Chapter 7
Seeds & Intellectual Property Rights: Bad Faith and Undue Influence Undermine Food Security and Human Rights

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Abstract The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) annexed to the Marrakesh Agreement establishing the World Trade Organization (WTO) contains some important flexibilities. In relation to plant variety protection (PVP), TRIPS indicates the necessity of devising a legal regime tailored to local realities. It is disappointing to witness that the International Convention for the Protection of New Varieties of Plants (UPOV Convention) has been advocated as the most appropriate regime and even least-developed countries are being brought under the UPOV framework (The acronym UPOV is based on the French title of the treaty: Union internationale pour la protection des obtentions végétales). The applicability ratione materiae of the UPOV Convention has expanded by encompassing a broad range of activities under 'commercial breeders' rights'. The applicability ratione loci has been widened by applying persuasive force on developing countries through bilateral and regional arrangements.

This chapter shows how national laws based on the UPOV Convention negatively affect smallholder farmers and over the long-run affects the realisation of many countries' policy objectives such as poverty alleviation and human rights protection. Showing how the support of developed countries is making UPOV an undeniable force, and considering the fact that WTO members are obliged to provide for PVP, this chapter argues that countries should devise suitable laws in line with their national objectives before committing to any bilateral or regional obligation to accede to the UPOV Convention. Further, this chapter suggests that along with protecting farmers from the detrimental effect of PVP laws, national laws should be designed in such a way that farmers make use these laws and benefit from the PVP regime.

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7.1 Introduction

Before Intellectual Property Rights (IPR) extended their domain to plant genetic resources, farmers had complete freedom to decide the use of their seeds, whether it be planting, saving or exchanging.[1] TRIPS has facilitated the globalization of IPR, including on plant varieties. Notably, the least-developed countries are required to fulfil this obligation by 01 July 2021.[2] Article 27(3)(b) TRIPS obliges WTO Members to 'provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof'. The option of creating a stand-alone *sui generis* system or a combination of a *sui generis* system with patent protection laws, provides some flexibility to tailor a national PVP system to local needs. Some developing countries have made use of this flexibility and have started to devise their own policy approach.[3] However, through different regional and bilateral mechanisms, most developing countries are being influenced by developed countries and by Multinational Corporations linked to these countries to adopt laws based on the UPOV Convention despite these rules being inappropriate for them. This has led to a curtailment of the inherent flexibility granted by TRIPS. Further, as more developing countries accede to the UPOV Convention—through pressure or studied decision-making, it is likely that UPOV will establish itself as the norm-setting organization.[4]

The concerns about the asymmetry between the extensive international monopoly rights created by IPR over plant genetic resources and the rights of farmers have been extensively discussed.[5] The cumulative analysis in academic literature is unequivocal in proving that the UPOV Convention—based on such monopoly rights—is not suitable for countries which rely on informal seed system.[6] Nevertheless, developing countries are still adopting forms of plant variety protection based on the UPOV Convention that are not adapted to the local needs.

This chapter argues the TRIPS obligation of protecting plant varieties should be responded to by developing countries by designing national laws that are locally rooted before they get entrapped into bilateral or regional obligations. First, this chapter discusses the TRIPS obligation to protect plant varieties (Sect. 7.1) and the pressure being exerted on developing countries to accede to the UPOV Convention (Sect. 7.2). The chapter then analyses the immediate and long-term implications of applying the rules from the UPOV Convention in developing countries (Sect. 7.4). Finally, the chapter concludes with some recommendations (Sect. 7.5).

[1] Kloppenburg (2008), p. 3.

[2] WTO (2013).

[3] Dutfield (2019), p. 277.

[4] Narasimhan (2008), pp. 9–10.

[5] Aoki (2009), Fowler (2000), Kloppenburg (1988) and Correa (2000).

[6] Braunschweig et al. (2014), Christinck and Tvedt (2015), De Schutter (2011), Haugen (2007) and Narasimhan (2008).

