



# OWNING SEEDS, ACCESSING FOOD

**A HUMAN RIGHTS IMPACT ASSESSMENT OF UPOV 1991  
BASED ON CASE STUDIES IN KENYA, PERU AND THE PHILIPPINES**

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# LIST OF ABBREVIATIONS

<b>ABS</b>	access and benefit sharing	<b>NPCK</b>	National Potato Council of Kenya
<b>ADC</b>	Agricultural Development Corporation (Kenya)	<b>NPGRIC</b>	National Plant Genetic Resources Centre (Kenya)
<b>AGILE</b>	Accelerating Growth, Investment and Liberalization with Equity	<b>NSIC</b>	National Seed Industry Council (Philippines)
<b>AKST</b>	agricultural knowledge, science and technology	<b>NTF</b>	Nordic Trust Fund
<b>ARIPO</b>	African Regional Intellectual Property Organization	<b>OHCHR</b>	Office of the High Commissioner for Human Rights
<b>ASARECA</b>	Association for Strengthening Agricultural Research in Eastern and Central Africa	<b>OPV</b>	open pollinated variety
<b>ASEAN</b>	Association of South East Asian Nations	<b>PBR</b>	plant breeders' rights
<b>BSU</b>	Benguet State University	<b>PDP</b>	Philippine Development Plan
<b>Bt</b>	<i>Bacillus thuringiensis</i>	<b>PhilRice</b>	Philippine Rice Research Institute
<b>CBD</b>	Convention on Biological Diversity	<b>PhP</b>	Philippine peso
<b>CEDAW</b>	Committee on the Elimination of Discrimination against Women/Convention on the Elimination of All Forms of Discrimination against Women	<b>PVP</b>	plant variety protection
<b>CESCR</b>	Committee on Economic, Social and Cultural Rights	<b>PVPFRA</b>	Plant Varieties Protection and Farmers' Rights Authority (India)
<b>CIMMYT</b>	International Maize and Wheat Improvement Centre	<b>RR</b>	Roundup Ready
<b>CIP</b>	International Potato Centre	<b>SEARICE</b>	Southeast Asia Regional Initiatives for Community Empowerment
<b>CMU</b>	Central Mindanao University	<b>SPDA</b>	Peruvian Environmental Law Society
<b>COMESA</b>	Common Market for Eastern and Southern Africa	<b>STAK</b>	Seed Trade Association of Kenya
<b>DA</b>	Department of Agriculture (Philippines)	<b>TK</b>	traditional knowledge
<b>DUS</b>	distinctness, uniformity and stability	<b>TRIPS</b>	(Agreement on) Trade-Related Aspects of Intellectual Property Rights
<b>EDV</b>	essentially derived variety	<b>UNDP</b>	United Nations Development Programme
<b>FAO</b>	Food and Agriculture Organization	<b>UNDRIP</b>	United Nations Declaration on the Rights of Indigenous Peoples
<b>FGD</b>	focus group discussion	<b>UPLB</b>	University of the Philippines Los Baños
<b>FHH</b>	female-headed household	<b>UPOV</b>	International Union for the Protection of New Varieties of Plants
<b>FTA</b>	free trade agreement	<b>USAID</b>	United States Agency for International Development
<b>GM</b>	genetically modified	<b>USM</b>	University of Southern Mindanao
<b>HH</b>	household	<b>USTR</b>	United States Trade Representative
<b>HRC</b>	Human Rights Committee	<b>WIPO</b>	World Intellectual Property Organization
<b>HRIA</b>	human rights impact assessment	<b>WTO</b>	World Trade Organization
<b>IAASTD</b>	International Assessment of Agricultural Knowledge, Science and Technology for Development		
<b>ICCPR</b>	International Covenant on Civil and Political Rights		
<b>ICESCR</b>	International Covenant on Economic, Social and Cultural Rights		
<b>IICA</b>	Inter-American Institute for Agriculture Cooperation		
<b>INDECOPI</b>	National Institute for the Defence of Competition and Intellectual Property (Peru)		
<b>INIA</b>	National Institute of Agrarian Innovation (Peru)		
<b>IP</b>	intellectual property		
<b>IPB</b>	Institute of Plant Breeding (Philippines)		
<b>IPR</b>	intellectual property right		
<b>IRRI</b>	International Rice Research Institute		
<b>ITPGRFA</b>	International Treaty on Plant Genetic Resources for Food and Agriculture		
<b>KARI</b>	Kenya Agricultural Research Institute		
<b>KENAPOFA</b>	Kenya National Potato Farmers Association		
<b>KENFAP</b>	Kenya National Federation of Farmers Union		
<b>KEPHIS</b>	Kenya Plant Health Inspectorate Service		
<b>MINCETUR</b>	Ministry of Foreign Trade and Tourism (Peru)		
<b>NCIP</b>	National Commission on Indigenous Peoples (Philippines)		
<b>NGO</b>	non-governmental organization		

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**Focus-group discussion between the research team and potato producers in Njabini, Nyandarua County, Kenya.**

## EXECUTIVE SUMMARY

The primary concern of this study is the lack of knowledge of potential human rights impacts of plant variety protection (PVP) laws that are based on the 1991 Act of the International Convention for the Protection of New Varieties of Plants (UPOV 91). The focus is on the impacts on vulnerable groups in developing countries. Thus, a human rights impact assessment (HRIA) was carried out to analyze the ways in which a UPOV 91-based PVP law could affect the realization and enjoyment of human rights, particularly the right to food. As part of this work, case studies were undertaken in three countries, namely Kenya, Peru and the Philippines.

The UPOV model was designed with the commercialized farming systems of the developed countries in mind. Developing-country farming systems differ from these in many respects, in many cases with fundamental differences. Perhaps most significantly, agriculture in developing countries is characterized by small-scale farming, which relies heavily on the informal – rather than the formal, commercial – seed system, and is the basis for farmers' livelihoods and national food security in these countries. One of the primary features of the informal seed system is the widespread practice of freely saving, replanting, exchanging and selling seed. Unlike in more formal, industrial agricultural systems, purchasing new seed on a yearly basis is relatively rare. However, UPOV 91 partially restricts the use of farm-saved seeds/propagating materials of PVP-protected varieties and prohibits their exchange and sale by farmers. Concerns have therefore been raised that UPOV 91-type PVP laws overly restrict the traditions of seed management and sharing among farmers, thereby reducing the effectiveness and integrity of the informal seed system.

The small-scale farming sector and the informal seed system is crucial for many developing countries and since many of these countries are considering (often under external pressure) joining UPOV 91, the lack of information about the human rights impact of UPOV 91-like PVP laws, particularly on the right to food, is of serious concern. It is thus essential that governments in developing countries have clarity on the ways in which UPOV 91-based PVP laws might affect the development of their agricultural sector in order to design their PVP systems in a way that is most suited to their national needs.

The objective of this assessment is to raise awareness among actors in the North and South about the potential human rights impact of UPOV-like PVP laws. Related to this, the project sought to demonstrate the hands-on application of the HRIA approach, thereby further developing the methodology and enhancing the applicability of this policy tool. Finally, we hope that this assessment will help empower groups affected by PVP laws, by indicating the channels through which they can raise their concerns about new seed-related laws.

The value of this study lies in the use of a human rights lens in looking at PVP regimes in the context of plant breeding and the informal seed systems in developing countries.

The HRIA is a policy tool that has emerged over the last decade. Accordingly, United Nations human rights bodies, academics and civil society organizations alike have increasingly called on governments to carry out such assessments. HRIAs differ in three important ways from other types of impact assessments. First, they are firmly rooted in legal norms. Secondly, they focus on poor, vulnerable or otherwise disadvantaged groups whose human rights are most likely to be endangered by particular provisions or policies. It is important to note that from a human rights perspective it is not acceptable to make vulnerable groups worse off in a trade-off for an aggregate or sectoral positive impact. Thirdly, the very process of carrying out these assessments must respect human rights, for instance through an inclusive process.

While there is no single well-established methodology for conducting HRIA and each assessment has to be tailored to the specific case under consideration, a logical sequence of core methodological elements has emerged as a result of research and experience relating to HRIAs of public policies. The present study followed the seven steps suggested in the literature: preparation, screening, scoping, evidence gathering, analysis, conclusions and recommendations, and monitoring and review.

Three country case studies were carried out to collect empirical evidence on the potential impacts of UPOV 91-like PVP laws on the right to food. All these case studies are *ex ante* as the current PVP system in the countries concerned either is not in line with UPOV 91 (the Philippines), has only been amended recently (Kenya), or has not yet been fully implemented and enforced (Peru). Consequently, like many policy impact assessments, this HRIA is on potential, rather than actual, impacts of PVP laws on the right to food. The study focused on the potential impact of Article 14 of UPOV 91 on the scope of the breeders' rights, and Article 15 on the exceptions to breeders' rights, i.e., the extent to which UPOV 91 allows farmers to save, exchange and sell seeds and other planting materials.

The country study research framework was based on a set of initial working hypotheses that had emerged out of the preparatory work assessing the literature and prior studies relating to impacts of PVP in agriculture. The research framework was refined through expert workshops and consultations with the project team and advisors. In order to ensure that this HRIA study focused on the impacts of UPOV 91 on the right to food, causal chain analysis was used to trace the links between the UPOV provision under consideration and the potential effects on the determinants of the right to food. Pilot studies in each country served to identify suitable communities and crops to be studied, and to modify the set of research hypotheses. The field studies were carried out by local research teams. They reviewed the relevant country-specific literature, held consultations with a wide range of actors, and conducted key informant interviews and focus group discussions with specific groups of farmers in the selected communities.

The following key findings emerged from the analysis of the empirical data collected in the three case studies:

**Seed saving, replanting, exchange and sale.** The informal seed system is by far the primary way for small-scale farmers to access seeds (including seeds of improved varieties and PVP varieties). Varying between communities and crops, the share of the informal seed system is often over 98% (e.g., for potatoes in Peru and Kenya). There is an important interaction between the formal and informal sectors whereby seeds from the formal sector are integrated into the informal sector by seed saving, exchange and sale of farm-saved seeds. Small-scale farmers also use “improved” varieties, which in some cases are protected by plant breeders’ rights. From a human rights perspective, therefore, it will be essential to ensure access to seeds, including improved seeds, through the informal seed system and its interlinkage with the formal seed system.

**UPOV 91 and access to seeds through informal channels.**

UPOV 91 restrictions on the use, exchange and sale of farm-saved PVP seeds will make it harder for resource-poor farmers to access improved seeds. This could negatively impact on the functioning of the informal seed system, because if implemented and enforced, UPOV 91 would sever the beneficial interlinkages between the formal and informal seed systems. Moreover, selling seeds is an important source of income for many farmers. From a human rights perspective, restrictions on the use, exchange and sale of protected seeds could adversely affect the right to food, as seeds might become either more costly or harder to access. These restrictions could also affect other human rights, by reducing the amount of household income which is available for food, healthcare or education.

**Traditional knowledge related to seed conservation and management.**

Traditional knowledge is applied by farmers in the selection, preservation and storing of seed. It is the basis of local innovation and *in situ* seed conservation. Women’s knowledge is of particular relevance to local seed and food systems, as clearly evident in the Andean region. However, the wealth of practices that farmers use and develop at the local level goes largely unnoticed and unacknowledged by government institutions. From a human rights perspective, restrictions on traditional practices and seed management systems (e.g., by a UPOV 91-based PVP law) adversely impact on farmers’ rights, cultural rights, minority rights, indigenous peoples’ rights, women’s rights, as well as on biodiversity and the right to food.

**Seed choice, risk and household budgets.** Restrictions on the use, exchange and sale of farm-saved seeds might lead to farmers becoming increasingly dependent on the formal seed sector. Improved varieties, however, often require more inputs compared to local farmers’ varieties, pushing up production costs. In the case of protected varieties, seed costs drive production expenses further up. From a human rights perspective, higher production costs pose a risk for cash-strapped farmers as they affect the stability of their household budget and compete with other essential household expenditures, including for food.

**Issues of concern when implementing PVP laws.** Apart from the above findings, the study identified further issues of concern that should be taken into account when devel-

oping and implementing PVP laws. Some of these concerns might apply to all PVP laws, not only to UPOV 91-type laws. The country research teams found a lack of information and participation of small-scale farmers and other stakeholders in the process of adopting and reforming PVP-related laws, as well as a lack of assessment of the likely impacts of these laws. This is inconsistent with the State’s human rights obligations to ensure adequate information regarding, and participation in, public policy-making. Furthermore, there have been indications that several instances of UPOV-related provisions could undermine other public interest policies and processes by negatively impacting on the State’s ability to comply with other international legal obligations or national policies. The potential human rights impact differs from case to case. If a phytosanitary system cannot handle an increase in plant material imports, for example, the introduction of pests and diseases could have a direct impact on the farmers’ harvest and the right to food. In other cases the impact is indirect, in that it reduces the scope to implement measures for the protection of traditional knowledge, biodiversity or farmers’ rights.

The challenges in undertaking this HRIA were associated with two factors in particular. First, tracking the impact of specific UPOV provisions on the right to food required the development of causal chains where the ultimate effects do not directly emanate from the provision under consideration but rather result from an intermediate impact. Secondly, the pioneering nature of the research necessitated a fair amount of innovative thinking and creativity as there was no pool of experience to draw from. Despite these methodological and procedural challenges, the research provided some clear evidence regarding potential human rights impacts and further areas of concern that should be taken into account when designing and implementing UPOV 91-type PVP laws. In particular, the findings of the impact assessment showed the strong dependence of small-scale farmers on informal seed systems and the resulting threat to the enjoyment of the right to food when access to seeds of protected varieties is restricted and the informal seed system is weakened by such laws.

In relation to the methodological approach, four main lessons can be drawn. First, being selective and focusing early on in the process on a narrow set of human rights and policy elements is key to the success of the exercise. Secondly, HRIAs are iterative processes implying some degree of procedural flexibility. Thirdly, particularly in the case of an *ex ante* assessment, the HRIA will have to extensively rely on expert judgments besides the findings from the field studies. Fourthly, involving field researchers at an early stage of the process and closely assisting them during data gathering is critical to aligning information needs with information collection.

The study offers specific recommendations to a range of stakeholders, including governments, the UPOV Members and Secretariat, providers of technical assistance, and civil society organizations. Key recommendations to governments are: (i) to undertake an HRIA before drafting a national PVP law or before agreeing to or introducing intellectual property provisions in trade and investment agreements in the area of agriculture; (ii) to improve the linkages between the formal and informal seed systems and to apply a differentiated approach regarding PVP for different users and different crops; (iii) to ensure that governments abide by a transparent and participatory process that includes all



potentially affected stakeholders, when drafting, amending or implementing PVP laws and related measures; (iv) to inform governmental agencies and others involved in seed policy about their obligations concerning the right to food; (v) to identify what “flanking measures” to new PVP-related laws may be necessary, and implement these, including measures to mitigate and remedy any potential adverse impacts of the PVP-related laws on human rights or on the informal seed sector; (vi) for developing countries to use all the flexibilities available to them when drafting PVP-related laws, taking into account in particular the needs of the most vulnerable groups in their populations; (vii) to monitor the impact of PVP laws on the right to food, with particular attention to ways in which PVP-related laws or policies impact on different segments of the population.

Recommendations to other actors include the following: (i) UPOV Members and Secretariat to review those aspects of the UPOV rules and their workings that affect the informal seed sector, with a view to ensuring that in practice as well as on paper, these rules facilitate PVP systems that reflect the interests and needs of developing countries; (ii)

technical assistance providers to ensure that beneficiary countries undertake a thorough objective assessment of their agricultural situation covering the formal and informal sectors and their international obligations (e.g., human rights obligations and obligations under the Convention on Biological Diversity, the International Treaty on Plant Genetic Resources for Food and Agriculture, etc.) and draft a *sui generis* PVP law that is evidence-based and suitable for their respective conditions, needs and interests; (iii) all concerned actors to raise awareness of the important role of the informal seed sector in many countries and the possible human rights implications of UPOV 91-type PVP laws; and finally (iv) a call for civil society to get involved when governmental or regional bodies draft PVP-related laws.



An Andean woman farmer in Anta, Cusco region, Peru.



# 1 INTRODUCTION AND BACKGROUND

This report presents the findings from an *ex ante* human rights impact assessment of intellectual property in agriculture, carried out by a group of organizations and individuals during 2012 and 2013. The impact assessment looked at ways in which plant variety protection

(PVP) systems based on the 1991 Act of the International Convention for the Protection of New Varieties of Plants (UPOV 91) can affect the enjoyment of human rights. It focused on the right to food in three countries: Kenya, Peru and the Philippines.

## BOX 1: PVP IN A NUTSHELL

Plant variety protection (PVP) is a form of intellectual property protection for plant varieties. Generally PVP systems share a number of characteristics with patent rights: they provide exclusive commercial rights to the holder, and are granted for a limited period of time after which they pass into the public domain. However, patent rights can cover a wide range of subject matter, subject to certain exclusions (e.g., plants, plant varieties, animals) which vary from country to country, whereas plant breeders' rights (PBR) covers plant varieties only. In addition, in contrast to a PVP system, usually a patent system does not provide for excep-

tions such as the breeders' exemption, which allows further breeding with protected varieties.

There are different models of plant variety protection. Some countries have opted for PVP systems based on the UPOV Acts, while others have designed a different model.

The Acts of the UPOV Convention protect plant varieties through Plant Breeders' Rights (PBR). To receive PBR protection the varieties have to fulfil the four basic criteria of novelty, distinctness, stability and uniformity or homogeneity. Each of these characteristics is further elaborated on by UPOV itself. Over time,

the standards of PBR protection have been strengthened. In the most recent (1991) version of the UPOV Act, breeders have exclusive rights to produce or reproduce protected varieties, to condition them for the purpose of propagation, to offer them for sale, to commercialize them, including exporting and importing them, and to stock them in view of production or commercialization. The 1991 Act also substantially restricts farmers' rights to freely use, exchange and sell farm-saved seeds. In addition, the breeders' exemption is subject to certain restrictions.

See section 2.1 for a more detailed discussion on PVP systems.

### 1.1 THE RATIONALE FOR A HUMAN RIGHTS IMPACT ASSESSMENT

The rationale for conducting this human rights impact assessment (HRIA) was the lack of knowledge of the (potential) impacts of PVP on vulnerable groups in developing countries. Small-scale farmers are obviously the major representatives of vulnerable groups in the context of the present impact assessment. Thus, the focus of the study has been on this group in particular.

Many developing countries have been prevailed upon to adopt European-style PVP systems based on UPOV.<sup>1</sup> Yet there is little evidence to demonstrate that a PVP system based on UPOV is beneficial for developing-country economies or agricultural systems. In fact the benefits and drawbacks of UPOV are often the subject of heated debate.

The agricultural sector remains a mainstay of most developing countries' societies. Many developing countries

are considering joining UPOV 91 and it is essential that they have a good sense of the ways in which UPOV can further "development of new varieties of plants, for the benefit of society"<sup>2</sup> or hinder their interests and impact on developing countries' seed systems, and thus design their PVP system in the way that is most suited to their country's needs.<sup>3</sup>

One of the main means that the UPOV Secretariat uses to provide countries considering the introduction of a PVP system with information on the impact of the introduction of a UPOV-like PVP system, is an impact study carried out by UPOV itself (UPOV, 2005). However, this study looks at the impact on developing countries of the 1978 version of UPOV, which differs in significant ways from UPOV 91. It is this latter version which countries that now join must sign up to. Moreover, the indicators by which the UPOV impact study measures the benefits of UPOV are too narrow for meaningful conclusions to be drawn. Notably absent from consideration are the effects of UPOV on small-scale agri-

1 See, for instance, Drexler, J., Grosse Ruse-Khan, H. and Nadde-Phlix, S. (Eds.). 2014. *EU Bilateral Trade Agreements and Intellectual Property: For Better or Worse?*. Springer-Verlag, Berlin and Heidelberg; Deere, C. 2009. *The Implementation Game. The TRIPS Agreement and the Global Politics of Intellectual Property Reform in Developing Countries*. Oxford University Press, Oxford.

2 UPOV Mission Statement, [www.upov.int/about/en/mission.html](http://www.upov.int/about/en/mission.html).

3 Most countries are bound to implement a PVP system through having joined the World Trade Organization (WTO), as discussed in section 2.1 below.

culture and the informal seed sector. (See section 2.4 for a more detailed critique of the UPOV impact study.)

Given the importance of the small-scale farming sector and the informal seed system for many countries, the lack of data about the impacts of UPOV 91-type PVP protection on them, and developing-country officials' need for policy guidance on how to design a PVP system suited to their needs, new assessments of the impacts of UPOV 91-type PVP systems have become necessary.

## 1.2 OBJECTIVES OF THIS ASSESSMENT

The objective of this assessment is to raise awareness among actors in the North and South about the potential human rights impact of UPOV 91-like PVP laws. The project also aims to demonstrate the hands-on application of the HRIA approach, thereby further developing the methodology and enhancing the applicability of this policy tool. Finally, we hope that this assessment will help empower groups affected by PVP laws, by providing an additional tool for raising their concerns about new seed-related laws.

## 1.3 STRUCTURE AND SCOPE OF THIS REPORT

The next chapter summarizes the ways in which the protection of intellectual property (IP) in agriculture gives rise to human rights concerns. Chapter 3 details the methodology used to carry out this impact assessment. Chapter 4 presents baseline findings and findings about likely impacts of UPOV 91-type provisions that emerged from our field research. In Chapter 5, we put forward some of the cross-cutting concerns that have become apparent in the course of this study. Chapter 6 provides a discussion on the methodology that has been applied in this HRIA. Chapters 7 and 8 respectively set out our conclusions and offer recommendations for actors involved in, or affected by, new UPOV-related laws.

The UPOV system has many features, which could all be the subject of a detailed assessment. This project has however explored some areas in which UPOV-type laws give rise to concern from a human rights perspective. Hence it does not address in detail the numerous features of UPOV.

UPOV 91 has not yet been fully implemented in the three countries studied.<sup>4</sup> Thus, the assessment in Chapter 4 is in essence an *ex ante* one, focusing on potential and not on actual effects of UPOV 91.



Seed and fertilizer shop in Njabini, Kenya.

4 The Philippines' PVP law differs from UPOV. Kenya has had a UPOV 78 law in place for some time, and only developed a UPOV 91-consistent one as this impact assessment was underway. Peru's experience with UPOV 91 is still in its early days (see section 4.1).



## 2 THE CONTEXT: AGRICULTURE, SEEDS AND HUMAN RIGHTS

### 2.1 INTELLECTUAL PROPERTY IN AGRICULTURE IN DEVELOPING COUNTRIES

Protecting plant varieties by means of IP is a relatively recent practice, only becoming widespread in industrialized countries in the second half of the last century (CIPR, 2002; Dutfield, 2008). In developing countries, the implementation of PVP is even more recent, triggered to a large extent by the World Trade Organization (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) which came into force in 1995.

Article 27.3(b) of the TRIPS Agreement requires WTO Members to “provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof.” Due to concerns that the patent system would hinder breeding of new varieties, most WTO Members tend to opt for a *sui generis* regime for plant variety protection.

The WTO-TRIPS requirement does not apply to least developed countries (LDCs). In view of LDCs’ special needs, domestic constraints and need for policy space, the WTO-TRIPS Council granted LDCs a transition period until 1 July 2021,<sup>5</sup> during which LDCs need not comply with Article 27.3(b) of the TRIPS Agreement, and are thus exempted from putting in place any regime for plant variety protection. On request, this transition period may be further extended.<sup>6</sup>

Apart from requiring WTO Members to put in place an “effective *sui generis* system” for plant varieties, the TRIPS Agreement does not provide any more specificity and it is up to each country to implement a suitable PVP regime.

Some countries have opted for the UPOV regime while other countries have opted for a regime that is distinct from the UPOV system (see Table 1).



**In situ conservation of native Andean crops at ANDENES, an experimental station run by the National Institute of Agrarian Innovation (INIA) in Anta province, Cusco region, Peru.**

#### BOX 2: UPOV AND ITS ACTS

The *Union internationale pour la protection des obtentions végétales* (UPOV) was established by treaty in 1961. It was conceived and designed by and for European commercial breeding interests. The International Association for the Protection of Intellectual Property (AIPPI) (which comprises industry IP lawyers) and the International Association of Plant Breeders (ASSINEL) were of the view that there was a need to address lack of international IP norms specifically for plants. A first diplomatic conference convened by

France in 1957 established the basic principles of plant variety protection. A follow-up diplomatic conference took place in November 1961 that saw the participation of 13 European countries and the European industry (AIPPI, ASSINEL, CIOPORA [the International Community of Breeders of Asexually Reproduced Ornamental and Fruit Varieties]) and adopted UPOV. The UPOV convention was revised in 1972, 1978 and 1991. The 1991 revision entered into force in 1998. With each revision, breeders’ rights were strengthened.

