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Focus on Plant Variety Protection:

A Compilation of Selected Literature on the Impact of the UPOV Convention, Alternative *sui generis* PVP Laws and the Effect on Farmers' Rights

APBREBES

IMPRINT FOCUS ON PLANT VARIETY PROTECTION: A compilation of selected literature on the Impact of the UPOV Convention, alternative *Sui Generis* PVP laws and the effect on Farmers' Rights, December 2020 | **AUTHOR** Lim Li Ching | **ENGLISH COPY EDITOR** Lean Ka-Min (Third World Network) | **PUBLISHED By** Association for Plant Breeding for the Benefit of Society (APBREBES), www.apbrebes.org | **LAYOUT** Karin Hutter, karinhutter.com | | **COVER PHOTO:** www.shutterstock.com

About this publication

This publication compiles selected literature on the issue of plant variety protection (PVP) and especially on the relevance and impact of the 1991 Convention of the International Union for the Protection of New Varieties of Plants (UPOV) in the context of developing countries. The aim is to inform policymakers with robust studies and evidence, so that policy is not made in a void or absence of knowledge. In this regard, it is hoped that the publication will be beneficial for those working on PVP laws and the related policy questions that may arise.

The first key aspect the compilation focuses on is the impacts of the UPOV Convention and PVP laws derived therefrom. This has become increasingly important as developing countries are pressured to join the latest version of the Convention, UPOV 1991, and there are concerns about the suitability of such a regime for the agricultural and development contexts of developing countries.

Secondly, various nation states have opted for *sui generis* PVP laws, oftentimes taking some elements of UPOV provisions that protect plant breeders' rights and combining these with other provisions that attempt to, *inter alia,* balance or reconcile with Farmers' Rights, conserve plant genetic resources for food and agriculture and implement fair and equitable sharing of benefits arising from the use of such genetic resources. The publication therefore highlights some of the available analyses of the content, effectiveness and implementation of these *sui generis* regimes, and includes also some analysis of laws that are seen to be in line with UPOV 1991.

Thirdly, an important concern regarding UPOV and UPOV-based PVP laws is that they restrict the right of farmers to freely save, use, exchange and sell farm-saved seed and propagating material, which is the mainstay of agricultural systems in many developing countries. The compilation therefore also includes literature that examines Farmers' Rights, particularly the right to save, use exchange and sell farm-saved seed and propagating material.

The final aspect of the compilation is on the issue of development of PVP laws; this includes literature on what a *sui generis* PVP regime that attempts to balance Farmers' Rights and breeders' rights could look like, what factors may influence policy and legal developments, and what options are available for countries given their international obligations.

To the extent possible, the compilation covers peer-reviewed published papers, but also includes other important publications on these issues, including from civil society organizations. A summary is provided of each publication selected, highlighting the salient points, especially in relation to the issues identified above.

Key Messages from the Literature Compiled in this Publication

It has been close to 20 years since the UK government's Commission on Intellectual Property Rights (CIPR) published its report in 2002, which warned that: 'Developing countries should consider basing their PVP legislation on a realistic appreciation of how it could benefit their agricultural development and food security, taking account also of agriculture's role in generating exports, foreign exchange and employment. In particular they need to consider possible modifications to the UPOV model to adapt it to their circumstances' (Final Report, Chapter 3).

Since then, the evidence showing that PVP laws based on UPOV 1991 are of limited benefit to developing countries has mounted, as shown by this compilation of selected literature. In fact, such laws may pose a threat to the practices of their farmers to freely save, use, exchange and sell farm-saved seed. The key messages below are drawn from the literature that has been compiled for this publication. They are, in short, the evidence, conclusions and recommendations that have been distilled from the studies.

THE SUITABILITY OR OTHERWISE OF UPOV 1991 FOR DEVELOPING COUNTRIES

All countries, regardless of their development level, have been progressively strengthening their intellectual property rights (IPR) systems (Campi and Nuvolari, 2015; 2020). The move towards stronger intellectual property (IP) protection has been largely driven by external processes, derived from obligations under the World Trade Organization's (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) and the adoption of TRIPS-plus provisions, the latter often mediated via North-South free trade agreements (FTAs). As such, the adoption of stronger IPR systems has not necessarily been a response to domestic needs and priorities, thereby risking the implementation of IPR regimes that are not appropriate to national contexts (Campi and Nuvolari, 2020).

UPOV 1991, which has significantly expanded and strengthened plant breeders' rights (PBRs) compared with earlier acts of UPOV, offers a rigid, 'one size fits all' model that is viewed as inappropriate for the highly diverse conditions and needs of developing countries (Correa, 2015). It ignores the characteristics of their seed supply systems, where farmers produce a large part of the seeds or propagating material used. UPOV 1991 is therefore deemed ill-suited for the conditions prevalent in developing countries, especially where agriculture is dependent on farmer seed systems and commercial seed markets are marginal or non-existent, as it suppresses farmers' traditional practices of saving, exchanging and selling seed (Coulibaly and Brac de la Perrière, 2019).

UPOV 1991 requirements can also undermine implementation of the Convention on Biological Diversity (CBD), its Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization, and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) (Correa, 2015). In particular, there are serious concerns that PBRs conflict with Farmers' Rights as provided for under the ITPGRFA, especially the rights of farmers to freely save, use, exchange and sell farm-saved seed, which are critical in the smallholder contexts typical of the developing world (Adhikari, 2009; CIPR, 2002; Correa, 2015, 2017; De Schutter, 2009; Kabau and Cheruiyot, 2019; Oberth et al., 2012; Shashikant and Meienberg 2015; The Berne Declaration, 2014).

As such, it is recommended that governments of developing countries should not opt to join UPOV 1991 (Christinck and Tvedt, 2015; Coulibaly and Brac de la Perrière, 2019). The WTO's TRIPS Agreement only requires that WTO members provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof, without specifying further what a *sui generis* system should be. No country should be forced to establish an IPR regime that goes beyond the minimum requirements of the TRIPS Agreement, including through FTAs obliging countries to join UPOV 1991 or to adopt UPOV-compliant legislation (De Schutter, 2009).

IMPACTS OF UPOV AND UPOV-BASED PVP SYSTEMS

Farmers' seed systems are the basis of livelihoods and food security in developing countries and the principal way that small-scale farmers access seeds (Almekinders and Louwaars, 2002; Louwaars, 2005). Any legislation or measure that hinders farmers from relying on their seed systems may therefore violate the right to food (De Schutter, 2009; Hindeya, 2011; Oberth et al.,

2012; The Berne Declaration, 2014). These measures need to be carefully evaluated, including through human rights impact assessments (De Schutter, 2009; The Berne Declaration, 2014).

The ability to implement Farmers' Rights in national PVP laws is very restricted once countries join UPOV 1991 as UPOV has been found to strengthen breeders' rights at the expense of Farmers' Rights. This could also have serious repercussions on the right to food, as farmers in these countries are the major food producers and suppliers (Hindeya, 2011; Oberth et al., 2012). UPOV 1991 restrictions on the use, exchange and sale of farm-saved PVP seeds will also make it harder for resource-poor farmers to access improved seeds and will sever the beneficial interlinkages between formal and farmer seed systems, adversely affecting the right to food, as seeds might become either more costly or harder to access (The Berne Declaration, 2014). It may further lead to farmers becoming increasingly dependent on the formal seed sector, which entails higher production costs and impacts spending on other essentials such as health and education (The Berne Declaration, 2014).

While it is argued that IPRs may foster investment in research and development (R&D) and innovation, robust seed sectors have often thrived in the absence of IPRs (Louwaars et al., 2005). Further, IPR protection can restrict access to knowledge, which might hinder future innovation, production and productivity (Campi and Nuvolari, 2020). Farmers innovate by carefully selecting and saving seed, often resulting in a new and improved plant variety. Traditional knowledge is applied, not just in selection, but also in the preservation and storing of seed. UPOV 1991 restrictions on traditional practices and seed management systems have resulted in adverse impacts on Farmers' Rights, cultural rights, minority rights, indigenous peoples' rights, women's rights and farmers' innovations (The Berne Declaration, 2014).

UPOV 1991 and UPOV-based PVP laws may also create incentives to produce certain types of commercial seeds and concentrate seed markets, resulting in a replacement of diverse seed varieties adapted by farmers for local conditions, with genetically uniform modern varieties (CIPR, 2002; La Viña et al., 2009; Narasimhan, 2008). This will then reduce agricultural biodiversity, risking food security and sustainability.

There are indications that developing countries are not benefiting from PVP applications, and that IPRs do not appear to be the best tool for fostering pro-poor agricultural R&D (Oberth et al., 2012). The UPOV system has not been found to deliver a significant increase in plant breeding activities in developing countries nor has it necessarily led to the development of the seed industry, but instead there are concerns over the misappropriation of local and farmers' varieties (Coulibaly and Brac de la Perrière, 2019). PVP does not incentivize breeding in crops for which there is no commercial market, implying that in many developing countries a PVP system will only serve a minor share of existing seed systems, and that for many crops and farming areas, public and farmer breeding will continue to be the mainstay. Neither is there evidence that the adoption of a UPOV system of PBRs positively influences seed imports (Eaton, 2013). In fact, the emergence of the private seed sector owes relatively little to national IPR regimes, while a dynamic private seed sector is possible in the absence of IPRs (Louwaars et al., 2005).

Moreover, there is little evidence of actual revenue generation from public breeding through IPRs (Louwaars et al., 2005). Instead, increasing public research focus on revenue generation may divert attention from the needs of marginal farmers, in favour of breeding objectives and methodologies directed at large-scale commercial production. IPRs in plant breeding therefore need to be seen in the context of a wider range of agricultural policies, and designed to suit the specific situations and needs of a country (Eaton et al., 2006; Louwaars et al., 2005).

DESIGNING A *SUI GENERIS* PVP SYSTEM

Countries need to be able to devise PVP systems that balance the interests of both breeders and farmers, as well as to protect Farmers' Rights. The focus should be on creating a solid foundation for the growth of the agricultural sector as well as promotion of mechanisms that protect Farmers' Rights that could be affected due to IPRs in the seed sector (Adhikari, 2008).

There is ample flexibility under the TRIPS Agreement for WTO members to design *sui generis* PVP systems suited to their national needs and priorities, and in accordance with other treaties such as the CBD and ITPGRFA, and the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and the United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas (UNDROP). Developing countries that have not yet joined UPOV should consider opting for alternative *sui generis* systems of PVP that allow for more flexibility in meeting the obligations of different treaties, for balancing the interests of diverse actors such as small-scale farmers, farming communities and commercial breeders, and for protecting and promoting Farmers' Rights and the right to food (Christinck and Tvedt, 2015; CIPR, 2002; Correa, 2015, 2017; Coulibaly and Brac de la Perrière, 2019; De Schutter, 2009; Dutfield, 2018; Hindeya, 2011; Kanniah and Antons, 2012; Medaglia et al., 2019; Narasimhan, 2008; Rangnekar, n.d.).

In identifying the system of IPRs best suited to their specific needs, whether in drafting a national PVP law or before agreeing to IP provisions in trade and investment agreements in the area of agriculture, countries should conduct independent and participatory human rights impact assessments (The Berne Declaration, 2014). An assessment of the nature of the prevailing seed supply system and the extent to which farm-saved seeds are used is an important step towards the formulation of an IPR or PVP system suited for developing countries.

There is no 'one size fits all' approach towards establishing a balanced *sui generis* PVP regime, given the range of stakeholders involved. Countries would benefit from adopting an inclusive and participatory process – one that takes into consideration the concerns of various stakeholders and affected groups, particularly small-scale farmers (Chee and Adams, 2016; Narasimhan, 2008). Farmers should be enabled to participate in debates regarding possible IPR regimes and their interests and priorities should be sufficiently well reflected in any subsequent policy or law.

GETTING THE BALANCE RIGHT IN *SUI GENERIS* PVP SYSTEMS

PVP remains an area of tension between creating incentives for plant breeding through PBRs and ensuring seed sovereignty, ag-

ricultural biodiversity and encouraging farmer innovation through Farmers' Rights. Many *sui generis* PVP laws attempt to balance both breeders' rights and Farmers' Rights to various extents, by conferring IP protection in plant breeding while protecting the rights of farming communities (e.g., Adebola, 2019; Hindeya, 2011; Kamble, 2013; Moonka and Mukherjee, 2018). A differentiated approach to PVP, which sets different levels of protection for different crops in relation to different categories of farmers and protects Farmers' Rights, is also an option in this regard (CIPR, 2002; The Berne Declaration, 2014).

A key priority would be for national systems to promote and protect traditional systems of food and agriculture that would otherwise be threatened by new forms of PVP. Where food production relies on widespread practices of saving, exchange and local sale of seeds and other planting materials, the national PVP law should recognize exceptions and protections for farmers to limit the reach of otherwise exclusive PBRs. In particular, given the crucial role that small farmers play in the production of food in developing countries, PVP regimes should exempt them from any obligation in connection with plant varieties, thereby fully safeguarding their right to freely save, use, exchange and sell seeds/propagating material (Correa, 2015).

At the same time, there are efforts to provide PVP to farmers' varieties in order to recognize, reward and incentivize the efforts made by farmers in developing new varieties. However, it is still not clear whether farmers and local communities can benefit from such provisions because their varieties in practice do not meet the distinctness, uniformity and stability (DUS) eligibility requirements (Lertdhamtewe, 2011). One option is to use different requirements for the registration of new farmers' varieties (novelty, distinctness and identifiability) (Correa, 2015). Further, instead of providing exclusive rights over farmers' varieties, the provision of remuneration rights to the rights holders when commercial exploitation takes place may be considered (Correa, 2015). This criterion could also apply to heterogeneous varieties developed by breeders, including in public research institutions, so as to better incentivize public breeding efforts.

Remuneration rights would also aim to prevent the misappropriation of varieties developed or evolved by farmers, as well as of other heterogeneous varieties developed by breeders. In the case of traditional farmers' varieties, this could be paid into a fund and used to support the conservation and sustainable use of plant genetic resources, as well as to implement benefit sharing (Correa, 2015). At the same time, there is a need to support farming practices through other laws designed to realize food sovereignty, including regimes designed to regulate the access and use of genetic resources and associated traditional knowledge, while creating incentives for farmer seed innovation through highlighting the innovative nature of traditional knowledge (Adebola, 2019; Jefferson and Adhikari, 2019; Murshamshul Kamariah Musa et al., 2019; Narasimhan, 2008).

FARMERS' SEED SYSTEMS AND FARMERS' RIGHTS

The considerable contribution of farmers' seed systems in supplying seed indicates they currently serve farmers' needs well; they are important for building viable and diverse crop populations, while providing quality planting materials acceptable to farmers (Coomes et al., 2015). As small farmers produce most of the food in the world, aiming for a formal seed sector that supplies 100 % of the seed for planting, including through enacting strong PBRs, is only realistic for a small number of crops and in few countries (Almekinders and Louwaars, 2002). There are many linkages between the formal and farmer seed systems, and providing support to the latter while protecting the practices of seed saving, exchange and sale will be important and is likely to be a more effective strategy to improve national and local seed supply, than focusing on the formal system alone (Almekinders and Louwaars, 2002; The Berne Declaration, 2014).

Farmers' seed systems also have a wider significance than the local supply of seed and maintenance of varieties, as they are in fact a dynamic *in situ* conservation system, playing an important role in the global management of PGRFA (Almekinders and Louwaars, 2002). The concept of Farmers' Rights recognizes farmers as custodians of biological diversity and draws attention to the need to preserve practices that are essential for sustainable agriculture (Correa, 2017). Moreover, farmers are not just stewards of biological resources, but they are also innovators of plant varieties. Although farmers' innovations have played a significant role in agriculture in all countries, relatively few have made provisions under national law to protect Farmers' Rights and to recognize farmers as breeders.

A focus on Farmers' Rights should emphasize farmer-centred agriculture, which is the dominant type of agriculture in developing countries, and where the practice of exchange of farm-saved seeds is central to their ability to thrive and to continue to innovate (Oguamanam, 2018). There is therefore a need to specifically protect farmers' rights to multiply, exchange and sell seeds and other propagating material. The practical implementation of Farmers' Rights has, however, been hindered by IP laws, seed laws and other regulations (Correa, 2017; Shashikant and Meienberg, 2015).