7.2 TRIPS Obligation to Protect Plant Varieties

The obligation to provide intellectual property protection for new plant varieties arises from a commitment inherent in membership of the WTO. The Marrakesh Agreement establishing the WTO and its three annexes, including TRIPS, are binding on all WTO Members as a 'Single Undertaking'. This term of art is based on Article II.2 Marrakesh Agreement that provides: 'The agreements and associated legal instruments included in Annexes 1, 2 and 3 (hereinafter referred to as "Multilateral Trade Agreements") are integral parts of this Agreement, binding on all Members'.[7]

Although Article 27(3)(b) TRIPS provides that Members may exclude from patentability 'plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes', we recall that the article also states that 'Members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof'. Therefore, this particular provision makes it mandatory that WTO Members provide protection for plant varieties. It provides WTO Members with three options on how this obligation may be implemented, first, to allow exclusive patent rights for plant varieties; second, to design an effective *sui generis* system; and third, to create a legal protection through a combination of these systems. Most developing countries favour a *sui generis* system for the protection of plant varieties rather than patents.[8]

Sui generis literally means 'of its own kind', which indicates that countries have the flexibility of putting in place a protection system appropriate to their local context and needs.[9]

While TRIPS provides detailed provisions for the regulation of patents, the only requirement with respect to a *sui generis* system is that it must confer an 'effective' protection.[10]

TRIPS does not provide a definition of the term 'effective'.[11]

However, backed by developed countries and Multinational Corporations linked to them, UPOV promotes its PVP system as the only effective and internationally accepted *sui generis* PVP system even though TRIPS makes no reference to the UPOV Convention.[12] UPOV claims that 'the introduction of a system which differs

[7] Marrakesh Agreement establishing the World Trade Organization (with final act, annexes and protocol). Concluded at Marrakesh on 15 April 1994.

[8] Antons and Kanniah (2012), p. 2.

[9] Haugen et al. (2011), p. 120.

[10] UNCTAD-ICTSD (2005), p. 394.

[11] Some discussion on the interpretation of 'effectiveness' can be found in WTO (2014) e.g. section 5.2.6 of the Appellate Body Report in China—Measures Related to the Exportation of Rare Earths, Tungsten, and Molybdenum, WT/DS431/AB/R / WT/DS432/AB/R / WT/DS433/AB/R (adopted 29 August 2014).

[12] Kanniah (2005), p. 283; Antons (2016), p. 393.

significantly from the harmonized approach based on the UPOV Convention will raise question with regard to the implementation of the TRIPS Agreement.'[13] Such statements give the false impression that UPOV membership is essential for TRIPS compliance.[14]

Some developing countries, rightly, state that since TRIPS does not specify the criteria to judge whether a *sui generis* system is effective, this should, therefore, be left to WTO Members to decide.[15]

Many developed countries take a different position. The European Union (EU), is of the opinion that it could be considered appropriate to clarify the phrase 'effective *sui generis* system' by including a reference to the UPOV Convention.[16] Similarly, the United States (US) endorses the view that national PVP laws consistent with the substantive obligations of the UPOV Convention, would be an effective system, and, while WTO Members can devise other systems, those systems will have to be judged on their merits, case by case.[17]

While developed countries argue that legal systems other than the one created by the UPOV Convention should be evaluated individually, it is important to note that there is no authoritative interpretation guaranteeing that the UPOV Convention satisfies the requirements of Article 27(3)(b) TRIPS.[18] A guideline published by the UNDP Bureau for Development Policy states the term 'effective' may be interpreted as 'a system that contains implementation of juridical and/or administrative procedures for PVP holders to execute their rights'.[19]

Similarly, Ragavan and O'Shields suggest, '. . .the effectiveness of a plant protection regime established under Article 27 must be judged by its ability to accommodate local and national welfare and economic goals'.[20]

They further argue that 'Member flexibility to establish an effective system increases when using a national yardstick. Therein, perhaps, lies the benefit of Article 27(3)'s use of the expression 'effective sui generis' system as opposed to the effective system'.[21] Each country, therefore, has an option to draft national PVP laws suitable to their own local reality and national interest. National PVP laws based on the UPOV Convention can, of course, be one of the effective *sui generis* systems of law. However, it is not the only one, and if WTO Members choose to

[13] UPOV (2002).