As of March 2014 UPOV has 71 members. All members, with the exception of Belgium, are parties to either the 1978 or the 1991 Acts. These two Acts differ in several respects, most notably regarding the scope of protected species/genera and of breeders’ rights and restrictions to the right of farmers to save, exchange and sell seeds/propagating material of protected varieties from their harvests (see Table 1). UPOV 78 is now closed for ratification. Countries that wish to join UPOV may now only join the 1991 Act.

<sup>5</sup> See Decision of Council for TRIPS, 11 June 2013: IP/C/64 available at [www.wto.org/english/news\\_e/news13\\_e/trip\\_11jun13\\_e.htm](http://www.wto.org/english/news_e/news13_e/trip_11jun13_e.htm)

<sup>6</sup> Article 66.1 of the TRIPS Agreement: “In view of the special needs and requirements of least-developed country Members, their economic, financial and administrative constraints, and their need for flexibility to create a viable technological base, such Members shall not be required to apply the provisions of this Agreement, other than Articles 3, 4 and 5, for a period of 10 years from the date of application as defined under paragraph 1 of Article 65. The Council for TRIPS shall, upon duly motivated request by a least-developed country Member, accord extensions of this period.”



TABLE 1: COMPARISON OF THREE PLANT VARIETY PROTECTION REGIMES – UPOV 78, UPOV 91 AND THE INDIAN PVPFR ACT

	UPOV 78	UPOV 91	THE PROTECTION OF PLANT VARIETIES AND FARMERS' RIGHTS ACT (INDIA 2001) <sup>a)</sup>
<b>Protection coverage</b>	Plant varieties of species/genera as nationally listed (within eight years after the contracting Party becomes bound by the PVP law should apply to at least 24 genera or species)	At the latest by the expiration of 10 years from which the contracting Party becomes bound by the Convention, the PVP law should apply to plant varieties of <i>all</i> genera and species	Plant varieties of genera and species as specified by the government. Farmer varieties, extant varieties. No registration in cases where prevention of commercial exploitation of such variety is necessary to protect public order; public morality; human, animal and plant life and health; the environment. No registration for varieties which involve any technology which is injurious to the life or health of human beings, animals or plants.
<b>Requirements (for protection)</b>	Novelty (in trade), distinctness, uniformity, stability (DUS)	Novelty (in trade), distinctness, uniformity, stability (DUS)	Novelty (in trade), distinctness, uniformity and stability (DUS) Farmer and extant varieties do not have to fulfill the requirement of novelty.
<b>Duration</b>	Min. 15 years from issue Min. 18 years from issue for vines and trees	Min. 20 years from issue Min. 25 years from issue for vines and trees	Max. 15 years from issue Max. 18 years from issue for vines and trees
<b>Protection scope</b>	Minimum scope: producing for purposes of commercial marketing; offering for sale and marketing of propagating material of the variety	Minimum scope: producing, conditioning, offering for sale, selling or other marketing, exporting, importing or stocking for purposes of propagating material of the variety. Plus, acts in relation to harvested material if obtained through an unauthorized use of propagating material and if the breeder has had no reasonable opportunity to exercise his right. These rights do not extend to acts done (i) privately <i>and</i> for non-commercial purposes; (ii) for experimental purposes. <sup>b)</sup>	To produce, sell, market, distribute, import or export the variety These rights do not extend to acts done for experiment or research.
<b>Breeders' exemption</b>	Yes. Breeder's authorization is not required "as an initial source of variation for purposes of creating other varieties or for the marketing of such varieties". Authorization is only required where use of the protected variety is necessary for the "commercial production" of a new variety.	Yes. But certain restrictions apply. E.g., essentially derived varieties (EDVs) cannot be exploited without the permission of the holder of rights in the protected initial variety. EDV refers to varieties that are predominantly derived from the protected variety and retain the essential characteristics.	Yes. It incorporates the breeders' exemption similar to UPOV 78. But it also provides for registration of EDVs. Essentially derived varieties cannot be exploited without the permission of the holder of rights in the protected initial variety.
<b>Farmers' right to save, exchange and sell seeds</b>	Does not specify any restrictions on farmers' rights. As a result, farmers when using the protected varieties have freedom to save and exchange farm-saved seeds/propagating material. In practice the breeders' right does not extend to saving seeds/propagation material and exchanging seeds/propagation material. Only the offering for sale and marketing of propagating material of the protected variety needs the authorization of the right holder.	There is an optional exception to the breeders' right, to be defined in national law, "within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder, [...] in order to permit farmers to use for propagating purposes, on their own holdings, the product of the harvest which they have obtained by planting, on their own holdings, the protected variety." <sup>c)</sup>	A farmer shall be deemed to be entitled to save, use, sow, resow, exchange, share or sell his farm produce including seed of a protected variety in the same manner as he was entitled before the coming into force of the Act. Provided that the farmer shall not be entitled to sell branded seed of a protected variety. In addition, Chapter VI recognizes other farmers' rights such as: - farmers' contribution to be recognized and rewarded for engaging in conservation and improvement of genetic resources; - farmers entitled to compensation if the protected variety fails to perform as claimed by the breeder; - farmers not liable to pay fees in any proceedings; - farmers cannot be prosecuted for infringement of rights specified in the Act if unaware of the existence of a PVP right.

- a) There are many other differences between the Indian PVPFR Act and the UPOV Convention: e.g., there is a disclosure-of-origin requirement in the PVPFR Act (see also section 5.2) and provisions for rewarding farmers (benefit-sharing). Both are not possible under a PVP law based on UPOV91. The PVPFR Act can be downloaded at [www.wipo.int/wipolex/en/text.jsp?file\\_id=200364](http://www.wipo.int/wipolex/en/text.jsp?file_id=200364)
- b) UPOV advocates the following interpretation: “[...]acts which are *both* of a private nature *and* for non-commercial purposes are covered by the exception. Thus, non-private acts, even where for non-commercial purposes, may be outside the scope of the exception[...]. Furthermore, [...]private acts which are undertaken for commercial purposes do not fall within the exception. Thus, a farmer saving his own seed of a variety on his own holding might be considered to be engaged in a private act, but could be considered not to be covered by the exception if the said saving of seed is for commercial purposes. The wording [...] suggests that it could allow, for example, the propagation of a variety by an amateur gardener for exclusive use in his own garden (i.e. no material of the variety being provided to others), since this may constitute an act which was both private and for non-commercial purposes. Equally, for example, the propagation of a variety by a farmer exclusively for the production of a food crop to be consumed entirely by that farmer and the dependents of the farmer living on that holding, may be considered to fall within the meaning of acts done privately and for non-commercial purposes. Therefore, activities, including for example ‘subsistence farming’, where these constitute acts done privately and for non-commercial purposes, may be considered to be excluded from the scope of the breeder’s right, and farmers who conduct these kinds of activities freely benefit from the availability of protected new varieties.”
- c) UPOV advocates the following interpretation: “The Diplomatic Conference recommendation indicates that the optional exception was aimed at those crops where, for the member of the Union concerned, there was a common practice of farmers saving harvested material for further propagation. [...]The wording ‘product of the harvest’ indicates that the optional exception may be considered to relate to selected crops where the product of the harvest is used for propagating purposes, for example small-grained cereals where the harvested grain can equally be used as seed i.e. propagating material. [...]Examples of factors which might be used to establish reasonable limits and to safeguard the legitimate interests of the breeder are the size of the farmer’s holding, the area of crop concerned grown by the farmer, or the value of the harvested crop. Thus, ‘small farmers’ with small holdings (or small areas of crop) might be permitted to use farm-saved seed to a different extent and with a different level of remuneration to breeders than ‘large farmers’. [...] For those crops where the optional exception is introduced, a requirement to provide remuneration to breeders might be considered as a means of safeguarding the legitimate interests of the breeders.”

About two dozen developing countries are members of UPOV. Of these, only a handful have adopted a PVP system in line with UPOV 91; the rest are members of UPOV 78. It is worth noting that several of the developing countries joining UPOV 91 have done so under bilateral pressure or due to obligations under North-South free trade arrangements (e.g., US and EU FTAs) which require ratification of UPOV 91. This trend is continuing with not only regional and bilateral trade and investment agreements but also Memorandums of Understanding (MoUs) signed under the G8 New Alliance for Food Security and Nutrition requiring developing countries and LDCs to model their plant variety protection regime on UPOV 91 standards (G8, 2013).

To some countries, UPOV is understandably an attractive option. It provides a ready-made legislative framework for PVP protection. Proponents also argue that a standardized PVP regime adopted by several countries significantly lowers breeders’ costs and helps them increase their returns on plant-breeding investments.<sup>7</sup> They also consider favourably UPOV features which allow use of PVP varieties<sup>8</sup> for experimental and research purposes.

However, the UPOV model “was designed with the commercialized farming systems of the developed countries in mind” (CIPR, 2002, p.61). Developing-country farming systems differ from these in many respects. As already noted, agriculture in developing countries is characterized by small-scale farming (FAO, 2012), which relies heavily on the informal – rather than the commercial – seed system.

It is for this reason that some developing countries have designed *sui generis* PVP systems distinct from the UPOV model. For example, the Indian Protection of Plant Varieties and Farmers’ rights Act of 2001 grants plant breeders’ Rights and recognizes farmers’ rights and interests on an equal footing (see Table 1).<sup>9</sup> Thailand’s Plant Varieties Protection Act<sup>10</sup> uniquely adopts different approaches to different categories of varieties – new plant varieties, local domestic plant varieties, general domestic plant varieties and wild plant varieties – and tries to finely balance the interests of the breeder, the farmers, local community, and the wider society (Quaker UN Office, 2014).

### BOX 3: A DIFFERENTIATED APPROACH TO PLANT VARIETY PROTECTION

A differentiated approach to plant variety protection has also been promoted by the University of Wageningen in the Netherlands to recognize and support the various seed systems through different levels of protection for different crops and/or users. Such an approach is the basis for the Ethiopian draft PVP bill that is currently being developed. Once adopted, this PVP law will create three levels of protec-

tion: (1) for some crops (e.g., horticultural export crops) breeders get full protection and farmers (excluding smallholder farmers) have no right to save seed; (2) for the other crops breeders get protection and all farmers have the right to reproduce seed on their own holding; (3) for all crops (levels (1) and (2)), smallholder farmers have the right to use, exchange and sell seed amongst themselves. For

this purpose, the draft bill defines “commercial market” in a way that explicitly excludes trade between smallholder farmers, while emphasizing in its provision on farmers’ rights that smallholder farmers have the right to save, use, exchange and sell farm-saved seed of any variety on the non-commercial market. A smallholder farmer is defined with reference to income levels (De Jonge, 2013).

7 See Krattiger, A., Mahoney, R., Nelsen, L., Thomson, J., Bennett, A., Satyanarayana, K., Graff, G.D., Fernandez, C. and Kowalski, S.P. 2007. *Intellectual Property Management in Health and Agricultural Innovation: A Handbook of Best Practices*. MIHR, Oxford, UK, and PIPRA, Davis, USA. Editor’s summary available at [www.iphandbook.org/handbook/ch04/p07/eo](http://www.iphandbook.org/handbook/ch04/p07/eo).

8 A “PVP variety” means a variety subject to a plant breeders’ right. The terms “PVP variety” and “variety subject to, or protected by, a PBR” are used interchangeably throughout this report.

9 See also “Developing country *sui generis* options for plant variety protection” available at [www.quno.org/resource/2014/1/developing-country-sui-generis-options-plant-variety-protection](http://www.quno.org/resource/2014/1/developing-country-sui-generis-options-plant-variety-protection)

10 Thailand Plant Varieties Protection Act B.E. 2542 (1999) available at [www.wipo.int/wipolex/en/details.jsp?id=3816](http://www.wipo.int/wipolex/en/details.jsp?id=3816)

**BOX 4: THE FORMAL AND INFORMAL SEED SYSTEMS**

Seed supply systems in agriculture consist of the (1) formal and the (2) informal sectors (Bocci et al., 2009). These exist simultaneously and interact within countries (Lipper et al., 2010) and the boundaries between the two are not always clear-cut.

The formal seed system is characterized by variety development, evaluation, registration and release; seed production, processing and storage; seed marketing and distribution; and seed quality testing. The informal system depends on farmers' knowledge of seed selection, management and distribution and is based on local diffusion mechanisms. In general, all the activities outside the marketing of

improved and certified seed are considered to belong to the informal sector (e.g., farm-saved seed, seed exchange, etc.) (Lipper et al., 2010). Improved varieties released through formal channels become part of the informal systems, which "remain a key element in the maintenance of crop diversity on-farm and can account for up to 90 percent of seed movement" in some countries (FAO, 2010, p. 40).

Informal seed systems are particularly important as farmers prefer varieties with specific adaptation to local conditions or with taste/cooking qualities that cannot be obtained from varieties available through the formal seed supply, and because formal seed systems are often

inefficient, expensive and/or difficult to access (Lipper et al., 2010). They are also important for resilience, which has been reported as one of the key characteristics of informal seed systems (Sperling et al., 2008). An estimated 80–90% of all seed used to produce staple food crops in subsistence systems comes from local seed systems (FAO, 2008; GTZ and CGN, 2000).

A gender bias exists in access to formal seed systems. Men, who are generally more involved in growing commercial crops, seem to access and benefit more easily from formal systems. Women rely more heavily on local systems to obtain seed for staple and minor crops (FAO, 2008; Pionetti, 2005).

**2.2 PLANT BREEDING AND SEED SYSTEMS IN DEVELOPING COUNTRIES**

One of the features of the informal seed system is the widespread practice of saving, replanting, exchanging and selling seed. Unlike in more formal, industrial agricultural systems, purchasing new seed on a yearly basis is relatively rare (CIPR, 2002).

UPOV 91 does not allow farmers using a PVP-protected variety to freely use, exchange and sell farm-saved seeds/propagating materials. It does however allow, "within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder", a limited farmers' exception, i.e., use of farm-saved seeds for propagating purposes on the farmer's own holding. This limited exception is interpreted as being applicable only to crops where there is a historical common practice of saving seed (UPOV, 2011b). Information on how countries have implemented this exemption is hard to find. Some UPOV members, like Peru, have not defined its application but are rather leaving the question open until such a day as it might come before a court. For the different approaches taken by the case-study countries, see Table 4 in section 4.1.

Concerns have been raised that UPOV-type PVP laws overly restrict traditions of seed management and sharing among farmers, thereby reducing the effectiveness of the informal seed systems (Louwaars et al., 2005).

**2.3 HUMAN RIGHTS CONCERNS – AND WHY A HUMAN RIGHTS LENS IS USEFUL FOR LOOKING AT PVP'S IMPACT**

The exchange and sale of seeds through local social networks, as well as the use of farm-saved seeds, are essential components of small-scale farming systems and risk management in many developing countries (Santilli, 2011; World Bank, 2013). This was ably expressed in human rights terms, in a report on seed policies and the right to food by the then United Nations Special Rapporteur on the right to food, Olivier De Schutter (2009). The report raises concerns about the impact of strong PVP regimes, devoting particular attention to small-scale farmers' livelihoods and

"JUST LIKE RESEARCH AND DEVELOPMENT IN AGRICULTURE IN GENERAL, SEED POLICIES MUST BE GUIDED, NOT BY A PRECONCEIVED VIEW ABOUT THE BENEFITS TECHNOLOGY CAN BRING TO FARMING, BUT BY A CAREFUL EXAMINATION OF THEIR IMPACTS ON FOOD SECURITY AND, SPECIFICALLY, ON THE ABILITY OF THE MOST VULNERABLE FARMERS TO IMPROVE THEIR LIVELIHOODS." **De Schutter, 2009**

agrobiodiversity and the human rights dimensions on these. It points to the risk of IP-related monopoly rights neglecting poor farmers' needs in favour of agribusiness needs, jeopardizing traditional systems of seed saving and exchange, and losing biodiversity to "the uniformization encouraged by the spread of commercial varieties" (p. 2).

A human rights perspective reminds us that realizing the right to food means ensuring that food be accessible in ways that are sustainable (sustainability incorporates the notion of long-term availability and accessibility) and that do not interfere with the enjoyment of other human rights. Undermining agricultural biodiversity can harm the livelihoods and human rights of farmers, as well as weaken the genetic base on which we all depend for our future supply of food (UNDP, 2012). In the context of climate change, the agricultural biodiversity managed through informal systems can play an important role in ensuring resilience to both withstand and recover from climate change and climate-related shocks. Many resource-poor farmers, in addition to adopting a strategy of interspecific diversity, also exploit intraspecific diversity by growing, at the same time and in the same field, different cultivars of the same crop (Altieri and Koohafkan, 2008). In most cases, farmers maintain diversity as insurance against future environmental change or to meet social and economic needs.

Another human rights concern related to UPOV-type PVP laws regards potential effects on research priorities. As UPOV itself points out (UPOV, 2005), PVP does not encourage research in crops where there is no significant commercial market, but could incentivize breeding in crops with high commercial potential such as flowers. Whilst these new agricultural sectors provide employment and



may thus facilitate realization of the right to food and an adequate standard of living, it is also the case that incentivizing research in the commercial agricultural sector may shift resources away from research that could better benefit small-scale farmers. The International Assessment of Agricultural Knowledge, Science and Technology for Development found that “[t]echnologies such as high-yielding crop varieties, agrochemicals and mechanization have primarily benefited the better resourced groups in society [...] rather than the most vulnerable ones...” (IAASTD, 2009b, p. 23).

Looking at these issues through a human rights lens is helpful for several reasons. First, human rights are firmly established in law, and States themselves have committed to upholding them. A human rights approach helps us get beyond examination of a policy’s overall benefits, to look at impacts on the most vulnerable and disadvantaged groups. The human rights focus on the most marginalized sectors of society implies assessing the impact of particular measures, laws or policies in a disaggregated way. Indeed, from a human rights perspective it is not acceptable to make vulnerable groups worse off in a trade-off for an aggregate or sectoral positive impact.

Importantly, a human rights-based approach elevates outcome and process to the same level of importance. Not only is the final outcome (i.e., food-secure individuals) important, but so is the way in which this outcome is achieved. Human rights principles and approaches ensure that no discriminatory practices are used to achieve food security. Transparency, participation and social inclusion are at the heart of these approaches (FAO, 2009).

It is important to note that a human rights approach, beyond being necessary and useful *per se*, also helps focus our attention on often overlooked yet very useful features of the seed system in many countries (Scoones and Thompson, 2011). Indeed, as discussed in Chapter 4, the informal seed sourcing and management systems of vulnerable farmers offer many lessons that can help policy-makers devise rules and mechanisms to support resilient seed systems that enhance a country’s food security situation.

## 2.4 NEED FOR IMPACT ASSESSMENTS

Developing countries have been encouraged and in many cases pressured to adopt PVP laws “without any serious consideration being given to whether such protection would be beneficial, both to producers and consumers, or

“UNDER A RIGHT TO FOOD FRAMEWORK, THOSE WHO WOULD NORMALLY ENDURE INAPPROPRIATE POLICIES BECOME RIGHT HOLDERS OR RIGHTS CLAIMANTS. THEY ARE EMPOWERED AND CAN HOLD THEIR GOVERNMENT ACCOUNTABLE FOR VIOLATIONS AND OMISSIONS, SEEK REDRESS AND CAN MOTIVATE DUTY BEARERS TO ACT IN POSITIVE WAYS.” **FAO, 2009**

its possible impact on food security” (CIPR, 2002, p. 58). Observers have pointed to the need to analyze the implications, for instance, on traditional farming practices of seed management when establishing domestic PVP laws (e.g., Louwaars et al., 2005).

Surveys of the literature reveal little empirical evidence which conclusively proves that UPOV 91 brings overall significant benefits particularly in terms of yields, trade, innovation, livelihoods or agrobiodiversity (CIPR, 2002; Louwaars et al., 2005; Dutfield, 2008). However, in its own study, UPOV (2005) reaches a more positive conclusion, but as noted in the Introduction to this report, as well as in Box 5 below, this study has several shortcomings. Thus, it is clear that more detailed critical analyses of the impacts of PVP systems are necessary.



**Andean farmers collectively harvesting *ollucu* (*Ollucus tuverosum*), a native tuber rich in protein, near Paucarhualla, Cusco region, Peru.**

### BOX 5: A CRITIQUE OF THE UPOV REPORT ON THE IMPACT OF PLANT VARIETY PROTECTION

In 2005, UPOV carried out a study to assess the impact of plant variety protection. It examined five countries: Argentina, China, Kenya, Poland and the Republic of Korea. The report concludes that UPOV leads to a strong uptake of protected varieties by farmers and increases the number of new varieties and applications by foreign breeders, and leads to an increase in domestic breeding.

One recent comment (Lieberherr and Meienberg, 2014) critically analyzed the UPOV impact assessment study of 2005,

mainly by pointing out flaws in its underlying assumptions. The comment argues that the UPOV study does not fulfil certain basic requirements. UPOV used narrowly drafted indicators (mainly the number of titles for newly protected varieties) without taking into account key issues like food security, agrobiodiversity and availability of seeds for small farmers, and without defining what “for the benefit of society” means. Furthermore, the report says little on the methodology used for the research and on the basis

for selecting specific indicators. It examines only possible positive impacts and provides no counterfactual, i.e., there is no comparison with similar countries which have not joined UPOV. Moreover, the UPOV impact study only looked at developing countries that have adhered to UPOV 78 (not to UPOV91). As countries now ratifying UPOV have to join UPOV91, the report does not provide a reliable basis for countries considering joining, to weigh the advantages and disadvantages of joining.

## 2.5 HUMAN RIGHTS IMPACT ASSESSMENTS

UN human rights bodies, academics and NGOs alike have increasingly called on governments to carry out human rights impact assessments of public policies and programmes (Walker, 2009). Based on the concept of extraterritorial human rights obligations of States<sup>11</sup> (see Box 6), the UN Committee on Economic, Social and Cultural Rights (CESCR) also called on developed countries to “undertake an impact assessment to determine the possible consequences of its foreign trade policies and agreements on the enjoyment by the population of the *State party’s partner countries* of their economic, social and cultural rights” (CESCR, 2010, emphasis added). A similar statement can be found in CESCR (2011). To date, however, no government has followed these recommendations in the area of IP in agriculture. As a result, opportunities for improving policy-making for the benefit of society have been missed.

The human rights impact assessment is a policy tool that has emerged over the last decade. The aim of this type of assessment is “to determine the degree to which a set of directed human activities has an impact on human rights” (Landman, 2006, p. 127). HRIAs differ in three important ways from other types of impact assessments. First, they are rooted in legal norms. Second, they focus on poor, vulnerable or otherwise disadvantaged groups whose human rights are most likely to be endangered by particular provisions or policies (Harrison, 2011). Third, the very process of carrying out these assessments must respect human rights, for instance through an inclusive process.

Walker (2009) offers a rigorous application of HRIA to IP issues, in his 2009 *ex ante* study of the impacts on the right to health of the US free trade agreement with Central American countries and the Dominican Republic. Paasch et al. (2007) carried out an *ex post* assessment of the impact of

“STATES MAY WISH TO CONSIDER CONDUCTING ‘RIGHT TO FOOD IMPACT ASSESSMENTS’ IN ORDER TO IDENTIFY THE IMPACT OF DOMESTIC POLICIES, PROGRAMMES AND PROJECTS ON THE PROGRESSIVE REALIZATION OF THE RIGHT TO ADEQUATE FOOD OF THE POPULATION AT LARGE AND VULNERABLE GROUPS IN PARTICULAR, AND AS A BASIS FOR THE ADOPTION OF THE NECESSARY CORRECTIVE MEASURES.” **FAO Voluntary Guidelines on the right to food, 2005**

trade liberalization on the right to food of rice-farming communities in three countries. More recently, a group of NGOs carried out an impact assessment of the EU-India Free Trade Agreement, also with a focus on the right to food (Paasch et al., 2011). There are no examples of government-led HRIAs to date, but the European Parliament (2013) has called for human rights-based impact assessments of EU trade agreements.