PBRs have also facilitated access to PGRFA, sometimes through misappropriation of farmers' varieties, and generated significant profits for breeders and seed companies through exclusive rights of marketing, control and distribution of new plant varieties (Murshamshul Kamariah Musa et al., 2019). As a response, the right to fair and equitable benefit sharing has been conceptualized to justify the rights of farmers who have been breeding seeds for generations to receive benefits from any commercialization based on the seeds that they have developed.

Farmers' Rights and benefit sharing therefore need to be expressly provided for under national PVP laws; government measures should also be put in place to facilitate and encourage participation of farmers in the conservation and improvement of PGRFA, including in decision-making on these issues. Nonetheless, Farmers' Rights provisions in law are likely to be fragile gains (Peschard, 2017) that could be easily lost due to pressures from the global trend towards the privatization of genetic resources and the strengthening of IPR regimes, including through bilateral and regional trade and investment agreements that are TRIPS-plus. This is therefore an issue that requires continued monitoring, advocacy and action, in order to ensure that Farmers' Rights are protected and that their seed systems continue to contribute not just to seed supply, but also to the conservation and sustainable use of PGRFA.

1 Impacts of UPOV and UPOV-Based Plant Variety Protection Laws

1A Impacts on Human Rights, Including the Right to Food

► THE UPOV CONVENTION, FARMERS' RIGHTS AND HUMAN RIGHTS: An Integrated Assessment of Potentially Conflicting Legal Frameworks

Anja Christinck and Morten Walløe Tvedt (2015). Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.
www.researchgate.net/publication/280234837_The_UPOV_Convention_Farmers'_Rights_and_Human_Rights_An_Integrated_Assessment_of_Potentially_Conflicting_Legal_Frameworks

This study was commissioned by GIZ on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ). It assessed whether PBRs (as defined by UPOV 1991) support the progressive realization of the right to food and other human rights, whether they support the realization of Farmers' Rights enshrined in the ITPGRFA, and whether UPOV-based PVP laws can be considered appropriate for the agricultural conditions of developing countries. One conclusion is that the TRIPS Agreement leaves sufficient discretion to governments to design PVP laws in such a way that the obligations of other treaties are addressed, but that the possibilities for developing countries to implement Farmers' Rights in their national PVP laws are very restricted once they join UPOV 1991. In fact, UPOV 1991-based PVP laws were found to not advance the realization of Farmers' Rights; rather, they are effective in the opposite direction. Moreover, the 'one size fits all' approach of UPOV appears problematic if the highly diverse conditions and needs of developing countries are to be addressed. Depending on conditions in each country, alternative approaches to developing TRIPS-compliant *sui generis* PVP laws can facilitate pluralistic approaches to developing breeding and seed systems in developing countries, and provide differentiated options to implement national PVP laws in harmony with other treaty obligations and policy goals. As such, the recommendations include: (1) Governments of developing countries should clarify the objectives of their national PVP law and carefully consider how different PVP laws could help address these; ensuring how all farmers can access seed of protected varieties, and how scientific breeding progress can be directed towards the needs of vulnerable groups; (2) Developing countries should not join UPOV unless clear benefits can be identified for their farming and food systems; (3) Developing countries that have not yet joined UPOV should consider opting for alternative *sui generis* systems of PVP that allow for more flexibility in meeting the obligations of different treaties, for balancing the interests of diverse actors, and for protecting and promoting Farmers' Rights; and (4) Baseline studies should be conducted in developing countries to assess the importance of farmer-managed and formal breeding and seed systems for different crops, regions and groups of farmers, so that PVP laws can be based on the priorities and needs of diverse actors. ■

► OWNING SEEDS, ACCESSING FOOD: A Human Rights Impact Assessment of UPOV 1991 Based on Case Studies in Kenya, Peru and the Philippines

The Berne Declaration (2014).
www.publiceye.ch/fileadmin/doc/Saatgut/2014_Public_Eye_Owning_Seed_-_Accessing_Food_Report.pdf

This report presents the findings from an ex-ante human rights impact assessment (HRIA) of IP in agriculture. It looked at ways

by which PVP systems based on UPOV 1991 can affect human rights, focusing on the right to food in Kenya, Peru and the Philippines. Of concern is that UPOV 1991-type PVP laws restrict farmers' traditions of freely saving, replanting, exchanging and selling seed, impacting informal seed systems, which are the basis for farmers' livelihoods and food security in developing countries. Key findings and conclusions are: (1) The informal seed system is the primary way for small-scale farmers to access seeds. There is important interaction between the formal and informal sectors whereby seeds from the former are integrated into the latter by seed saving, exchange and sale of farm-saved seeds. (2) UPOV 1991 restrictions on the use, exchange and sale of farm-saved PVP seeds will make it harder for resource-poor farmers to access improved seeds and sever beneficial interlinkages between the formal and informal seed systems. 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. As selling seeds is an important source of income, these restrictions could affect other human rights, by reducing household income available for food, healthcare or education. (3) Traditional knowledge, in particular women's knowledge, is applied by farmers in the selection, preservation and storing of seed. Restrictions on traditional practices and seed management systems adversely impact on Farmers' Rights, cultural rights, minority rights, indigenous peoples' rights and women's rights. (4) Restrictions on the use, exchange and sale of farm-saved seeds might lead to increasing dependence on the formal seed sector, entailing higher costs and affecting ability to buy food. (5) There is a lack of information and participation of small-scale farmers in the process of developing PVP-related laws, and a lack of assessment of the likely impacts of these laws. The report recommends that governments: (1) undertake an HRIA before drafting a national PVP law or before agreeing to IP provisions in trade and investment agreements in the area of agriculture; (2) improve linkages between formal and informal seed systems and apply a differentiated approach regarding PVP for different users and different crops; (3) abide by a transparent and participatory process that includes farmers, when drafting, amending or implementing PVP laws and related measures; (4) inform governmental agencies and others involved in seed policy about their obligations concerning the right to food; (5) identify and implement measures to mitigate potential adverse impacts of PVP-related laws on human rights or on the informal seed sector; (6) use all flexibilities available when drafting PVP-related laws, taking into account the needs of the most vulnerable; and (7) monitor impacts of PVP laws on the right to food. ■

► INTELLECTUAL PROPERTY RIGHTS ON GENETIC RESOURCES AND THE FIGHT AGAINST POVERTY. Study for the European Parliament.

Sebastian R. Oberth et al. (2012).
www.researchgate.net/publication/323019212_Intellectual_property_rights_on_genetic_resources_and_the_fight_against_poverty_Study_for_the_European_Parliament

This study was requested by the European Parliament's Committee on Development to analyze the developmental impact of IPRs on genetic resources and associated traditional knowledge, with one focus being on PGRFA and its implications on the rights of indigenous peoples and local communities. The study makes some observations on the impact of agricultural IPRs on developing countries, of which the PVP-relevant ones include: (1) On the question of who reaps the immediate economic benefits of IPRs on genetic resources for food and agriculture, there are indications from patent grants and PVP applications that developing countries are not benefiting from IPRs in the form of royalties or licence fees. This is a sobering picture, given that IP-protected products are based on agricultural biodiversity, which is in turn the result of farmers' breeding efforts all over the world and the free exchange of seeds between them. (2) On whether IPRs foster (private sector) agricultural R&D to the benefit of developing countries, the study concludes that IPRs do not appear to be the best instrument for fostering pro-poor agricultural R&D. (3) On whether IPRs limit the access of farmers to seed, particularly smallholders in developing countries, the study concludes that UPOV 1991 drastically limits the possibility for states to set forth exceptions from PBRs in favour of farmers' right to reuse and exchange harvested seed. The study thus recommends that the EU should not push developing countries, especially LDCs, through bilateral agreements to accept far-reaching IP standards (e.g., by requesting adherence to UPOV 1991). This is because UPOV 1991 would require developing countries to prevent or inhibit farmers from exchanging seeds, with potential negative implication for the right to food. ■

► SEED POLICIES AND THE RIGHT TO FOOD: Enhancing Agrobiodiversity and Encouraging Innovation

Olivier De Schutter (2009).
Interim report of the Special Rapporteur on the right to food to the sixty-fourth session of the United Nations General Assembly.
www.srfood.org/images/stories/pdf/officialreports/20091021_report-ga64_seed-policies-and-the-right-to-food_en.pdf

This report examines the impact of seed policies and IPRs in agriculture on the realization of the right to adequate food. The

report notes that the emergence of commercial seed systems has led to the grant of temporary monopoly privileges to plant breeders and patent holders through the tools of IP, as a means to encourage research and innovation in plant breeding. Such systems sit alongside farmers' seed systems through which farmers traditionally save, exchange and sell seeds, and which are a source of economic independence and resilience. The report discusses the impacts of IPRs on farmers' seed systems, as any legislation or measure that creates obstacles to the reliance of farmers on their seed systems may violate the right to food, since it would deprive farmers of a means of achieving their livelihood. It finds that IPRs reward and encourage standardization and homogeneity, and may constitute an obstacle to the adoption of policies that encourage agrobiodiversity conservation and reliance on farmers' varieties. IPRs can also constitute a direct impediment to innovation by farmers. The preservation of agrobiodiversity and the development of farmers' seed systems relies not only on the use of landraces but also on the saving, exchange or sale of harvested seeds, since it is often the case that traditional varieties can be combined with modern ones to produce varieties which perform better in local environments. Although the ITPGRFA refers to the rights of farmers to save, use, exchange and sell farm-saved seed/propagating material, restrictions to Farmers' Rights in order to better protect breeders' rights are common, and this is a particular concern with UPOV 1991. As such, the report calls on developing countries with traditional farmers' seed systems to design *sui generis* forms of PVP that allow these systems to flourish. In identifying the system of IPRs best suited to their specific needs, states could be supported by independent and participatory human rights impact assessments. No state should be forced to establish an IPR regime that goes beyond the minimum requirements of the TRIPS Agreement; FTAs obliging countries to join UPOV 1991 or to adopt UPOV-compliant legislation, therefore, are questionable. The report concludes by stating that states should promote innovation in both commercial and farmers' seed systems, ensuring that such innovation works for the benefit of the poorest and most marginalized farmers, particularly in developing countries. It recommends, *inter alia,* that developing countries be supported in efforts to establish IPR regimes that suit their development needs and are based on human rights, calling on donors and international institutions to: (1) refrain from imposing conditions that go beyond the minimum requirements of the TRIPS Agreement, particularly by TRIPS-plus provisions in FTAs; and (2) encourage the provision of technical advice to developing countries that facilitates the adoption of *sui generis* PVP systems. ■

1B Impacts on Agricultural Development, Innovation and Plant Breeding

► INTELLECTUAL PROPERTY RIGHTS AND AGRICULTURAL DEVELOPMENT: Evidence from a Worldwide Index of IPRs in Agriculture (1961–2018)

Mercedes Campi and Alessandro Nuvolari (2020). ***LEM Working Paper Series 6.*** www.lem.sssup.it/WPLem/2020-06.html

This paper revises and updates the Campi-Nuvolari index of IP protection for plant varieties. The new index provides yearly scores for the period 1961–2018 for a total of 104 countries which have PVP legislation in force. There is still an open debate on the effect of IP protection and on the role of IPRs in encouraging innovation and agricultural development. While IPRs can foster investment in R&D and innovation, with potential positive impact for agricultural production, they also restrict access to knowledge, which might hinder future innovation, production and productivity, especially affecting poor countries. By creating incentives to produce certain types of commercial seeds and concentrating seed markets, IPRs can reduce agricultural biodiversity, risking food security and sustainability. The paper finds that all countries, regardless of their development level, have been tightening their IPR systems, driven by exogenous processes derived from TRIPS obligations and adoption of TRIPS-plus provisions, rather than a response to domestic needs. In doing so, these countries risk implementing IPR regimes that are not appropriate to contexts in which traditional knowledge and collective invention are important components of farming practices. In addition, regardless of the type of country, the effect of IPRs on agricultural performance is ambiguous. This is because IPRs have a trade-off: they are adopted with the aim of fostering innovation but as they provide a monopoly power on the use of innovations, they can lead to a decrease in the number of new products and to an increase in their price. This monopoly power might in turn reduce innovation because it restricts access to knowledge and innovations, which in the agricultural sector is particularly relevant as innovation depends on access to genetic material. The paper concludes that the effect of IPRs depends on this trade-off and the net effect needs to be empirically determined, and the index could contribute in this regard. ■

▶ INTELLECTUAL PROPERTY PROTECTION IN PLANT VARIETIES: A Worldwide Index (1961–2011)

Mercedes Campi and Alessandro Nuvolari (2015).
***Research Policy* 44(4): 951–964.**
https://doi.org/10.1016/j.respol.2014.11.003

The authors construct a new index measuring the strength of IP protection for plant varieties in 69 countries over the period 1961–2011. This new indicator can be a useful tool for researchers interested in assessing the effects of IPRs on innovation, growth, technology transfer, trade and productivity in the agricultural sector. The index shows that there has been a progressive adoption of tighter IPR regimes worldwide, especially since the signing of the TRIPS Agreement, which also demanded higher IP protection for plant breeding activities. Moreover, the initial gap in the strength of IP protection between high-income countries and the rest has been narrowing (especially because middle- and low-income countries have been progressively tightening their IPR systems). The article finds that IPRs do not affect developed and developing countries in the same way. For example, it finds a positive and significant correlation between the strengthening of IP protection and agricultural value added for developed countries, but it was not able to establish any significant correlation for developing countries. The article concludes that the evidence supports the hypothesis that the effect of IPRs may be different across sectors, technologies and development levels. For this reason, a more cautious approach towards the adoption of a global and harmonized IP protection system (such as that emerging from TRIPS) should be in order, as well as in accordance with the needs and interests of social and economic development in each nation. ■

▶ THE WIZARDS OF SVALÖF: Intellectual Property Rights and Consolidation in the Plant Breeding Industry

Chrysa Morfi (2020).
***Agricultural and Food Science* 29(1): 29–42.**
https://doi.org/10.23986/afsci.86937

This paper reviews the most prominent changes that have taken place in the plant breeding industry in Sweden, which is a member of UPOV 1991. The global value chain framework is used to describe how IPRs have created power structures in the plant breeding/seed value chain in Sweden. The paper argues that the establishment of IPR schemes, particularly patents and PBRs, has created power asymmetry in the seed value chain and has therefore been a major driver of consolidation in Sweden and internationally. In particular, the tightening of IPR laws created market power in the upper part of the chain and increased the concentration in the industry, spurring waves of mergers and acquisitions, which provided a way to aggregate and control the relevant IPRs. An outcome of this development is the high usage of certified seed produced from varieties bred in non-Swedish laboratories. Although the number of plant breeding organizations in Sweden has not changed significantly in the last decades, domestic breeding programmes have been significantly reduced and are now dependent on collaboration with multinational corporations. The ratio of local varieties in relation to imported varieties, which has also declined, is of special significance to Sweden, which has a long history of plant breeding and now faces a challenging climate. The paper concludes that Sweden has lost its leading role in global markets and the ability to control its domestic market, due to the consolidation that has happened in its plant breeding industry. ■

▶ A DYSFUNCTIONAL PLANT VARIETY PROTECTION SYSTEM: Ten Years of UPOV Implementation in Francophone Africa

Mohamed Coulibaly and Robert Ali Brac de la Perrière (2019).
Association for Plant Breeding for the Benefit of Society (APBREBES) and BEDE.
www.apbrebes.org/news/dysfunctional-plant-variety-protection-system-ten-years-upov-implementation-francophone-africa