[14] Dutfield (2011), p. 11.

[15] For instance, India, Zimbabwe, Kenya, etc. WTO (2006), para 50.

[16] Representative of European Communities. WTO (1999a), para 74.

[17] WTO (1999b), p. 4.

[18] See Statement of representative of Thailand. WTO (1999b), para 78.

[19] Narasimhan (2008), p. 5. This working paper was prepared as part of the work programme of the UNDP Bureau for Development Policy, Poverty Group, Inclusive Globalization Cluster's project on Intellectual Property, Trade and Biodiversity.

[20] Ragavan and O'Shields (2007), pp. 101–102.

[21] Ragavan and O'Shields (2007), pp. 101–102.

provide protection through UPOV or the rules from its UPOV Convention, they still have a positive duty, in case of a dispute to prove effectiveness.[22]

One of the reasons suggested by the Representative of Switzerland, that the drafters of TRIPS had not incorporated a reference to UPOV was because of its limited geographic coverage at the time of the negotiations.[23] This is unsurprising, considering the history of the UPOV Convention.[24] However, when a large number of developing countries are persuaded to accede to UPOV, it is likely that the UPOV Convention may establish itself as a *de facto* minimum standard.[25]

Nevertheless, the portrayal of UPOV-compliant national laws as the only effective *sui generis* system for the protection of plant varieties is incompatible with any interpretation of Article 27(3)(b) TRIPS that is in conformity with Articles 31 and 32 of the 1969 Vienna Convention on Treaties. WTO Members are free to choose any appropriate regime for plant varieties protection, as long as it is effective.

Some countries have created *sui generis* national legal systems taking into account their local realities. India has become the first country to implement a plant variety rights scheme that encompasses some aspects of the UPOV Convention, the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) and the Convention on Biological Diversity (CBD).[26] The Protection of Plant Variety and Farmers Right Act, 2001 (PPVFR Act 2001) provides for equitable sharing of the benefits earned from the new varieties with farming or tribal communities that have contributed varieties used as parents[27] and also establishes a National Gene Fund.[28] Malaysia and Thailand have also adopted their *sui generis* national legal rules for plant varieties protection.[29] It is important to note that none of these countries had their PVP legislation challenged before WTO Dispute Settlement or criticised in the periodic Trade Policy Reviews.

[22] Narasimhan (2008), p. 6.

[23] Statement of Representative of Switzerland. WTO (1999a), para 82.

[24] 'To maximize the chances of success,[in the first Conference] the French Government issued invitations to twelve countries only, all from Western Europe, which were known to share the same concerns and the same hopes (Austria, Belgium, Denmark, Finland, Federal Republic of Germany, Italy, the Netherlands, Norway, Spain, Sweden, Switzerland, the United Kingdom). All were to participate at one stage or another in the elaboration of the UPOV Convention.' as quoted by Heitz (1990), p. 35. For the participants of the conference (states and organizations), see UPOV (1974), pp. 103–104.

[25] Narasimhan (2008), pp. 9–10.

[26] Plant Variety and Farmers Right Act, 2001; Sanderson (2017), p. 108.

[27] Protection of Plant Variety and Farmers Right Act, of India 2001 (PPVFR Act), Sec. 26(5).

[28] Protection of Plant Variety and Farmers Right Act, of India 2001 (PPVFR Act), Sec. 45.

[29] Correa (2015), p. 27.