### BOX 6: HUMAN RIGHTS OBLIGATIONS BEYOND BORDERS

Human rights treaties, including the International Covenant on Economic, Social and Cultural Rights, impose obligations on their parties relating to international cooperation and assistance, as well as responsibilities for effects of their policies and actions on human rights in other countries. In September 2011 a group of leading experts in international law and human rights clarified these obligations through the adoption of the Maastricht Principles<sup>12</sup> on Extraterritorial Obligations of States in the area of Economic, Social and Cultural Rights (Salomon and Seiderman, 2012). The Maastricht Principles recall that “[a]ll States have obligations to respect, protect and

fulfil human rights, including civil, cultural, economic, political and social rights, both within their territories and extraterritorially” (Article 3). These State duties also extend to trade policy, as Article 29 points out: “States must take deliberate, concrete and targeted steps [...] to create an international enabling environment conducive to the universal fulfillment of economic, social and cultural rights, including in matters relating to bilateral and multilateral trade [...]”

In the *Oxford Encyclopedia of Human Rights*, and related to the right to food, Professor Georg Kent forcefully argues: “Most discussions of the human right to adequate food focus on the correlative

obligations of states. However, this approach treats rights and obligations as if they end at the national border. It implies that people of poor countries have weaker rights than those of rich countries. A child may be born into a poor country, but that child is not born into a poor world. That child has rights claims not only against its own country and its own people; it has claims against the entire world. If human rights are meaningful, they must be seen as universal, and not merely local. Neither rights nor obligations end at national borders” (Kent, 2009, pp. 233–234).

11 In this context, it is important to note that States also have human rights obligations as members of international organizations, as stated in Article 15 of the Maastricht Principles ([www.etoconsortium.org](http://www.etoconsortium.org)): “As a member of an international organisation, the State remains responsible for its own conduct in relation to its human rights obligations within its territory and extra-territorially. A State that transfers competences to, or participates in, an international organisation must take all reasonable steps to ensure that the relevant organisation acts consistently with the international human rights obligations of that State.”

12 Available at [www.etoconsortium.org](http://www.etoconsortium.org)

## 3 METHODOLOGY FOR THIS ASSESSMENT

There is no single methodology for HRIAs; nevertheless, a logical sequence of core methodological elements has emerged as a result of research and experience relating to HRIAs of public policies (Harrison, 2011; De Schutter, 2011; Walker, 2009).

Drawing on this, the present study followed the seven steps listed in Box 7 for this impact assessment. Underlying these steps is the human rights principle that the assessment should involve consultation and participation

of stakeholders, both as a means to inform the assessment and as an end in itself. In practice, the sequence of steps is not always clear-cut, and the process of conducting an HRIA is iterative. Bearing the seven steps in mind helped ensure that the assessment is scientifically sound, provides a useful outcome for policy advice, and focuses on the most significant potential impacts of UPOV-type provisions on human rights.

### BOX 7: SEVEN STEPS FOR CONDUCTING AN HRIA

#### 1. Preparation

**2. Screening** Screening involves identification of the provisions or policies that are the most likely to have human rights impacts.

**3. Scoping** Scoping is intended to result in terms of reference for the assessment. It can address questions such as:

- Who would be affected by the provisions or policies being assessed?
- What are the possible human rights impacts and what indicators or research questions may be used to measure them?
- What type of evidence is needed and where and how is it to be found?

– Who should carry out the HRIA? What is the timescale for the assessment?

**4. Evidence gathering** Collection of evidence involves quantitative and qualitative research methods and can rely on primary or secondary sources. Broad consultations and participatory research are key to ensuring that the voices of those affected by the policy in question are heard and taken into account in the HRIA process.

**5. Analysis** Analysis serves to verify the various cause-effect relationships identified in the scoping stage by using the gathered evidence in order to substantiate the impact (if any) of the assessed provisions or policies on human rights.

#### 6. Conclusions and recommendations

The outcome of the analysis informs the conclusions from which policy-oriented recommendations can be drawn. An HRIA should recommend specific measures to avoid or reduce negative impacts or to strengthen positive ones.

**7. Monitoring and review** Appropriate follow-up activities in terms of monitoring and review should be included in the recommendations. Monitoring and review activities are important since HRIAs should be an ongoing and cyclical process and contribute to mobilization and awareness-raising.

Source: Harrison, 2011; Walker, 2009

### 3.1 PREPARATION, SCREENING AND SCOPING

An initial expert workshop mainly considered which aspects of UPOV the assessment would look at, and which human rights impacts it would focus on. As a result of this, it was decided that this impact assessment would consider the following UPOV 91 provisions:

- Articles 5-9 on the conditions for the grant of breeders' rights: novelty and distinctness, uniformity and stability (the so-called "DUS criteria");<sup>13</sup>
- Article 14 on the scope of breeders' rights, and
- Article 15.2 on the exceptions to breeders' rights, i.e., the extent to which UPOV 91 allows farmers to save, exchange and sell seeds and other propagation materials.

The experts involved in this stage of the HRIA acknowledged that all human rights are interdependent and inter-related and that the range of human rights that could be affected by IP in agriculture is broad.<sup>14</sup> But to keep the exercise manageable, the experts decided to focus on what was seen as the most relevant human right: the right to adequate food. Within this focus, the experts agreed to give particular attention to women's rights, the right to participate in public affairs and the rights of indigenous peoples, and that the assessment would pay heed wherever possible to farmers' rights as specified in the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

The CESCR's General Comment on the Right to Food specifies that the right to food is realized "when every man,

<sup>13</sup> Because there was a need to focus on the most relevant factors and to use the limited resources available to examine a few main hypotheses, the core team decided to drop the analysis of the impact of Articles 5-9 in the course of the process.

<sup>14</sup> For a presentation of some of these, see Goodman (2009, p. 13).





**Multiplication of potato mini-tubers through hydroponics. Center for Potato Seed Production, Storage and Distribution, Agricultural Development Corporation, Molo, Kenya.**

woman and child, alone or in community with others, has physical and economic access at all times to adequate food or means for its procurement” (p. 3). This means that “a person must live in conditions that allow him or her either to produce food or to buy it. To produce his or her own food, a person needs land, seeds, water and other resources” (OHCHR and FAO, 2010, p. 3). In his report on seed policies, De Schutter (2009) indicates on several occasions how seeds are a critical element of the right to food. Based on these and other sources,<sup>15</sup> access to seeds

is considered an indispensable condition for realizing the right to food.

The selection of Kenya, Peru and the Philippines as case-study countries was informed by “pre-studies” on the seed sectors in six countries (Honduras, Kenya, Nepal, Peru, the Philippines and Tanzania) as well as the criteria indicated in Box 8. It was intended to carry out the study in at least one country in which UPOV91-type PVP laws had not yet been implemented, and one where they had, in order to be able to contrast an *ex ante* scenario with an

#### BOX 8: SELECTION OF CASE-STUDY COUNTRIES

##### Primary criteria included:

- Presence of PVP-protected varieties in the country
- Features of the agricultural sector (countries with a mix of large-scale farming and a large small-scale farming sector)
- Regional balance (one country from each selected region of the world)

##### Secondary criteria included:

- Status of the PVP law (in relation to UPOV91)
- Ratification of relevant human rights treaties
- Research environment: government’s *a priori* interest in the planned case study research; independent national human rights commission; past or

existing working contacts; ease of data collection.

<sup>15</sup> According to Cohen and Ramanna (2005, p. 166): “Economic access to food cannot be achieved unless breeders and farmers have adequate availability of seeds to produce food.” A similar argument is made by Marks and Clapham (2005). The point is also taken up in the UN Food and Agriculture Organization (FAO)’s Voluntary Guidelines on the right to food: “States should facilitate sustainable, non-discriminatory and secure access and utilization of resources consistent with their national law and with international law and protect the assets that are important for people’s livelihoods” (FAO, 2005a, p. 16).

*ex post* one. However, as will be discussed in more detail in section 4.1, in effect the three case studies were *ex ante*. This is most evident in the case of the Philippines where the PVP law is not in line with UPOV 91. In Kenya the PVP Act had been amended only a few months before the field studies took place and, thus, the new law did not have any impact on the ground so far. In the case of Peru, which ratified UPOV 91 in 2011, very few protected varieties have reached the field study areas and even when they have been present, the PBR have not been enforced.

As a consequence, this HRIA is on *potential*, rather than

actual, impacts of PVP laws on the right to food.

The country study research framework was guided by a set of initial working hypotheses that had emerged out of preparatory work assessing the literature and was refined through expert workshops and consultations with the project team and advisors (see Table 2). In order to ensure that this HRIA's research focused on the potential impacts of UPOV 91 on the right to food, we used causal chain analysis to trace the links between the UPOV provision under consideration and the potential effects on the determinants of the right to food (see Annex 1).

**TABLE 2: INITIAL WORKING HYPOTHESES FOR THE HRIA OF UPOV 91**

HYPOTHESIS	DESCRIPTION
<b>A</b>	The granting of breeders' rights based on UPOV's DUS criteria for PVP-protected varieties has impacted on the informal seed sector (understood as the non-commercial seed sector, consisting of farmers' varieties and improved varieties that have entered the informal sector) by <b>channelling resources and attention to the formal system</b> and non-food and export crops.
<b>B</b>	The decline of the informal seed system (manifested through a decrease in the informal use, exchange and sale of seeds/propagating material and an increase in volumes of seed purchased through commercial means) leads to a <b>change in women's role in the informal seed sector</b> .
<b>C</b>	The restriction that UPOV places on farmers' capacity to save, exchange and sell seed/propagating material of PVP-protected varieties <b>restricts access to seeds for farmers</b> (implying new costs and constraints).
<b>D</b>	Restrictions on seed saving and exchange of seeds by farmers and the rules on essentially derived varieties (UPOV91 Article 14.5) may <b>limit farmers' ability to engage in adaptive breeding</b> through selection.
<b>E</b>	The reduced availability of a diversified pool of crop varieties may result in <b>fewer coping strategies and new risks</b> .
<b>F</b>	Pressure on the informal seed system and a switch to the formal sector may cause a shift towards <b>varieties that are less culturally adapted and nutritionally adequate</b> .
<b>G</b>	Increased dependence on the formal seed sector results in changes in the costs of production, which affects the (long-term) <b>stability of household income</b> .
<b>H</b>	Due to restrictions on the saving, exchange and selling of seeds, protected and <b>improved seeds are not integrated into the informal seed system</b> and are not optimally disseminated.

**"QUALITATIVE AND PARTICIPATORY RESEARCH METHODS HAVE PARTICULAR RESONANCE IN THE HUMAN RIGHTS FIELD, GIVEN THEIR CAPACITY TO INVOLVE INDIVIDUALS POTENTIALLY AFFECTED."** Walker, 2009, p. 116

For each hypothesis, a number of research questions were formulated.<sup>16</sup> These served to tease out potential direct and indirect impacts of UPOV-type PVP laws on various aspects of the right to food. A qualitative approach is particularly suited to human rights work as well as being useful for areas where data is limited (Walker, 2009).

Pilot studies in each country served to identify suitable communities and crops to be studied, to modify the set of research hypotheses and to test different qualitative and participatory research methods.

The study focuses on the right to food of small-scale farmers (see Box 9 for a definition). Indeed, despite the volume of production that small-scale farmers generate and the variety of additional sources of income they draw on, these farmers are among the most disadvantaged and vulnerable

#### **BOX 9: DEFINITION OF SMALL-SCALE FARMERS**

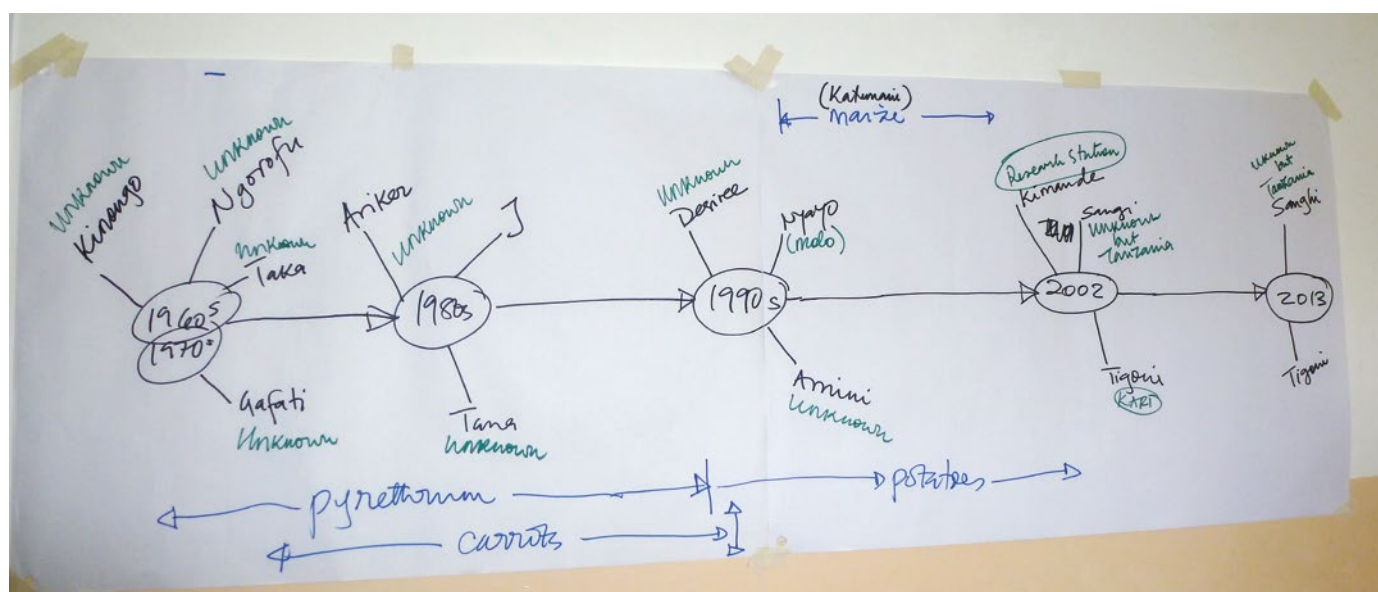
Small-scale agriculture is often used interchangeably with smallholder, family, subsistence, resource-poor, low-income, low-input, or low-technology farming. The World Bank's Rural Strategy (Worldbank 2003) defines smallholders as those with a low asset base, operating less than 2 hectares of cropland. An FAO study (Dixon, Taniguchi, and Wattenbach 2003) defines smallholders as farmers with "limited resource endowments, relative to other farmers in the sector"; Narayanan and Gulati (2002) characterize a smallholder "as a farmer (crop or livestock) practicing a mix of commercial and subsistence production or either, where the family provides the majority of labour and the farm provides the principal source of income".

The sole consensus on small farms may be the lack of a sole definition. The most common approach is to define small farms on the basis of the size of landholding (or livestock numbers). It is important, however, to recognize the limitations of this measure, given that it fails to properly account for the quality of resources, the types of crops grown, or disparities across regions.

Source: Nagayets, 2005

<sup>16</sup> The research questions can be found in the document "Research Methodology for Conducting a Human Rights Impact Assessment (HRIA) of UPOV" (25 pp.), which was prepared for the country research teams. It is available from the authors on request.





**Timeline analysis of the different potato varieties grown from the 1960s onwards in Njabini, Kenya (participatory research with potato farmers).**

groups in the developing world (Nagayets, 2005). Half of all undernourished people in the world, three-quarters of Africa's malnourished children, and the majority of people living in absolute poverty can be found on small farms (Millennium Project Task Force on Hunger, 2004).

### 3.2 EVIDENCE GATHERING

The research teams collected information from primary and secondary sources. They conducted interviews with a range of actors including government officials, private seed industry staff, plant breeders, food security analysts, gender specialists, human rights advocates and representatives of non-governmental organizations. They gathered information on how the right to food is realized domestically, as well as on governments' policies, programmes and actions pertaining to the right to food, agriculture and seeds.

For the field research, they held consultations with communities to discuss the purpose of the research and identify potential participants (small-scale farmers, women farmers, indigenous peoples, marginalized households). The country research teams then conducted key informant interviews and focus group discussions with specific groups of farmers, making use of participatory tools such as livelihood mapping, seasonal calendars, historical transects, matrix ranking and flow diagrams.<sup>17</sup> Several in-depth household case studies were also conducted in each country, including one conducted in a female-headed household. The timescale of the field research phase was around six months.

### 3.3 ANALYSIS

The initial analysis – undertaken by each research team in its country report – provided preliminary indications of po-

tential impacts on the right to food. These were enriched and, where necessary, clarified through feedback loops, including inputs from the research teams as well as other specialists in different fields. By using cross-case analysis, the participants of an expert workshop identified the main findings which emerged from the country-based evidence. The workshop also served to determine further data we needed from the country teams to confirm or clarify the findings.

### 3.4 PUBLICATION, RECOMMENDATIONS AND MONITORING

From the analysis of these findings, this impact assessment has been able to draw conclusions on potential impacts of UPOV-like PVP laws on the right to food, and on human rights matters to be borne in mind when PVP laws are being drafted or implemented. These are presented in Chapters 4 and 5. This report also provides lessons learnt for future HRIA applications as well as recommendations for a range of actors (Chapter 8).

Some of the findings emerging from this HRIA will serve as useful baseline references for future work in this area. It is hoped that others will pick up on this work and take it further, in the same three countries or elsewhere. Due to limited resources we have not been able to collect (sufficient) data to document the potential specific impact of UPOV-type laws on, *inter alia*, women's livelihoods, the direction of funding for public and private research and research priorities, or on agrobiodiversity. In all these cases additional research is certainly needed.

<sup>17</sup> It should be noted that the research team in the Philippines was the most conversant with participatory techniques and therefore made ample use of these research methods, while in Kenya and Peru, the research teams mostly relied on focus group discussions and key informant interviews.



## 4 RESEARCH FINDINGS RELATING TO POTENTIAL IMPACTS OF UPOV 91 PROVISIONS

This chapter presents the potential effects of UPOV 91-type laws on different aspects of seed management. In order to analyze the potential impact of UPOV 91-related restrictions on saving, replanting, exchanging and selling protected seeds on access to seeds, it was essential, first, to ascertain how farmers currently access seeds and to analyze whether PVP laws modelled on UPOV 91 would have any impact on the seed systems in place. Specifically, it was necessary to identify whether farmers in the three countries studied really do save, replant, exchange and sell seeds obtained from the formal sector. Ascertaining this will be essential for any inference that UPOV 91 might have an impact on these farmers' access to seeds, with potential effects on livelihoods, cultural and social practices and the right to food.

Before turning to the findings, this chapter presents some key facts about the case-study countries and the field sites where research for the HRIA took place. Section 4.2 presents the baseline findings about how small-scale farmers access seeds. Some of the human rights dimensions of

possible future application of UPOV 91 are discussed in sections 4.3 to 4.5. As the case-study countries either have not enforced restrictions on saving, exchanging and selling seeds yet (Peru, Kenya) or do not have strong provisions restricting the use and circulation of farm-saved seed (Philippines), or protected seeds are hardly present in the regions where our field studies were conducted (like in the Andean region of Peru), findings in those sections are primarily of an *ex ante* nature. In other words, they present potential impacts if UPOV 91 is implemented and enforced.

### 4.1 COUNTRY PROFILES AND FIELD SITE DESCRIPTION

Table 3 presents an overview of socio-economic indicators of the three case-study countries. This information and the information in the tables below were instrumental to the choice of the case-study countries.

**TABLE 3: KEY FACTS ABOUT THE THREE COUNTRIES**

INDICATOR	KENYA	PERU	PHILIPPINES	YEAR	SOURCE
Population (rounded)	43 000 000	30 000 000	97 000 000	2012	WB
GNI per capita (constant 2005 US\$)	592	3966	1515	2012	WB
Agriculture, value added (% of GDP)	29.9	7.0	11.8	2012	WB
Agricultural area (1000HA)	27450	21 500	12 100	2011	FAO
Rural population (% of total population)	75	22	50	2013	FAO
Labour force in agriculture (% of total labour force)	69	23	32	2013	FAO
Per capita food supply (kcal/capita/day)	2073	2548	2575	2009	FAO
Female-headed households (% of households with a female head)	34	23	17	a)	WB
Poverty headcount ratio at \$1.25 a day (PPP, % of population)	43.4	4.9	18.4	b)	WB
Poverty headcount ratio at \$2 a day (PPP, % of population)	67.2	12.7	41.5	b)	WB
Prevalence of undernutrition (%)	30	11	17	2010–12	FAO
Life expectancy at birth (years)	57.7	74.2	69.0	2012	HDR
Human Development Indicator (rank)	0.519 (145)	0.741 (77)	0.654 (114)	2013	HDR

Sources: WB: World Bank Indicators, [www.data.worldbank.org/indicator](http://www.data.worldbank.org/indicator)  
 FAO: Food and Agriculture Organization, [http://faostat.fao.org/CountryProfiles/Country\\_Profile/default.aspx](http://faostat.fao.org/CountryProfiles/Country_Profile/default.aspx)  
 HDR: Human Development Report, [hdr.undp.org/en/countries/profiles/KEN](http://hdr.undp.org/en/countries/profiles/KEN); [hdr.undp.org/en/countries/profiles/PER](http://hdr.undp.org/en/countries/profiles/PER); [hdr.undp.org/en/countries/profiles/PHL](http://hdr.undp.org/en/countries/profiles/PHL)

a) Kenya: 2009; Peru: 2008; the Philippines: 2008

b) Kenya: 2005; Peru: 2010; the Philippines: 2009

As a baseline for the HRIA, information about the current status of plant variety protection and the protected varieties in the specific countries was collected with a focus on the specific regulations in place regarding farm-saved seed and the exchange and selling of seeds. This information is depicted in Table 4. In Kenya the PVP Act had been amended only a few months before the field studies took place and, thus, the new law did not have any impact on the ground so far. The articles quoted in the table reveal that in Kenya (under the new law) and in Peru the exchange and sale of protected seeds by farmers is prohibited while the use of the product of the harvest (farm-saved seeds) is allowed as long as the seeds have been obtained by planting on the farmers' own holdings and are used on their own holdings. But this

exception is only allowed “within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder”. Neither in Kenya nor in Peru is there an official interpretation of this limitation.<sup>18</sup>

Regarding farmers' rights to save, exchange and sell seeds, the Kenyan and the Peruvian laws, which are both UPOV 91-compliant, are clearly distinct from the Philippine law, which is not in line with UPOV 91. In the Philippines “the traditional right of small farmers to save, use, exchange, share or sell their farm produce of a variety protected” is stipulated in the PVP Act and there is only an exception when a sale is for the purpose of reproduction under a commercial marketing agreement. No more precise determination of these rights has been set out.