OAPI is an IP organization for 17 countries mainly from French-speaking West and Central Africa. In 1999, OAPI introduced Annex X on PVP – modelled on UPOV 1991 – into the regional Bangui Agreement. More than 10 years after Annex X entered into force, this paper studies how it has been operationalized, the impact and relevance of UPOV 1991 for the region, and whether the promises of UPOV 1991 were realized for the 17 countries, of which 12 are LDCs. The results point to a dysfunctional PVP system that does not fit the socio-economic and agricultural conditions in the region. Only seven of the current 17 OAPI member states have made use of the system, at great cost and at the expense of public funds. Only 51 PVP Certificates are in force after 10 years and the private sector's use of the system is negligible. The system has not delivered any significant increase in plant breeding activities nor led to the development of the seed industry across the region, but instead raises a major concern of misappropriation of local and farmer varieties. These results are the consequence of OAPI adopting a 'one size fits all' UPOV 1991 approach to PVP, more suited for developed countries, and in disregard of the agricultural, social, economic, cultural and market conditions, systems and practices prevailing in the OAPI region, whereby most farmers' seed needs are met by farmers' circuits based on traditional seeds and adapted farm-saved seeds, and far less by the formal market. The paper concludes by charting the way forward, including how to utilize unused policy space to design PVP regimes appropriate to local conditions and needs, the steps to consider in developing such a *sui generis* regime, and recommendations for OAPI member states and other LDCs and developing countries. A key recommendation is that OAPI member states should not become party to UPOV 1991, as it is ill-suited for the conditions prevailing in LDCs and developing countries, especially

where agriculture is dependent on farmer seed systems and markets are marginal or non-existent. Given the significant costs and missed opportunities attached to the adoption of a system that is incompatible with their agricultural profile, LDCs and developing countries are urged to utilize the policy space offered by the TRIPS Agreement and develop alternative *sui generis* PVP systems appropriate for their own national circumstances. ■

► INTELLECTUAL PROPERTY RIGHTS FOR AGRICULTURE IN INTERNATIONAL TRADE AND INVESTMENT AGREEMENTS: A Plant Breeding Perspective

Derek Eaton, Niels Louwaars and Rob Tripp (2006). *Agricultural and Rural Development Notes*, No. 11, World Bank, Washington, DC.
https://openknowledge.worldbank.org/handle/10986/9645

This note, by researchers from Wageningen University and Research Centre and the Overseas Development Institute, explains how the TRIPS Agreement places obligations on WTO members to provide minimum standards of IP protection, but also leaves developing countries a certain amount of flexibility to tailor IPR regimes to their specific circumstances. The note reviews how developing countries are choosing to meet their obligations while retaining flexibility to sustain dynamic farmers' seed systems that provide more than 80 % of the seed used by farmers in most countries. Although the decision to join UPOV may be problematic for many developing countries, the note is of the opinion that the use of the UPOV guidelines for testing new varieties against DUS criteria offers advantages. However, this does not have to go hand in hand with uniform scope or coverage of protection: countries can base their PVP system on UPOV testing guidelines but maintain a broader farmers' privilege; and can choose to offer stronger protection for more commercialized crops and relatively little for subsistence crops, maintaining the option to adjust the system as the seed sector develops. The note highlights the concern that bilateral and multilateral trade negotiations may exert pressure on countries to adopt IPR regimes that are more rigid than those required to support national agricultural development. It cautions that such strengthened IPRs need to be justified on the basis of careful assessment of the national breeding and farming sectors and consultation among the main stakeholders, and that care should be taken that trade considerations do not dictate development pathways for national seed systems. The note concludes that for IPRs to support agricultural development, they need to be tailored to a country's circumstances. Developing countries, with their diversity of farmers and seed systems, present special challenges, where the goal should be to provide incentives for seed sector development without limiting the practices and livelihoods of small farmers. Meeting this goal requires a careful balancing of rights and obligations, which may imply adapting, as opposed to simply adopting, the standard models available. ■

► IMPACTS OF STRENGTHENED INTELLECTUAL PROPERTY RIGHTS REGIMES ON THE PLANT BREEDING INDUSTRY IN DEVELOPING COUNTRIES: A Synthesis of Five Case Studies

N.P. Louwaars, R. Tripp, D. Eaton, V. Henson-Apollonio, R. Hu, M. Mendoza, F. Muhhuku, S. Pal and J. Wekundah (2005).
Report commissioned by the World Bank.
Wageningen University and Research.
https://library.wur.nl/WebQuery/wurpubs/fulltext/36798

This study analyzes initial experiences with strengthened IPRs and their effect on agriculture in developing countries, focusing on five case studies – China, Colombia, India, Kenya and Uganda. It assumes that the primary justification for IPRs is to increase welfare in society, but that the monopoly may disadvantage particular stakeholders. Careful consideration is thus needed of the different seed systems in the country and of the balance of economic interests of different stakeholders. The study finds that the emergence of the private seed sector in the case study countries owes relatively little to national IP regimes; the most dynamic private seed sector in the sample (India) has grown and diversified without benefit of any IPRs. With the exception of China (a UPOV 1978 member), the study found little evidence of actual revenue generation from breeding through IPRs. Instead, the focus of national agricultural research institutes on revenue generation may divert attention from the needs of marginal farmers in favour of breeding objectives and methodologies directed at large-scale commercial production, and may affect the conduct of participatory methods in breeding and variety selection. The study also finds that farmers' seed systems are the main source of seed and new varieties for most crops in the case study countries and that IPRs may reduce the effectiveness of these systems by limiting the saving, exchanging and selling of farmer-produced seed of protected varieties. The study concludes by pointing to significant lessons, including: (1) IPR regimes should be consistent with developing countries' priorities and capacities instead of being externally imposed; (2) IPRs in plant breeding should be seen in the context of a wider range of agricultural policies, but IPR regimes themselves must be carefully tailored to specific situations; (3) there is a need to assess whether particular IPR regimes are actually providing incentives for seed system development consistent with national agricultural goals; (4) countries should recognize that they have choices in designing TRIPS-consistent legislation; and (5) farmers should participate in debates regarding possible IPR regimes and their interests and priorities reflected in public agricultural research. Important parameters that require careful consideration for PVP are: (1) the designation of which species are to be covered; (2) fee structures (and possible subsidies or differentiation by crop); (3) the nature of the breeder's exemption for use of protected varieties; and (4) implications for farmers' abilities to save, exchange and sell seed. ■

▶ ACCESS TO GENETIC RESOURCES, GENE-BASED INVENTIONS AND AGRICULTURE

Dwijen Rangnekar (n.d.). Study Paper 3a for the Commission on Intellectual Property Rights. www.cipr.org.uk/papers/pdfs/study_papers/sp3a_rangnekar_study.pdf

This background paper was commissioned by the UK's Commission on Intellectual Property Rights and, *inter alia,* presents an assessment of the empirical evidence of the economic impact of PVP in developed and developing countries. In the case of developed countries, the paper finds that: (1) the evidence is that of a modest and uneven impact of PBRs on private sector breeding investments; (2) while empirical evidence does seem to support the claim that the availability of PBRs leads to an increase in the number of new varieties released, it is not automatically the case that this is an economic good; and (3) evidence adequately demonstrates a high and increasing level of concentration in the seed market while evidence of increases in seed price suggests an undue exercise of market power by breeding companies. For developing countries, which have different circumstances raising questions on the appropriateness of existing models of PVP, availability of evidence is limited, but the paper finds that: (1) private sector breeding has not addressed the needs of developing-country farmers; and (2) there is some evidence that the availability of PBRs allows access to foreign germplasm, but this has not necessarily enhanced national capacity in plant breeding nor improved food security. Further, given established seed exchange networks and their role in distributing varieties and maintaining diversity, there are apprehensions about the adverse impact of PBRs in developing countries. The paper recommends: (1) a substantive review of the functioning of PBRs, at national and international levels, to identify and analyze the impact on agricultural research, agronomic qualities of new varieties released and market concentration; (2) similar national-level studies by developing countries to inform the policy process of implementing Article 27.3(b) of the TRIPS Agreement; (3) a review by national and international agricultural research centres of the impact of IPRs on their conduct of agricultural research and evaluation of their collaborations with the private sector; and (4) strengthening of donor agencies' long-term commitment to funding public sector agricultural research. The paper asserts that TRIPS obligations must be examined in terms of national priorities, in particular the need to maintain access to genetic material for breeders to continue plant breeding and for farmers to ensure seed diffusion. Consequently, the *sui generis* option is considered the best alternative, while a 'one size fits all' approach is deemed counter-productive. In this regard, the paper recommends, *inter alia:* (1) retaining the option to implement an effective *sui generis* system without modifications aimed at establishing a possible benchmark (e.g., UPOV); (2) developing countries undertake an extensive review of policies on agricultural development, in a participatory manner; and (3) developing countries examine key components of a *sui generis* system (e.g., the coverage, scope of and conditions for protection) to assess what might be appropriate and in the national interest. ■

1C Impacts on Agricultural Biodiversity and Genetic Resources

▶ COMPARATIVE STUDY OF THE NAGOYA PROTOCOL, THE PLANT TREATY AND THE UPOV CONVENTION: The Interface of Access and Benefit Sharing and Plant Variety Protection

Jorge Cabrera Medaglia, Chidi Oguamanam, Olivier Rukundo and Frederic Perron-Welch (2019). CISDL Biodiversity and Biosafety Law Research Programme. https://absch.cbd.int/database/resource/CBB23F98-E332-FDA5-E8D7-0799BF8356DF

This study is published by the Centre for International Sustainable Development Law, with the financial support of the Swiss Confederation. It examines the existing situation and recent developments relating to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity (Nagoya Protocol), the ITPGRFA and the UPOV Convention. There is a need to assess whether PVP allows equitable benefit sharing given the obligations found in the Nagoya Protocol and ITPGRFA, and how the two treaties can be implemented in a mutually supportive manner with the UPOV Convention, at a national (or regional) level. This is important as the number of different agreements dealing with plants and plant genetic resources have created a range of differing and sometimes competing interests related to plants, genetic resources and people, including the conservation of biodiversity, Farmers' Rights and farmers' practices, and food security and food sovereignty. The primary aim of the study is to address the linkages between the requirements of the Nagoya Protocol, ITPGRFA, and PVP under the UPOV Convention, specifically reviewing measures to implement obligations under the three treaties in the EU and Switzerland. The study finds that a window for synergistic and mutually reinforcing implementation of the three regimes to serve or advance the objectives of ABS lies at the national level, where countries are free to craft balanced and detailed provisions on Farmers' Rights. Furthermore, states can support the development of rules on ABS that accommodate the rights of breeders,

TK holders, farmers and even patent holders in as fair and balanced a way as possible, with the ultimate aim of advancing biodiversity conservation, protecting and conserving PGRFA, and supporting PVP in fairness to Farmers' Rights. It concludes that *sui generis* PVP systems adopted outside of the UPOV Convention framework – as permitted by TRIPS – may provide a way to better balance rights and obligations relating to the Nagoya Protocol, Plant Treaty and PVP. Where the regimes must be reconciled or implemented in synergistic or mutually reinforcing ways at the national level, countries with obligations in regard to genetic resources will need to be mindful of those obligations when implementing their UPOV commitments. ■

► SDG 2.5: HOW POLICIES AFFECTING TRADE AND MARKETS CAN HELP MAINTAIN GENETIC DIVERSITY

Graham Dutfield (2018).
In: *Achieving Sustainable Development Goal 2. Which Policies for Trade and Markets*?
Edited by International Centre for Trade and Sustainable Development (ICTSD).
www.ictsd.org/sites/default/files/research/achieving_sdg2-ictsd_compilation_final.pdf

The author is Professor of International Governance at the School of Law, University of Leeds. The paper assesses ways that SDG 2.5 can be advanced through trade and market-related actions and policies. SDG 2.5 concerns genetic diversity of cultivated and domesticated plants and animals and their wild relatives as well as access to these resources and benefit sharing from their use and the use of associated TK. The paper discusses PVP laws and whether they incentivize overall investment in commercial crop breeding. The evidence suggests that increased investments are targeted primarily at a limited set of commercial crop types. From the perspective of small-scale and resource-poor farmers, the exclusionary legal and regulatory norms that underpin seed development and circulation, including IPRS, raise concerns. PVP laws as per UPOV may have disruptive effects if they narrow or eliminate farmers' rights to replant and exchange saved seed. The paper identifies challenges such as the need to maintain genetic diversity, and to ensure access to and fair and equitable sharing of benefits arising from the utilization of GR and associated TK. There are plausible arguments that IPRS relevant to plants and GR, as provided under UPOV, fall short in terms of encouraging genetic diversity in agriculture. However, exploiting allowable exceptions and flexibilities in IP laws may offer some advantages over the present situation. The paper concludes by identifying high-priority areas for international and government action and makes recommendations as to how they could best be supported. One recommendation is that trade agreements with IP chapters should not contain provisions requiring that countries implement UPOV 1991. The issue is not that UPOV 1991 is inherently harmful, but that the introduction of IP protection to cover innovations in agriculture needs to be done with immense care, taking into account local conditions and specificities. Further, insofar as plant IP is provided for in these agreements, parties should be free to adopt *sui generis* regimes for plant varieties, including ones that provide exceptions and limitations to rights, and that do not place restrictions on what small-scale farmers can plant and on how they may dispose of harvested produce. ■

1D Impacts on Trade and Markets

► ACCESS TO SEED INDEX SHOWS: Implementation of UPOV 1991 Unnecessary for the Development of a Strong Seed Market

APBREBES (2019).
A Policy Brief by the Association for Plant Breeding for the Benefit of Society.
www.apbrebes.org/news/access-seed-index-shows-implementation-upov-1991-unnecessary-development-strong-seed-market

It is often argued by the proponents of the UPOV system that membership of UPOV is a prerequisite to promoting breeding activities and supporting development of a national seed market. This policy brief examines data from the Access to Seed Index, which *inter alia* show the strength of the commercial seed markets, as indicated by the number of seed companies (out of a selected group) with activities (sales, breeding, production) in developing countries. Regional indices provide in-depth analysis of the South and Southeast Asia, Eastern and Southern Africa, and Western and Central Africa regions. It is apparent from this data that there is no causal link between UPOV membership or implementation of UPOV legislation, and the presence and engagement of seed companies and their breeding activities. On the contrary, the data confirm that countries implementing alternative, non-UPOV *sui generis* PVP systems have been able to maintain and develop national seed markets (e.g., India and Thailand). In Western Africa, Nigeria *without* a PVP law has seen the most activities of seed companies in the whole region. It is apparent that the development of a seed market and breeding

activities and, importantly, the improvement of access to seeds for smallholder farmers must not be reduced to the question of UPOV membership or implementation of intellectual property. In the light of these, the language used by the UPOV Secretariat and other promoters of UPOV 1991, that UPOV is the system to promote breeding activities and access to seeds, lacks any foundation. ■

▶ TRADE AND INTELLECTUAL PROPERTY RIGHTS IN THE AGRICULTURAL SEED SECTOR

Derek J.F. Eaton (2013).
Centre for International Environmental Studies Research Paper No. 20/2013.
https://ssrn.com/abstract=2323595 or
http://dx.doi.org/10.2139/ssrn.2323595

Effective and well-designed IPRs are expected, in theory, to contribute to technology transfer by trade, licensing or foreign direct investment. This paper analyzes the effect of IPRs on trade in the sector of agricultural seeds, specifically on the effects on trade as a channel for technology transfer. The TRIPS Agreement has continued to be fiercely debated between North and South, particularly with respect to its provisions for the agricultural sector. Article 27.3(b) requires WTO members to offer some form of IP protection for new plant varieties, either in the form of patents (common in the US) or PBRs. The author refers to the argument that the introduction or strengthening of IPRs in countries with generally less innovative capacity in plant breeding will lead to an increase in seed imports from those countries possessing such capacity and that exporting firms would most likely expand their range of seed products exported to a country introducing IPRs. The paper therefore specifically analyzes the effects of the introduction of PBRs in almost 80 importing countries on the value of exports of agricultural seeds and planting material from 10 exporting EU countries, including all principal traditional exporters of seeds, as well as the US. The paper finds no significant effect from UPOV membership, as an indicator of the scope and strength of IPRs affecting the plant breeding sector, on seed imports, i.e., there is no evidence that the adoption of a UPOV system of PBRs positively influences seed imports. One of the most obvious explanations for the lack of significant effect of UPOV membership on seed imports is that, in general, the initiation of PBRs has little effect on the decisions of seed companies to export to specific markets. ■

1E Other Assessments

▶ FOOD, BIOLOGICAL DIVERSITY AND INTELLECTUAL PROPERTY: The Role of the International Union for the Protection of New Varieties of Plants (UPOV)

Graham Dutfield (2011).
Global Economic Issue Publications.
Intellectual Property Issue Paper Number 9.
Quaker United Nations Office.
https://quno.org/sites/default/files/resources/UPOV%2Bstudy%2Bby%2BQUNO_English.pdf

The author of this paper is Professor of International Governance at Leeds University School of Law.