7.3 Undue Influence to Adopt UPOV Convention on Developing Countries and Least-Developed Countries

UPOV is an intergovernmental organization established as the outcome of an international conference held in 1961 at the initiative of France (at the time the major commercial producer of vegetable seeds) and major seed companies.[30] The conference also drafted the International Convention for the Protection of New Varieties of Plants (UPOV Convention 1961) which entered into force in 1968 following its ratification by the United Kingdom, The Netherlands (currently the major commercial producer of seeds) and Germany.[31] Each revision (1972, 1978 and 1991) of the Convention has strengthened breeders' rights. The current version is the UPOV Convention 1991. It provides the strongest protections to commercial breeders to date. As compared to the UPOV Convention 1978, the UPOV Convention 1991 extends exclusive rights and rights requiring right-holders' permission. It also introduces the concept of Essentially Derived Varieties (EDV) and it further restricts what farmer is allowed to do with protected breeding material they own.[32] Therefore, over the years, the successive versions of the UPOV Convention have moved towards a more patent-like protection for plant varieties.[33]

Both the 1961 and the 1978 versions of the UPOV Convention exempted the right of farmers to plant, save, exchange and sell seeds from the scope of application of the Convention. However, in the 1991 version of the UPOV Convention, this right is circuitously curtailed in an interpretative document entitled 'Recommendation Relating to Article 15(2)'.[34] The document is drafted with intentional use of language to undermine farmers' rights and ensure that the UPOV Convention 1991 will be interpreted and applied in a manner that restricts these rights with the aim of destroying them. Farmers' rights are requalified as 'privileges'. Their application is described as a 'practice'. The Recommendation states: 'The Diplomatic Conference recommends that the provisions laid down in Article 15(2) of the International Convention for the Protection of New Varieties of Plants of December 2, 1961, as Revised at Geneva on November 10, 1972, on October 23, 1978, and on March 19, 1991, should not be read so as to be intended to open the possibility of extending the practice commonly called "farmer's privilege" to sectors of agricultural or

[30] The following organizations, which represented the interests of commercial breeders, were present in the Conference: Association internationale des sélectionneurs pour la protection des obtentions végétales (ASSINSEL), Association internationale pour la protection de la propriété industrielle (AIPPI), Communauté internationale des obtenteurs de plantes ornementales de reproductions asexuée (CIOPORA) and Fédération internationale du commerce des semences (FIS), see UPOV (1974), p. 104. For the history and role of these organizations, see Heitz (1987), pp. 80–83.

[31] Sanderson (2017), p. 43.

[32] Haugen (2020), p. 6.

[33] Haugen (2020), p. 6.

[34] Recommendation Relating to Article 15(2) added to UPOV Convention 1991.

horticultural production in which such a privilege is not a common practice on the territory of the Contracting Party concerned.'

As of February 2020, with the total members of 76, 59 of them have acceded to the UPOV Convention 1991.[35] Pursuant to an agreement concluded between UPOV and World Intellectual Property Organization (WIPO), the Director General of WIPO is the Secretary-General of UPOV and WIPO provides administrative and financial services to UPOV.[36]

UPOV has been very influential in expanding its model of protection of plant varieties. In 2000, the Organization of African Unity (now African Union (AU)) attempted to assist African States in their effort to adopt an effective *sui generis* system for the protection of plant varieties and farmers' rights through its 'African Model Legislation for the Protection of the Rights of Local Communities, Farmers and Breeders and for the Regulation of Access to Biological Resources'.[37] The model law was heavily criticized by UPOV and WIPO. UPOV argued that public interest issues such as food security, community rights and farmers' rights should be separated from the commercial rights of breeders, and WIPO maintained that the model law's rejection of patents on life forms is a violation of TRIPS obligations.[38] In 2001, the AU attempted to reconcile differences with UPOV and WIPO but could not succeed.[39] Moreover, the AU Members did not hold a unified position on the issues due to various connected reasons. Kenya and South Africa were already members of UPOV before the model law was adopted and Tunisia was in the process of joining. The *Organisation Africaine de la Propriété Intellectuelle* (OAPI) similarly was in the process of joining UPOV.[40]

In 2002, OAPI a PVP chapter that was largely in line with UPOV rules as part of the 1999 Bangui Agreement.[41]

[35] UPOV (2020).

[36] Agreement between the World Intellectual Property Organization and the International Union for the Protection of New Varieties of Plants (WIPO/UPOV Agreement) signed on 26 November 1982 (UPOV/INF/8).

