical and Research Commission, Lagos, Nigeria.

Emperaire, L. and Santilli, J. (2006) 'A agrobiodiversidade e os direitos dos agricultores indígenas e tradicionais', in: Ricardo, B. and Ricardo, F. eds.). *Povos indígenas no Brasil: 2001-2005*, Instituto Socioambiental, São Paulo, Brazil, pp100-103

Feyissa, R. (2006). *Farmers' rights in Ethiopia*, The Farmers' Rights Project, The Fridtjof Nansen Institute, Lysaker, Norway, <http://www.fni.no/doc&pdf/FNI-R0706.pdf>, accessed 10 March 2011.

Fowler, C. and Mooney (1990) *Shattering: Food, Politics, and the Loss of Genetic Diversity*, University of Arizona Press, U.S.

Gopalakrishna, N. S. (2001) 'An "effective" sui generis law to protect plant varieties and farmers' rights in India: a critique', *Journal of World Intellectual Property*, vol 4, no 1, pp157-172.

- Halewood, M. (ed.) (2011) *Farmers' Crop Varieties and Farmers' Rights: Challenges in Taxonomy and Law*, Earthscan, London.
- Halewood M, Deupman P, Sthapit B, Vernooy R and Ceccarelli S. (2007) *Participatory Plant Breeding to Promote Farmers' Rights*, Bioersivity International, Rome, Italy
- Kameri-Mbote, P. (2003) *Community, farmers' and breeders' rights in Africa: towards a legal framework for sui generis legislation*, International Environmental Law Research Centre, Geneva, www.ielrc.org/content/a0302.pdf, accessed 10 March 2011.
- Letty, B., Noordin, Q., Magagi, S. and Waters-Bayer, A. (2011) 'Farmers take the lead in research and development', in *2011 State of the World: Innovations that Nourish the Planet*, World Watch Institute, Washington D.C, pp51-58.
- Louette, D. (1999) 'Traditional management of seed and genetic diversity: what is a landrace?' in Brush, S. (org.) *Genes in the Field: On-farm Conservation of Crop Diversity*, International Plant Genetic Resources Institute, Rome, Italy; International Development Research Centre, Ottawa, Canada, pp109-142.
- Machado, A.T. (2007) 'Manejo dos recursos vegetais em comunidades agrícolas: enfoque sobre segurança alimentar e agrobiodiversidade', in: Nass, L. (ed.). *Recursos Genéticos Vegetais*, Embrapa Recursos Genéticos e Biotecnologia, Brasília, Brazil, pp719-744.
- Machado, A.T. and Machado, C. (2007) 'Melhoramento participativo de cultivos no Brasil', in: Boef, W. S., Thijssen, M. H., Ogliari, J.B. and Sthapit, B. (orgs.) (2007). *Biodiversidade e Agricultores: Fortalecendo o Manejo Comunitário*, L & PM, Porto Alegre, Brazil, pp93-102.
- Machado, A.T., Santilli, J. and Magalhães, R. (2008) *A Agrobiodiversidade com Enfoque Agroecológico: implicações conceituais e jurídicas*, Embrapa Informação Tecnológica, Brasília, Brazil.
- Morris, M. and Bellon, M. (2004) 'Participatory plant breeding research: Opportunities and challenges for the international crop improvement system', *Euphytica*, vol 136, no 1, pp21-35.
- Mooney, P. (1979) *Seeds of the Earth: A Private or Public Resource?* Inter Pares for the Canadian Council for International Cooperation and the International Coalition for Development Action, Ottawa, Canada.
- Mooney, P. (1983) 'The Law of the Seed: Another Development and Plant Genetic Resources', *Development Dialogue*, Uppsala, Sweden, Dag Hammarskjöld Foundation, v. 1-2.
- Mooney, P. (1996) 'The Parts of Life: Agricultural Biodiversity, Indigenous Knowledge, and the Role of the Third System', *Development Dialogue*, Uppsala, Sweden, Dag Hammarskjöld Foundation.
- Mooney (2011) 'The Hundred Year (or so) Seed War: Seeds, Sovereignty and Civil Society. A Historical Perspective on the Evolution of "The Law of the Seed" in Frison, C., López, F. and Esquinas-Alcázar, J.T. (eds) *Plant Genetic Resources and Food Security: Stakeholder Perspectives on the International Treaty on Plant Genetic Resources for Food and Agriculture*, Earthscan, London
- Nagarajan, S., Yadav, S. P. and Singh, A. K. (2008) 'Farmers' variety in the context of protection of Plant Varieties and Farmers' Rights Act, 2001', *Current Science*, vol 94, no. 6, pp709-713.
- Nnadozie, K., Lettington, R., Bruch, C., Bass, S. and King, S. (2003). *African Perspectives on Genetic Resources: A Handbook on Laws, Policies and Institutions Governing Access and Benefit-sharing* Environmental Law Institute, Washington D.C.
- Pelegrina, W.R. and Salazar, R. (2011) 'Farmers' communities: a Reflection on the Treaty from Small Farmers' Perspectives', in Frison, C., López, F. and Esquinas-Alcázar, J.T. (eds) *Plant Genetic Resources and Food Security: Stakeholder Perspectives on the International Treaty on Plant Genetic Resources for Food and Agriculture*, Earthscan, London.
- Ramanna, A. (2006). *Farmers' rights in India: A Case Study*, The Farmers' Rights Project, The Fridtjof Nansen Institute, Lysaker, Norway, <http://www.fni.no/doc&pdf/FNI-R0606.pdf>, accessed 10 March 2011.
- Ramanna, A. and Smale, M. (2004) 'Rights and access to plant genetic resources under India's New Law', *Development Policy Review*, vol 22, no 4, pp. 423-442, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=558802, accessed 10 March 2011.
- Sahai, S. (2003) 'India's Plant Variety Protection and Farmers' Rights Act, 2001', *Current Science*, vol 84, no 3, pp407- 412.
- Sahai, S. (2001) 'Plant Variety Protection and Farmers' Rights Law', *Economic and Political Weekly*, vol 36, no 35, pp3338-3342.
- Salazar, R., Louwaars, N. P. and Visser, B. (2007) 'Protecting farmers' new varieties: new approaches to rights on collective innovations in plant genetic resources', *World Development*, vol 35, no 9, pp151-158.