The paper focuses on UPOV as an institution, as it is the sole international agency concerned with IP protection of new plant varieties, and concerns have been expressed about the lack of transparency, democratic accountability and possibilities for public debate in its operation. The paper does not engage with the question of whether PVP supports or undermines food security and biological diversity but instead seeks to assess the extent to which the UPOV system permits consideration of its interaction with, and impact on, these public policy objectives. It describes the global system of IP protection specifically for plants, highlighting that a PVP regime should be for the benefit of society, and that while PVP may stimulate private investment in research where an industry already exists, or in varieties that have a high market value, there is a lack of evidence that PVP alone will stimulate these elements. The paper describes the origins of the UPOV Convention and how it was designed by and for European commercial breeding interests. Despite this, due in large part to ratification of trade agreements, many developing countries have since joined the Convention. The paper also details UPOV's provisions, and illustrates how the 1991 revision gives breeders additional rights as compared to previous versions of the Convention. It then explores the reasons why countries decide to join UPOV, including bilateral trade and investment treaties, and considers the role of the UPOV Secretariat. The paper also describes the institutional features of UPOV, its relationship with WIPO and how participation in UPOV's work is engendered, and presents some of the discussions around alternatives to UPOV, given that there is no legal basis for implying that a non-UPOV-compliant PVP law is contrary to the TRIPS Agreement simply for being inconsistent with UPOV. The paper finds that there are reasonable concerns that UPOV, in the way it tends to be interpreted, may be out of step with societal con-

cerns about long-term food security, protection of biological diversity, and Farmers' Rights, and that the UPOV system fails to provide sufficient flexibilities to fashion optimal PVP regimes. The paper concludes that UPOV can do more to stimulate debate on appropriate rules for an increasingly diverse membership and on the food security and related challenges the world faces in the 21st century, including by considering introducing more flexibility into UPOV or revising the Convention. It finally sets out a series of recommendations and issues for consideration by UPOV's Secretariat and its members that address transparency and participation, assessment of the impacts of joining UPOV, technical assistance, and a 'development agenda' for UPOV. ■

► UPOV REPORT ON THE IMPACT OF PLANT VARIETY PROTECTION

International Union for the Protection of New Varieties of Plants (UPOV) (2005).
www.upov.int/edocs/pubdocs/en/upov_pub_353.pdf

► UPOV REPORT ON THE IMPACT OF PLANT VARIETY PROTECTION: A critique

Silva Lieberherr and François Meienberg (2014). Berne Declaration, Zurich.
https://issuu.com/erklaerungvbern/docs/2014_07_critique_upov_report_final

UPOV undertook this impact study to provide countries considering the introduction of a PVP system with information on the impact of the introduction of PVP systems according to the UPOV Convention. It begins by detailing the role and benefits of PVP, and reviewing the development of the UPOV system at the international level. It assesses the impact of the introduction of a PVP system in selected UPOV members (Argentina, China, Kenya, Poland and the Republic of Korea), recognizing that the impact will vary country-by-country and crop-by-crop. According to UPOV, the reviews demonstrate positive responses. These include an increase in the occurrence of protected varieties in a range of crops; improved quality in protected varieties; and an increase in variety applications by foreign (non-resident) breeders, which was seen to enhance global competitiveness for producers. UPOV asserts the importance of an international PVP system to benefit all members. Put simply, UPOV claims, farmers, growers and breeders have access to the best varieties produced by breeders throughout UPOV member territories. The report also highlights that membership of UPOV provides technical assistance and maximizes opportunities for cooperation, which enables PVP to be extended to the widest range of plant genera and species in an efficient way. ■

Because UPOV's Impact Assessment was used repeatedly in subsequent years to legitimize the introduction of PVP laws in line with UPOV 91, the Berne Declaration analysed the report. The critique analyzes especially the methodology of UPOV's impact assessment. It points out that UPOV's main underlying assumption is that an increasing number of new or existing varieties means a benefit for society and therefore proof of the effectiveness of the UPOV Convention, without critically examining questions such as accessibility of new seed, differentiation between small and large farms, differentiation between crops and their implications for important issues such as food security and agricultural biodiversity, who benefits from the PVP law, and whether registration of a new variety is solely a result of the PVP law or other factors. Moreover, the ill-defined scope, and the failure of UPOV to even allow consideration of any possible negative impacts of PVP in general and the UPOV Convention in particular, are flaws that bias the UPOV report's outcome. The lack of a counterfactual that would allow an assessment of what could be expected to have happened without the measure/policy/convention in place, leaves UPOV's study only able to show a correlation between the introduction of the UPOV Convention and certain trends, but failing to make convincing arguments in favour of causality. Additionally, the report does not specify that the two Acts of the UPOV Convention in question, Act 1978 and Act 1991, differ in several crucial points, instead treating them as one and not differentiating the outcomes. As the report considers the situation in developing and emerging countries (China, Kenya and Argentina) that are parties to UPOV 1978, which is now closed to new ratifications, this could lead to misleading conclusions for countries intending to join the current system, which is based on UPOV 1991. The critique concludes that UPOV's impact study leaves unanswered the question whether the UPOV Conventions do or do not have positive impacts – in a broader sense – on the countries that have adopted them. The UPOV report used narrowly drafted indicators, without taking into account key issues like food security, agrobiodiversity and availability of seeds for small farmers, or defining what 'for the benefit of society' – used in its mission statement – means. Therefore, UPOV's impact study is not a reliable basis for decision-making for countries that may be considering joining UPOV 1991. ■

► INTEGRATING INTELLECTUAL PROPERTY RIGHTS AND DEVELOPMENT POLICY. Report of the Commission on Intellectual Property Rights

Commission on Intellectual Property Rights (2002).
www.cipr.org.uk/papers/text/final_report/chapter3htmfinal.htm#_edn20 www.cipr.org.uk/graphic/documents/final_report.htm

The report by the Commission on Intellectual Property Rights, established by the UK government, includes a chapter on Agriculture and Genetic Resources, which asks the questions: Can IP protection on plants and genetic resources benefit developing countries and poor people? What sort of systems should developing countries consider for protecting plant varieties while safeguarding Farmers' Rights? With regard to PVP, the chapter highlights that while in recent years the IP rights of breeders have been increasingly strengthened, as required by TRIPS, little

has been done in practice to recognize the services of farmers in the selection, development and conservation of their traditional varieties upon which modern breeding techniques have built. The Commission finds that the evidence suggests that PVP systems have not been particularly effective at stimulating research on crops in general, and particularly for the kind of crops grown by poor farmers. Further, the requirement for uniformity (and stability) in UPOV-type systems excludes the more genetically heterogeneous local varieties developed by farmers. The requirement for uniformity, and the certification of essentially similar varieties of crops, also contributes to uniformity of crops and loss of biodiversity. Systems of PVP designed for the needs of commercial agriculture in the developed countries (such as provided for in the UPOV Convention) pose a threat to the practices of many farmers in developing countries of reusing, exchanging and informally selling seeds, and may not be appropriate in developing countries without significant commercial agriculture. There may be a need to differentiate standards of protection between different kinds of crop, in particular, for food crops grown by farmers, to protect their practices of saving, trading and exchanging seeds, and informal systems of innovation. The chapter concludes that in developing *sui generis* regimes for the protection of plant varieties that suit their agricultural systems, countries should permit access to the protected varieties for further research and breeding, and provide at least for the right of farmers to save and plant-back seed, including the possibility of informal sale and exchange. It also calls for countries to implement, at national level, measures to promote Farmers' Rights. These include the protection of traditional knowledge relevant to plant genetic resources; the right to participate in sharing equitably benefits arising from the utilization of plant genetic resources for food and agriculture; and the right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of plant genetic resources. ■

2 National and Regional Plant Variety Protection Laws

2A Africa

► AGAINST THE GRAIN? A Historical Institutional Analysis of Access Governance of Plant Genetic Resources for Food and Agriculture in Ethiopia

Teshome H. Mulesa and Ola T. Westengen (2020). *The Journal of World Intellectual Property* 23(1–2): 82–120.
https://doi.org/10.1111/jwip.12142

This article analyzes the historical, political and economic factors that have shaped Ethiopia's regulations on access to PGRFA, which are considered to be stringent and restrictive. This restrictive access governance regime can be seen as a reaction towards an increasing enclosure of various gene pools by IPRs, with little or no economic benefit flowing back to the countries where the genetic resources originated. Through access policies and *sui generis* IPR laws, the intention is to recognize the importance of farmers' varieties and to provide appropriate mechanisms for ABS. The other intention is to prevent the misappropriation of farmers' varieties, and safeguard farmers' rights to freely save, use, exchange and sell all seeds. The article describes Ethiopian access legislations, which are unique in Africa in that they aim to harmonize regulation and implementation of breeders', farmers' and community rights by combining elements of the CBD and ITPGRFA. At the same time, Ethiopia has no plans to join UPOV 1991, due to national socio-economic priorities, viewing UPOV as more suited for multinationals and developed countries, which could jeopardize the livelihoods of smallholder farmers and food security. Its laws make protected varieties accessible for smallholder farmers, conceptualize Farmers' Rights as an important protection for smallholder agricultural production and food security, and promote pluralistic seed systems to ensure complementarity of formal and farmers' seed systems. The article identifies three factors that can explain Ethiopia's current policy: (1) the influence of narratives about Ethiopia as a biodiversity treasure trove on the Ethiopian cultural identity; (2) the economic importance of agriculture based on PGRFA with origin in the country; and (3) the political influence of movements that promote Farmers' Rights as a countermeasure to IPRs, and on-farm PGRFA management as complementary to ex situ conservation and formal seed system development. It concludes that Ethiopia's current access regime must be seen in connection with, and not in isolation from, international IPR regimes, as well as the historical, economic, political and cultural role of PGRFA in the country. ■

► HARNESSING THE MULTILATERAL PATENT AND PLANT VARIETY PROTECTION REGIMES TO ADVANCE FOOD SECURITY: Implications of the EU-ECOWAS Economic Partnership Agreement

Uchenna Felicia Ugwu (2020). A thesis submitted in partial fulfilment of the requirements for the Doctorate in Philosophy degree in Law, University of Ottawa.
https://ruor.uottawa.ca/bitstream/10393/40491/1/Ugwu_Uchenna_Felicia_2020_thesis.pdf

This thesis analyzes multilateral, continental and regional IP and trade agreements for how their provisions integrate IP (PBRs and patents) and food security norms and policies, and the extent to which IP frameworks are adaptable to the regional conditions that determine food security in the West African context. It finds that attaining food security requires a balancing of all interests, making it essential to also limit IPRs, particularly as they impact on Farmers' Rights. Due consideration is needed of

provisions for food security in other relevant multilateral and regional agreements such as the ITPGRFA, the CBD and its Nagoya Protocol, the SDGs and the African Model Law, through the consideration of rights such as the right to food, sustainable development, Farmers' Rights and traditional knowledge. The thesis proposes that reconciling the objectives of relevant multilateral IP and food security agreements requires the formulation of alternative law and policy frameworks, at the regional and multilateral levels, as the scope for integrating food security norms into IP laws and policies is wider than often presumed. It finds that RTAs require greater conformity to multilateral IP regimes and grant less policy space for regional differentiation; contain TRIPS-plus provisions; undermine national sovereignty over agricultural resources; subject Farmers' Rights to breeders' rights; adopt uniform standards for PVP that local plant varieties find difficult to meet; do not protect traditional knowledge, informal innovation and local capacity building; and do not require investment into R&D of local agricultural technology. In its current form, the EU-ECOWAS EPA does not cohere with the food security interests of West Africa. Changes are needed in both procedural and substantive provisions for the EPA and other RTAs to support food security. Maintaining flexibilities is important for designing RTAs suitable for West Africa; it is necessary that they contain differentiated policies which do not inhibit the powers of smallholder farmers to utilize traditional farming systems, and which support local biodiversity and informal trading systems. To facilitate food security, regional IP treaties must acknowledge that innovation in West Africa occurs mainly in the informal sector and shift away from a 'one size fits all' approach that affords greater protection to breeders' rights in comparison to Farmers' Rights, towards a holistic approach that allows for greater differentiation to suit local conditions. Instead of adopting stronger IP protection, West Africa's regional IP laws should uphold the principle of balancing social, economic and cultural interests. The thesis proposes that food security is best supported by IP regulations that build the capacity of countries in the region to become independent in their food production and less reliant on the importation of agricultural products. Based on the findings, it draws up a model framework for IP protection that is more suitable for enhancing food security in West Africa. ■

► ACCESS AND BENEFIT SHARING, FARMERS' RIGHTS AND PLANT BREEDERS' RIGHTS: Reflections on the African Model Law

Titilayo Adebola (2019).
***Queen Mary Journal of Intellectual Property* 9(1): 105–121.**
www.abdn.ac.uk/law/documents/Queen_Mary_Journal_of_Intellectual_Property_Access_and_benefit_sharing_farmers_rights_and_plant_breeders_rights__reflections_on_the_African_Model_Law.pdf

This paper provides insights from the key protagonist of the African Model Legislation for the Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources. The African Model Law was drafted to guide African countries in fulfilling their international obligations. These are, *inter alia,* the CBD, the TRIPS Agreement and ITPGRFA, which oblige Parties to introduce ABS laws, Farmers' Rights and PVP systems. The African Model Law is a framework mechanism that remains relevant because its core principles promote the balance of small-scale farmers', farming communities' and commercial breeders' interests. The protection of three categories of varieties – community varieties, farmers' varieties and new breeders' varieties – alongside ABS principles and Farmers' Rights provisions, demonstrate this balance. The African Model Law was conceived as an alternative to the UPOV Convention, because the UPOV system prioritizes the protection of commercial plant breeders' interests, making it unsuitable for the small-scale-farmer- and farming-community-centred agricultural systems prevalent in Africa. The paper concludes by urging African countries to consult the Model Law as a guide when designing their PVP systems. ■

► EXAMINING PLANT VARIETY PROTECTION IN NIGERIA: Realities, Obligations and Prospects

Titilayo Adebola (2019).
***The Journal of World Intellectual Property* 22: 36–58.**
https://doi.org/10.1111/jwip.12113

Nigeria currently does not have a PVP system, although it has an obligation under Article 27.3(b) of the TRIPS Agreement to protect plant varieties through a patent system, a *sui generis* system, or a combination thereof. This article argues that Nigeria should proactively introduce a PVP system designed to suit its socio-economic realities before it is pressured to adopt a system unsuitable to its small-scale farmer-centred agriculture sector. The PBR system based on UPOV 1991 is better suited to countries with industrialized agricultural sectors dominated by agribusinesses, as it restricts traditional small-scale farming practices such as saving, reusing, exchanging and selling farm-saved seeds. The article finds that a *sui generis* system that incorporates Farmers' Rights, as well as ABS principles, is best suited to Nigeria's socio-economic realities. In the process of developing this *sui generis* system, policy coherence is needed: (1) Nigeria should ensure that its draft Industrial Property Commission Bill, which sets out patent, designs, trademark and PVP provisions in one industrial property law, but omits Farmers' Rights, government use and compulsory licence provisions, is not passed in its current form; and (2) existing non-IPRs laws regulating plant varieties that marginalize small-scale farmers by excluding the release, registration and commercialization of farmers' varieties should be revisited so as not to undermine provisions of the proposed *sui generis* system. The article concludes that the introduction of a creatively designed *sui generis* system in Nigeria can be an alternative guide for the continent to recognize Farmers' Rights and breeders' rights while ensuring ABS. ■