**Small women farmers discussing challenges in accessing seed of improved potato varieties, Huayllaccocha, Cusco region, Peru.**

18 UPOV does offer guidance regarding the interpretation of these terms (see Table 1, note c).

TABLE 4: STATUS OF PVP LAW AND PROTECTED VARIETIES IN CASE-STUDY COUNTRIES

	UPOV MEMBERSHIP? STATUS OF PVP LAW	SPECIFIC REGULATION REGARDING FARM-MADE SEED, EXCHANGE AND SELLING OF SEEDS	INFORMATION ON PROTECTED VARIETIES
<b>Kenya</b>	Became member of UPOV 78 on 13 May 1999. The seeds and plant variety protection legislation <sup>a)</sup> was amended in December 2012 to bring the legislation in line with UPOV91.	According to the Kenyan Seeds and Plant Varieties Act enacted in 1972 and amended in 2002, <sup>b)</sup> “the holder of plant breeder’s rights in a plant variety shall have the exclusive right to do, and to authorize others to do, the following – (a) produce reproductive material of the variety for commercial purposes, to commercialize it, to offer it for sale, to export it, to stock it for any of these purposes and to have any or all of their activities performed” (Section 20.1). The legislation did not contain any provision restricting farmers from saving, reusing, selling and exchanging farm-made seed/planting materials. Under the amendment of the Act assented in December 2012, the abovementioned Section 20.1(a) was deleted and the scope of protection was broadened in accordance with UPOV91 (see Table 1). Farmers’ right to freely use, sell and exchange seed was also restricted with the addition of the following new paragraph derived from UPOV 91: “Notwithstanding the provisions of subsection (1), within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder, farmers may use the product of the harvest which they have obtained by planting, on their own holdings, the protected variety.”	Since the inception of plant breeders’ rights in Kenya, over 802 plant breeder’s certificates have been granted. <sup>c)</sup> A large majority of grants are to foreign entities, and concern ornamental crops (2011/2012: 80%), mainly roses. The remaining 20% cover mostly maize, followed by wheat, and are largely granted to the local public sector.
<b>Peru</b>	Became member of UPOV91 on 8 August 2011. The existing PVP law is Decision 345 <sup>d)</sup> of the Andean Community on a Common Regime for the Protection of New Plant Varieties (enacted on 21 October 1993). The Regulation by Supreme Decree 035-2011-PCM, <sup>e)</sup> on 14 April 2011, brought Peru in compliance with UPOV91.	Decision 345 of the Andean Community defines the following exception to plant variety protection: “Anyone who stores and sows for his own use, or sells as a raw material or food, the product of his cultivation of the protected variety shall not be thereby infringing the breeder’s right. This Article shall not apply to the commercial use of multiplication, reproductive or propagating material, including whole plants and parts of plants of fruit, ornamental and forest species.” Supreme Decree 035-2011-PCM defines in Article 16: “Anyone who stores and sows for his or her own use’ as per Article 26 of Decision 345, shall mean anyone who stores and sows on his own holdings, within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder, the product of the harvest which he has obtained by planting, on his own holdings, the protected variety [...]”	According to the Pluto Database, 123 applications for PVP have been made in Peru. The great majority of the applications are for commercial export crops (crops with most applications: 18 cotton, 16 grapes, 9 tangerine, 8 strawberries) and are from foreign entities. There are only 2 applications for bean varieties and 1 application for a potato variety (all by the public research institute INIA).
<b>Philippines</b>	Not a member of UPOV. The Philippines enacted the Plant Variety Protection Act <sup>f)</sup> in May 2002. Apart from the section which deals with the exceptions to plant variety protection (farmers’ rights), the Philippine PVP Act is very similar to UPOV91.	Section 43d of the PVP Act defines the exceptions to plant variety protection: “The traditional right of small farmers to save, use, exchange, share or sell their farm produce of a variety protected under this Act, except when a sale is for the purpose of reproduction under a commercial marketing agreement. The Board shall determine the condition under which this exception shall apply, taking into consideration the nature of the plant cultivated, grown or sown. This provision shall also extend to the exchange and sell of seeds among and between said small farmers: Provided that the small farmers may exchange or sell seeds for reproduction and replanting in their own land.”	Between 2006 and 2011, a total of 135 varieties were protected, with a focus on two major food crops: maize (76) and rice (18). The majority of the grants for maize varieties were provided to Pioneer (33) and Monsanto (25). The rest were granted to other private companies (foreign and domestic). For rice varieties, the grants were provided to Agritech Corporation (7; private company, domestic), PhilRice (6; public), Bayer (4; private company, foreign). <sup>g)</sup>

a) [www.kilimo.go.ke/kilimo\\_docs/pdf/SeedsandPlantVarieties\\_Amendment\\_Act2013.PDF](http://www.kilimo.go.ke/kilimo_docs/pdf/SeedsandPlantVarieties_Amendment_Act2013.PDF)b) [www.upov.org/upovlex/en/details.jsp?id=2686](http://www.upov.org/upovlex/en/details.jsp?id=2686)

c) Kenya Plant Health Inspectorate Service (KEPHIS) 2012/13 Annual Report, and interviews with KEPHIS officials

d) [www.comunidadandina.org/ingles/normativa/D345e.htm](http://www.comunidadandina.org/ingles/normativa/D345e.htm)e) [www.wipo.int/edocs/lexdocs/laws/en/pe/pe063en.pdf](http://www.wipo.int/edocs/lexdocs/laws/en/pe/pe063en.pdf)f) [www.wipo.int/wipolex/en/text.jsp?file\\_id=225015](http://www.wipo.int/wipolex/en/text.jsp?file_id=225015)g) [www.pvpo.bpinsicpvpo.com.ph/downloadables/protected%20varieties.pdf](http://www.pvpo.bpinsicpvpo.com.ph/downloadables/protected%20varieties.pdf)



Table 5 presents basic information about the six field sites that were selected on the basis of the individual pre-studies. The aim was to choose two field sites per country and at least two different crops in each of the countries. Maps showing the field sites can be found in Annex 2.

**TABLE 5: OVERVIEW OF FIELD SITES**

	<b>KENYA</b>	<b>PERU</b>	<b>PHILIPPINES</b>
<b>Location of selected communities</b>	<p><b>1. Njabini</b> Nyandarua County (Central Kenya)</p> <p><b>2. Ngelani</b> Machakos County (Eastern Kenya)</p>	<p><b>1. Huayllacoccha</b> Huarcocondo District, Province of Anta (Cusco Region)</p> <p><b>2. Tinta</b> Tinta District, Province of Canchis (Cusco region)</p>	<p><b>1. Lamlifew</b> Malungon Municipality, Sarangani Province, Mindanao Island (Southern Philippines)</p> <p><b>2. Lengaoan</b> Buguias Municipality, Benguet Province, Luzon Island (Northern Philippines)</p>
<b>Crops selected</b>	<p><b>Potato</b> (Njabini); <b>Maize</b> (Ngelani)</p>	<p><b>Potato</b> (Huayllacoccha); <b>Broad bean</b> (<i>Vicia faba</i>) (Tinta)</p>	<p><b>Maize</b> (Lamlifew); <b>Potato</b> and <b>sweet pea</b> (Lengaoan)</p>
<b>Number of respondents</b>	<p>25 farmers in Njabini 20 farmers in Ngelani</p>	<p>31 farmers in Huayllacoccha 8 farmers in Tinta</p>	<p>62 farmers in Lamlifew 30 farmers in Lengaoan</p>

Kenya, Peru and the Philippines all have ratified a number of international human rights instruments that are relevant in the present context, as indicated in detail in Annex 3. Furthermore, the three countries have to various extents national laws and programmes in place to support the right to food. Of the three countries, Kenya is the only one which explicitly recognizes the right to food in its Constitution.<sup>19</sup>

#### 4.2 SEED SAVING, REPLANTING, EXCHANGE AND SALE – A COMMON PRACTICE

The main findings in this section are that:

- Small-scale farmers are highly dependent on the informal seed system for having access to seed (including improved varieties which may be protected) and, thus, for their food security. A comparative study on seed prices in all three countries offers unequivocal results: seeds procured through formal channels are significantly higher in price compared to seeds obtained through informal channels.
- There is interaction between the formal and informal sectors; seeds from the formal sector are integrated into the informal sector by replanting, exchange and sale of farm-saved seeds.
- Women are more dependent than men on informal sources of seed and play a key role in local seed systems in many countries.
- Small-scale farmers use a mix of local varieties and “improved” varieties (which in some cases are protected by PVP).

> From a human rights perspective, therefore, it will be essential to preserve access to seeds (including improved seeds) through the informal seed system (which is based on the free use, exchange and sale of seeds).

#### Seed sources for small-scale farmers

In order to understand the impact of PVP laws on access to seeds, it is important to understand how small-scale farmers access seeds and what types of seed they use (see Box 10 for definitions). This section presents the findings from the three countries about how farmers access seeds, and how improved seeds enter the informal system. Gender is relevant to the discussion on access to seed. It is well-documented that women and men play different roles in relation to the selection, conservation, development and propagation of seeds and new plant varieties in many countries (Howard, 2003), including the three studied in the context of this impact assessment (Diaz et al., 1994; Wangari et al., 1996).

#### Kenya

In Kenya, it is estimated that the informal seed sector supplies 80% or more of seed used by farmers for most crops (Ayieko and Tschirley, 2006). Maize is one significant exception: 65% of hybrid maize seed is obtained through formal sources. Table 6 presents the proportion of seed made available from different sources for the main food crops.

19 So far 23 countries (including Kenya) have recognized the right to food in their constitution (FAO, [bit.ly/1oCIJaX](http://bit.ly/1oCIJaX)). For Kenya see: [bit.ly/1ByfjBT](http://bit.ly/1ByfjBT)

**BOX 10: TERMS USED FOR DIFFERENT SEED TYPES****Improved varieties**

Seeds of a variety developed through the formal breeding system at a national or international research centre or by private breeding companies. Not all improved varieties are PVP-protected; presently in most developing countries, many are not. The situation in developing countries may change as implementation and use of PVP frameworks proliferate. Improved seeds can, and do, enter the informal seed sector. (NB: some observers criticize the use of the word “improved” for all new seeds, as a number of

improved varieties are ill-adapted to resource-poor farmers.)

**Commercial varieties**

Commercial varieties are a subset of improved varieties that have been developed with a commercial interest in mind.

**Certified seeds**

Certified seeds are generally quality-certified (for the first generation, under a standard multiplication programme); different countries’ laws differ in their exact definition and

several countries also have in place a voluntary certification scheme. Certified seeds may or may not be PVP-protected. They emanate from the formal seed system.

**Local varieties**

Also known as farmers’ varieties, landraces or traditional varieties, local varieties are passed on through generations of farmers and adapted continuously to the local context. Local varieties are usually not PBR-protected as such varieties often do not fulfil the DUS criteria.

For potato, the National Seed Potato Master Plan estimates the proportion of seed provided by informal sources to be as high as 98%. This figure was confirmed by this impact assessment’s field study in Njabini, where the formal system, through which certified seed is available, accounts for only 2% of the seed<sup>20</sup> used by farmers. The informal system, which accounts for 95%, includes farm-saved seed and seed purchased from neighbours or from local market places (where the ultimate source is also farm-saved seed). This

system is based on positive selection where farmers select the healthy plants in the field and use the tubers as the seed for the next season. Focus group discussions held in Kenya show that decisions with respect to seed tend to be made by women (in the case of potato). Literature from different parts of the world attests to the important role played by women in the informal seed economy (Gautam et al., 2006; Howard, 2003).

**TABLE 6: PROPORTION OF SEED OBTAINED THROUGH DIFFERENT SOURCES IN KENYA**

Crop	INFORMAL SYSTEM		FORMAL SYSTEM				
	Farm-saved seed	Community-based schemes	Public companies/ parastatals	Private local companies	Private foreign companies	Government distribution schemes	Donors/NGOs
Bananas	80	0	20	0	0	0	0
Beans	80	0	5	0	10	0	5
Cassava	93	2	5	0	0	0	0
Cow-pea	75	8	10	2	0	0	5
Ground-nut	80	3	0	10	0	0	7
Maize	32	2	40	15	5	5	1
Millet	90	3	1	2	0	0	4
Pigeon-pea	80	0	6	4	0	0	10
Rice	15	0	85	0	0	0	0
Sorghum	87	0	4	5	0	2	2
Soy-bean	99	1	0	0	0	0	0
Sweet potato	96	3	1	0	0	0	0
<b>Overall</b>	<b>76</b>	<b>2</b>	<b>15</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>3</b>

Source: Adapted from Ayieko and Tschirley, 2006.

Note: Farm-saved seed includes seed saved by farmers and seed purchased from neighbours or local markets (without having gone through any quality certification).

20 In the case of potatoes, “seeds” refers to “seed potatoes” or tubers, or planting material. For ease of understanding, the word “seed” is used throughout this report to refer to planting materials, even for crops where such materials are, as in the case of potatoes, tubers.

For potato another seed system has been emerging in Kenya, which is mid-way between the formal and informal systems, referred to as semi-formal. This consists of quality declared seed or so-called “clean” seed, which is either farmer seed that is cleaned by the Kenya Agricultural Research Institute (KARI) and then multiplied using agreed guidelines without inspection by the Kenya Plant Health Inspectorate Service (KEPHIS) or certified seed that has been multiplied using the agreed guidelines although without inspection by KEPHIS. This “clean” seed accounts for 3% of the potato seed used by smallholder farmers.

Since the 1960s, farmers surveyed in Njabini have been growing over 14 varieties of potato. Over the same period, 15 varieties have been officially released. Of all the varieties released by the government, the farmers could only identify one by name – Tigoni (released in 1998). For Desiree, another variety grown in Njabini, they did not know its origin, although that variety was formally released in 1972. Another – Kimande – was claimed by the farmers to have been sourced from KARI. However, it is not an officially released variety. Of the 14 varieties that the farmers have grown over the years, the origins of 12 were unknown. This includes the most popular variety today – Zangi.

The case of maize is different. Nationally, 215 maize varieties have been officially released since 1964. In Ngelani only one local variety is grown – Kikamba. It is the only local variety that Ngelani farmers could recall having grown over the years. The other varieties that farmers cultivate – Pioneer, Katumani and Duma – are from the formal sector.

### Philippines

In Lamlifew, farmers use farm-saved seed or seed borrowed from neighbours for many of the food crops cultivated, namely banana, coconut, cassava, sweet potato, sponge gourd and taro. With maize, the source of seeds depends on the type of varieties being grown. The Philippine research team found at least three types of varieties under cultivation:

- commercial F1 hybrids (from seed companies Pioneer, Monsanto and Bioseed)
- open-pollinated commercial varieties and ‘obsolete’ commercial varieties (Karabyan, Red Cob, Taiwan and Yellow). Farmers claimed that these were introduced by agricultural technicians of the Department of Agriculture and they continue to grow them until now.
- open-pollinated traditional varieties (Tiniguib, Agol B’laan, M’likat and Pilit).

Women in Lamlifew have a particular stake in growing traditional maize varieties for household consumption. As other studies point out, cultivation practices may vary by gender with regard not only to the crops cultivated but also to the *varieties* cultivated of the *same* crop (Badstue et al., 2007). In relation to maize, for instance, local varieties are often considered as “women’s” crops, and high-yielding varieties as “men’s” crops. The research team in the Philippines confirmed this: men were found to be keener than women to expand the area under Roundup Ready (RR)

maize, grown almost exclusively for the market.<sup>21</sup> Other studies have shown that when there is competition for land between food and cash crops, women farmers tend to place more emphasis on food crops compared to men (Wooten, 2003; Malaza, 2003).

The commercial hybrids are PVP-protected genetically modified (GM) varieties of maize stacked with Roundup Ready and *Bacillus thuringiensis* (Bt) genes conferring, respectively, herbicide tolerance and insect resistance. These varieties are generically referred to by farmers as RR (this study uses the same denomination for RR varieties). Most farmers who took part in the study (62 in total) grow both Tiniguib (mostly for food) and one of the RR varieties (for sale as a cash crop).

In terms of seed source, it was found that all respondents growing Tiniguib use farm-saved seed. 29% of the respondents supplemented them with farm-saved seed obtained from relatives and friends, and 4% with seed from seed stores. For the hybrid maize varieties (RR), farmers obtain original seeds from traders and through *ukay-ukay* – a local term used to refer to RR maize seeds obtained from the leftover cobs on seed production sites of private seed companies. Some companies like Monsanto have transferred their production areas, bringing this practice to an end in Lamlifew. The decision was made by the management and the reason for the transfer was not shared with us. Some farmers use the term *ukay-ukay* to refer to any form of reuse of Monsanto RR seeds as planting material, beyond the first generation.<sup>22</sup> The farmers are allowed to reuse, exchange and sell farm-saved seeds under the Philippine PVP law (see Table 4).

There are two main reasons why farmers use *ukay-ukay* Monsanto RR seeds as planting material. First, they can reuse the seed up to six times (i.e., six generations) without unacceptable yield decline. After the first season, farmers either reuse their farm-saved seeds for the next planting season (a practice referred to as *sige-sige* or *balik-balik* in the local language<sup>23</sup>) or exchange seeds with relatives, friends and neighbours. (Farmers cannot reuse Pioneer RR seeds because the yield drops sharply after the first planting.) Second, it is much cheaper than buying company seeds. Farmers in Lamlifew mostly cannot afford the original Monsanto and Pioneer RR seeds which cost approximately PhP550/kg<sup>24</sup> (compared to an estimated worth of farm-saved seed of traditional maize varieties of PhP20-30 and PhP120-200/kg for Monsanto seed procured through informal *ukay-ukay* channels).

Some farmers also report buying Monsanto RR seed from traders and agricultural supply stores. In these stores farmers may obtain seeds of original varieties produced by private seed companies. Some farmers also get *ukay-ukay* or *sige-sige* seeds from farmer traders in the community. One trader interviewed by the research team claimed that she does not want to sell originals because they are too expensive. These findings underscore the fact that exchange of farm-saved seeds derived from succeeding generations of the Monsanto transgenic variety is prevalent among the

21 Farmers – men and women alike – repeatedly mentioned that Roundup Ready varieties are not widely consumed as they cause stomach ache and diarrhoea. “Consumption of RR is limited to roasted and boiled corn only up to milk stage as beyond that stage, it gets bitter according to respondents” (Philippines report, p. 18).

22 It is noteworthy that *ukay-ukay* is a recent colloquial term in the entire Philippines referring to second-hand or used household goods like clothing, shoes, bags, tools, toys and kitchen utensils. In Sarangani the term is also used to refer to second-generation or leftover GM seeds.

23 *Sige-sige* literally means “to proceed” or “to continue”, while *balik-balik* literally means “recycle” or “return”. With reference to seeds, both these terms mean recycling or reusing Monsanto RR seeds as planting material over several seasons.

24 PhP refers to Philippine pesos. PhP550 is equivalent to around US\$12.30.



WHEN ASKED WHAT THEY DO IF THEY LOSE THEIR SEED AS A RESULT OF CROP FAILURE, SMALL-SCALE WOMEN FARMERS FROM HUAYLLACOCCHA GAVE THE FOLLOWING RESPONSES:

“SEEDS FROM *SEMILLERISTAS* [SEED GROWERS] ARE TOO EXPENSIVE: THEY PREFER TO SELL IN BULK, TO PEOPLE WITH MONEY (OUTSIDE THE COMMUNITY). IF WE BUY SEED BY KILO, IT'S VERY EXPENSIVE.”

“WE CAN BUY SEEDS IN SMALL QUANTITIES FROM THE MARKET.”

“SOMETIMES WE WORK ON OTHER PEOPLE'S LAND AND GET PAID IN KIND. WE SELECT SEED FROM THE BAG OF POTATO WE GET AS PAYMENT.”

#### Peru research team for this HRIA

farmers of Lamlifew, and presumably in other farming communities that grow the variety throughout the island of Mindanao.<sup>25</sup>

In the potato-growing area (Lengaoan village, Benguet Province), farmers predominantly use their own farm-saved planting material (tubers) or source it from farmers who sell potato planting material in Lengaoan. Around 70% of respondents reported exchanging farm-saved potato planting material with other farmers from different communities, especially friends and relatives from highland farms (higher elevation). This appears to have been a practice of farmers to rejuvenate their planting materials and to minimize pests and diseases. The currently used varieties of potato and sweet pea are from public research as well as from private companies. None of them are PVP-protected.

#### Peru

The research team in Peru found that less than 1% of potato seed in the country comes from the formal sector. This is not surprising considering that Peru is the centre of origin for potato.<sup>26</sup> Native potato varieties have been reproduced and exchanged through farmer seed systems for centuries (de Haan, 2009). The preferred varieties of potato cultivated in Huayllacoccha are CICA, Yungay, UNICA, Canchan and San Antonio – all of which originate from the formal seed sector, mostly sold in local and regional markets through intermediaries who collect potatoes from the field and then distribute to markets. Most of these varieties were bred from the 1990s onwards by the National Institute for Agricultural Research (INIA) and public universities in Lima and Cusco (in some cases with assistance from the International Potato Centre (CIP)), and all derived originally from native varieties and semi-commercial varieties (varieties sold in regional markets in Peru). Only two farmers (out of 31 interviewed) grow the variety Antañita (the only potato variety for which a PBR application is pending) at present.

For Andean grains such as quinoa (*Chenopodium quinoa*) and maize, small-scale farmers also predominantly rely on informal seed channels. In smallholder agriculture in Peru, on average, 50% of produce is destined for mar-

kets; 30% is used for self-consumption and 20% is used for seed conservation purposes (Censo Nacional Agropecuario, 2012). The research team further notes that “historically and traditionally, women have played a pivotal role in seed selection and storage, food preparation and conservation – all key areas in food security which may be severely affected if access to seed were to become difficult”.

In terms of seed exchange systems, the research team in Peru found that farmers from the plains (the Pampa, lower-lying areas in the Andes) exchange *guano de ganado* (organic manure from cattle) for seeds with farmers from higher-altitude communities. Sometimes potato seeds are exchanged for seeds of habas and maize. In fact, the movement of informal potato seed extends through vast geographical areas in Peru, with massive movements of seed between the Andes and the coastal region: “Because potatoes build up a virus load in the lowlands, there is a great demand every year for seed from the highlands” (Bentley et al., 2001).

Exchange and selling of seed amongst farmers include direct farmer-to-farmer exchange, transactions at regular markets or biodiversity seed fairs (these may or may not involve money), both at local level and on a larger scale, at regional level.

#### Farmers' rationale for relying on farm-saved seed or seed exchange (including buying seeds from other farmers)

A primary reason for accessing seed through informal channels rather than through formal channels relates to cost. For farm-saved seed, or seed exchanged with neighbours, farmers do not spend money in real terms, and therefore do not need to have the cash in hand to buy seed at the time of sowing. Another important reason is that saved or exchanged seed is available at the right time for sowing. The Kenya research team, for instance, found that one reason why Kenyan potato farmers tend to rely on informal seed sources is the unavailability of certified planting material (as shown in Table 7). Third, seed saving cushions farmers against high purchase costs particularly following poor harvests. The downside to seed saving is that the quality of the seed may be compromised due to poor seed selection or storage practices and conditions; this was a significant finding from research with potato farmers in Kenya.

25 The use of transgenic seeds raises important biosafety issues which are not within the scope of this report.

26 Andean farmers in Peru are estimated to conserve up to 3,000 distinct native cultivars; social networks play an essential role in farmer seed systems in the Andes (Badstue, 2006).

**TABLE 7: MATRIX-RANKING OF THE ADVANTAGES AND DISADVANTAGES OF DIFFERENT TYPES OF SEED POTATOES IN NJABINI, KENYA**

	<b>BENEFITS</b>	<b>DRAWBACKS</b>
Farm-saved seed from own holdings	<ul style="list-style-type: none"> <li>- Low cost</li> <li>- Known quality</li> <li>- Availability ("You can keep growing the crop")</li> <li>- Adaptability to land</li> </ul>	<ul style="list-style-type: none"> <li>- Could be diseased</li> <li>- Yield decreases over time</li> <li>- Can be consumed in case of food shortage (not often)</li> </ul>
Borrowed seed (farm-saved seed from neighbours)	<ul style="list-style-type: none"> <li>- Availability (within walking distance)</li> <li>- Known quality</li> <li>- Low cost</li> <li>- Small quantity available</li> </ul>	<ul style="list-style-type: none"> <li>- Diseases</li> <li>- Mixed varieties</li> </ul>
Clean seed (see description in section 4.2)	<ul style="list-style-type: none"> <li>- Disease-free</li> <li>- High-yielding</li> <li>- Credit facility</li> </ul>	<ul style="list-style-type: none"> <li>- Leads to indebtedness if crop fails</li> <li>- Expensive (cost of seed + cost of credit)</li> <li>- 12% interest on the loan (at end of season)</li> </ul>
Certified seed (provided by government entities)	<ul style="list-style-type: none"> <li>- Disease-free</li> <li>- High-yielding</li> </ul>	<ul style="list-style-type: none"> <li>- Not available locally (have to go to Tigon, no dealers sell it)</li> <li>- Expensive (KSh3,500 for 50 kg) (cost of seed + cost of credit)</li> </ul>
Local market seed <sup>a)</sup> (farm-saved seeds from unknown farmers)	<ul style="list-style-type: none"> <li>- Cheap (cheaper than from the neighbours)</li> <li>- Readily available</li> </ul>	<ul style="list-style-type: none"> <li>- Unknown source</li> <li>- Mixed varieties</li> <li>- Diseased</li> </ul>

Source: Focus group discussion with a group of 12 women farmers in Njabini, Kenya on 25 April 2013.

a) Seed from the local market may be either (a) that which is saved deliberately by farmers for selling in the local market, or (b) excess produce which a farmer is not able to sell in the market and is therefore offered as seed to avoid the risk of loss.

Some of the farmers (both women and men) interviewed in Njabini said that they were willing to buy seed from the formal sector (certified seed) occasionally but it was either not available or had to be brought from a distant place (which entails additional transport costs). Thus the research for this HRIA shows that the farmers who buy certified seed from the Kenyan Agricultural Development Corporation (ADC) tend to be those living in the vicinity of ADC, farmers who can afford the transport costs for seed potato or farmers organized in groups.

The comparative study on seed prices in all three countries offers unequivocal results: seed procured through formal channels is significantly higher in price compared to seed obtained through informal channels.

For seed of RR maize in the Philippines, the price ratio is 1 to 10 (Table 8). For planting material for beans and peas in Northern Philippines, the price differential is as follows: PhP20–40/kg for farm-saved seed/planting material (the informal system) compared to PhP300–600/kg for planting material (not PBR-protected) sold by private companies.