-
- Scurrah, M., Andersen, R. and Winge, T. (2008) *Farmers' rights in Peru: farmers' perspectives*, The Farmers' Rights Project, The Fridtjof Nansen Institute, Lysaker, Norway, <http://www.fni.no/doc&pdf/FNI-R1608.pdf>, accessed 10 March 2011.
- Seshia, S. (2002) 'Plant variety protection and farmers' rights: law-making and cultivation of varietal control', *Economic and Political Weekly*, vol 37, no. 27, pp2741-2747.
- Smolders, H. (ed.) (2006). *Enhancing Farmers' Role in Crop Development: Framework Information for Participatory Plant Breeding in Farmer Field Schools*, Centre for Genetic Resources, Wageningen, The Netherlands.
- Soni, M.K (2007). 'Enforcing farmers' rights on uncharted territory: the role of IPRS for development in India', Washington College of Law of the American University, http://www.wcl.american.edu/pijip_static/documents/MunmeethKSoni.pdf, accessed 10 March 2011.
- Thijssen, M.H., Bishaw, Z., Beshir, A. and Boef, W.S. (eds.) (2008) *Farmers, Seeds and Varieties: Supporting Informal Seed Supply in Ethiopia*, Wageningen International, Wageningen, The Netherlands.
- United Nations. Economic and Social Council Commission on Human Rights. *The right to adequate food and to be free from hunger* (1999) Updated study on the right to food, submitted by Mr. Asbjørn Eide in accordance with Sub-Commission Decision 1998/106. Sub-Commission on Prevention of Discrimination and Protection of Minorities, Geneva, Switzerland, <http://www.unhchr.ch/Huridocda/Huridoca.nsf/0/ff220c7e04411faa802567c90039c745?Opendocument>, accessed 15 March 2011.
- Vernooy, R. (2003) *Seeds that Give: Participatory Plant Breeding*, International Development Research Center, Ottawa, Canada.
- Toomey, G. (1999) *Farmers as Researchers: The Rise of Participatory Plant Breeding*, International Development Research Center, Ottawa, Canada.
- Vogt, G.A., Canci, I. and Canci, A. (2007) 'Uso e manejo de variedades locais de milho em Anchieta (SC)'. *Agriculturas: Experiências em Agroecologia*, vol. 4, no 3, pp36-39.
- Zerbe, N. (2007) 'Contesting privatization: NGOs and farmers' rights in the African Model Law', *Global Environmental Politics*, vol 7, no 1, pp. 97-119.
- Zerbe, N (2005) 'Biodiversity, ownership, and indigenous knowledge: exploring legal frameworks for community, farmers, and intellectual property rights in Africa', *Ecological economics*, vol 53, issue 4, pp493-506.