► FARMERS' SEED, THE REGULATORY FRAMEWORK, AND SEED POLICY IN NIGER

BEDE (Biodiversité, Échanges et Diffusion d'Expériences) (2019).
SWISSAID.
https://swissaid.kinsta.cloud/wp-content/uploads/2019/12/NG-Broschuere-Saatgut-Farmers-Seeds-Niger-E.pdf

This brochure points out that in most developing countries, it is farmer-managed seed systems that provide the seed for the majority of farming families while also providing security for their food supply. This is the case in Niger, where more than 60 % of farmers select, store, distribute and pass their own seeds from one generation to the next. With the seed industry gaining ground, traditional farmer-managed seed systems are under growing pressure. Most countries pass seed laws without the knowledge and/or effective participation of the smallholder farmers directly affected. These laws restrict the use of smallholder farmers' seed in favour of trade in and protection of industrial seed varieties. The brochure explains the legal framework and the policy guidelines in effect in Niger, providing recommendations to protect farmer-managed seed systems. Among the recommendations relevant to PVP is the need to prevent the appropriation of smallholder farmers' varieties through IP claims by the seed industry, and to protect farmers' rights to multiply, exchange and sell their seeds and plants. It also describes how Niger was the first OAPI country to experience a negative impact from a PVP application by a foreign company: in 2009 the French seed company Technisem, based in Senegal, made a PVP claim over the Nigerien onion variety 'Violet de Galmi'. The claim was challenged by the government and Technisem eventually withdrew its application, but then proceeded to convert it into a claim under a different variety name. ■

► THE ARUSHA PROTOCOL ON PLANT VARIETIES PROTECTION: Balancing Breeders' and Farmers' Rights for Food Security in Africa

Tom Kabau and Faith Cheruiyot (2019).
***Queen Mary Journal of Intellectual Property* 9(3): 303–325.**
www.researchgate.net/publication/334609326_The_Arusha_Protocol_on_plant_varieties_protection_balancing_breeders'_and_farmers'_rights_for_food_security_in_Africa

This article examines the Arusha Protocol for the Protection of New Varieties of Plants, which was adopted in 2015 and created a harmonized regional legal mechanism for the protection of PBRs in ARIPO member states. The Arusha Protocol, which is to enter into force after the requisite ratifications, reaffirms UPOV 1991 in its extensive limitation of farmers' rights to freely save, replant and exchange seeds of protected plant varieties, while liberally conceptualizing PBRs. Farmers' Rights are essential for the food security of ARIPO member states, which are either developing or least developed countries, as their agriculture is predominantly characterized by impoverished small-scale farmers who rely on informal seed exchanges. Thus, the article argues that the legal regime for PVP established under the Arusha Protocol is inappropriate for ARIPO members as it fails to balance breeders' rights and Farmers' Rights in a manner that promotes food security. A highly restrictive construction of PVP will negate the significant role of farmers through saving and exchange in the farmer-managed seed sector, which is likely to threaten Africa's fragile food security. Its operation would also end the existing practice of farmers benefiting from quality-protected varieties of the formal seed system which they subsequently integrate into the farmer seed system. Giving the example of Kenya, the article finds that the role of PBRs as the core driver of greater foreign investment in agricultural activities is overrated. The article points out that there is a need for a legal regime that balances the protection of PBRs with Farmers' Rights, premised on the recognition of the vital role of small-scale African cultivators in the conservation and improvement of plant genetic resources. It evaluates the appropriate approach that can suitably balance breeders' and Farmers' Rights for the purposes of promoting food security in Africa and explores the alternatives that African states, whether members of ARIPO or not, can adopt. The article concludes by advising against the ratification of the Arusha Protocol; the danger with this is that African states will end up being bound by the same inappropriate and highly inflexible legal regime as postulated under UPOV 1991. It also recommends that African states abandon the assumption that UPOV 1991 provides an ideal *sui generis* mechanism for PVP to inform and guide the development of domestic legislation. It instead calls for the development of progressive regional and national *sui generis* legal instruments that are sensitive to African food security and nutritional needs, pointing to the ITPGRFA and African Model Legislation as viable alternatives that can guide states. In addition, it highlights the Indian approach as an ideal comparative model, as it addresses the complexity of farming and seed management systems in the Global South. ■

► GLOBALISATION AND SEED SOVEREIGNTY IN SUB-SAHARAN AFRICA

Clare O'Grady Walshe (2019).
International Political Economy Series (Timothy M. Shaw, ed.).
www.palgrave.com/gp/book/9783030128692

This book addresses the tension between food security and the desire to maintain sovereignty over food production, in this case seeds and agricultural production. The book examines two case studies: Kenya's Seeds and Plant Varieties (Amendment) Act (SPVAA) 2012 and Ethiopia's seed law. It finds that instead of adopting a *sui generis* law, Kenya chose to adhere to the strictest international standard based on the most globalized rule system, namely UPOV 1991. The passage of SPVAA 2012

marked the moment when Kenyan seed sovereignty shifted to powerful external actors – predominantly transnational corporations (TNCs) – that now exercise rights over formerly public seed systems and determine seed policy futures and practice. 'Hyperglobalism' best explains the role and influence of actors in changing the seed law in 2012. It allowed key TNC seed corporations, notably Monsanto and Syngenta, major roles on 'shadow task forces' which determined critical shifts in seed policy. Their agenda was all met, namely, PBRs, PVP, certified seed, UPOV 1991 and key definitional changes that favour private commercial interest over the public, informal farmer seed system. The same external actors sought seed legislative harmonization across the region and Kenya was a priority pilot country. The state relinquished sovereign control over seed, without consulting the 80% of the smallholder farmers who rely on the informal seed network, denying them control over their seed systems. The legislative bias in favour of the formal (corporate seed) sector is at the root of the contest between Farmers' Rights enshrining practices of seed sovereignty, and a proprietorial PBR paradigm. This is now domesticated in SPVAA 2012, signalling a major shift in seed sovereignty away from the commons/public arena to supranational agencies and transnational actors, outside of publicly accountable systems. In doing so, the book asserts, the Kenyan state chose to ignore the principles of Farmers' Rights enshrined in global rules such as the CBD and the ITPGRFA, in favour of UPOV 1991. In the Ethiopian case, the new seed law ambiguously recognizes a three-tiered highly differentiated seed system – a reflection of the myriad actors involved in the process and the influence and authority they exercised throughout. This law created a differentiated standardization and certification system for certified improved seed, separate to a less stringent system for quality declared seed, whilst also including a complete exemption for smallholder farmers. ■

► PLANT VARIETY PROTECTION IN UGANDA: A Legal Analysis of Emerging Trends

Anthony C.K. Kakooza (2017).
www.academia.edu/37453782/PLANT_VARIETY_PROTECTION_IN_UGANDA_A_LEGAL_ANALYSIS_OF_EMERGING_TRENDS

This article looks at Uganda's Plant Variety Protection Act, which was passed in 2014 but has yet to become operational. It examines how effective the Act is in meeting the private rights of plant breeders vis-à-vis the public rights of farmers or local community breeders. It addresses two core areas: the attention given to Farmers' Rights in the Act, and the attention given to benefit sharing of profits from plant varieties between the holders and farming communities. The article highlights the imbalance presented by the Act, between the interests of plant breeders who are the ultimate beneficiaries of PVP, and the rights of indigenous farmers, who are seemingly unsuspecting losers. The article makes comparison with legislation in India and Tanzania, aiming to draw out best practices. It finds that the various provisions in the Ugandan PVP Act and UPOV incline the legal framework towards protecting the rights of plant breeders. Considering that Uganda's economic output is heavily reliant on agricultural production, it calls for special recognition of farmers' interests, through giving them legal enablement to pursue farming activities without constraint. Such activities, in the Ugandan context, include the sharing of seedlings as well as limited or small-scale commercial activities drawn from their agricultural produce. The article recommends that Farmers' Rights and benefit sharing need to be expressly provided for under the Ugandan Act. Government measures should also be put in place to facilitate and encourage participation of farmers in the conservation and improvement of PGRFA. There should be national systems in place to promote and protect traditional systems of food and agriculture that would otherwise be threatened by new forms of PVP. ■

► INAPPROPRIATE PROCESSES AND UNBALANCED OUTCOMES: Plant Variety Protection in Africa Goes Beyond UPOV 1991 Requirements

Hans Morten Haugen (2015).
***The Journal of World Intellectual Property* 18(5): 196–216.**
https://doi.org/10.1111/jwip.12037

This article provides a critical analysis of the process and content of the ARIPO Arusha PVP Protocol, as well as the content of the 2012 Plant Breeders Rights Act of Tanzania. ARIPO has pushed through a PVP protocol, which in April 2014 was found by the UPOV Council to be in conformity with UPOV 1991. Meanwhile, Tanzania is the first ARIPO member state – and the first LDC in the world – that is on track to not only comply with UPOV 1991, but has provisions that give stronger protection to breeders than what is required by UPOV 1991. The article finds that within the process and outcome of the ARIPO Arusha PVP Protocol, the interests of breeders prevailed, while farmers' organizations and organizations promoting the public interest were to a large extent sidelined from the negotiations. The article analyzes the content of the Arusha PVP Protocol, noting that several provisions go beyond UPOV 1991 requirements, resulting in a Protocol that does not adequately ensure balance between private and public interests, the latter of which would include benefit sharing with the providers of genetic resources or associated traditional knowledge. Turning to the Tanzanian Plant Breeders Rights Act, the article finds that there are provisions that go beyond the requirements of UPOV 1991 and of the Arusha PVP Protocol. At the same time, some provisions of Tanzania's earlier 2002 Plant Breeders Rights Act that sought to provide for a balance between private and public interests were not included in the 2012 Act. Tanzania is an LDC and therefore is not required to comply yet with Article 27.3(b) of the TRIPS Agreement, which begs the question as to why it adopted the 2012 Act. The article points to two explanations: the acknowledgement that relatively few applications for PBRs

had been received, and the fact that Tanzania is part of all the recent global initiatives to boost Africa's agriculture, most notably the G8's New Alliance for Food Security and Nutrition. The article concludes that within the ARIPO Secretariat, the process of developing the Arusha PVP Protocol has been inadequate, and that the outcome provides for stronger exclusive rights than what is to be expected based on the development level and characteristics of farming among the ARIPO member states. ■

► PLANT VARIETY PROTECTION REGIME IN RELATION TO RELEVANT INTERNATIONAL OBLIGATIONS: Implications for Smallholder Farmers in Kenya

Peter Munyi (2015).
***The Journal of World Intellectual Property* 18(1–2): 65–85.**
https://doi.org/10.1111/jwip.12031

This article discusses how the amendments in the new Kenyan PVP law depart from the former legal regime and analyzes whether the current regime is compliant with international obligations, and its implications for smallholder farmers. The author notes that Kenya, a UPOV 1978 member, radically amended its PVP legislation in 2012. The amendments were mainly driven by its quest to comply with international obligations, principally UPOV 1991. However, the country is also a party to other international treaties such as the ITPGRFA and the WTO TRIPS Agreement. Moreover, the national Constitution obligates statutory recognition and protection of the ownership of indigenous seeds and plant varieties, their genetic and diverse characteristics, and their use by the communities of Kenya. The obligations deriving from all these must be fulfilled against a backdrop of farming systems that are predominantly smallholder farmer-based. This means that the nationalization of the international regimes should support, or at least not counteract, the interests of these farming systems. The article identifies the main departures between the Seeds and Plant Varieties Act 1972 and the Seeds and Plant Varieties (Amendment) Act (SPVAA) 2012, particularly in how these conform to and depart from the UPOV system, as well as how they contribute to the fulfilment of TRIPS and ITPGRFA obligations. The article discusses the following issues, among others: (1) the extent to which indigenous seeds and plant varieties are protected given the constitutional requirement for their protection, finding that this offers flexibility and opportunities for protection of indigenous species; (2) access to foreign germplasm by local farmers, a key policy objective of the PVP system, finding that the extent to which local farmers other than commercial horticultural farmers have accessed foreign varieties courtesy of the PVP system is questionable; and (3) implementation of farmers' privilege in line with ITPGRFA obligations, finding that the amendments fall short. The article concludes that the goal of the PVP legislation to enable access by local farmers to high-value, higher-yielding foreign varieties, has not been fully met. Moreover, there are constitutionally questionable processes related to the 2012 SPVAA, and a failure to meet other international obligations, particularly those concerning Farmers' Rights. While the legislation on one hand provides for protection of indigenous seeds and plant varieties, on the other hand it fails to elaborate mechanisms by which this protection may be actualized. The article urges a review of the 2012 SPVAA to take into account all international obligations that Kenya has, as well as its implications on smallholder farmers. ■

► BREEDING APPLES FOR ORANGES: Africa's Misplaced Priority Over Plant Breeders' Rights

Chidi Oguamanam (2015).
***The Journal of World Intellectual Property* 18(5): 165–195.**
https://doi.org/10.1111/jwip.12039

This paper critically examines recent regional and specific country developments in Africa regarding the adoption of PBRs/PVP. It traces how African countries moved from a position of reservation over the adoption of UPOV 1991 as a model of PBRs for TRIPS compliance and insistence that PBR protection would include the protection of the rights of communities and associated indigenous knowledge, innovations, technologies and farming practices, to one that has now embraced the UPOV-PBRs system, notwithstanding the latter's narrow focus on breeders and marginal reference to farmers. The analysis is situated against the backdrop of multiple and concerted strategies through which industrialized countries have pressured developing countries, especially African countries, to adopt the UPOV system of PBRs as a default standard of IPRs in agriculture. It critically explores the sites of pressures, especially free trade and economic partnership agreements, and related policies through which Africa appears to have upturned its policy position on PBRs. The continent's present priority over the implementation of PBRs through various regional and national legal initiatives at the insistence of OAPI, ARIPO, SADC and specific country initiatives (in Uganda, Tanzania and Ghana) is examined. The paper highlights that the UPOV-PBRs system is not designed for the farmer-centred systems prevalent in African agriculture, reflecting on the suitability and ramification of Africa's apparent determination to embrace the idea of regulatory suppression of its predominantly smallholder farming population in preference for a virtually non-existent or, at best, fledgling plant breeding industry on the continent. The paper concludes by calling attention to the continued relevance of Africa's 2000 Model Law and recommends a reality assessment (e.g., of the nature of the prevailing seed supply system and the extent to which farm-saved seeds are used) as an important step towards the formulation of an IPR system suited for stakeholders in African agriculture, so as to secure the continent's food security and food sovereignty. ■

▶ TRIPS, PLANT VARIETIES AND THE RIGHT TO FOOD: A Case Study of Ethiopia's Legal Regime on Protection of Plant Varieties

Tilahun Weldie Hindeya (2011).
In: *Acceding to the WTO from a Least Developed Country Perspective: the case of Ethiopia*
(Editors: Markus Krajewski and Fikremarkos Markos), Nomos Publisher, pp. 77–109.
www.researchgate.net/publication/263966851_TRIPS_Plant_Varieties_and_the_Right_to_Food_A_Case_Study_of_Ethiopia's_Legal_Regime_on_Protection_of_Plant_Varieties

This paper provides a case study of Ethiopia's PVP laws. Ethiopia has enacted the Plant Breeders' Rights Proclamation for the protection of plant varieties, the Seed Proclamation and other relevant laws. The country is currently in the process of acceding to the WTO. The paper therefore examines whether the PVP regime of the country is compatible with TRIPS obligations and the implication on the realization of the right to food. In particular, it discusses PVP in the context of TRIPS and the UPOV Convention, examining the policy space provided by these instruments to countries such as Ethiopia to adopt measures to promote the right to food. The paper argues that the flexibilities under the TRIPS Agreement allow countries to design a *sui generis* system in accordance with their socio-economic conditions as the agreement leaves the option open to countries without setting minimum standards. As such, developing countries could use the flexibilities of the TRIPS Agreement to design a *sui generis* system that promotes socio-economic conditions in general and the realization of the right to food in particular. With regard to UPOV, the paper notes that it seems to confer excessive rights on breeders whilst Farmers' Rights are marginalized, which could have serious repercussions on the realization of the right to food as farmers in these countries are the major food producers and suppliers. For most farmers in developing countries and especially LDCs who do not have other sources of income, preventing them from selling and exchanging their harvest would be in violation of the right to food as the restrictions would limit access to food. The implication of Ethiopia's PVP regime on the realization of the right to food is examined, and the paper concludes that the *sui generis* system adopted by Ethiopia strikes the necessary balance between the interests of right holders and the public interest in general and Farmers' Rights in particular. Such a balance is crucial to address right-to-food concerns of LDCs such as Ethiopia. ■