[37] OAU (2000); Straba (2017), p. 192.

[38] GRAIN (2001); Opoku Awuku (2008), p. 114.

[39] Roseboom (2012), p. 453.

[40] The Members of the Organisation Africaine de la Propriété Intellectuelle (OAPI) at the time were Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Ivory Coast, Equatorial Guinea, Gabon, Guinea, Guinea-Bissau, Mali, Mauritania, Niger, Senegal and Togo. The list of OAPI Members is available at http://www.oapi.int/index.php/en/aipo/presentation/member-countries (Last consulted on 20 April 2020). See Straba (2017), p. 193; Roseboom (2012), p. 453.

[41] The Bangui Agreement established OAPI in 1977 and was revised in 1999: Accord portant révision de l'Accord de Bangui du 2 mars 1977 instituant une Organisation Africaine de la Propriété Intellectuelle (Bangui (République centrafricaine) (24 February 1999). See also Roseboom (2012), p. 453.

In 2014, becoming the second intergovernmental organization to join UPOV (the first is the EU),[42] OAPI binds seventeen OAPI Member, thirteen of which are least-developed countries,[43] to follow the requirements of UPOV Convention 1991.[44]

In 2014, the African Regional Intellectual Property Organization's (ARIPO) draft protocol for the protection of new varieties of plants was held by the UPOV Council to be in conformity with the provisions of the UPOV Convention 1991.[45] In 2015, ARIPO's Diplomatic Conference adopted the Arusha Protocol for the Protection of New Varieties of Plant,[46] which provides even stronger plant variety protection in favour of commercial breeders than that of UPOV Convention 1991.[47] Explaining the potential negative impacts of the Arusha Protocol, in an open letter to the Member States of ARIPO, Elver, the UN Special Rapporteur on the right to food urged ARIPO Member States 'to refrain from endorsing and/or ratifying the Arusha Protocol'.[48] Thirteen out of nineteen ARIPO Members are least-developed countries.[49] In addition, ARIPO itself is in the process of becoming a party to the UPOV Convention.[50]

For developing countries and even more so for least-developed countries primary concerns in the evaluation of the local needs for plant variety protection are the local farming practices, the position of small scale breeders and food security.[51] However, a World Bank report suggests that multinational corporations are proposing further restrictions on the use of protected varieties in breeding programmes and these

[42] UPOV (2020).

[43] The current members of OAPI are Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Comoros Congo, Ivory Coast, Equatorial Guinea, Gabon, Guinea, Guinea-Bissau, Mali, Mauritania, Niger, Senegal and Togo. Among them Benin, Burkina Faso, Central African Republic, Chad, Comoros Congo, Guinea, Guinea-Bissau, Mali, Mauritania and Senegal are least-developed countries. The UN list of Least-Developed Countries is available at https://unctad.org/en/Pages/ALDC/Least%20Developed%20Countries/UN-list-of-Least-Developed-Countries.aspx (Last consulted on 20 April 2020).

[44] Haugen (2015), p. 197.

[45] UPOV (2014).

[46] Arusha Protocol for the Protection of New Varieties of Plants within the Framework of the African Regional Intellectual Property Organization (ARIPO), ARIPO Office, Arusha, Tanzania adopted on 06 July 2015 (Arusha Protocol) available at https://www.aripo.org/ip-services/plant-variety-protection-pvp/ (Last consulted on 20 April 2020).

[47] See Haugen (2015), p. 206.

[48] Elver (2016).

[49] The members of the African Regional Intellectual Property Organization (ARIPO) are Botswana, Eswatini, Gambia, Ghana, Kenya, Lesotho, Liberia, Malawi, Mozambique, Namibia, Rwanda, Sao Tomoe and Principe, Sierra Leone, Somalia, Sudan, Tanzania, Uganda, Zambia, and Zimbabwe available at https://www.aripo.org/member-states/ (Last consulted on 20 April 2020); Among them, Gambia, Lesotho, Liberia, Malawi, Mozambique, Rwanda, Sao Tomoe and Principe, Sierra Leone, Somalia, Sudan, Tanzania, Uganda, Zambia are least-developed countries. UN list of Least-Developed Countries is available at https://unctad.org/en/Pages/ALDC/Least%20Developed%20Countries/UN-list-of-Least-Developed-Countries.aspx (Last consulted on 20 April 2020).