**"KARI IS THE ONLY PUBLIC BREEDER FOR POTATO SEED AND RELIES HEAVILY ON THE AGRICULTURAL DEVELOPMENT CORPORATION (ADC), A STATE CORPORATION FOR SEED MULTIPLICATION. BUT ADC DOES NOT HAVE DISTRIBUTION POINTS IN KENYA: FARMERS INTERESTED TO BUY POTATO SEED FROM ADC HAVE TO TRAVEL TO THEIR MAIN PRODUCTION CENTRE, WHICH IS LOCATED ABOUT 150 KILOMETRES FROM NJABINI."**

**Kenya research team for this HRIA**

**TABLE 8: COMPARISON OF SEED PRICE ACCORDING TO SEED SOURCES FOR RR MAIZE IN THE PHILIPPINES**

<b>SOURCE OF SEED</b>	<b>PHILIPPINE PESOS</b>	<b>US DOLLARS</b>
Farm-saved seed ( <i>sige-sige</i> )	30–50/kg	0.66–1.1/kg
Seed obtained through informal channels ( <i>ukay-ukay</i> ) <sup>a)</sup>	120–200/kg	2.6–4.4/kg
Seed bought through private dealers (slight variation in price depending on the company)	533–578/kg	11.74–12.74/kg

Source: Interviews with 62 farmers in Lamifew, Sarangani, The Philippines, May 2013.

a) This includes second- or third-generation RR seed obtained from other farms or 'leftover' seed collected from seed production sites and sold informally.

Most farmers interviewed in Kenya at one point or another purchase certified or clean seed. However, the decision to buy is critically dependent on the household's cash availability, as the seed purchase competes with other essential household expenditures such as for food, education and healthcare. Consequently, purchasing seed is often of low priority.

Thus, the farmers' rationale for relying on farm-saved seed depends on its price. In Kenya, for both maize and potato, farm-saved seed is considerably cheaper than seed from the formal sector. For instance, a 50 kg bag of potato seed from the formal sector costs KSh2,500 (\$28.5) when purchased from the government or from a registered trader, compared to KSh1,000 (\$12) for the same quantity when

purchased from the local market (or neighbours). In the case of maize, maize seed from the formal sector costs between KSh100 (\$1.14) and KSh225 (\$2.57) per unit compared to KSh50 (\$.57) per unit of seed of a local variety.

In Peru, in the potato-growing area of Huayllacoccha, farmers overwhelmingly reuse planting material from the previous cropping seasons, but some farmers also get seeds from INIA or from different sources in Cusco seed markets and fairs. Seed from informal sources costs approximately \$0.30 per kg (in Andahuaylas), whilst INIA sells seed for \$1.

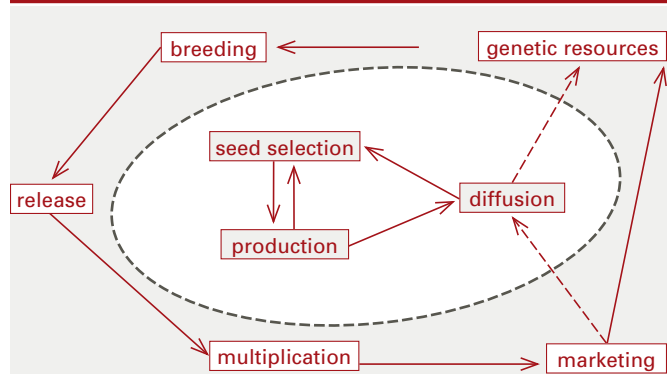
Interviews with women from female-headed households in the Cusco region of Peru reveal that despite the presence of several “organized seed growers” in their village, these women only use their own farm-saved seed because this is the cheapest way of accessing seed for them (even “quality seed” produced locally by organized seed growers is beyond their means). When asked why local farmers were not purchasing seed from them, one of the seed growers in Huayllacoccha exclaimed: “Where will people find the 1.5 soles [approximately \$0.50] per kg to buy seed?!” The high cost of seed has to be looked at in the wider context of household income and expenditures, which is discussed in section 4.5.

### Interplay between the formal and the informal seed systems

The field studies revealed insightful findings in terms of the way in which improved/protected<sup>27</sup> varieties from the formal seed system enter into the informal seed system, and gradually become a part of it. This is an important point because it shows that UPOV 91, by restricting<sup>28</sup> the saving, exchanging and selling of protected varieties, potentially impacts not only on the adoption by farmers of varieties developed by the formal sector, but also on the informal seed system. The flow of resources between the formal and informal seed systems has also been highlighted in a study by Louwaars and De Boef (2012), as shown in Figure 1. To improve the linkages between the formal and informal seed systems, Wageningen University in the Netherlands with its partners has developed the Integrated Seed Sector Development (ISSD) approach,<sup>29</sup> which also supports a differentiated PVP system that incorporates different levels of protection for different users and crops (De Jonge, 2013).

The flow of resources between the formal and informal seed systems is illustrated by the following examples. In Peru, the research team looked at a seed growers’ association located in Huayllacoccha. The seed growers (*semilleras*) were selling improved (but not PVP-protected) varieties obtained through INIA from 1990 to 1995. Their activity – though discontinued in 1995 due to an increase in formal requirements – was seen by INIA as a means to standardize the production of good, healthy and reliable seeds, and it contributed to the diffusion of varieties released by INIA in farmers’ fields. Likewise, with respect to broad bean, the research team found that three varieties released by INIA from 2004 to 2011 (Muña Angelica, Hinen Carmen and An-

FIGURE 1: LINKAGES BETWEEN THE FORMAL AND INFORMAL SEED SYSTEMS



Source: Louwaars and De Boef, 2012

Note: The inner circle visualizes the informal seed system, the outer circle the formal seed system. The linkages are indicated by dashed arrows.

toniana) were still being grown in farmers’ fields, and had effectively been integrated into the informal seed system (on average, farmers from the Province of Canchis reuse broad bean varieties for three cycles).

The research team in Kenya came across an interesting means of procuring seed which they call “the escapee phenomenon”, whereby farmers avail themselves of non-officially released improved varieties from government demonstration plots and field stations. Local scientists refer to these as “escapees”, to show that improved plant material has, without formal authorization, reached farmers’ fields. This practice, which is very common in Kenya according to KARI scientists (and which scientists appear to ‘live with’ without any difficulty), increases the genetic pool at the disposal of farmers as farmers are able to access material that in the long run may not be formally released to them.<sup>30</sup>

Further, by not applying for plant breeders’ rights on new varieties<sup>31</sup> and by employing participatory approaches in varietal development, the public sector contributes immensely to the maintenance and renewal of genetic diversity.

The above examples show that in all of the three case-study countries there is a movement of varieties from the formal to the informal seed sector. So if the varieties from the formal sector become protected under UPOV 91-type laws which restrict use, exchange and sale by farmers, the adoption and diffusion of such varieties by the informal seed sector will be limited.

### 4.3 UPOV 91 AND ACCESS TO SEEDS THROUGH INFORMAL CHANNELS

On the basis of the findings in section 4.2, taking into account the potential impact of UPOV 91 restrictions, the main findings in this section are:

27 Because this is an *ex ante* study, it is important to note that while some of the improved seeds may currently not be protected, they can be in the future. For instance, due to budget cuts, there is a possibility that varieties from public breeding, including from CGIAR, will increasingly be PVP-protected (Louwaars et al., 2005).

28 More detailed information about these restrictions can be found in Table 4.

29 [www.issdseed.org](http://www.issdseed.org)

30 This flow of resources would be represented in Figure 1 by an extra dashed arrow from “breeding”/“release” to “diffusion”.

31 According to the researchers at KARI Tigon, KARI has not applied for grant of plant breeders’ rights in respect of the potato varieties they have released.



- UPOV91 restrictions on the use, exchange and sale of farm-saved PVP seeds will make it harder for resource-poor farmers to access seeds of protected varieties.
- With restrictions on the sale of protected varieties, farmers will lose an important source of income.
- UPOV 91 restrictions on the use, exchange and sale of farm-saved PVP seeds could negatively impact the functioning of the informal seed system, as beneficial interlinkages with the formal system will be cut off.

> From a human rights perspective, restrictions on the use, exchange and sale of protected seeds could adversely affect the right to food, as seeds might become more costly, harder to access, or of less good quality. They also could affect the right to food, as well as other human rights, by reducing the amount of household income which is available for food, healthcare or schooling. Therefore from a human rights perspective, it is essential to safeguard the practice of freely using, exchanging and selling seed/planting materials particularly among smallholder farmers.

In section 4.2 we saw that the informal seed system based on farm-saved seeds and the exchange and sale of seeds by farmers is the most important source of seeds (including seeds of improved varieties, some of which are PVP-protected) for small-scale farmers in the areas where research was carried out for this human rights impact assessment. Moreover, there is significant intermingling between the informal and formal seed sectors. This section looks at how UPOV 91 might affect the ways that farmers access seeds and what seeds they have access to and the human rights implications of this.

#### Scope of breeders' rights under UPOV 91

UPOV 91's Articles 14 and 15 concern the scope of the breeders' rights and exceptions to these rights. Article 14 defines the scope of breeders' rights, which includes every aspect of seed production and marketing: producing, conditioning, offering for sale, selling or other marketing, exporting, importing or stocking for purposes of propagating material of the protected variety. Article 15 deals with exceptions to breeders' rights. Article 15.1 specifies that the breeders' rights do not extend to "acts done privately *and* for non-commercial purposes" (emphasis added). According to the UPOV guidance document<sup>32</sup>, this exception covers the situation of subsistence farming where this constitutes the propagation of a protected variety exclusively for the production of a food crop to be consumed by that farmer and the dependents of the farmer (UPOV, 2011b). This exception does not allow farmers to exchange or sell seeds, given the very narrow interpretation of this exception in UPOV guidance document (De Jonge, 2014).

Article 15.2 provides for a limited farmers' exception. It gives countries the option to restrict the breeder's right so as to permit farmers to reuse for propagating purposes, on their own holdings, the seeds obtained from planting the protected variety on their own holdings. This exception has to be used "within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder". UPOV

interprets this provision as applying only to certain crops (where there was a common practice of farmers saving harvested material for further propagation) where farmers with small holdings (or small areas of crop) might be permitted to use farm-saved seed to a different extent and with a different level of or no remuneration to breeders than "large farmers". The definition of small and large farms is up to each UPOV member to determine.<sup>33</sup>

Article 15.1 (iii) limits breeders' right to enable breeding of other varieties (breeders' exemption), though in certain circumstances, the commercialization of the newly bred variety requires the authorization of the breeder of the protected variety.<sup>34</sup>

The implementation of these provisions is not homogeneous across the countries which have ratified UPOV 91. But however implemented, these provisions do prohibit the exchange and sale of protected varieties by farmers and limit the use of farm-saved seed.

A particular concern arises regarding Peru's implementation of Article 15.2 of UPOV 91 as its national legislation does not define "within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder". The Peru research team found that there appears to be no intention on the part of the National Institute for the Defence of Competition and Intellectual Property (INDECOPI) or INIA to develop any regulation or guidance on the matter. These bodies stated that only if and when a dispute arises between a farmer and a breeder as to whether the legitimate interests of the breeder has been safeguarded, will this provision be interpreted by the administrative body concerned – INDECOPI – and, if the case so warrants, by a national court. This situation creates legal uncertainty for all actors. Of particular concern is that in the absence of guidance on the matter, for fear of adverse repercussions farmers may be more reluctant to save seeds when using protected varieties or the court could apply a rather restrictive interpretation following precedents in other countries.

#### Possible impact of restricting exchange and sale of farm-saved seed

In section 4.2 we showed the importance of the use, exchange and sale of farm-saved seed for the livelihood of smallholder farmers in the three case-study countries, and that these practices also incorporate the use of improved varieties from the formal sector (with some of these varieties already being PVP-protected). It was also shown that these practices are crucial in generating important interlinkages between the formal and the informal sectors. In section 4.1 and in the preceding sub-section above, we described how the research for this HRIA demonstrated that PVP laws based on UPOV 91 would prohibit the exchange and sale of protected farm-saved seeds or propagation material by farmers and partially restrict their use even on the farmers' own holdings. Clearly when the basis of livelihood is adversely affected, there will be a direct impact on the right to food.

A similar observation on the direct impact of restrictions imposed by UPOV 91-like PVP laws on smallholder farmer livelihoods and food security is highlighted by De Jonge (2014): "Given that saving and exchanging seed is the

<sup>32</sup> For the UPOV guidance, see Table 1, note b.

<sup>33</sup> For an indication of which crops and what types of amounts may apply, see UPOV (2011b). This interpretation is partially quoted in Table 1, note c. It has to be noted that this UPOV guidance is not a binding interpretation.

<sup>34</sup> Please refer back to sections 2.1 and 4.1 for more detailed explanations of the scope of and exceptions to breeders' rights, how they are interpreted and how they affect the use, exchange and sale of protected varieties by farmers.

main source of seed for smallholder farmers in Sub Saharan Africa, it seems only logical to conclude that any PVP system that would effectively ban such practices is likely to have a strong negative impact on smallholder farmers' livelihoods and on national food security, especially because the burden for food production in these countries is still on smallholder farmers." (p. 105)

Farmers in Sarangani and Buguias were interviewed by the Philippine research team regarding this potential impact. The following are their responses to the question of what farmers would do if seed saving and exchange of seeds from the formal sector were restricted (if these seeds were protected and UPOV 91 were adopted and implemented in the country):

- be forced to buy seeds from traders
- still exchange seed amongst themselves
- go back to planting only traditional crops or shift to crops which are not protected
- request the government to provide seeds in order that they could continue to grow the crops on which they depend for their livelihood
- become poorer
- spend their savings
- get employment as hired labourers
- have no more food.

Reflecting on the eventuality that selling of planting materials from the formal sector would not be allowed (if these were protected and UPOV were adopted and implemented in the country), respondents in Buguias said:

- "There would [be] nothing for [schooling] allowance."
- "We would plant other [crops] for food."
- "There would [be] no more job [related to seed production and sale at farm level]."
- "We would have no more money for other household needs."
- "There would [be] no money to buy fertilizer and insecticide."

And one respondent also asserted that:

- "The seeds which could otherwise have been sold would be wasted."

In the village of Lamfifew those who have completely shifted to use of protected varieties like RR maize would suffer the most adverse effects if restrictions on the use of farm-saved seed were introduced. For crops where traditional, non-protected varieties which could easily be reproduced are still the first choice of farmers (banana, cassava), the impact would be less acute. Those who buy non-reproducible seeds every year (e.g., commercial vegetable hybrids like tomato, cauliflower, carrots or broccoli) would not be affected by any future restrictions on saving, exchanging and selling seed.

The potential and partial decline of seed exchange networks when the exchange of protected seeds is restricted, and the associated loss in social capital have also been raised as issues of concern. Farmers in the Philippines stated: "It is the culture of B'laan [indigenous peoples of Southern Mindanao] to exchange seeds... [and if such exchange is restricted]...the effect is not good in maintaining good relationships with other people, tradition will be lost." The

consequences of the decline of the informal seed systems in terms of loss of social capital, which is particularly vital for female-headed households, have been documented in several parts of South Asia (Mehta, 1996; Pionetti, 2005).

The research team in Peru also interviewed farmers about their view on possible impacts of restrictions imposed on potato or bean cultivation<sup>35</sup> through the implementation of UPOV 91. The team reported the following responses: The first impact, which is hard to measure, relates to a cultural effect stemming from the fact that someone has rights over a source of food, especially if these rights affect a potato variety, however important the innovation and added value of the variety is. Both *campesinos* (peasants) and farmers in Huayllacoccha and Canchis clearly indicated their opposition to someone "owning" a seed and imposing restrictions on its use. The second immediate impact would be an increase in the price of the protected seed. Even a minor increase in price has a direct effect on farmers. According to Huayllacoccha farmers, 50% of their budget is allocated for agricultural activity *per se*, 30% covers basic household needs (e.g., bread, noodles, vegetable oil, tuna, biscuits, etc.) and 20% covers other needs. Money is seldom saved except for purchasing seed and agricultural inputs (i.e., pesticides). The third impact is on women. Any minor variation in seed costs or migration to a new crop invariably affects women.

Thus, by curtailing options for accessing seed (like farm-saved seed or seed distributed through informal channels at affordable rates), the introduction of UPOV 91 could increase farmers' dependence on the formal seed sector, or reduce their access to improved seeds. This would raise additional concerns such as risk of indebtedness, as discussed in section 4.5.

#### 4.4 TRADITIONAL KNOWLEDGE RELATED TO SEED CONSERVATION AND MANAGEMENT

The main findings in this section are:

- Farmers apply traditional knowledge in the selection, preservation and storing of seed.
- Traditional knowledge is the basis on which local innovation and *in situ* seed conservation take place.
- Women's knowledge is of particular relevance to local seed and food systems, especially in the Andean region.
- The possible adverse effects of PVP laws on traditional knowledge systems are usually ignored when adopting these laws.

> From a human rights perspective, UPOV 91-type restrictions could contribute to the erosion of traditional practices and seed management systems (which could incorporate protected varieties) and consequently adversely impact on cultural rights, minority rights, indigenous peoples' rights, women's rights, as well as on biodiversity and the right to food.

As noted above, the case studies carried out for this impact assessment confirm our initial hypothesis that all the communities studied predominantly use farm-saved seeds, along with seeds exchanged or bought in the informal system.

Informal seed systems are always interconnected with corresponding knowledge, for instance, on how to select

35 The varieties Antefñita (potato) and Antoniana (bean) which are grown by farmers in the case-study region to a limited extent are at present already subject to PBR applications by INIA.

seeds for the next growing season. All the relevant literature confirms the importance of traditional knowledge for food security and conservation of agrobiodiversity, especially the traditional knowledge held by women (see, for instance, Howard, 2003; IAASTD, 2009a; FAO, 2005b). This includes knowledge about varieties, how to improve them and adapt them to local growing conditions such as soil quality, pests and diseases.

As pointed out by the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD), “women often experiment with and adapt indigenous species and thus become experts in plant genetic resources” (IAASTD, 2009a, p. 78). Seed preservation, biodiversity management and food culture are also important. Some traditional crops determine the social status of men and women and are linked closely to traditional knowledge and culture. They are also integral to social capital because of their important roles in ceremonies and traditional meals (Howard, 2003). Changes in crop diversity and means of accessing seed can alter social capital formation and power relations at household level, with adverse impact on women’s knowledge systems (Howard, 2003).

Women have different means of accessing and exchanging seed (FAO, 2007). Because women tend to manage complex farming systems, they have developed multiple assessment criteria for crop system performance, encompassing risk minimization, vulnerability and other objectives that have been largely overlooked by agricultural, food and seed policies.

This section examines how pursuing and preserving this knowledge could be restricted by UPOV 91-type PVP laws. The restrictions on saving, exchanging or selling protected seeds or propagation material described in sections 4.1 and 4.3 above could have particular impacts on traditional knowledge and traditional seed-saving practices, which are a crucial pillar of the informal seed system.

Table 9 shows a range of exchange arrangements for maize from this HRIA’s research in the Philippines.

“SOME PLANT BREEDERS DO RECOGNIZE THE VALUE OF FARMERS’ KNOWLEDGE OF PLANT GENETIC RESOURCES. A PLANT BREEDER IN PERU SPOKE OF HER PARTICIPATION IN A SEMINAR WITH LEADING INTERNATIONAL SEED COMPANIES: ‘THEY ASKED ME: “WHY DO YOU CARE ABOUT POOR PEOPLE?” I RESPONDED: “IT’S THE FARMERS WHO MAINTAIN ALL THIS DIVERSITY, WITHOUT ANY SUBSIDIES. AND WE USE THIS DIVERSITY IN OUR BREEDING PROGRAMMES!” I BELIEVE THERE SHOULD BE SOME WAY TO RECOGNIZE THE WORK OF FARMERS.’”

Peru research team for this HRIA

TABLE 9: FARMERS’ PRACTICES IN SEED SAVING, EXCHANGE AND SEED SELECTION FOR THREE MAIZE VARIETIES IN LAMLIFEW HAMLET, SARANGANI PROVINCE, PHILIPPINES			
VARIETY	SEED-SAVING PRACTICES	SEED EXCHANGE/PROCUREMENT PRACTICES	SELECTION CRITERIA
		Exchange arrangement <sup>a)</sup> With whom	
Tinguib	Farm-saved seeds for the next planting season	1:1 or 1:2	– Exchange with farmers, relatives, friends, neighbours – Purchase from traders/seed stores
RR Monsanto (protected by PVP)	2-3 cycles (generations) and sometimes up to 6 cycles	1:1 or 1:2	– Initial <i>ukay-ukay</i> seeds are purchased from one or two farmer-producers; then the farmers recycle seeds from succeeding generations – Exchange with farmers, friends and relatives – Purchase from traders/seed stores
RR Pioneer (protected by PVP)	None	None	– Purchase from traders/seed stores

a) The common practice is that a farmer gets a certain amount of seeds for sowing from another farmer and gives back the same or double the amount after harvest.  
 b) Kernels are bigger, hence the resulting plants are more vigorous  
 c) More seeds per cob

The common practice of selecting maize seeds for the next planting season improves the maize population by increasing the frequency of desired traits (such as big kernel, big ears, good-quality seeds) in the next generation. Different strains of a variety are created within and among farming communities. This is the principle behind positive mass selection as a method of varietal improvement, which farmers have been practising since time immemorial. In Kenya farmers mix different traditional open-pollinated varieties

on their farms as a security mechanism for the harvest: if one of the varieties fails, others may survive certain pests, diseases or climatic conditions.

Exchanging seeds with relatives, neighbours and friends makes possible the retention of varieties grown in the community: if one farmer suffers a total loss, others may well have been able to safeguard the seeds. In the communities we studied, like in many other parts of the world, biodiversity is managed at the collective level, and not in-



dividually. This makes it a more resilient system of seed preservation.

Evidence from all three countries, particularly the Philippines, clearly suggests that if PVP laws modelled on UPOV91 were introduced and restrictions on saving, exchanging and selling PVP seed were imposed, farmers would gradually lose their know-how related to seed selection and seed preservation, to the extent that protected varieties play a role in their seed system. They would also gradually lose their ability to make informed decisions about what to grow and on which type of land, how to respond to pest infestation, or how to adapt their seed system to changing climatic conditions. The process of “deskilling” of farmers – which is already underway with the decline of local agrobiodiversity – could become more acute if restrictions on use of seeds were introduced through UPOV91-style laws.

UPOV91 does not acknowledge farmer know-how regarding varietal selection nor the knowledge systems of women in the management of plant genetic resources. Farmers’ varieties in most cases cannot be protected (as they often cannot meet the uniformity or stability criteria) and there is no provision recognizing that breeders have been sourcing their genetic material from farming communities over generations. In addition, UPOV does not allow disclosure of origin and legal provenance in PVP applications – an important tool to deal with misappropriation of traditional knowledge (see section 5.2).

Also important, however difficult to quantify, are the socio-cultural dimensions of traditional seed management. Some respondents in Peru, for instance, remarked that it is unthinkable that a crop variety could be owned by anyone, referring to the strong cultural values linked to Andean agriculture (see section 4.3). In the Philippines several farmers said that if the tradition of seed exchange were lost, it would “have a negative impact for the relationship with other people”. The decline of food culture affects many people’s sense of dignity and identity, which is vested in their relationship to food and traditional varieties. Women farmers from the village of Sufatubo in the Philippines declared: “We won’t discard this variety [Tiniguib, a local variety] because it came from our parents... and because it is for our food. We won’t replace it because it is close to our hearts.”

### Laws protecting traditional knowledge

Beyond its cultural values and its role in conserving and maintaining agrobiodiversity and resilient seed and food systems, the protection of traditional knowledge is a legal requirement in all three countries studied. The International Treaty on Plant Genetic Resources for Food and Agriculture requires parties to protect traditional knowledge relevant to plant genetic resources for food and agriculture. Also the Nagoya Protocol (ratified by only Kenya so far, out of the three case-study countries) requests Parties to “not restrict the customary use and exchange of genetic resources and associated traditional knowledge within and amongst indigenous and local communities” (Article 12.4).

From the human rights perspective, traditional knowledge is protected under several international instruments, including the International Covenant on Economic, Social and Cultural Rights (ICESCR), the International Covenant on Civil and Political Rights (ICCPR)<sup>36</sup> and the UN Declara-

### Traditional knowledge relating to potato seed in Kenya and Peru

FROM OUR INTERVIEWS WITH FARMERS, IT WAS EVIDENT THAT THEY DREW UPON A RICH BODY OF TRADITIONAL KNOWLEDGE. HERE ARE SOME EXAMPLES OF THE APPLICATION OF SUCH KNOWLEDGE BY FARMERS GROWING POTATOES IN KENYA AND PERU.