2B Asia

▶ INTEGRATING FARMERS' RIGHTS TO EQUITABLE BENEFIT SHARING INTO THE MALAYSIAN PLANT VARIETY LAW: Learning from Others

Murshamshul Kamariah Musa, Abdul Majid Tahir Mohamed and Abdul Majid Hafiz Mohamed (2019).
***Yuridika* 34(2): 325–337.**
https://e-journal.unair.ac.id/YDK/article/view/13335

The ITPGRFA articulates four core rights under the Farmers' Rights concept: the right to traditional farming knowledge, the right to seed, the right to equitable benefit sharing and the right to participate in decision-making processes. Article 9.2(b) stipulates that farmers should be given equal opportunity to equitably participate in sharing benefits from the use of PGRFA. This right legally justifies the rights of smallholder farmers who have been breeding seeds for generations to receive benefits, either monetary or non-monetary, from any commercialization of the seeds that they have developed. These rights are viewed as a counterbalance to PBRs that have facilitated access to PGRFA and generated significant profits for breeders and seed companies through exclusive rights of marketing, control and distribution of new plant varieties. This paper investigates to what extent the PVP law in Malaysia has integrated this right to equitable benefit sharing as compared to similar laws in India and Africa. The Protection of New Plant Varieties Act 2004 recognizes the contributions of local indigenous and traditional farming communities. The purpose is to encourage farmers to make full use of their plant genetic resources while encouraging the private sector to release new plant varieties suitable for the Malaysian agricultural sector. The paper finds that Malaysia does not have specific legislation catering to Farmers' Rights; nonetheless, a few provisions under the PVP law incorporate certain core rights as per the ITPGRFA. However, there is no mention of how farmers are supported and recognized for their role in conserving and developing crop genetic diversity, and how their rights to share benefits derived from the use of their varieties are ensured. The paper concludes that Malaysia's protection of farmers' rights to benefit sharing under its PVP law could be further enhanced to ensure protection for farmers, for example by setting up a specialized body to monitor and distribute benefits to farmers, or by requiring those seeking to use plant varieties developed by farmers for commercial purposes to apply for a special permit or licence. The enactment of the Access to Biological Resources and Benefit Sharing Act 2017 would further provide farmers with legal justifications for them to exercise their right to equitable sharing of benefits. ■

► TRIPS FLEXIBILITIES AND INDIA'S PLANT VARIETY PROTECTION REGIME: The Way Forward

Rohit Moonka and Silky Mukherjee (2018).
***BRICS Law Journal* 5(1): 117–139.**
https://doi.org/10.21684/2412-2343-2017-5-1-117-139

Article 27.3(b) of the TRIPS Agreement obliges WTO members to provide for protection of plant varieties either by patents or by effective *sui generis* protection or both. The open-ended language creates a flexible standard sympathetic to developing nations' socio-economic priorities, provided that the effectiveness requirement is satisfied, and presents the possibility of customized PVP regimes suited to the needs of developing nations. This paper describes how India has enacted the Protection of Plant Varieties and Farmers' Rights Act (PPVFRA), a *sui generis* structure to protect plant varieties with a view to balancing both breeders' rights and Farmers' Rights, without becoming a member of UPOV or enacting a PVP law based on the UPOV model. Since India is also a member of the ITPGRFA, which has substantial provisions on Farmers' Rights, it has to provide for safeguards through the national legislative process. The fundamental ideology of the PPVFRA is thus to protect the rights of small and marginal farming communities, while promoting plant breeding by vesting adequate IP protection. The paper discusses the unique features of the PPVFRA, arguing that it is necessary to recognize and protect the rights of farmers in respect of their contribution in conserving, improving and making available plant genetic resources for the development of new plant varieties. The PPVFRA protects farmers' rights to save, use, exchange and share all farm produce, including non-branded seed, even of a protected variety. It protects biodiversity through a fund which recognizes and rewards the contributions made by indigenous farmers; prescribes community rights; provides for benefit sharing, public interest exceptions and compulsory licensing. The paper concludes that the PPVFRA showcases that Farmers' Rights and breeders' rights can be adequately and concurrently protected under a single piece of legislation, despite its significant difference from the UPOV model. The paper recommends that India should now eliminate a few of the loopholes in the PPVFRA and harmonize parallel laws, including the Biological Diversity Act and the Seeds Bill, so as to better serve their purposes without overlap. ■

► *SUI GENERIS* PLANT VARIETY PROTECTION: Indian Perspective

R.M. Kamble (2013).
***IOSR Journal of Engineering (IOSRJEN)* 3(5): 1–4.**
www.iosrjen.org/Papers/vol3_issue5%20%28part-2%29/A03520104.pdf

The Indian Parliament passed the Protection of Plant Varieties and Farmers' Rights Act in 2001 to protect newly bred plant varieties while also granting some rights to farmers. Thus, the Indian PVP regime introduces protection for both plant breeders and farmers. This study analyzes the provisions of the Act and evaluates its effectiveness. India, like many other developing countries, has an agricultural economy that is geared towards the domestic market and is dependent on farmer-produced seed of varieties that are both maintained and further adapted to local growing conditions by small-scale farmers. It acknowledges the rights of farmers arising from their contribution to crop conservation and development and the sharing of their knowledge on adaptive traits. The country also wants to encourage farmer-to-farmer exchange of new crop/plant varieties that are adapted to local growing conditions. In this respect, the study concludes that the UPOV Convention is a bane to Indian farmers because it prevents private preservation and exchange of new varieties. While the regime for plant protection in India is similar to that set out by UPOV and the requirements for protection are NDUS, the farmer is still entitled to save, use, sow, re-sow, exchange and share or sell farm produce including seed of a protected variety. As the farmer is unable to sell seed that is branded with the breeder's name, the breeder still has control of the commercial marketplace without threatening farmers' livelihoods. The study also highlights some of the limitations of the PPVFRA, namely that as the farmer has to undergo a detailed, lengthy procedure for registration and provide scientific details, this practically excludes the possibility of farmers registering a newly bred variety. ■

► PLANT VARIETY PROTECTION AND TRADITIONAL AGRICULTURAL KNOWLEDGE IN SOUTHEAST ASIA

Rajeswari Kanniah and Christoph Antons (2012).
Australian Journal of Asian Law 13(1): 1–23.
www.researchgate.net/publication/254931896_Plant_Variety_Protection_and_Traditional_Agricultural_Knowledge_in_Southeast_Asia

The research for this article was conducted for the 'IP in Asia' project of the Australian Research Council Centre of Excellence for Creative Industries and Innovation. The article provides an overview of emerging PVP systems in Southeast Asia. The case studies are from ASEAN countries, mainly Indonesia, Malaysia, the Philippines and Thailand. The focus is on the intersection between IPRS and demands for the protection of the TK of local communities. The article details the expert consensus that developing countries complying with TRIPS are better off opting for a *sui generis* PVP system in light of their development status, societal needs, and treaty obligations in TRIPS, the CBD and the ITPGRFA. Yet, the article finds that the development of *sui generis* PVP laws in ASEAN countries has been influenced by domestic as well as external pressures and influences, such as the obligation to comply with TRIPS, aspirations for the development of a biotechnology industry, avoidance of possible sanction under the US 'Special 301' procedure, FTAS, the role played by UPOV, technical assistance from UPOV member countries, membership of international biodiversity treaties and demands from civil society organizations for protection of traditional knowledge. The conflicts

between international agreements such as the CBD and ITPGRFA on the one hand, and UPOV and TRIPS on the other, were transposed in the national PVP laws as countries attempted to reconcile conflicting interests of different stakeholders. The active promotion, assistance and involvement of UPOV and UPOV member countries ensured that the UPOV model has been transposed into the PVP laws of some countries. Another avenue for UPOV and its Asian members (Japan, China and South Korea) to shape the implementation of PVP systems in ASEAN countries is the East Asia Plant Variety Protection Forum (EAPVP). The resulting PVP laws therefore present an uneasy amalgam of conventional property rights with some aspects of traditional knowledge protection. ■

► IMPLEMENTING THE AGREEMENT ON TRADE-RELATED ASPECTS OF INTELLECTUAL PROPERTY RIGHTS (TRIPS AGREEMENT): A Case Study of Thailand's Plant Protection Regime

Pawarit Lertdhamtewe (2011).
ANZSIL – SCIL Research Symposium on International Economic Law, 25 February 2011.
www.academia.edu/1205715/Implementing_the_TRIPS_Agreement_A_Case_Study_of_Thailands_Plant_Protection_Regime

The author, from the Queen Mary Intellectual Property Research Institute, uses Thailand as a case study to examine the implementation of the TRIPS Agreement with respect to PVP. The wording of Article 27.3(b), vis-à-vis a *sui generis* system of protection, creates interpretative difficulties as to what type of *sui generis* system WTO members should adopt to protect plant varieties. Specifically, the term allows developing countries to adopt their own unique system of plant protection tailored to their development needs and priorities. Further, the effectiveness of the *sui generis* system can be justified by taking into account the system's ability to support WTO members to provide plant protection that is fully compatible with their development needs. The paper considers the *sui generis* PVP system in Thailand represented by the Plant Variety Protection Act, and its consistency with TRIPS requirements. The aim of the PVP Act is twofold: to protect PBRs in order to promote innovative plant breeding activities; and to recognize the rights of farmers in respect of their role in improving, conserving and using plant genetic resources (PGR). The IP protection of new plant varieties and extant varieties, which refer to local domestic plants, general domestic plants and wild plant varieties, was introduced under the Act. The provisions also seem to facilitate benefit sharing and attempt to protect the rights of farmers and local communities in respect of their contribution in conserving, improving and making available PGR. However, in reality, and as the article concludes, it is still not clear whether farmers and local communities can benefit from such provisions because their varieties in practice do not pass the DUS eligibility requirements. The PVP Act therefore highlights Thailand's inability to take advantage of the TRIPS Agreement in adopting its law in a way that can best serve the needs of farmers and local communities. ■

2C Latin America

► PRIVATELY PUBLIC SEEDS: Competing Visions of Property, Personhood, and Democracy in Costa Rica's Entry into CAFTA and the Union for Plant Variety Protection (UPOV)

Guntra A. Aistara (2012).
***Journal of Political Ecology* 19(1): 127–144.**
https://journals.uair.arizona.edu/index.php/JPE/article/view/21721

Costa Rica's entry into CAFTA was hotly contested, with questions of 'privatizing seeds' through imposing IPRs among the main concerns, as one requirement of CAFTA was signing UPOV and, consequently, passing a national Law on Plant Variety Protection. UPOV protects breeders' rights, with proponents prioritizing export and large-scale commercial agriculture over that of small-scale producers. Opponents see this as curtailing farmers' rights to save and select their own seeds, which are protected under the 2007 Law on the Development, Promotion, and Support of Organic Agricultural Activities (Law on Organic Agriculture). The threat to farmers' seeds in Costa Rica is however more complicated, as struggles for control over seeds are a crucial part of the political economy of agriculture. The article explores how debates over IPRs on seeds confound simple distinctions between public domain and private property, and the implications for agricultural genetic diversity. The author argues that through reconfiguring the boundary between the public domain and private property in the realm of seeds, recent IP trends also rewrite the definition of farmers along pre-defined class lines. One result is that UPOV, through redefining the authenticity and legitimacy of seeds, and redrawing the boundary between breeders and farmers, makes seeds accessible as property only to an exclusive group of privileged breeders, while this right is denied to farmers, because they do not qualify as

breeders. Another is that farmers are viewed as merely consumers of seeds and doomed to be terminally poor (and/or criminals), contrasting sharply with the vision of the Law on Organic Agriculture, which recognizes the role of farmer-experimenters who innovate on their farms and share knowledge further through networks. The different groups therefore offer competing visions of how a local resource should be defined and internationally connected; these visions can be understood as competing visions of political ecology in practice. ■

2D Other Examples

► REIMAGINING THE RELATIONSHIP BETWEEN FOOD SOVEREIGNTY AND INTELLECTUAL PROPERTY FOR PLANTS: Lessons from Ecuador and Nepal

David J. Jefferson and Kamalesh Adhikari (2019).
***The Journal of World Intellectual Property* 22: 396–418.**
https://doi.org/10.1111/jwip.12134

The authors, from the School of Law, University of Queensland, highlight that food sovereignty – as embodied in small-scale, customary or peasant agriculture – is frequently juxtaposed against large-scale, industrial and global modes of food production, suggesting that the realization of food sovereignty is incompatible with the recognition of IP for plants and seeds. 'Seed sovereignty' is envisaged as a key component to food sovereignty, because it aims to ensure that farmers are able to access and control the planting material on which they rely for food production. While this article recognizes that IP regimes can be real impediments to agricultural systems, especially those that rely on farmers' ability to freely use and circulate seeds, it argues that food sovereignty and IP are not necessarily mutually exclusive. Drawing on fieldwork in Ecuador, which has joined UPOV 1978, and Nepal, the article shows how IP can be reimagined to move beyond a focus on exclusive ownership. It describes how these countries recently embedded rights related to food sovereignty in reformed constitutional frameworks and evaluates how this shaped the making of other national laws, including those that protect plant varieties. For example, the Ecuadorian IP law popularly known as the *Ingenios* Act enlarges the ambit of the farmer's privilege such that protected plant varieties may be used without the authorization of the breeder for personal use, or selling or exchanging the product as raw material or food. The Act further allows protected plant varieties to be sold and exchanged without the breeder's authorization when such use is consistent with ancestral agricultural practices or occurs in a traditional communitarian environment. Under this exception, farmers are permitted to sell and exchange seeds and other planting material derived from protected varieties provided that these transactions occur in a customary agricultural context. The article concludes that countries can both promote food sovereignty and protect plant varieties. In some instances, the concept of food sovereignty can counterbalance the exclusivity associated with standard forms of IP, as when laws move beyond the provision of exclusive ownership rights for plants and seeds to recognize new protections for farmers, in a way that provides benefits for diverse social actors. One way that governments can achieve the goal of both promoting food sovereignty and protecting plant varieties is to ensure that all relevant laws and policies are tailored to the realities of local food and seed systems. Where food production relies on widespread practices of saving, exchange and local sale of seeds and other planting materials, the national PVP law should recognize exceptions and protections for farmers. The new frameworks in Ecuador and Nepal contain such provisions, limiting the reach of the otherwise exclusive proprietary rights granted to plant breeders. Meanwhile, both countries have fortified farming practices through other laws designed to realize the constitutional guarantees related to food sovereignty, including regimes designed to regulate the access and use of native genetic resources and associated TK. ■

► PLANT BREEDERS' RIGHTS, FARMERS' RIGHTS AND FOOD SECURITY: Africa's Failure of Resolve and India's Wobbly Leadership

Chidi Oguamanam (2018).
***Indian Journal of Law and Technology* 18(2): 240–268.**
http://ijlt.in/wp-content/uploads/2015/09/04_chidi_oguamanam.pdf

When countries with a headstart in formal seed breeding opted for a legal framework, notably PBRs, which is epitomized by UPOV, both Africa and India rejected the notion that UPOV's 1991 standard of PBRs is the only route to fulfil obligations under the TRIPS Agreement. Objecting to the exclusive focus of the UPOV regime on protecting the interests of formal plant breeders, at the arguable expense of farmers, African countries insisted on a holistic approach to include protection of the rights of communities, farmers and their knowledge, innovation and practices. Consequently, the African Model Law for the Protection of the Rights

of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources recognizes the centrality of smallholder indigenous and local community farmers for food production, and underscores the interconnectedness of biodiversity conservation, Farmers' Rights, TK and ABS over genetic resources. At about the same time, India enacted the PPVFRA 2001, which is consistent with the spirit of the Model Law. Both regimes take into account the role of farmers as the backbone of agricultural innovation, food production and food security in the developing world, enhancing the idea of Farmers' Rights in food and agriculture law and policy. The focus on Farmers' Rights emphasizes farmer-driven agriculture, which is the dominant model of agricultural production in Africa and India, and where the practice of exchange of farm-saved seeds amongst farmers is at the heart of their ability to thrive and to double as breeders. The article calls attention to Farmers' Rights as an opportunity for both Africa and India to advance South-South solidarity for food security. Given the acknowledged contributions of farmers to the global genetic pool and the dependence of modern agriculture R&D innovations on traditional forms of farmer-centred agriculture, Africa and India are in a far stronger position than they have demonstrated so far in championing Farmers' Rights. The article concludes that Farmers' Rights represent a vital entry point for addressing development gaps and for tackling the food security challenge in the two regions and in the rest of the developing world, and that Africa and India are in a position to spearhead the impetus for saving farmer-centred agriculture. ■