[50] UPOV (2019).

[51] Narasimhan (2008), pp. 9–10.

positions may be translated into pressure (through bilateral trade negotiations) to accept corresponding provisions in PVP legislation in developing countries.[52] Accordingly, most often these countries accede to the UPOV Convention or adopt even higher standards through bilateral or regional trade agreements, including with the US, the EU, Japan and European Free Trade Association (EFTA).[53] The NGO GRAIN maintains a list of such agreements.[54] For instance, the Indonesia-Japan Economic Partnership Agreement (IJEPA) obliges Indonesia to become party to the UPOV Convention.[55] There are similar provisions in the draft of the EU proposal for the EU-Indonesia FTA.[56] Similarly, IP Key South-East Asia (SEA), a project financed by the EU, aims to 'to promote European standards in IPR legislation, protection and enforcement and the development of best practices where possible via [Free Trade Agreements] FTAs'.[57] The project seeks 'to promote a more level playing field for European companies operating in South East Asia'.[58] The EU has similar programmes targeting China and Latin America.[59] Similarly, the United States has also been urging Chile and Colombia to accede to the UPOV Convention 1991 even through its domestic mechanism like the Special 301 Report.[60]

Likewise, the G8 New Alliance for Food Security and Nutrition in Africa (NAFSN) launched in May 2012 also makes reference to the UPOV model of PVP.[61]

Japan, on the other hand, has set a target to get more than half of Southeast Asian members to accede to the UPOV Convention 1991 by 2027.[62] In 2007, the East Asia Plant Variety Protection (EAPVP) Forum was established at the initiative of Japan.[63]

The forum consisting of all ten Member states of the Association of Southeast Asian Nations (ASEAN) plus Japan, China and Korea, aims to achieve its members' UPOV membership.[64]

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[52] World Bank (2006), p. 46.

[53] Dutfield (2019), p. 289.

[54] GRAIN (2018).

[55] Indonesia-Japan Economic Partnership Agreement (IJEPA), Art. 106 (3)(c).

[56] The European Union's (EU) proposal for a legal text on intellectual property in the EU-Indonesia FTA available at https://trade.ec.europa.eu/doclib/docs/2017/february/tradoc_155281.pdf (Last consulted on 10 May 2020).

[57] Action Fiche for IP Key South East Asia is available at https://ipkey.eu/sites/default/files/ipkey-docs/2019/ANNEX-10_IPKey-SouthEastAsia.pdf (Last consulted on 01 April 2020).

[58] Action Fiche for IP Key South East Asia is available at https://ipkey.eu/sites/default/files/ipkey-docs/2019/ANNEX-10_IPKey-SouthEastAsia.pdf (Last consulted on 01 April 2020).

[59] The details of IP Key project is available at https://ipkey.eu/en (Last consulted on 01 April 2020).

[60] USTR (2020), pp. 62 and 80.

[61] De Schutter (2015), p. 27.

[62] The Japan Agricultural News (2018).

[63] GRAIN (2019a).

[64] Further information on EAPVP Forum is available at http://eapvp.org/about/ (Last consulted on 01 April 2020).