IN KENYA, FARMERS SELECT TUBERS THAT ARE DISEASE-FREE, EXTRA SMALL TO MEDIUM-SIZED AND ROUND IN SHAPE. OTHER FARMERS SELECT HEALTHY PLANTS WITH GOOD PHENOTYPIC ACCEPTABILITY WHILE STILL IN THE FIELD AS SOURCE OF THE PLANTING MATERIALS. EXCHANGING PLANTING MATERIALS OF POTATO IS DONE TO REJUVENATE THE VARIETY; FARMERS HAVE OBSERVED THAT THE VARIETY’S PERFORMANCE DECLINES AFTER TWO TO THREE SEASONS DUE TO DISEASE BUILD-UP. FARMERS EXCHANGE AND SELL PLANTING MATERIALS WITH FARMERS FROM A DIFFERENT COMMUNITY (WHERE THE DISEASE IS NOT PREVALENT) TO PREVENT FURTHER SPREAD OF THE DISEASE, ESSENTIALLY CURBING THE DISEASE/INSECT POPULATIONS TO AVOID YIELD LOSS.

IN PERU, SEED POTATOES ARE PRESERVED IN DRY SPACES EITHER INSIDE THE HOUSE OR IN WHATEVER PROTECTED CONSTRUCTION IS AVAILABLE. A LAYER OF STRAW OR GRASS IS PLACED ON THE FLOOR; SEED AND MUÑA (*MINTHOSTACHYSSETOSA*) ROOTS AND/OR EUCALYPTUS LEAVES ARE THEN PLACED ON TOP OF THIS TO REPEL DISEASES, THE ANDEAN GORGOJO (WEEVIL) AND POTATO TUBER MOTHS. FINALLY, ANOTHER LAYER OF STRAW OR GRASS IS ADDED. SUCH KNOWLEDGE ON STORING SEED POTATOES TILL THE NEXT PLANTING SEASON IS CRUCIAL TO ALLOW FARMERS TO USE THEIR OWN PLANTING MATERIAL OVER SEVERAL YEARS.

tion on the Rights of Indigenous Peoples. The UN Human Rights Committee said, in a quasi-judicial ruling in 2009, that if a State interfered with a culturally significant activity, such interference would only be acceptable under human rights law if the community had had the opportunity to participate in the decision-making process, which “requires not mere consultation but the free, prior and informed consent of the members of the community. In addition, the measures must respect the principle of proportionality so as not to endanger the very survival of the community and its members.”<sup>37</sup>

The complaint in that case was brought by an indigenous woman; however, given that the ICCPR refers to individuals belonging to minorities, the free, prior and informed consent standard set out by the Human Rights Committee in its ruling should apply equally to non-indigenous minorities when a culturally significant activity is being impacted (*State of the World’s Minorities and Indigenous Peoples*, 2012). The question of participation in, and consent to, revisions of PVP laws is discussed further in Chapter 5.

In addition to the international legal framework, the three case-study countries have national laws protecting

36 Which has been ratified by Kenya, Peru and the Philippines.

37 *Poma Poma v. Peru* (communication no. 1457/2006, adopted 2009).

“INDIGENOUS PEOPLES HAVE THE RIGHT TO MAINTAIN, CONTROL, PROTECT AND DEVELOP THEIR CULTURAL HERITAGE, TRADITIONAL KNOWLEDGE AND TRADITIONAL CULTURAL EXPRESSIONS, AS WELL AS THE MANIFESTATIONS OF THEIR SCIENCES, TECHNOLOGIES AND CULTURES, INCLUDING HUMAN AND GENETIC RESOURCES, SEEDS, MEDICINES, KNOWLEDGE OF THE PROPERTIES OF FAUNA AND FLORA, ORAL TRADITIONS, LITERATURES, DESIGNS, SPORTS AND TRADITIONAL GAMES AND VISUAL AND PERFORMING ARTS.”

**UN Declaration on the Rights of Indigenous Peoples Article 31**

traditional knowledge or indigenous seeds. The Peruvian law sets out a general framework for traditional knowledge protection. It makes use of contracts (traditional knowledge know-how licences), registers, compensation funds and other mechanisms to offer a “package” of protection measures for indigenous peoples (including Andean and *campesino* farmers). The Philippines’ Indigenous Peoples’ Rights Act recognizes indigenous peoples’ rights to full ownership and control over indigenous seeds and other indigenous plant genetic resources. In Kenya, the 2010 Constitution obliges the State to protect indigenous seeds and plant varieties (see section 5.2).

Although the protection of traditional knowledge is anchored in numerous international and national laws, the possible adverse effects of PVP laws on traditional knowledge systems are usually ignored when adopting PVP laws.

#### 4.5 SEED CHOICE, RISK AND HOUSEHOLD BUDGETS

The main findings of this section are:

- Improved varieties often require more inputs compared to local varieties, pushing up production costs. In the case of protected varieties, seed costs drive production expenses further up.
- Higher production cost poses a risk for cash-strapped farmers as it affects the stability of their household budget and the increased production cost competes with other essential household expenditures.

> From a human rights perspective, the higher (input) costs of PVP-protected varieties pose risks for vulnerable farmers by affecting the stability of their household budget and decreasing the financial resources available for basic needs such as food, healthcare and education.

The following observations on how UPOV91-based PVP laws reduces options for small farmers to access seeds through informal channels and increase dependency on the formal seed system, form the baseline for the analysis on the impact on household budgets:

- The experience in Europe and other regions with UPOV 91-type laws and seed laws on varietal registration and seed certification (which has been in place for several years) has shown that such laws translate into reduced options for farmers to access seed through informal channels (Visser, 2002; Joly and Ducos, 1993). As a result, formal

seed supply becomes the primary source of seed and farmers are left with few options other than buying seed from public or private seed suppliers.

- As stated in the previous sections of this chapter, this impact assessment has shown that one impact of restricting the use, exchange and sale of farm-saved seeds would be to put pressure on the informal sector, with the result that farmers increasingly rely on the formal sector.
- It is probable that the introduction of UPOV-like PVP laws will increasingly channel research resources to PVP-protected high-input varieties (including non-food and export crops), leading to reduced support for the informal seed system. This was also a finding of a study commissioned by the World Bank (Louwaars et al., 2005).

For the most vulnerable households, anticipating and managing risks is vital. Even a small external shock can cause a vulnerable household to fall below the poverty line (World Bank, 2013). The main risks that farming households face include weather shocks, crop failure and price fluctuations. In this section we discuss how the effects of UPOV 91-type laws can interplay with small-scale farmers’ risk management strategies, and how the human rights implications of these show up in the stability of household budgets. Based on seven case studies of household budgets that we carried out for this HRIA, we scrutinize the household budget of farming families.<sup>38</sup> This proved a useful approach to understanding the limitations vulnerable households face, and the levels of risk they are confronted with.

#### Risks, decisions and small-scale agriculture

Several parameters come into play when assessing a household’s level of exposure to risk. One is that risk will be greater in a household that is highly dependent on agriculture, as it will be more vulnerable to crop failure or price changes, and will have fewer fallback options than a household with more diversified sources of income. Important to note in this respect is that UPOV 91 does not allow farmers to access protected seeds from other farmers in case of crop failure or seed shortfalls, a common risk mitigation practice employed by small-scale farmers (see, e.g., McGuire, 2008). In addition, the most vulnerable households tend to spend a higher percentage of income on food, health and education. Thus any unexpected drop in income or increase in expenditure can have a disproportionately strong and lasting impact on their right to food, health and education, as compared to less vulnerable households. Consequently, an important differentiating factor between vulnerable households and well-off households is that the former will seek to minimize risk rather than to maximize yield.

Illiteracy can compound a household’s risk factor; poor reading, writing and counting skills can lead to miscalculations (of yields, costs, etc.) or to being discriminated against when purchasing inputs. The research team in Peru characterized the accountancy system farming families rely on as “informal and subject to perceptions rather than [being based] on at least basic cost/benefit calculation”.

Although the potential for higher yields is there, commercial varieties are very often not developed with the farming practices (small pieces of land, hand processing instead of mechanical processing, little and insecure availability and use of inputs) and ecological conditions (marginal lands,

38 We undertook two case studies on household budgets in Kenya, three in the Philippines and two in Peru.

harsh climatological conditions) in which many smallholder farmers operate in mind. This leads to higher crop failure risks, which are relatively more devastating for smallholder farmers who have no insurance policies and no back-up resources to overcome such crop failures, especially when they are mired in debt from buying expensive inputs.

#### Input costs associated with improved varieties

The higher performance of improved varieties developed by formal breeding institutions is often the result of applying adequate doses of inputs such as fertilizers and water

(Chambers, 1997; De Schutter, 2009). Thus, improved varieties usually entail higher production cost as compared to local ones.<sup>39</sup> This has also been confirmed by the field research undertaken for this HRIA. Table 10 shows the higher input costs for growing an improved, commercial variety compared to a local variety in the Philippines. Both the farming households surveyed grow the local as well as the commercial maize variety.

**TABLE 10: COMPARISON OF INPUT COSTS FOR CULTIVATING A LOCAL MAIZE VARIETY AND A COMMERCIAL RR MAIZE VARIETY IN LAMLIFEW, PHILIPPINES (FOR 1 HA, IN PHILIPPINE PESOS)**

Input cost	TINIGUIB (LOCAL VARIETY) (NOT PVP-PROTECTED)		RR MAIZE (PVP VARIETY) – ACCESSED THROUGH INFORMAL SEED SYSTEM		RR MAIZE (PVP VARIETY) – ACCESSED THROUGH FORMAL SEED SYSTEM
	Farm 1	Farm 2	Farm 1	Farm 2	
Seed <sup>a)</sup>	1,125	900	3,600	2,400	9,700–10,400
Fertilizers (N, P, K)	1,500	4,400	15,000	8,800	8,800–15,000
Herbicide (Roundup)	–	–	1,400	1,800	1,400–1,800
Manual weeding	5,250	3,000	–	–	
<b>Total input costs</b>	<b>7,875</b>	<b>8,300</b>	<b>20,000</b>	<b>13,000</b>	<b>19,900–27,200</b>

a) It is important to note that the two households studied access RR seed through informal channels, as is generally the case in Lamlifew. However, if the total seed cost was calculated using the price at which Syngenta and Monsanto actually sell their seed, the cost of RR maize seed (for one hectare) would be PhP9,700 and PhP10,400 respectively. To calculate the total input cost including seeds from the formal seed system, the whole spread of costs regarding the other inputs has been taken into account.

**“IN THIS PROCESS [OF GRANTING TEMPORARY MONOPOLY PRIVILEGES TO PLANT BREEDERS THROUGH THE TOOLS OF INTELLECTUAL PROPERTY] ... THE POOREST FARMERS MAY BECOME INCREASINGLY DEPENDENT ON EXPENSIVE INPUTS, CREATING THE RISK OF INDEBTEDNESS IN THE FACE OF UNSTABLE INCOMES.”**

**De Schutter, 2009**

One reason why small-scale farmers continue to grow local varieties in many parts of the world is precisely that these do not require high levels of fertilizer use. Local varieties are part of low-input farmers' risk minimization strategy. In Sarangani the Philippines research team found that farmers continue to grow the local maize variety Tiniguib because (i) it provides the staple food, with a taste people are accustomed to, (ii) it can be planted in sloping areas (the majority of their farms are in sloping areas), and (iii) “it will still produce cobs with minimal or no application of fertilizers”, as one farmer puts it.

If the main types of seed available require higher levels of inputs, this would expose the most vulnerable of households to an increasing level of risk, either through having to buy inputs on credit, or by risking sub-optimal yields due to lower-than-recommended levels of input application.

Vulnerable small-scale farmers' lack of resources means that most of them practise low-input agriculture to avoid the cost of improved seeds or the related inputs. This is also a risk minimization strategy. Indeed, rising or fluctuating input costs are an important risk factor. One farmer interviewed in Kenya says that seed prices have been rising since 2008. Data collected by the research team confirms this: between 2009 and 2013, the cost of potato seed rose by 82%. Meanwhile the cost of fertilizers rose by 132% and pesticide by 61%. If sales income from their crops does not similarly increase, farmers are left with a lower disposable household income.

Fluctuating production costs are a phenomenon farmers have no control over, but still have to cope with. Two common responses are the purchase of inputs on credit or application of less than the recommended doses of fertilizer or pesticide. Most seed companies publish lists of recommended doses of fertilizers and pesticides for optimum production.<sup>40</sup> Findings from this project's research in the Philippines and Kenya clearly confirm results from research elsewhere (Druihe and Barreiro-Hurlé, 2012) that many small-scale farmers apply less than the recommended amount, which has an adverse impact on yield.

#### Risk of indebtedness

Many farming households do not have the financial capacity to invest in inputs at the beginning of the growing season,

<sup>39</sup> If seeds of improved varieties are protected, it will further add to the production cost.

<sup>40</sup> For an example in the Philippines, see [www.pioneer.com/home/site/philippines/farming/hybrid-corn-production-guide](http://www.pioneer.com/home/site/philippines/farming/hybrid-corn-production-guide)





**Women farmers describing and ranking coping strategies to overcome seasonal food insecurity, Sufatubo, Glan, Sarangani province, The Philippines.**

so small-scale farmers who grow commercial crops are very dependent on credit. Information collected in Peru for this study shows that almost 50% of farmers in Huayllacocha require loans to undertake their agricultural activities and purchase inputs. The country researchers in Kenya note that there are new credit opportunities in the potato-growing area of Njabini: “Credit for agricultural inputs has increased in recent years due to the integration of production by Community Based Organizations such as Ukulima Bora, private entrepreneurs like Midlands (a potato-processing company), and other private companies who supply inputs on credit.” Interest rates range from 12% to 18.5% annually, according to farmers from Njabini. As conditions for accessing credit via the formal system can be quite strict,

farmers often have little option but to get loans through the non-formal system, where loans come at much higher interest rates.<sup>41</sup> Thus, higher input costs for varieties purchased through the formal seed sector translate into a higher risk of indebtedness for vulnerable households.

Summing up, the stability of household budgets of resource-poor farmers could be threatened by both the short-term risk of higher production costs (notwithstanding potentially higher yields) and the longer-term risk of indebtedness, with potentially negative effects on food expenses and, ultimately, on the right to food.

41 A table comparing the number of households relying on loans, the sources of loans and interest rates in the Philippines can be found in Annex 4.

## 5 ISSUES OF CONCERN WHEN IMPLEMENTING PVP LAWS

This chapter examines various issues of concern which have to be taken into account when implementing PVP laws. Some of the issues are not restricted to laws based on UPOV 91, but affect all PVP laws. The first issue presented in this chapter concerns the human rights-inconsistent process for the development and implementation of PVP-related laws. On this point, the findings of the field research are clear and unequivocal.

The second issue concerns situations where the implementation of UPOV-type laws could have a negative impact on the ability of a State to comply with other legal obligations. Indeed, in-country research for this impact assessment revealed several instances where the implementation of PVP laws based on UPOV 91 can undermine public interest laws, policies and processes.

### 5.1 PROCESS FOR ADOPTING PVP LAWS

The main findings from this research on the way that PVP laws<sup>42</sup> are adopted, revised and implemented are:

- The processes lack transparency; none of the three governments in the case-study countries provided sufficient information on the process.
- There has been insufficient participation of affected stakeholders in the process of revising or adapting the PVP laws, especially in Kenya and Peru.
- None of the country research teams could find evidence that the impacts or likely impacts of new or revised PVP standards on livelihoods, human rights or nutrition, or on the poorest and most vulnerable sectors of the population, had been assessed.
- The three governments are not sufficiently monitoring how PVP-related laws are impacting on different segments of the population within their respective countries, thus missing opportunities to mitigate any adverse effects.

> The lack of participation in the formulation of national PVP policies and the absence of human rights impact assessments of such new policies are inconsistent with the three countries' human rights obligations. Moreover, it increases the likelihood of enacting laws and policies that are themselves not human rights-compliant.

### Lack of information and participation in the adoption and reform of PVP-related laws, and lack of assessment of likely impacts

#### Kenya

Kenya joined UPOV 78 in 1999. In January 2013 amendments to the seeds and plant variety protection legislation came into force. These amendments were designed to bring Kenya's legislation into compliance with UPOV 91.<sup>43</sup> Documentation relating to the process surrounding the adoption of UPOV 78 and the more recent legislation is not available, so the research team consulted parliamentary records<sup>44</sup> and carried out interviews with policy-makers, farmer organizations and breeding companies to find out what kind of information the Kenyan government provided to stakeholders during the amendment process and the extent to which it consulted with affected groups. The research team found no evidence of consultations leading to the enactment of the UPOV 91-compliant legislation. Other than the Seed Trade Association of Kenya (STAK) and Kenya Plant Health Inspectorate Service (KEPHIS), no association (including farmers' associations) reported having been consulted or contributing to the process leading to the enactment, and "neither the Ministry of Agriculture nor KEPHIS allude to having engaged in consultations with farmers", the research team reported.

Information and participation are also found wanting in regional efforts to harmonize seed legislation and plant breeders' rights laws. For, instance, under the African Regional Intellectual Property Organization (ARIPO), a draft regional framework legislation for protection of plant varieties has been modelled on UPOV 91. The Kenyan research team reported that organizations such as the Kenya National Federation of Farmers Union (KENFAP) complained of not having been aware of, involved in or consulted in these processes, particularly the ARIPO process. Consultations should have been conducted not only on the content of the regional law, but also on whether a centralized regional system would even be suitable for Kenya.

Although informed observers have expressed concern that implementation of UPOV 91 would have "significant adverse consequences for small-scale farmers that dominate the agricultural landscape of ARIPO Member States (including Kenya), as well as for food security, agricultural biodiversity, and national sovereignty in Africa" (de Boef et al., 1995), the Kenyan research team could find no evidence that the government mandated any assessments of the likely impacts of UPOV 91-type legislation.

Discussions that the Kenyan research team had with KEPHIS, the Ministry of Agriculture and STAK in 2013 reveal

42 The findings are not restricted to UPOV-style PVP laws. This section should therefore not be seen as an impact assessment of UPOV 91 but rather as an assessment of processes to enact and implement PVP laws in general.

43 The recent amendments make significant substantive changes to the PVP law in terms of limiting farmers' rights and expanding breeders' rights (see also Table 4).

44 Kenya National Assembly, Official report, 15 August 2012.

that boosting trade in agricultural products at the regional and international levels was the key driver and primary consideration behind the UPOV 91-consistent amendments. The Ministry of Agriculture and KEPHIS pointed to the flower industry as the best example to justify this reasoning. However the flower industry has been booming since 1988 (i.e., even before PVP was introduced [Eaton, 2013]) and continued to boom under the previous law.<sup>45</sup>

Examination of the debate in Kenya's Parliament during the motion to pass the seeds and plant varieties amendment legislation gives credence to the notion that increasing trade was the primary driver. The Minister of Agriculture provided the rationale for the amendment as: the need for compliance with UPOV 91; the need to harmonize the law with that of other countries in the region; to enhance self-regulation in the seed industry; to enhance penalties to deter malpractices in the industry; to provide legal anchorage to the national plant genetic resources centre; and expansion of the jurisdiction of the Seeds and Plants Tribunal. One of the Members of Parliament did observe that the amendment law appeared to put a lot of emphasis on breeders' rights and less on conservation of plant genetic resources, noting that plant genetic resources were important for food security.<sup>46</sup> However, this concern has not yet found articulation through any proposed study of likely effects of PVP on vulnerable groups, on agricultural diversity or on the right to food.

The Kenyan government is now planning to join UPOV 91 and government statements indicate that public consultations are planned in relation to Kenya's membership of UPOV 91. However, unless substantially amended, the 2013 legislation, which is modelled on UPOV 91, reduces considerably the scope for an outcome which takes into account the needs of small-scale farmers and the informal seed sector.

## Peru

The UPOV Convention (based on the 1991 Act) entered into force for Peru in August 2011 (UPOV, 2011a). This was the culmination of a multi-stage process of consolidation and strengthening of intellectual property rights in Peru, in which the free trade agreement (FTA) between the US and Peru in 2006 marked an important milestone.

Plant variety protection has been in force in Peru since 1993, following the adoption of Andean Community Decision 345 which established a common regime on PVP based to a large extent on UPOV 91 (but not fully compliant with it). The Peru research team reported that there had been little participation by civil society during the development of Decision 345. Only a small group of institutions were involved in developing Peru's 1996 national regulation<sup>47</sup> that gave effect to Decision 345. However, even the limited civil society participation did have a concrete effect, as Decision 345 calls for the development of an Andean regime on access to genetic resources and benefit sharing (ABS) and on

biosafety. Provisions requiring disclosure of origin and legal provenance of genetic materials and traditional knowledge incorporated in a new variety ("disclosure obligation") were included at the Andean level and in the 1996 Peruvian regulation<sup>48</sup> (see Table 4).

Information available to the Peru research team suggests that adoption of Andean Community Decision 345 was more the result of international pressures (WTO membership, and active lobbying by UPOV Secretariat officials) than of specific national economic and technological needs and requirements from Andean countries and their breeding sectors. No social or economic analysis – let alone a human rights one – was undertaken prior to adopting the regional PVP system.

In 2006, Peru concluded an FTA with the US which obliged Peru to adhere to UPOV 91.<sup>49</sup> In 2008 and 2009, prior to the domestic enactment of the FTA, Peru saw a lively national debate about likely impacts of the FTA, mobilized mostly by civil society.<sup>50</sup> The public debate and criticisms did not, however, translate into a transparent and participatory process; many civil society groups, particularly RedGe, criticized the lack of participation and transparency in the FTA negotiations between Peru and the US.

MINCETUR, the Foreign Trade and Tourism Ministry, did occasionally invite a small number of civil society representatives as well as academics to information meetings on the FTA negotiations. However, the presence of non-governmental bodies was the exception rather than the rule. MINCETUR consistently referred to the "highly technical nature" of the negotiations and argued, for example, that "there is no single or unified representative organization" of indigenous peoples, in order to justify the lack of representation of indigenous groups and farmer groups.<sup>51</sup>

Almost immediately after the FTA's entry into force, a process was initiated to modify the 1996 PBR regulation and develop a new framework compatible with UPOV 91. INDECOPI, INIA and MINCETUR were the main drivers of

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"THE COMMITTEE [ON THE ELIMINATION OF DISCRIMINATION AGAINST WOMEN] URGES [PERU] TO PAY SPECIAL ATTENTION TO THE NEEDS OF RURAL, INDIGENOUS AND MINORITY WOMEN, ENSURING THAT THEY PARTICIPATE IN DECISION-MAKING PROCESSES... THE COMMITTEE INVITES [PERU] TO PLACE EMPHASIS ON WOMEN'S HUMAN RIGHTS IN ALL DEVELOPMENT COOPERATION PROGRAMMES, INCLUDING WITH INTERNATIONAL ORGANIZATIONS AND BILATERAL DONORS, SO AS TO ADDRESS THE SOCIO-ECONOMIC CAUSES OF DISCRIMINATION AGAINST RURAL, INDIGENOUS AND MINORITY WOMEN THROUGH ALL AVAILABLE SOURCES OF SUPPORT." **CEDAW, 2007**

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45 Most of the PBR applications in Kenya relate to flowers. The floriculture industry has been recording growth in the value and volume of exports every year since 1988, from 10,946 tons per annum to 123,511 tons in 2012, currently contributing to close to \$500 million in foreign exchange earnings, according to the Kenya Flower Council.

46 Kenya National Assembly, Official report, 15 August 2012.

47 Supreme Decree 008-1996-ITINCI of May 1996.

48 Available at: [www.wipo.int/wipolex/es/text.jsp?file\\_id=203407](http://www.wipo.int/wipolex/es/text.jsp?file_id=203407)

49 The FTA also stipulates that Peru needs to make "best efforts" to grant patents on plants.

50 The most active organizations included RedGe (a network of development NGOs and movements), Foro para la Salud, Red Muqui (an indigenous peoples' network) and CEPES (an agricultural and social research institution). Debates centred on the impact of the FTA on small farmers, price of and access to medicines, and labour and environmental standards.

51 This was an "informal" position of MINCETUR based on conversations the Peru research team had with three negotiators.



the development of the new regulation, which was adopted in 2011 and which differed considerably from the former regulation regarding farmers' rights and the requirement for disclosure of origin (see also section 5.2).