3 Farmers' Rights

3A The Role of Farmers' Seed Systems

► FARMER SEED NETWORKS MAKE A LIMITED CONTRIBUTION TO AGRICULTURE? Four Common Misconceptions

Oliver T. Coomes et al. (2015).
***Food Policy* 56: 41–50.**
http://dx.doi.org/10.1016/j.foodpol.2015.07.008

The importance of seed provisioning in food security and nutrition, agricultural development and rural livelihoods, and agrobiodiversity and germplasm conservation is well accepted, but the role of farmer seed networks is less well understood. This paper identifies and challenges four common misconceptions: (1) farmer seed networks are inefficient for seed dissemination; (2) farmer seed networks are closed, conservative systems; (3) farmer seed networks provide ready, egalitarian access to seed; and (4) farmer seed networks are destined to weaken and disappear. The authors draw upon recent research findings and collective field experience in studying farmer seed systems in Africa, Europe, Latin America and Oceania to show that: (1) the considerable contribution of farmer seed networks in seed delivery indicates they currently serve farmers' needs rather well, and that these networks are important for building viable and diverse crop populations, and providing quality planting materials acceptable to farmers; (2) far from being closed systems, farmer seed networks convey new domesticates, varieties and planting material from the wild as well as modern varieties from the formal sector into agricultural production, are responsive to changes in contextual conditions and resilient to environmental and price shocks, and are vital in ensuring long-term access to diverse crop planting material; (3) some farmers benefit from better access to planting material than others, with the flow of crop planting material mediated by rural institutions and social relations; and (4) while the perception of threat to farmer seed transfers and to farmers' choices is often well founded, farmer seed networks are likely to persist over the long run in the face of commercialization, legislation and regulation. The paper concludes that farmer seed networks make a vital contribution to agriculture as they are an effective means of moving seed not only farmer-to-farmer, but also from nature, local markets, national seed agencies, research stations, agro-dealers and agribusiness to farmers. An improved understanding of the seed network-rural policy nexus would expand the analysis of a policy or intervention, to consider indirect or unexpected effects on farmer seed networks. Priorities for future research are suggested that would advance our understanding of seed networks and better inform agricultural and food policy. ■

► THE IMPORTANCE OF THE FARMERS' SEED SYSTEMS IN A FUNCTIONAL NATIONAL SEED SECTOR

Conny J.M. Almekinders and Niels P. Louwaars (2002).
***Journal of New Seeds* 4(1): 15–33.**
http://dx.doi.org/10.1300/J153v04n01_02

The authors, from Wageningen University and Research Center, highlight the importance of farmers' seed systems, which are the most important source of seed in most farming systems of the world, particularly for small-scale farmers in low-input agriculture in developing countries. Depending on the crop and country, 60–100 % of the seed planted in developing countries is farmer produced and exchanged. Farmers' seed systems also have a wider significance than the local supply of seed and maintenance of varieties, constituting a dynamic *in situ* conservation system that has an important role in the global manage-

ment of PGRFA. Despite efforts to replace farmers' seed systems with a system in which farmers use seed as an external input, most agricultural land in the world is still sown with seed that is produced by farmers. As such, the paper argues that aiming for a formal seed sector that supplies 100 % of the seed for planting is only realistic for a small number of crops and in few countries. The importance of farmers' seed systems merits closer attention to farmers' seed production and seed exchange at the policy level and in technical assistance projects, in order to ensure support for such systems. Linking formal and farmers' seed systems and improving the latter may be a more effective strategy to improve national and local seed supply than aiming only at improving the infrastructure and investment climate for the formal (private and public) seed sector. The paper's analysis of strengths and weaknesses of both farmer and formal seed systems shows important complementarity in strength and weaknesses between the two, offering multiple opportunities for improving the effectiveness of both. Linkages can occur at the level of crop development, seed production and handling, and seed distribution. The paper concludes by indicating ways for further integration of the formal and farmers' systems at various points in the seed chain/seed cycles, proposing to include such strategies in national seed policies. ■

3B Conceptual and Legal Aspects

▶ IMPLEMENTING FARMERS' RIGHTS RELATING TO SEEDS

Carlos M. Correa (2017).
South Centre Research Paper No. 75.
www.southcentre.int/wp-content/uploads/2017/05/RP75_Implementing-Farmers-Rights-Relating-to-Seeds_EN-1.pdf

This paper examines the concept and evolution of Farmers' Rights in the ITPGRFA, which were among the most contentious issues in the seven years of negotiations leading to the adoption of the Treaty. The adopted text sets out to promote a range of policies relevant to farmers' use and conservation of PGRFA. Although it has not provided a precise definition of such rights, it has created a platform for initiatives to improve farmers' participation in decision making and to support their activities as both producers and breeders. The concept of Farmers' Rights recognizes the role of farmers as custodians of biodiversity and draws attention to the need to preserve practices that are essential for sustainable agriculture. The practical implementation of these rights, however, has been hindered by IP laws, seed laws and other regulations. The paper discusses the various categories of rights encompassed by Farmers' Rights, and specifically examines one particular aspect, which deals with the use, exchange and sale of farm-saved seeds. Despite the importance of farmers as a source of seeds, the right to save, use, exchange and sell farm-saved seeds has been increasingly limited by different pieces of legislation and international treaties. The paper therefore analyzes a number of legal obstacles that hinder the implementation of such rights, including in relation to PVP. Although some elements of the right to save, use, exchange and sell seeds have traditionally been regarded as part of what is known as the 'farmers' privilege' under plant variety legislation, the evolution of the UPOV Convention and of national and regional laws that follow its model has been towards the narrowing down of the space left to farmers to dispose of the farm-saved seeds. The paper finds that countries that are not bound to comply with or that do not follow the UPOV 1991 model may provide for Farmers' Rights relating to seeds with a broad scope; for example, in countries that still adhere to UPOV 1978 (such as Argentina, Brazil, China), the use and exchange by farmers of farm-saved seeds is legal, since those acts are outside the scope of the breeder's rights. Moreover, the policy space is even broader in countries that have adopted *sui generis* PVP regimes that do not follow the UPOV Convention (whether the 1978 or 1991 Acts), particularly with regard to the right to sell farm-saved seed. The paper concludes by recommending: (1) a revision of national laws, where needed, to ensure their compatibility with the realization of Farmers' Rights; (2) *sui generis* regimes for the protection of plant varieties that allow for the full realization of Farmers' Rights, including the rights relating to seeds; (3) a revision of UPOV 1991 to align it with the objectives of the ITPGRFA; and (4) consideration of the possibility of allowing current or new UPOV members to shift to or join UPOV 1978, respectively, as it would promote PVP regimes more compatible with the implementation of Farmers' Rights. ■

► INTERNATIONAL CONTRADICTIONS ON FARMERS' RIGHTS: The Interrelations between the International Treaty, Its Article 9 on Farmers' Rights, and Relevant Instruments of UPOV and WIPO

Sangeeta Shashikant and François Meienberg (2015). Third World Network, Penang and Berne Declaration, Zurich.
www.twn.my/title2/intellectual_property/info.service/2015/ip151003/457628655560ccf2b0eb85.pdf

'Farmers' Rights' is a core component of the ITPGRFA, and as such, its full implementation is a prerequisite for achieving the Treaty objectives. However, there is concern that the activities of UPOV and WIPO are not supportive of Farmers' Rights, and even undermine those rights, thereby hindering implementation of the Treaty. At the fifth session of the Governing Body of the ITPGRFA, the Secretary of the Treaty was requested 'to invite UPOV and WIPO to jointly identify possible areas of interrelations among their respective international instruments.' Thus, there is a need to question the way in which UPOV and WIPO support or hinder implementation of Article 9 of the Treaty, which pertains to Farmers' Rights. This paper identifies some of the key questions that have to be addressed by such an assessment, as well as proposes solutions to eliminate contradictions. It examines how UPOV can affect the implementation of the various components of Farmers' Rights: the right to save, use, exchange and sell farm-saved seed and other propagating material; the right to equitably participate in sharing benefits; the recognition of the contribution that farmers have made for the conservation and development of PGR; the protection of traditional knowledge; and the right to participate in making decisions. The paper finds that on all these counts, UPOV fails to support the implementation of Farmers' Rights. It notes in particular the major differences between the UPOV Acts of 1978 and 1991 regarding the right to save, use, exchange and sell farm-saved seeds and propagating materials: UPOV 1978 offers greater leeway to implement Farmers' Rights, but there are still limitations, while UPOV 1991 greatly expands the scope of breeders' rights and severely limits Farmers' Rights. The paper recommends that to facilitate implementation of Article 9, it would be important to revise UPOV 1991 and provide greater flexibility to governments to implement the right to freely use, save, exchange and sell farm-saved seed/propagating material; to facilitate implementation of Article 9.2(b) of the Treaty, disclosure requirements in PVP applications are imperative, which will require a change in UPOV's position on the matter; and that UPOV should only take part in national and regional discussions when it is ensured that the processes are in line with Article 9.2(c) of the Treaty, and the participation of farmers in the decision-making process is guaranteed. Furthermore, developing countries are increasingly pressured to adopt strengthened breeders' rights at the expense of Farmers' Rights, limiting the flexibility of Treaty members to take the necessary steps to implement their obligations, including Farmers' Rights. Thus, it is imperative to interpret and revise the UPOV Convention to make it compatible with the recognition of Farmers' Rights. The paper also finds flaws with WIPO's technical assistance and support, which is always about the introduction of PVP laws modelled on UPOV 1991, even if such a model is unsuitable for the beneficiary country. WIPO therefore undermines the implementation of Article 9, and consequently the achievement of the Treaty's objectives. ■

► FARMERS' RIGHTS IN INTERNATIONAL LAW

Antonio G.M. La Viña, James L. Kho and Paz J. Benavidez II (2009).
***SEARICE Review* May 2009.**
Quezon City: Southeast Asia Regional Initiatives for Community Empowerment (SEARICE).
https://drive.google.com/file/d/1EmordMwxAX2Eda5v5u8tON3JSaa6uHSe/view

Farmers' Rights have become an important topic in international law. There are several international regimes that address Farmers' Rights, and each differs in approach and effect as seen from the different angles of environment, agriculture, trade and property rights. This paper introduces the various international regimes – ITPGRFA, CBD, UPOV and the TRIPS Agreement – and their interplay. It details the provisions within the ITPGRFA that recognize and protect Farmers' Rights, and stresses the critical need to recognize and allow farmers to freely practise their rights of saving, exchanging or reusing harvested seeds, and to have access to commercial markets for their varieties and products. In relation to Farmers' Rights, the CBD incorporates provisions on access to genetic resources and benefit sharing as well as protection of knowledge, innovations and practices of indigenous and local communities, including equitable sharing of the benefits arising from the utilization thereof. In contrast, the UPOV Convention, while recognizing commercial PBRs over plant varieties, only recognizes Farmers' Rights as an optional exception to breeders' rights. The 1991 revision gives governments discretion on whether to uphold Farmers' Rights, which includes only the use of saved seed on the same farm (and thus excludes any type of exchange or sale of such seed). This impacts the practice of saving, selling and exchanging seed, which is common among a large portion of the farming population in most developing countries and is essential for their survival. Further, PVP does not encourage breeding dealing with minor crops, which many small farmers cultivate, but targets major crops with significant commercial potential, likely leading to the erosion of agricultural biodiversity. UPOV is also not amenable to any revenue-sharing mechanism, impacting member governments' ability to provide benefit sharing. The TRIPS Agreement meanwhile mandates the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof. The paper refers to the UK Commission on IPRs, which concluded that developing countries should explore all the flexibilities provided by TRIPS and use different forms of *sui generis* systems for plant varieties. It concludes by referring to the need to expand Farmers' Rights to encompass the notion of food sovereignty. ■

▶ FARMERS' RIGHTS: Global Contexts, Negotiations and Strategies

Kamalesh Adhikari (2009).
Policy Brief, no. 18, SAWTEE.
www.researchgate.net/publication/262840325_Farmers'_Rights_Global_Context_Negotiations_and_Strategies

This policy brief highlights developments in the global negotiations on conservation, development and use of PGRFA, and the realization of Farmers' Rights. Many developing countries have expressed reservations about the strengthening of PBRs over new seeds, viewing UPOV, TRIPS and TRIPS-plus rules as not supportive of Farmers' Rights. Some of the major concerns relate to the threat of biopiracy, and the restrictions they impose on farmers' rights to, among others, save, use, exchange and sell seeds. Since the early 1980s, there have been negotiations on the need to promote the conservation and development of PGRFA, and why and how countries need to facilitate access to such resources for further breeding and research. In 2001, the ITPGRFA was adopted to ensure that its Parties implement a multilateral ABS system and take national measures, among others, to realize Farmers' Rights. The brief concludes by suggesting some strategies that the Treaty's Contracting Parties – mainly developing countries and LDCs – should pursue for the protection and promotion of Farmers' Rights at national and global levels. These are: (1) Review national measures, including seed regulations; assess their effectiveness in promoting Farmers' Rights; and adjust them for the realization of Farmers' Rights; (2) Generate views and experiences on Farmers' Rights; and share them with stakeholders, other countries, the Treaty's Secretariat and the Governing Body for required actions at local, national and global levels; and (3) Work with relevant actors and agencies, including farmers and their organizations, to organize local and national workshops on Farmers' Rights; and support the Secretariat to effectively convene regional workshops that aim to discuss national experiences on the implementation of Farmers' Rights. ■

▶ FARMERS' RIGHTS OVER PLANT VARIETIES IN SOUTHEAST ASIAN COUNTRIES

Kamalesh Adhikari (2008).
Southeast Asian Council for Food Security & Fair Trade (SEACON).

www.researchgate.net/publication/262840151_Protection_of_Farmers'_Rights_in_Southeast_Asia

This paper centres on conceptual and technical issues of farmers' rights to seeds and related knowledge. It analyzes several international instruments that are of relevance and importance, and discusses the implications of the use of IPRs in agriculture. The predominant informal seed use and exchange among farmers, mostly among rural farmers in many parts of Southeast Asia, is being threatened due to lack of policy and institutional mechanisms that support and strengthen farmers' seed systems. However, while most Southeast Asian countries want to protect Farmers' Rights due to their stakes in the agricultural sector, Farmers' Rights provisions in the enacted PVP laws are weak and protection provided to breeders for the use, reproduction and sale of their plant varieties is very strict. Moreover, even countries that are not required to implement the TRIPS Agreement have developed PVP laws based on UPOV 1991 or are making efforts to implement UPOV-tuned laws in the near future. The paper therefore proposes some legal and institutional measures that Southeast Asian countries need to consider for the protection of farmers' rights to plant varieties and related knowledge. These measures include the need for farmer-centred PVP rules through a *sui generis* system that ensures that PBRs do not restrict Farmers' Rights, strengthens provisions on the latter, enables farmers to obtain legal ownership over their varieties and knowledge, and ensures equity and fairness in ABS rules. The paper concludes that it is crucial for the countries to devise such measures that balance the interests of both breeders and farmers, and to protect the rights of farmers. The fundamental thrust should be on the need to create a sustained base for the growth of the agricultural sector as well as promotion of mechanisms that protect Farmers' Rights that could be affected due to the implementation of IPRs in the seed sector. The publication recommends various options for Southeast Asian countries to operationalize Farmers' Rights, including over plant varieties and related knowledge, breeders' varieties and to participate in decision-making. ■