The Ten-year Strategic Plan (2018–2027) of the Forum mentions the long-term direction of the Forum to 'establish effective PVP systems consistent with the UPOV Convention among Forum members towards achieving all Forum members' membership of UPOV, as a basis for further PVP harmonization and cooperation in the region in order to contribute to developing sustainable agriculture and achieving food security'.[65]

The Plan adopted in 2018 was immediately revised a year later in 2019. It is interesting to note that initially the Plan made explicit reference to consistency with UPOV Convention 1991 but the revision in 2019 only mentions the UPOV Convention.[66]

However, since the Forum aims to achieve UPOV membership, this change is insignificant because membership of UPOV equates to complying with the UPOV Convention 1991. Nevertheless, this change reveals an ongoing struggle within the Forum since the majority of its members are developing countries and two of them, Cambodia and Myanmar are least-developed countries.[67]

China, which is a member of EAPVP Forum, has acceded to UPOV Convention 1978.[68]

However, China is considering amending its PVP law to provide for a stronger IPR protection regime, by including a definition of EDV that would go beyond the current UPOV position.[69]

If China adopts its current proposed amendments, it could offer protection to plant breeders beyond the UPOV Convention 1991.[70] China began the process of revising its PVP law a year before ChemChina, a state-owned company, purchased Syngenta, a global Swiss agribusiness and major beneficiary of the UPOV system with hundreds of plant variety registration internationally.[71] In 2018, more application for plant variety protection were filed in China than in any other country.[72] Also as a share of worldwide application, Chinese applications constitute a worldwide majority.[73] Notably, the 'Opinions on Strengthening Protections of Intellectual

[65] EAPVP Forum (2019), p. 1.

[66] EAPVP Forum (2018, 2019).

[67] UN list of Least-Developed Countries is available at https://unctad.org/en/Pages/ALDC/Least%20Developed%20Countries/UN-list-of-Least-Developed-Countries.aspx (Last consulted on 20 April 2020).

[68] UPOV (2020).

[69] On February 1, 2019, the Ministry of Agriculture and Rural Affairs (MOA) issued an announcement to publicly solicit comments on the 'Revised Draft Regulations on the Protection of New Varieties of Plants of the People's Republic of China (Draft for Comment)', for purpose of further stimulating original innovation and enhancing protection. See Xiang (2010).

[70] CIOPORA (2019).

[71] Rosenzweig (2020).

[72] China remained the top filing office in 2018, receiving 5760 applications. The China office now accounts for over a quarter of the plant varieties filed worldwide. WIPO (2019), p. 164.

[73] WIPO (2019), p. 166.

Property Rights' recently released by the General Office of Communist Party of China and the State Council proposes to 'establish mechanisms for expert consultation on overseas rights protections, effectively promoting our nation's rights holders receipt of equal protections of their lawful rights and interests overseas in accordance with law'.[74] It also proposes to 'give full play to the important role of the intellectual property system in promoting the co-construction of the "Belt and Road", support the joint-development of countries to strengthen capacity building, and promote the sharing of the results of patents and new plant varieties'.[75] Therefore, it is very likely that China will accede to the UPOV Convention 1991 or adopt even stronger IPR protection in its PVP laws. This will have serious consequences for countries involved in trade talks with China, or those forming part of the Belt and Road Initiative (BRI) as China will expect reciprocal treatment (equal protection).[76]

Interestingly, China's exports of homegrown, high-end seeds to countries involved in the BRI have seen a major surge in recent years and BRI is expected to boost China's outward investments in agribusiness.[77] For instance, the China-Pakistan Economic Corridor (CPEC) is also facilitating the expansion of Chinese hybrid wheat in Pakistan.[78]

After successful trials in Pakistan, the Chinese Authorities are planning to introduce it to more countries along the routes of the BRI.[79]

The role of UPOV, regional organisations and leading countries including the EU, the US, Japan and China are advocating stronger IPR protection of plant varieties to the detriment of farmers' rights and potentially to the detriment of food security and biodiversity. The manner in which they push their interests, hollows out the inherent flexibility of TRIPS and uses undue influence on countries in weaker negotiating positions.

[74] See para 14 of the Opinion of General Office of Communist Party of China and the State Council is available [Chinese] at http://www.gov.cn/zhengce/2019-11/24/content_5455070.htm (Last consulted on 22 April 2020).

[75] See para 12 of the Opinion of General Office of Communist Party of China and the State Council is available [Chinese] at http://www.gov.cn/zhengce/2019-11/24/content_5455070.htm (Last consulted on 22 April 2020).

[76] GRAIN (2019b).