The draft of the Decree was posted on INDECOPI's website for comment in early 2011 but according to Aurora Ortega, INDECOPI's main officer dealing with PVP protection, no comments were received during the consultation period. Webposting, the conventional way of making official documents available for comment, appears inadequate as a mode of consultation here as communities in the Andean and Amazonian regions have limited access to the Internet, and the texts are not made available in indigenous languages (only Spanish is used). Leading human rights scholars have noted that procedures of "participation are [...] of limited practical significance where membership in a particular cultural community has the effect of excluding citizens from [...] influence" (Marks and Clapham, 2005, p. 65).

The research team in Peru reported that "no in-depth social, economic, much less human rights based analysis was undertaken prior to adopting the Andean regional PVP system". Several independent studies did warn of potential adverse social effects of the FTA with the US, but none of these focused on PVP.

### Philippines

In the Philippines, the research team contacted a range of actors involved in 2001-2002 in the drafting and/or enactment of the Philippine Plant Variety Protection Act and its implementing instruments. These included key officials from the Department of Agriculture, the Institute of Plant Breeding (IPB) at the University of the Philippines Los Baños (UPLB), staff of the NGO SEARICE, and technical consultants of the Agriculture Committees of the House of Representatives and the Senate.

It is a legal requirement in the Philippines to hold public consultations about new legislation, and those contacted for this impact assessment agreed that consultations about the PVP Act had been held. One government official interviewed mentioned extensive consultations involving multiple sectors and including indigenous peoples' interests. However, other informants indicated that consultations had only been conducted at a very late stage of the process (after the drafting process and after the bill had been filed in Congress). There was no indication that women's groups *per se* were included in these consultations, although the Philippine research team's report indicated that "women do make up part of the composition of the aforementioned groups."<sup>52</sup>

The research team could find no evidence that the government mandated any assessments of the likely impacts of revised PVP legislation.

Informants in the Philippines country study cited the country's compliance with the WTO's TRIPS Agreement as the main reason for the enactment of the PVP law. One NGO representative<sup>53</sup> noted that "key personalities from the public research institutions and the International Rice Research

Institute (IRRI) actively lobbied Congress and used their influence to ensure the enactment of the law. The Department of Agriculture's policy and planning office also actively pushed for the bill." Interestingly, there was little involvement of the Philippines' seed industry in the lobbying stage – probably due to the lack of a robust Philippine seed industry. Several informants mentioned the "push" from USAID-funded think-tank AGILE,<sup>54</sup> and all those spoken to for this impact assessment agreed that AGILE was a major player, and "was there inside the bicameral conference committee advising the bicameral panel". However, the farmers' exception provision on saving, re-using, exchanging and selling of farm-saved seeds was included in the law that was finally enacted, testifying to civil society and farmers' groups' involvement, albeit at a late stage in the process.<sup>55</sup>

During the time this impact assessment was being carried out, contradictory rumours were circulating about whether the Philippines is considering joining UPOV 91, and it has been hard to get clear information about this. One non-governmental professional active in this area said "there is an air of secrecy about whether the Philippines might join UPOV 91. The kind of response we get when we ask officials about any possibility of ratifying UPOV tends to be a wary 'Where did you hear that?'".

### Do these findings have a link to UPOV 91-based laws?

The above findings show that the process for drafting the national PVP law has been deficient in all three countries. Nevertheless, comparing the three case studies, it is interesting to note that only in the case of the Philippines has the law been amended in parliament to include exemptions to the breeders' rights in order to better protect farmers' rights. This is probably not a coincidence, because the process in the Philippines was the only one where adherence to UPOV 91 was not an implicit goal of the reform of the PVP law. If it had been the implicit goal, there would have been almost no room for manoeuvre, because the law would have to be in compliance with UPOV 91. In such a case, even if stakeholders are consulted, they would not have had a big impact, as UPOV 91 does not provide much flexibility in national implementation.

Therefore for a meaningful participatory process with regard to PVP law, it is crucial that impact assessments and consultations are carried out to determine whether UPOV 91 should be the basis for the national PVP law at all, and *not* how UPOV 91 should be implemented at the national level.

### International legal obligations to ensure information and participation

The right to participation is most explicitly set out in Article 25 of the International Covenant on Civil and Political Rights, which all three States in our case studies have ratified. The right to freedom of expression (Article 19 of the ICCPR) includes the right to seek and impart information, including information held by public bodies (HRC, 2011b). Access to timely and accurate information on potential

52 However, "[w]omen are typically under-represented in cooperatives, farmers' and producers' organizations, and rural workers' organizations, both in terms of general membership and participation in key decision-making bodies" (CEDAW, 2013).

53 Name known to the Philippines country research team.

54 AGILE (Accelerating Growth, Investment and Liberalization with Equity) was a 5-year (1998-2003) USAID-funded project designed to "support economic policy changes in the Philippines, help bring about sustainable economic growth, and improve the country's economic resiliency".

55 An earlier version of the PVP bill also had strong provisions in favour of indigenous people and traditional knowledge protection, but those were taken out of the final act because a separate Indigenous Peoples' Rights Act had been enacted at that time.

“EVERYONE HAS THE RIGHT TO INFORMED PARTICIPATION IN DECISIONS WHICH AFFECT THEIR HUMAN RIGHTS. STATES SHOULD CONSULT WITH RELEVANT NATIONAL MECHANISMS, INCLUDING PARLIAMENTS, AND CIVIL SOCIETY, IN THE DESIGN AND IMPLEMENTATION OF POLICIES AND MEASURES RELEVANT TO THEIR OBLIGATIONS IN RELATION TO ECONOMIC, SOCIAL AND CULTURAL RIGHTS.” **Maastricht Principles, 2012, Article 7**

plans and policies as well as decision-making processes is a pre-requisite for effective participation in economic, political and social affairs. While the right to participation is included in the ICCPR, it is connected to all human rights, including the right to food. Paragraph 11 of the Limburg Principles (1987) recalls that “national effort to invoke the full participation of all sectors of society is ... indispensable to achieving progress in realizing economic, social and cultural rights. Popular participation is required at all stages, including the formulation, application and review of national policies.”

The right to information and to participation is recognized in a number of other human rights documents, such as the General Comment on the Right to Food (CESCR, 1999).

Other treaties to which all three States are party pay special attention to the need to involve in policy-making, groups likely to be particularly affected by policy changes. The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) requires States to take measures to ensure women’s participation in the formulation and implementation of government policy (Article 7) and especially requires States to enable rural women to participate in the elaboration and implementation of development planning (Article 14).

The right of indigenous peoples to participation is also well established. The UN Declaration on the Rights of Indigenous Peoples (UNDRIP)<sup>56</sup> specifies that indigenous peoples have the right to participate in decision-making in matters which would affect their rights,<sup>57</sup> and that States shall consult and cooperate in good faith with the indigenous peoples (HRC, 2011a).

In addition, the right of farmers to participate in making decisions on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture is one of the elements of farmers’ rights as defined in the preamble and in Article 9.2(c) of the International Treaty on Plant Genetic Resources for Food and Agriculture,<sup>58</sup> which all three countries have ratified.

Closely related to this, the concept of free, prior and informed consent, set out *inter alia* in UNDRIP Article 32, is developing into a principle of customary international law (Minority Rights Group International, 2012, p. 42).

### Legal obligation to assess the (potential) impacts of the introduction of a PVP law or of changes to PVP laws

Human rights law imposes an obligation to assess the likely impacts of a new policy. One of the core and immediate obligations inherent in the right to food is that governments take steps, by all appropriate means, towards the realization of the right. These steps must be deliberate, concrete and targeted (CESCR, 1990, Para. 2); for this it is required that the government monitors the situation in the country with a view to putting in place human rights-oriented policies (including relating to the right to food), and to avoiding retrogressive measures. The Voluntary Guidelines on the right to food,<sup>59</sup> adopted by governments in 2004, reaffirm the need for assessment.

Thus, the essential first step towards promoting the realization of economic, social and cultural rights is diagnosis and knowledge of the existing situation, as well as awareness of which groups are amongst the most vulnerable sectors of the population. The CESCR has said that States should be aware not only of the measures that have been taken for the realization of the right to food but also of the basis on which these measures are considered to be the most “appropriate” under the circumstances (CESCR, 1990).

Also, this awareness is an essential step when designing measures to prevent or mitigate adverse effects on the human rights of vulnerable groups from new PVP laws or UPOV membership.

## 5.2 THE TRADE-OFF BETWEEN UPOV-TYPE LAWS AND OTHER LEGAL OBLIGATIONS OR NATIONAL POLICIES

The main findings from this impact assessment’s enquiry are highlighted through three different cases where the implementation of UPOV-type laws could have a negative impact on the ability of a State to comply with other international legal obligations, or may require the effective implementation of other legislative systems to obviate negative impacts.

- UPOV 91-type laws are often introduced to foster the introduction and importation of foreign planting materials. This requires a reliable and effective import control system to be in place. If the phytosanitary system of a State is not robust enough, increased imports of seeds or planting material will increase the risk of the introduction of pests and diseases, which may disproportionately affect small-holder farmers.
- The impossibility of integrating a disclosure requirement into a UPOV 91-type PVP law limits the ability of a State to fulfil its obligations under the Convention on Biological Diversity (CBD), the Nagoya Protocol and UNDRIP.
- Implementation of UPOV 91 may undermine requirements to support indigenous seeds, promote farmers’ rights and empower small farmers.

56 See, in particular, Articles 18 and 19, available at [www.un.org/esa/socdev/unpfi/documents/DRIPS\\_en.pdf](http://www.un.org/esa/socdev/unpfi/documents/DRIPS_en.pdf).

57 It is important to note that these rights explicitly refer to seeds, among other things. Article 31.1 of UNDRIP states: “Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, **seeds**, medicines, knowledge of the properties of fauna and flora, oral traditions, [...] They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.” (emphasis added)

58 ITPGRFA, Article 9.2(c) available at: [ftp://ftp.fao.org/docrep/fao/011/i0510e/i0510e.pdf](http://ftp.fao.org/docrep/fao/011/i0510e/i0510e.pdf)

59 Voluntary Guidelines to Support the Progressive Realization of the Right to Adequate Food in the Context of National Food Security. Available at: [ftp://ftp.fao.org/docrep/fao/009/y7937e/y7937e00.pdf](http://ftp.fao.org/docrep/fao/009/y7937e/y7937e00.pdf)

> The potential human rights impacts, when the implementation of a UPOV 91-type law is in conflict with a State's other legal obligations or policies, differ from case to case. If a phytosanitary system cannot handle the increase in planting material imports, the introduction of pests and diseases could have a direct impact on farmers' harvests and the right to food. In other cases there is an impact to the extent that implementation of the UPOV 91-type law reduces the scope to implement measures for the protection of traditional knowledge, biodiversity or farmers' rights.

The instances discussed in this section arose in the course of the study, particularly in Kenya and Peru. We discuss three different examples where there are concerns that the implementation of UPOV 91-type laws could diminish States' abilities to comply with other legal obligations or could be in conflict with national policies and thereby pose a potential threat to the right to food.

**In the event of new seed imports, due to the implementation of a stricter PVP law, the risk of introducing new diseases could increase if the country's phytosanitary system is not robust enough.**

Views differ as to whether UPOV encourages imports of seeds into countries that have joined UPOV or have an effective PVP system (see, for instance, Eaton, 2013; UPOV, 2005), yet it is a much-referred-to rationale for governments to introduce strong UPOV 91-type legislation.<sup>60</sup>

From the amount of plant material inspected (source: KEPHIS), it appears that in recent years Kenya has witnessed a general decrease in imported plant materials, mostly bedding plants and cuttings for flowers. However, there has been a marginal increase in the quantities of food crops imported, especially potato.

Some of the potato varieties whose tubers are imported are protected in Europe. Applications for plant breeders' rights have now been made in Kenya, and DUS testing was underway as this report was being finalized. A representative of a potato breeder claimed that it found Kenya to be a favourable market for its varieties since there is a UPOV 91-compliant regime<sup>61</sup> (even though the country is not a party to UPOV 91 yet).

Importation of potato tubers from Europe has raised concern amongst the Kenya National Potato Farmers Associa-

tion (KENAPOFA) members and the National Potato Council of Kenya (NPCK) in relation to the risk that these tubers could introduce new pests and diseases. As potato is a major source of food security, income and nutrition in the country,<sup>62</sup> this poses a potential threat to the right to food.

*Dickeya* spp., Late Blight Mating type 2 and Bacterial Ring Rot are some of the diseases reported in Europe that risk being introduced and widely spread through importation of tubers in Kenya. Quarantine regulations do impose restrictions on importation of potato tubers into Kenya. Under these regulations, as a measure to reduce the risk of introducing new pests, only tissue cultures and plantlets are allowed. Nevertheless, it appears that some seed potato imports from the Netherlands may have been allowed into the country since December 2011 without following the procedures laid down, and it is thought that *Dickeya* spp., which causes heavy losses, could have been introduced through this move.<sup>63</sup> With over 90% of potato production in Kenya being under the smallholder farming system and with over 95% of potato seed being acquired through informal sources, any disease arriving in the country is likely to spread at a very high rate.<sup>64</sup>

In addition, introduction of diseases from temperate into tropical conditions can make them more virulent, and they sometimes mutate into more dangerous strains. In a letter<sup>65</sup> to KEPHIS, the NPCK stated their "disappointment from the continued act by the Government and KEPHIS in particular for facilitating unlawful and risky importation of seed potato from The Netherlands. [...] Although stakeholders and experts have advised the government against such importation since two years ago, KEPHIS went ahead and made an agreement with government of the Netherlands. This agreement has not been made clear and available to the public and stakeholders up to today, despite several requests. [...] In the past, importation moves have been tried in other Eastern African countries but countries like Uganda and Ethiopia have refused such manipulation and insisted that correct procedures be followed."

Seed exporters say that these diseases are known and have been contained in Europe, and therefore technology to contain these is available and can correspondingly be exported to Kenya.<sup>66</sup>

According to the farmers involved in the focus group discussions as part of the Kenyan case study, risks posed by new diseases that could be introduced into the country as a result of stricter PVP mean that small-scale potato production would become too costly for the majority of farmers if there is an increased need for chemical sprays.

Whereas regulatory structures do exist in Kenya for quarantine and phytosanitary services, there is a view amongst stakeholders in the potato sector<sup>67</sup> that the institutional structures are not robust enough to withstand political and corporate pressure that has been exerted to ensure importation of the potato tubers from the Netherlands, given that the former Minister of Agriculture was very influential in allowing the tubers to be imported without giving due regard to the phytosanitary procedures in place.

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"STATES, WHERE APPROPRIATE, SHOULD ASSESS THE MANDATE AND PERFORMANCE OF RELEVANT PUBLIC INSTITUTIONS AND, WHERE NECESSARY, ESTABLISH, REFORM OR IMPROVE THEIR ORGANIZATION AND STRUCTURE TO CONTRIBUTE TO THE PROGRESSIVE REALIZATION OF THE RIGHT TO ADEQUATE FOOD IN THE CONTEXT OF NATIONAL FOOD SECURITY." **FAO Voluntary Guidelines on the right to food**

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60 E.g., in the case of Kenya (see section 5.1).

61 Interview with a representative of Europlant, 4 July 2013.

62 Undated letter by the NPCK, document with the authors.

63 Undated letter by the NPCK, document with the authors.

64 Interview with Edward Mwamba, KENAPOFA Chairman.

65 Undated letter by the NPCK, document with the authors.

66 Interview with a representative of Europlant on 4 July 2013.

67 KENAPOFA and NPCK.



According to the survey undertaken as part of the case study in Kenya, there are indications that the implementation of UPOV 91-consistent laws is leading to an increase in importation of potato tubers into the country. In addition, because the institutional structures for quarantine and phytosanitary services are not robust enough to appropriately handle the current amounts of potato seed tuber imports, the risk of introduction of pests and diseases has grown. Therefore it has to be ensured that before introducing a new PVP law which could in specific cases lead to an increase in seed imports, a robust phytosanitary system is in place. If this is not done, there will be an increased risk of negative impacts on the right to food which may affect smallholder potato farmers in particular.

**UPOV 91 reduces countries' ability to effectively implement their obligations under the CBD and its Nagoya Protocol and under the UN Declaration on the Rights of Indigenous Peoples, as UPOV claims that disclosure-of-origin requirements are incompatible with its provisions.**

The Convention on Biological Diversity and its Nagoya Protocol give States sovereign rights over their genetic resources (CBD, Article 3). Article 15 of the CBD states that "the authority to determine access to genetic resources rests with the national governments and is subject to national legislation" and that "Each Contracting Party shall take legislative, administrative or policy measures [...] with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic resources with the Contracting Party providing such resources." Article 16.5 stipulates that Contracting Parties shall cooperate in order to ensure that intellectual property rights are supportive of and do not run counter to the objectives of the CBD. The Nagoya Protocol in its Article 7 says that "each Party shall take measures, as appropriate, with the aim of ensuring that traditional knowledge associated with genetic resources that is held by indigenous and local communities is accessed with the prior and informed consent or approval and involvement of these indigenous and local communities".

Many cases of misappropriation, where a user of a genetic resource and/or traditional knowledge has accessed and/or utilized the genetic resource in contradiction with the abovementioned rules of the CBD, have been reported during the last few years (McGown, 2006; Hammond, 2013). For example, in a new report, it was found that Seminis (a subsidiary of Monsanto) planted farmers' carrot seeds from Turkey, and through a simple process of selection – mainly selecting plants that were slow to bolt and which had a desirable root shape and shade of purple (associated with health benefits) – emerged with a new carrot variety over which it has obtained PVP protection in the United States and Europe (Hammond, 2014). In another case, in 2013 the Peruvian government research agency INIA filed PVP applications for 54 native potato varieties, which sparked heavy protests by indigenous farmers.<sup>68</sup> Such misappropriation, often protected by IP in the user country, undermines the

sovereign rights of States as well as the rights of indigenous peoples and local communities.

Disclosure of origin and legal provenance in IP applications is therefore widely seen as a crucial tool to counter such illegal access to, and use of, genetic resources and traditional knowledge. Requiring such disclosure is also a way of ensuring that access and benefit-sharing requirements are implemented in countries where the genetic resource or traditional knowledge is used. Disclosure requirements have thus been incorporated into IP legislations in many countries, and have been advocated by many different countries in international forums such as the WTO, CBD and the World Intellectual Property Organization (WIPO).

The disclosure requirement was initially integrated into the Peruvian PVP regulation<sup>69</sup> (WIPO, 1996). Article 15(e) of the PVP regulation stated that applications for the granting of a Breeder's Certificate shall contain "the geographical origin of the raw plant material of the new variety to be protected, including, as the case may be, the document that proves the legal origin of the genetic resources, issued by the Competent National Authority as regards access to genetic resources". Ten years later the US-Peru FTA, signed on 12 April 2006, forced Peru to join UPOV 91 by 2008 (USTR, 2008).

Already in 2003 the UPOV Council wrote that "With regard to any requirement for a declaration that the genetic material has been lawfully acquired or proof that prior informed consent concerning the access of the genetic material has been obtained, [...] the UPOV Convention requires that the breeder's right should not be subject to any further or different conditions than [distinctness, uniformity, stability and novelty] in order to obtain protection" (UPOV, 2003). Furthermore, informed sources who choose to stay anonymous<sup>70</sup> have reported that UPOV staff have advised countries (for example, Malaysia and Egypt) considering UPOV ratification to delete the disclosure requirement in their national PVP laws to bring them into conformity with UPOV.

In light of this position, it was most likely that Article 15(e) of the Peruvian PVP regulation would not have been accepted if Peru were to ask the UPOV Council to advise it in respect of the conformity of its laws with UPOV 91.<sup>72</sup> In order to fulfil the requirement of the US-Peru FTA, therefore, Peru changed its PVP regulation and deleted Article 15(e). The new draft decree was examined by the UPOV Council on 3 April 2009 and it was concluded that the draft was in conformity with the provisions of UPOV 91 (UPOV Council, 2009).

Thus, the case of Peru shows that the requirement for disclosure of origin and legal provenance, a well-recognized tool to fight illegal access to and utilization of genetic resources and traditional knowledge, could not be integrated into its new PVP law based on UPOV 91. This reduces the ability of Peru to fulfil its obligations under the CBD and the Nagoya Protocol, and allows for PVP rights to be given to a person or an entity that may not be legally entitled to it. In addition, it will reduce Peru's capacity to fulfil its obligations under the United Nations Declaration on the Rights of Indigenous Peoples as far as traditional

68 ANDES Communiqué – September 2013. [www.biocultural.iied.org/sites/default/files/INIA%20final.pdf](http://www.biocultural.iied.org/sites/default/files/INIA%20final.pdf)

69 Supreme Decree 008-1996-ITINCI of May 1996, based on Decision 345 of the Andean Community.

70 Personal communications to the authors.

71 Article 34(3) of UPOV 91 provides that "[a]ny State which is not a member of the Union and any intergovernmental organization shall, before depositing its instrument of accession, ask the Council to advise it in respect of the conformity of its laws with the provisions of this Convention. If the decision embodying the advice is positive, the instrument of accession may be deposited."

knowledge and/or resources held by indigenous peoples are concerned.<sup>72</sup>

**Implementation of UPOV91 may undermine requirements to support indigenous seeds, promote farmers' rights and empower small farmers.**

In Kenya a constitutional requirement for the recognition and protection of indigenous seeds and plant varieties, which are key in farmer-based seed systems which are predominant in Kenya (Munyi, forthcoming), has been instituted<sup>73</sup> and an enabling law enacted.<sup>74</sup> This requirement is intended to counterbalance plant breeders' rights. The constitutional requirement and the enabling law now provide a window of opportunity for implementation of farmers' rights in Kenya.

Whilst this is to be welcomed from a human rights perspective, concerns remain as the enabling law appears weak. For one, the National Plant Genetic Resources Centre (NPGRC), which the new law establishes as the main custodian of indigenous seeds and varieties, has no legal personality. It is left to the Ministry of Agriculture to determine stewardship of the NPGRC and how it will execute its functions. It is therefore not possible to assess how the protection mechanism afforded to indigenous seeds and plant varieties stands against UPOV 91 provisions (which restrict farmers' rights; see section 4.1) until the rules for protection are made by the Minister. And compared to the powers that KEPHIS (which is a legal entity) has in relation to certification of seed and registration of plant breeders' rights, the NPGRC is currently the less powerful party. This creates an imbalance between the exercise of plant breeders' rights on the one hand, and those related to protection and recognition of indigenous seeds and plant varieties as well as farmers' rights on the other. These shortcomings have also been raised by Munyi (forthcoming): "While innovatively, the legislation on one hand provides for protection of indigenous seeds and plant varieties, on the other hand, it fails to elaborate mechanisms in which this protection may be actualized, and in a manner that also takes into account the PVP system in place" (p. 17 of the manuscript). This imbalance between the current PVP system and the requirement for recognition and protection of indigenous seeds and plant varieties could present a threat to the right to food if it results in due weight not being accorded to the protection and promotion of indigenous seeds and varieties as well as traditional knowledge.

In the Philippines the "Magna Carta of Small Farmers" (Philippines, 1992) aims "to give the highest priority to the development of agriculture such that equitable distribution of benefits and opportunities is realized through the empowerment of small farmers". To do so, "[t]he State shall ensure that every farmer has the equal opportunity to avail of, to produce and to market good seeds<sup>75</sup> and planting materials recommended by the Department of Agriculture as capable of producing high-yielding, pest-and-disease resistant, and widely-adapted crops for irrigated, rainfed and upland areas". If the Philippines were to implement a UPOV 91-type law restricting the use of farm-saved seeds, their exchange

and their sale, this would limit the government's capacity to comply with the obligations under the Magna Carta of Small Farmers (as all protected seeds would be exempted from this mechanism).

The above examples show that legal obligations designed to protect indigenous seeds, support farmers' rights or empower small-scale farmers do not get the same level of policy attention as accorded to PVP-related laws, especially if a PVP law based on UPOV 91 is implemented.

Linked to this, the research teams in Kenya and Peru found that technical assistance for UPOV ratification tends to be provided in isolation without regard to other international obligations or national policies. The findings in this chapter point to the need for independent technical assistance accompanied by technical resources for other public policy measures, including capacity building for use of new seeds, extension services for women and phytosanitary measures.

72 See Articles 26 and 31 of UNDRIP in regard to indigenous peoples' rights on (genetic) resources and their traditional knowledge. [www.un.org/esa/soc-dev/unpfii/documents/DRIPS\\_en.pdf](http://www.un.org/esa/soc-dev/unpfii/documents/DRIPS_en.pdf)

73 See Articles 11 and 69 of the Constitution of Kenya.

74 See Section 27A of the Seeds and Plant Varieties (Amendment) Act, 2013.

75 "Good seeds" refers to seeds which are the progeny of certified seeds so handled as to maintain a minimum acceptable level of genetic purity and identity and which are selected at the farm level.