3C Operationalizing Farmers' Rights

► SEED WARS AND FARMERS' RIGHTS: Comparative Perspectives from Brazil and India

Karine Peschard (2017).
***Journal of Peasant Studies* 44(1): 144–168.**
http://dx.doi.org/10.1080/03066150.2016.1191471

The rationale for Farmers' Rights is to counterbalance new IPR regimes over plant genetic resources (PGR) with the rights of farmers to access and use those same resources. Farmers' Rights are recognized in the CBD and ITPGRFA, as well as in some national laws. Drawing on interviews with Indian and Brazilian activists, lawyers, agronomists and plant breeders, this article aims at better understanding how Farmers' Rights are protected on paper and implemented on the ground. Brazil and India offer important case studies because they are megadiverse countries, where small farmers represent an important segment of the rural economy. The paper shows that India has adopted an ownership approach to Farmers' Rights, while Brazil leans towards a stewardship approach. With the former, the focus is on rewarding farmers for their contribution to the preservation of PGR, whereby farmers are granted property rights on their knowledge and ABS principles are instrumental to the creation of an incentive structure for their contribution to the preservation of agricultural biodiversity. The stewardship approach is a more comprehensive approach whose objective is to ensure that farmers have the conditions to continue to act as stewards of biodiversity on their own terms, including through public policies in support of farmers' seed systems. It also favours the creation of legal space outside the conventional framework, for example through exemptions. Based on an examination of the progress made in enforcing these rights, the article argues that the stewardship model adopted by Brazil – which both opposes the imposition of IPRs on farmers' varieties, and demands public programmes that support farmers' seed systems – is more conducive to the realization of Farmers' Rights. Finally, the article shows how Farmers' Rights provisions in the Brazilian and Indian laws represent fragile gains that could be curtailed by several bills currently under discussion, including moves in Brazil to align with UPOV 1991. It concludes that Farmers' Rights in Brazil and India are facing similar pressures from the global trend towards the privatization of genetic resources and the strengthening of IPR regimes, including through bilateral and regional trade and investment agreements that go beyond the 'minimum standards' for IP protection as set out in the TRIPS Agreement. ■

► FARMERS' RIGHT TO PARTICIPATE IN DECISION-MAKING – Implementing Article 9.2(c) of the International Treaty on Plant Genetic Resources for Food and Agriculture

Chee Yoke Ling and Barbara Adams (2016). Association for Plant Breeding for the Benefit of Society (APBREBES), Public Eye, The Development Fund, Searice and Third World Network.
www.apbrebes.org/news/farmers'-right-participate-decision-making-–-implementing-article-92-c-international-treaty

This paper argues that the right of farmers to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of PGRFA, as recognized in Article 9.2(c) of the ITPGRFA, is a prerequisite for the full and effective implementation of Farmers' Rights. Article 9.2(c) applies to all types of decision-making processes (e.g., administrative, legislative) and outcomes (e.g., policies, legislations, regulations, budgets, strategies etc.), as well as to a wide range of subject matter, including the formulation of seed laws related to PVP, seed certification and marketing. The paper clearly shows that the participation required goes beyond mere consultation. While Article 9.2(c) applies to national-level decision-making, which would include participation at the local and community level, since regional and international decision-making affects national decision-making with implications for Farmers' Rights, the right to participate should also apply to processes at those levels. However, the operationalization of Article 9.2(c) at the national, regional and international levels is severely lacking. Farmers face considerable challenges in exercising their right to participate, with the consequence that decisions not only ignore their needs, but also adversely affect farmers' freedom to operate. This is evidenced, for example, by the formulation of seed laws, in particular PVP, seed certification and marketing laws that restrict and in some cases criminalize farmers' right to freely use, save, exchange and sell farm-saved seed/propagating material. The challenges farmers face include: the absence of legal recognition of the right to participate; the absence of appropriate mechanisms to facilitate their participation; the lack of political will (often due to bias in favour of the corporate sector and/or external pressures); and limited or no access to information and/or financial support. Learning from the challenges as well as drawing from the norms, principles, good practices and mechanisms within the UN system, especially within the human rights framework, the paper discusses some key elements essential for the effective operationalization of farmers' right to participate in decision-making: a solid legal basis, enforceable by law; inclusive, independent, impartial, transparent and non-discriminatory processes and mechanisms, allowing sufficient time and opportunity for meaningful consultation; special attention to the participation of disadvantaged groups, in par-

ticular small-scale farmers; consultation at each phase of legislative drafting and policymaking, with inputs taken into account in making decisions; long-term and genuine commitment on the part of the relevant authorities; prompt access to full and up-to-date information over process and substance; freedom of association, capacity building and financial support; and opportunity and ability to seek a review of a decision and redress/remedies. Key recommendations of the paper elaborate these elements further, with recommendations addressed to governments, at the ITPGRFA level, and to regional and international organizations and processes. ■

▶ PLANT GENETIC DIVERSITY IN AGRICULTURE AND FARMERS' RIGHTS IN NORWAY

Regine Andersen (2012). Fridtjof Nansen Institute.
www.fni.no/getfile.php/132143-1469870399/Filer/Publikasjoner/FNI-R1712.pdf

This report analyzes achievements, gaps and needs with regard to the implementation of the ITPGRFA in Norway, with focus on its provisions on Farmers' Rights. On the basis of Articles 9.2 and 9.3, the four elements of Farmers' Rights in connection with crop genetic diversity are: to save, use, exchange and sell farm-saved seed; protection of TK on crop genetic diversity; participation in benefit sharing; and participation in relevant decision-making processes. The report discusses the current situation in Norwegian agriculture as regards crop genetic diversity and farmers and examines Norway's obligations under the ITPGRFA, including the views of farmers and other parties as to what Farmers' Rights mean in Norway. The report then addresses the four main elements of Farmers' Rights, operationalizing them to accommodate Norwegian conditions, and analyzing current status, attitudes and challenges. With respect to the right of farmers to save, use, exchange and sell farm-saved seed, the report finds that Norwegian authorities have gone further than other European countries to accommodate these rights. Norway is a member of UPOV 1978, and the two relevant laws impacting the right to save, use, exchange and sell seed and propagating material are the Act on Plant Breeders' Rights and the Act relating to Food Production and Food Safety. Farmers in Norway are still allowed to save seed of varieties protected by PBRs, and they can use the seed in the following season and exchange it among themselves. They are also allowed to exchange and sell seeds (except seed potatoes) on a non-commercial basis among themselves. However, these rights remain inflexible as farmers cannot freely sell seed, and only on a non-commercial basis, and many conditions need to be met before varieties can be approved for sale by approved seed dealers or retailers. Factors that impinge on farmers' rights to save, use, exchange and sell seed could limit their ability to save and utilize genetic diversity in the future, although much depends on how the regulations are interpreted and implemented, including in relation to EU legislation. The report concludes by making recommendations to advance Farmers' Rights in Norway. With regard to the right to save, use exchange and sell seed, one key recommendation is the need to foster greater financial predictability for plant breeding activity for varieties in demand but not financially viable, which would eliminate much of the necessity to tighten PBRs at the expense of Farmers' Rights. ■

4
Development of Plant Variety Protection Laws

► PLANT VARIETY PROTECTION IN DEVELOPING COUNTRIES. A Tool for Designing a *Sui Generis* Plant Variety Protection System: An Alternative to UPOV 1991

Carlos M. Correa (2015).
APBREBES (Association of Plant Breeding for the Benefit of Society).
www.apbrebes.org/news/new-publication-plant-variety-protection-developing-countries-tool-designing-sui-generis-plant

This working paper is a tool to assist developing countries in designing a *sui generis* PVP system that is consistent with the requirements of the TRIPS Agreement, is suitable for their seed and agricultural systems, and promotes the objectives of the CBD, the Nagoya Protocol and the ITPGRFA. While WTO member states are required to make available some form of IP protection for plant varieties, they have the flexibility to design a *sui generis* system for such protection. LDCs, even if WTO members, enjoy full policy space to not provide any IP protection for plant varieties. Some countries have opted to join UPOV 1991 in order to comply with TRIPS, many in response to pressures from developed countries or obligations imposed in FTAs. However, UPOV 1991, which significantly expanded and strengthened PBRs, offers a rigid model inappropriate for developing countries. It ignores the characteristics of the seed supply systems in those countries, where farmers produce a large part of the seeds/propagating material used, and suppresses farmers' traditional practices of saving, exchanging and selling plant materials. UPOV 1991 requirements also undermine implementation of the CBD, Nagoya Protocol and the ITPGRFA. Thus, the rationale for this tool is to present an alternative to UPOV 1991 that is supportive of and coherent with the objectives and elements of these international instruments. The proposed *sui generis* regime is articulated on the basis of: (1) new uniform plant varieties; (2) new farmer and other heterogeneous varieties; and (3) traditional farmers varieties. The regime aims at preventing the misappropriation of varieties developed or evolved by farmers and farmers' communities, as well as of other heterogeneous varieties developed by breeders, including in public research institutions, by providing remuneration rights, payable to a Seed Fund in the case of traditional farmers varieties. Income from the Fund will be used to support the conservation and sustainable use of PGRs, particularly on-farm conservation and community seed banks, as well as to implement benefit sharing for relevant farmers and communities. In recognition of the crucial role that small farmers play in the production of food in developing countries, the proposed regime exempts them from any obligation in connection with the various categories of plant varieties, thereby fully safeguarding their right to freely save, use, exchange and sell seeds/propagating material. The proposed regime attempts to attain a right balance between breeders' rights and those of farmers and society at large; ensure that farmers varieties and those developed by public research are not misappropriated; allow breeders to recoup investments in the development of new varieties; expand the use of new varieties suitable to the conditions in the country, taking into account the needs of small-scale farmers; support national policies of conservation and sustainable use of PGRFA, as well as compliance with the CBD, Nagoya Protocol and ITPGRFA; preserve associated TK and ensure the permanent adaptation of seeds to the evolution of agricultural ecosystems and food security; and respect, protect and fulfil human rights. ■

► TOWARDS A BALANCED '*SUI GENERIS*' PLANT VARIETY REGIME: Guidelines to Establish a National PVP Law and an Understanding of TRIPS-plus Aspects of Plant Rights

Savita Mullapudi Narasimhan (2008).
United Nations Development Programme.
www.undp.org/.../TowardaBalancedSuiGenerisPlantVarietyRegime.pdf

This paper provides guidance on understanding what a balanced *sui generis* PVP regime may entail, one that supports the inter-

ests of all affected groups including farmers, consumers, indigenous communities and local industries. It exhorts countries to tread carefully when establishing a PVP regime and while negotiating bilateral or regional FTAs that include PVP provisions. The TRIPS Agreement requires members to provide PVP, but has potential impacts in countries that are dependent on exchange of farm-saved seed and knowledge. Farmers in many developing countries save, select and re-use seeds, which is the basis of consecutive harvests, ensuring food security for rural communities. This practice is also important for maintaining agricultural biodiversity, which may be undermined by PVP rights that favour commercial and industrial breeders over traditional farmers, and that promote genetic uniformity in crop varieties. However, TRIPS provides the option for countries to adopt a *sui generis* PVP law. The paper examines various approaches based on what has been adopted by other countries, setting out what countries should consider to establish a balanced *sui generis* PVP regime. It recommends that any successful model put forward must be rooted in the development objectives of the particular country, and the objective must be to establish a PVP regime that includes and supports the interests of all affected. It notes that a significant culmination of analysis and literature indicates that UPOV may not serve as the best available option for countries where a significant proportion of the population depends on an informal seed supply system of agriculture. Instead of adopting UPOV-style systems or allowing patentability of plant varieties, policymakers may consider combining various approaches to create a customized law. Additionally, developing countries should establish and enforce effective seed laws, seed and gene funds where applicable, access and benefit-sharing mechanisms, all of which combined with a *sui generis* PVP law can make a balanced plant variety rights regime. The paper finds that there is no 'one size fits all' approach towards establishing a balanced *sui generis* PVP regime, given the range of stakeholders involved, and that countries would benefit from adopting an inclusive process – one that takes into consideration the concerns of various stakeholders and affected groups. It concludes that countries must also be cautious about signing away available flexibilities in bilateral and regional FTAs and investment treaties which diminish the options available under TRIPS, thus having dire impacts on Farmers' Rights and biodiversity. It therefore helps countries analyze TRIPS-plus provisions and their effects with regard to PVP, presenting a variety of strategies countries may adopt to understand and assess the impacts arising from TRIPS obligations and bilateral or regional trade agreements. ■

► INTELLECTUAL PROPERTY RIGHTS IN PLANT VARIETIES: International Legal Regimes and Policy Options for National Governments

Laurence R. Helfer (2004).
FAO Legislative Study 85.
FAO, Rome.
www.fao.org/3/y5714e/y5714e00.htm#Contents

This study provides a comprehensive overview of the international IP system regulating plant varieties and PBRs, identifying essential features, including the policies supporting the grant of IPRs, the societal objectives in tension with IPRs, the institutions that have shaped the international IP system and the basic components of the relevant international treaties. The study explains the different forms of legal protection required by international IPR agreements, including the system of PBRs in UPOV 1978 and 1991, the choice between patent and *sui generis* protection created by Article 27.3(b) of the TRIPS Agreement, and the impact of TRIPS-plus bilateral and regional treaties. The study analyzes the alternatives available to a state depending upon the different IPR treaties it has ratified. For each of the relevant international IP agreements, the study identifies: (1) the implementation measures that are mandatory for member states; (2) the implementation measures that member states may but are not required to adopt; and (3) a range of policy options for national governments consistent with the treaty commitments that they have undertaken. Once a government has consulted this study to determine the degree of discretion it enjoys as a result of its treaty ratifications, it can then review those portions of the study that identify the mechanisms that it may adopt, consistent with its international obligations, to balance the protection of IPRs against other societal objectives, including encouraging biodiversity, facilitating access to PGR, recognizing Farmers' Rights, promoting the equitable sharing of benefits and protecting the TK of indigenous communities. Finally, the study explains the ways in which the international IP system can change. Governments interested in retaining discretion are advised to monitor and participate in these negotiations, with a view to harmonizing their international obligations, thereby avoiding the necessity of turning to international tribunals to settle their disputes. ■

Acronyms and Abbreviations

ABS	access and benefit sharing
ARIPO	African Regional Intellectual Property Organization
ASEAN	Association of Southeast Asian Nations
CAFTA	Central American Free Trade Agreement
CBD	Convention on Biological Diversity
CIPR	Commission on Intellectual Property Rights (UK)
DUS	distinctness, uniformity and stability
EAPVP	East Asia Plant Variety Protection Forum
ECOWAS	Economic Community of West African States
EPA	economic partnership agreement
EU	European Union
FTA	free trade agreement
GR	genetic resources
HRIA	human rights impact assessment
ILC	indigenous and local communities
IP	intellectual property
IPR	intellectual property right
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
LDC	least developed country
NDUS	novelty, distinctness, uniformity and stability
OAPI	Organisation Africaine de la Propriété Intellectuelle (African Intellectual Property Organization)
PBR	plant breeders' right
PGR	plant genetic resources
PGRFA	plant genetic resources for food and agriculture
PPVFRA	Protection of Plant Varieties and Farmers' Rights Act (India)
PVP	plant variety protection
R&D	research and development
RTA	regional trade agreement
SADC	Southern African Development Community
SDG	Sustainable Development Goals
TK	traditional knowledge
TNC	transnational corporation
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
UK	United Kingdom
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNDROP	United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas
UPOV	International Union for the Protection of New Varieties of Plants
US	United States
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

The Association for Plant Breeding for the Benefit of Society (APBREBES) is a network of civil society organizations from developing and industrialized countries. The purpose of APBREBES is to promote plant breeding for the benefit of society, fully implementing Farmers' Rights to plant genetic resources and promoting biodiversity. The work of APBREBES is financially supported by the Swiss Agency for Development and Cooperation, Salvia Foundation and Misereor. The views expressed in this working paper do not necessarily reflect the views of the Swiss Agency for Development and Cooperation and the other supporters.

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