## 6 REFLECTIONS ON THE METHODOLOGY

Apart from assessing potential human rights impacts of implementing UPOV-like PVP laws at the national level, this project aimed at applying the HRIA methodology that has been suggested in the literature to a real-world problem. Its purpose is to test the practicability of the methodology, to draw lessons therefrom, and to come up with suggestions on how to improve its applicability.

This HRIA process stretched over two years, and absorbed considerable resources and efforts from the core team and the research teams in the field. But once a blueprint for using HRIA in standard contexts becomes available (as is the case with environmental impact assessments), a much-improved cost/benefit ratio can be expected. However, it might still take some time until a well-established HRIA methodology becomes available. And so far, there is very limited experience of applying this methodological approach to public policy issues. The guiding principles on HRIA of trade and investment agreements published by the UN Human Rights Council (De Schutter, 2011) are certainly a good starting point when embarking on an HRIA, but they do not provide hands-on guidance on the methodology. Moreover, an HRIA has not previously been applied to IP in the agricultural sector. This project can therefore be seen as pioneering research, which resulted in additional costs in terms of time and effort.

We closely followed the methodology suggested by Harrison (2011) and Walker (2009). The seven steps of the approach provided clear guidance for structuring the process (see Chapter 3). While the sequence of the steps makes much sense, it should not be followed mechanically (as also emphasized by the authors). Rather, the exercise has been an intensively iterative process, particularly in the stages of developing the hypotheses and collecting field data. We drew the following lessons related to the core methodological elements:

- Working with a dedicated group of expert advisers proved very valuable, even necessary. They provided important guidance at many critical stages of the process.
- It is crucial to isolate those aspects of the PVP law that are considered most controversial in terms of possible human rights impacts. If not, the exercise will become too complex and time-consuming.
- Equally, being selective in choosing the most relevant human rights that will potentially be affected is key to keeping the exercise manageable. In our case, the focus on the right to food was an obvious choice from the outset.
- The clear identification of cause-effect relationships appeared to be particularly challenging in the present assessment, given the long and complex causal chains between UPOV-like PVP laws and realization of the right to food. Consequently, ambitions in terms of generating

strong evidence along the complete causal chain had to be lowered.

- While we provided the country research teams with comprehensive guidelines on the research methodology, we were much less precise in pinpointing and prioritizing the data to be collected. As a result, we ended up with voluminous field reports and had to dig through mountains of information. In future applications of the HRIA approach, the evidence-gathering process should be more closely targeted to the essential information, implying more specific guidance to the field research teams.
- Related to the above, and while the controversy surrounding the use of indicators is noted,<sup>76</sup> the development of clearly defined indicators to guide the data-gathering process should be considered. No doubt, this issue could have been better tackled in the present project.
- Inviting the field researchers to assist in the development of causal chains early in the process would have been beneficial on two accounts. First, they could have contributed valuable expertise on the specific context and, second, it would have improved their understanding on the required information and strengthened their ownership over the project.
- Even with supplementary information from the field, some gaps in the causal chains persisted. Using secondary data from targeted literature research and drawing on expert opinions helped close some of these gaps.

In conclusion, we would like to reemphasize the four main methodological lessons emanating from our HRIA of PVP laws. First, being selective and focusing early on in the process on a narrow set of human rights and policy elements is key to the success of the exercise. Second, HRIAs are iterative processes which require some degree of procedural flexibility. Third, particularly in the case of an *ex ante* assessment, the HRIA will have to extensively rely on expert judgments. Fourth, involving field researchers at an early stage of the process and closely assisting them during data gathering is critical to aligning information needs with information collection.

<sup>76</sup> Harrison (2011), for instance, says that “Use of indicators in the HRIA process was one of the most controversial and hotly debated topics at an expert seminar entitled ‘Human Rights Impact Assessments for Trade and Investment Agreements’” (p. 178).



## 7 CONCLUSION

There is no doubt that the HRIA presented in this report has been an ambitious undertaking. The challenges were associated with two factors in particular. First, tracking the impact of specific UPOV provisions on the right to food required the development of causal chains where the ultimate effects do not directly emanate from the provision under consideration but rather result from intermediate impacts. Secondly, the pioneering nature of the research – never before has an HRIA been applied to PVP laws – necessitated a fair amount of innovative thinking and creativity as there was no pool of experience to draw from. In this situation, the HRIA methodology suggested in the literature provided valuable guidance to structure the process and to ensure a sound approach. While HRIAs will always have a strong context-specific component, it is hoped that the lessons learnt from the present study will facilitate future applications of the HRIA tool, which, in turn, will contribute to refining the methodological approach.

Despite the methodological and procedural challenges, the research provided some clear evidence regarding potential human rights impacts and further areas of concern that should be taken into account when designing and implementing PVP laws. Indeed, the HRIA proved its potential to contribute to evidence-based decision-making in situations of controversial public policies that can have reverberating impacts into the future.

The following key findings emerged from the analysis of the empirical data collected in the three case studies:

**Seed saving, replanting, exchange and sale.** The informal seed system is by far the primary means for small-scale farmers to access seeds (including seeds of improved varieties and PVP varieties). There is an important interaction between the formal and informal sectors whereby seeds from the formal sector are integrated into the informal sector through seed-saving, exchange and sale of farm-saved seeds. Small-scale farmers also use “improved” varieties, which in some cases are protected by plant breeders’ rights. From a human rights perspective, therefore, it will be essential to ensure access to seeds, including improved seeds, through the informal seed system and its interlinkage with the formal seed system.

**UPOV91 and access to seeds through informal channels.** UPOV91 restrictions on the use, exchange and sale of farm-saved PVP seeds will make it harder for resource-poor farmers to access improved seeds. This could negatively impact on the functioning of the informal seed system, as the beneficial interlinkages between the formal and informal seed systems will be cut off. Moreover, selling seeds is an important source of income for many farmers. From a human rights perspective, restrictions on the use, exchange and sale of protected seeds could adversely affect the right to food, as seeds might become either more costly or harder to access. They could also affect the right to food, as well as other human rights, by reducing the amount of

household income which is available for food, healthcare or education.

**Traditional knowledge related to seed conservation and management.** Traditional knowledge is applied by farmers in the selection, preservation and storing of seed. It is the basis of local innovation and *in situ* seed conservation. From a human rights perspective, restrictions on traditional practices and seed management systems (e.g., by a UPOV91-based PVP law) adversely impact on cultural rights, minority rights, indigenous peoples’ rights, women’s rights, as well as on biodiversity and the right to food.

**Seed choice, risk and household budgets.** Restrictions on the use, exchange and sale of farm-saved seeds might lead to farmers becoming increasingly dependent on the formal seed sector. Improved varieties, however, often require more inputs compared to local farmers’ varieties, pushing up production costs. In the case of protected varieties, the seed costs drive production expenses further up. From a human rights perspective, higher production cost poses a risk for cash-strapped farmers as it affects the stability of their household budget and competes with other essential household expenditures, including for food.

**Issues of concern when implementing PVP laws.** Apart from the above findings, the study identified further issues of concern that should be taken into account when implementing PVP laws. Some of them might not be restricted to laws based on UPOV91 but apply to all PVP laws. The country research teams found a lack of information and participation of small-scale farmers and other stakeholders in the process of adopting and reforming PVP-related laws, as well as a lack of assessment of the likely impacts of the laws. This is inconsistent with the State’s human rights obligations to ensure adequate information of and participation in public policy-making. Furthermore, there have been indications that UPOV-related provisions could undermine public interest policies and processes by negatively impacting on the State’s ability to comply with other international legal obligations or national policies. The potential human rights impacts differ from case to case. If a phytosanitary system cannot adequately handle the increase in planting material imports brought about by stronger plant variety protection, the resulting introduction of pests and diseases could have a direct impact on farmers’ harvests and the right to food. In other cases there is an impact to the extent that implementation of the UPOV91-type law reduces the scope to implement measures for the protection of traditional knowledge, biodiversity or farmers’ rights.

## 8 RECOMMENDATIONS

### RECOMMENDATIONS TO ALL GOVERNMENTS

#### Governments should:

- undertake an HRIA before drafting a national PVP law or before agreeing to or introducing IP requirements in trade or investment agreements in the area of agriculture generally but more specifically on seeds.
- ensure that they abide by a transparent and participatory process that includes all potentially affected stakeholders, when drafting, amending or implementing PVP laws and related measures.
- consider the linkages between formal and informal seed systems when enacting PVP laws and related measures, and apply a differentiated approach for PVP to different sectors, in particular regarding the realization of farmers' rights to use, save, exchange and sell farm-saved seeds/propagating material.
- ensure that PVP laws and related measures do not restrict the implementation of other legal obligations and policies with regard to realizing farmers' rights, the protection of indigenous peoples' rights and traditional knowledge, sanitary or phytosanitary standards, or the protection and sustainable use of biodiversity (including the ability to take all measures necessary to prevent misappropriation of genetic resources and associated traditional knowledge).
- inform governmental agencies and others involved in seed

policy about their obligations concerning the right to food, which should be taken into account when drafting national laws and when entering into agreements with other countries.

- assess the features and the importance of the informal seed sector, and make sure that any PVP laws and related measures contribute to supporting both the formal and informal seed sectors.
- implement measures for awareness-raising among decision-makers on the role of women, farmers, indigenous groups, non-governmental organizations and private gardeners in seed management.

### RECOMMENDATIONS TO GOVERNMENTS OF COUNTRIES IN THE GLOBAL NORTH

#### Countries in the Global North should:

- refrain from requiring developing countries to ratify UPOV's 1991 Act or to implement any other specified PVP law, whether through trade or investment agreements or through technical assistance or development cooperation programmes.



Sale of broad beans (*habas*) at a local market, Cusco region, Peru.

## RECOMMENDATIONS TO GOVERNMENTS OF DEVELOPING COUNTRIES

### Developing countries should:

- use all the flexibilities available to them when drafting PVP laws and related measures, taking into account in particular the needs of the most vulnerable groups particularly small-scale farmers, and refrain from participating in any agreements or donor programmes that would restrict these flexibilities.
- take effective steps towards meeting their right-to-food obligations when drafting, amending or implementing PVP laws and related measures.
- allow small-scale farmers to save, exchange and sell farm-saved seeds/propagating material.
- assess the likely impacts of proposed new or revised PVP standards on human rights, particularly of the poorest and most vulnerable sectors of the population.
- identify what “flanking measures” to new PVP-related laws may be necessary, and implement these, including measures to mitigate and remedy any potential adverse impacts of the PVP-related laws on human rights or on the informal seed sector as well as on other policies regarding seeds and agriculture.
- provide the means for farmers and farmers’ groups, particularly women and indigenous communities and small-scale farmers, to participate effectively in decision-making relating to PVP. This might require ensuring that the farmers’ representatives in such decision-making processes are legitimately selected, for example by appointment through the farmers’ own organizations.
- monitor the impact of PVP laws on the right to food, paying particular attention to ways in which PVP-related laws or policies are impacting on different segments of the population.

## RECOMMENDATIONS TO UPOV (SECRETARIAT AND MEMBERS)

### UPOV should:

- review and revise those aspects of its rules and its workings (e.g., Articles 14 and 15) that affect the informal seed sector, with a view to ensuring that it facilitates PVP systems that reflect the interests and needs of developing countries and are not detrimental to the informal seed sector, breeders and producers, including small-scale farmers, and indigenous communities, as well as to traditional knowledge and other resources and interests of developing countries. Holding a seminar on this topic during one of the UPOV Council sessions would be a useful first step.
- revise the guidance on private and non-commercial use as a short-term measure, such that the implementation of the exception does not lead to adverse effects of UPOV on vulnerable and marginalized groups, and supports the practices that underpin the informal seed sector.
- improve the UPOV Secretariat’s and Member States’ understanding of the diversity of agricultural conditions prevailing in its member countries, the importance of the informal sector and the needs and interests of developing countries, taking into account their level of development.
- use broader, more disaggregated measures than heretofore when assessing actual and potential impacts of UPOV, in order to adequately advise prospective new members of the likely benefits and disadvantages of UPOV.

- encourage the participation of a range of small-scale farmers’ groups in country delegations and/or as observers in UPOV’s sessions and seminars.

## RECOMMENDATIONS FOR PROVIDERS OF TECHNICAL ASSISTANCE IN THE AREA OF IP FOR AGRICULTURE (INCLUDING WIPO)

### Technical assistance providers should:

- provide independent technical assistance to developing countries, respecting the human rights obligations of the government to which such assistance is provided.
- ensure that the beneficiary country undertakes a thorough objective independent assessment of its agricultural situation covering the formal and informal sectors and its international obligations (e.g., human rights obligations and obligations under the CBD, ITPGRFA etc.), and drafts a *sui generis* PVP law that is evidence-based and suitable for the country’s conditions, needs and interests. Technical assistance providers should not promote UPOV 91 as the basis for developing PVP legislation.
- help countries assess likely impacts of PVP laws and related measures on different segments of the population before adopting or amending such laws.
- help countries design PVP laws and related measures that support both the informal and the formal seed sectors, and design flanking measures for mitigating and compensating any adverse effects of such laws and measures, particularly for vulnerable groups.
- recognize the complexity of agricultural systems and challenges prevailing in developing countries and thus bear in mind that a different set of PVP-related interventions might be needed for different sectors for achieving positive outcomes in different countries.
- help countries monitor ongoing impacts of PVP laws and related measures and design, implement and monitor relevant flanking measures.
- ensure the needs of farmers, including small-scale, women and indigenous farmers, are adequately addressed.

## RECOMMENDATIONS TO THE NGO COMMUNITY, FARMERS’ ORGANIZATIONS, WOMEN’S GROUPS AND INDIGENOUS PEOPLES

- Raise awareness about possible human rights implications of UPOV 91-like PVP laws.
- Raise awareness of the important role of the informal seed sector in many countries, and the need to support it.
- Insist that governments carry out a human rights impact assessment when they draft PVP laws and related measures or negotiate trade, investment and economic partnership agreements and donor programmes.
- Get involved when governmental or regional bodies draft PVP laws and related measures.
- If participation of civil society representatives is not allowed, insist on it by, where necessary, invoking human rights standards or using human rights recourse mechanisms.



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**B'laan farmers mapping out their local crop and food systems during a focus-group discussion with the research team, Lamlifew, Sarangani province, The Philippines.**

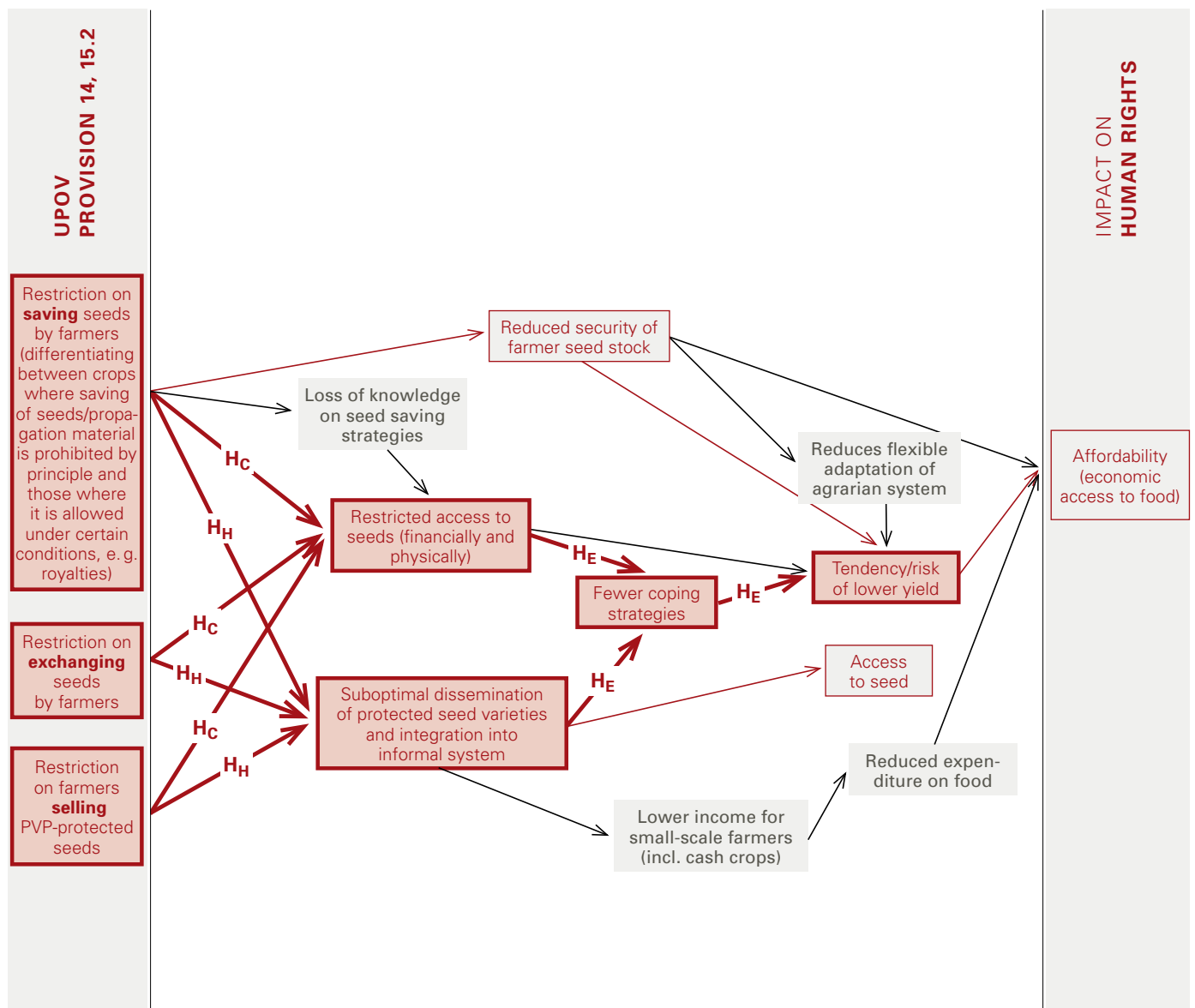
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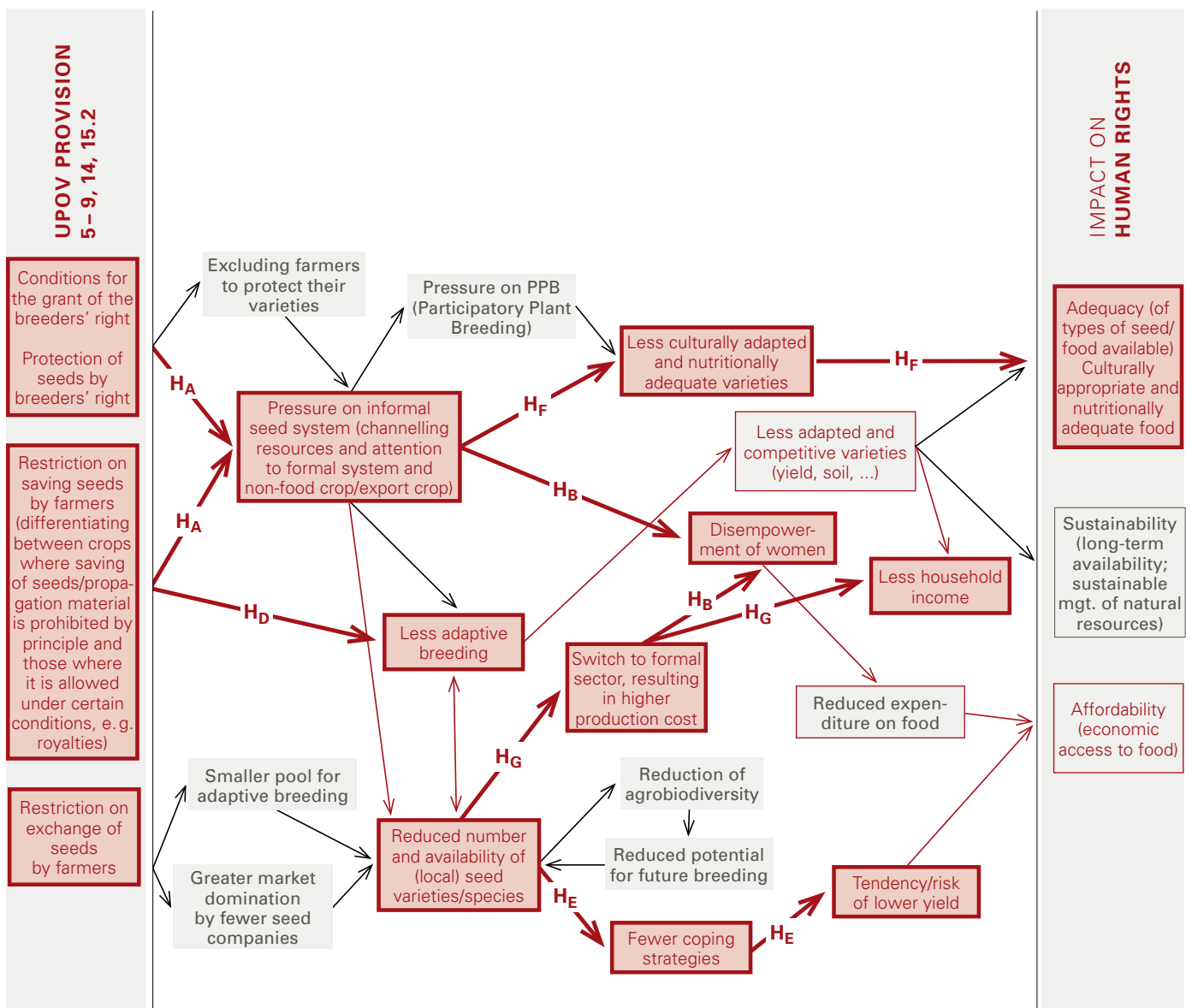


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# ANNEXES

## ANNEX 1: MAPPING OF CAUSAL LINKS BETWEEN UPOV PROVISIONS AND HUMAN RIGHTS IMPACTS







ANNEX 2: MAPS OF THE FIELD SITES IN KENYA, PERU AND THE PHILIPPINES



## ANNEX 3: RATIFICATION OF KEY HUMAN RIGHTS INSTRUMENTS BY KENYA, PERU AND THE PHILIPPINES

	KENYA	PERU	PHILIPPINES
International Covenant on Economic, Social and Cultural Rights (ICESCR)	1972	1978	1974
International Covenant on Civil and Political Rights (ICCPR)	1972	1978	1986
Convention on the Elimination of All Forms of Discrimination against Women (CEDAW)	1984	1982	1981
UN Declaration on the Rights of Indigenous Peoples (UNDRIP)	Not ratified	2007	2007
International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)	2003	2003	2006

## ANNEX 4: SOURCES OF LOANS FOR THREE FARMING FAMILIES IN LAMLIFEW (IN PHILIPPINE PESOS)

	HOUSEHOLD 1 (ARSENIA, SINGLE WOMAN)	HOUSEHOLD 2 (ROLLY/NORMA)	HOUSEHOLD 3 (REBECCA/ARSENIO)
<b>Total amount of credit</b>	30,000 plus credit from village shop	21,440-26,440 plus credit from village shop	34,235-37,235 plus credit from village shop
<b>SOURCE OF CREDIT</b>			
<b>Local trader</b>	20,000	16,440	17,235
<b>Center for Agriculture and Rural Development (CARD) Bank</b>	10,000	5,000–10,000	17,000–20,000
<b>Village store (shop)</b>	Variable loan amount, low credit limit, for household needs and rice loan	Variable loan amount, low credit limit, for household needs and rice loan	Variable loan amount, low credit limit, for household needs and rice loan
<b>INTEREST RATE</b>			
<b>Local trader</b>	10.5–18% per month	10.5–25% per month	15% per month
<b>CARD Bank</b>	32% per annum	32% per annum	32% per annum
<b>Village store (shop)</b>	None	None	None
<b>Repayment conditions</b>	Principal + interest after harvest	Principal + interest after harvest	Principal + interest after harvest
<b>Linked to agricultural production?</b>	Yes, but only the loan from local trader; loan for seed, fertilizer and herbicide	Yes, but only the loan from local trader; loan for seed, fertilizer, herbicide	Yes, but only the loan from local trader; loan for fertilizer
<b>Percentage of households in the village using one form or another of credit</b>	90% (respondent's perception)	100% (respondent's perception)	90% (respondent's perception)