[77] GRAIN (2019b).

[78] Abbas (2018).

[79] Siqi (2018).

7.4 Implications of PVP Laws Based on the UPOV Convention 1991 in Developing Countries and Least-Developed Countries

The UPOV system was designed for the farming system of developed countries, where farmers heavily depend on seed supplies from commercial breeders.[80] While the labour force employed in agriculture in developed countries is less than 5%, in some developing countries, for instance in India, it amounts to 42%.[81] Unlike in developed countries, the farming system in developing countries is characterized by small-scale farming which relies heavily on the informal seed system.[82] A study commission by the World Bank investigating the impact of the strengthened intellectual property regime in the plant breeding industry in developing countries concluded that, by limiting the saving, exchanging and selling of farmer-produced seeds of protected varieties, IPR may reduce the effectiveness of informal seed systems, which are the primary source of seeds.[83] The following paragraphs shed some light on the immediate impact of PVP laws based on the UPOV Convention 1991 on smallholders in relation to the freedom of saving, exchanging and selling seeds. Subsequent paragraphs highlight the long-term implications of the UPOV Convention, including on national objectives such as poverty alleviation and human rights protection.

7.4.1 Immediate Implications

When a breeder secures a PVP right, the breeder has an exclusive right of (1) production or reproduction (multiplication) (2) conditioning for the purpose of propagation, (3) offering for sale, (4) selling or marketing, (5) exporting (6) importing (7) stocking for aforementioned activities.[84] The text of the UPOV Convention 1991 has been drafted intentionally poorly to maximise the interpretative leeway as a way of reinforcing the IPR of commercial breeders. A striking example is Article 14 (5) UPOV Convention 1991 that excels in legal ambiguity by using vague terms such as 'predominantly' or 'not clearly distinguishable'. This vagueness of terminology is weaponized by transferring the burden of proof onto non-commercial breeders ('deemed to be'). The article has a sting in the tail by according exclusive rights to breeders even when the variety is not created through their efforts but by a fluke of nature ('natural mutant').

[80] Correa (2015), p. 27.

[81] World Bank (2020).

[82] Braunschweig et al. (2014), p. 6.

[83] Louwaars et al. (2005), p. 4.

[84] UPOV Convention 1991, Art 14(1).

The formulation of the breeders' rights in UPOV Convention 1991 makes it possible to seek persecution in national courts of countries with UPOV Convention 1991 compliant national legislation of farmers who are involved in any of the seed-related activities which are part of the traditional farming activities such as saving, using, exchanging or selling farm-saved seed or propagating material. An example can be found in the Law of Republic of Indonesia No. 29 of 2000 on Plant Variety Protection.[85] Although Indonesia has not yet acceded to the UPOV Convention 1991, Indonesia drafted its law under the guidance of UPOV. Articles 67 and 71 provide that anyone engaging in these activities without the consent of the right holder can face imprisonment and a fine and the right holder is entitled to claim for the damages incurred.

Article 15 UPOV Convention 1991 provides two exceptions. The first exception is compulsory and must thus be integrated into national law to ensure that the national law is in compliance with UPOV Convention 1991. The second exception is optional. The first exception excludes from the right of breeders, (1) acts done privately and for non-commercial purposes; (2) acts done for experimental purposes; (3) acts done for the purpose of breeding other varieties, and, except where the provisions of Article 14(5) apply, acts referred to in Article 14(1) to Article 14(4) in respect of such other varieties. The first two subsections of this exception have a limited scope of applicability because they do not allow any selling of the surplus of the harvest and can be interpreted to exclude any form of exchange of the harvested product for the use on other farms.[86]

However, the second subsection creates an opening for non-commercial exchanges of seeds for experimentation so this could be read as allowing an exchange of seeds between individuals for the purpose of improving varieties but this door is firmly shut by the third subsection that specifically addresses the breeding of other varieties. This means that experimentation cannot include plant breeding as this would create an interpretation that creates a conflict between two subsections of the provision and denies meaning to the third subsection in contravention of the rules of treaty interpretation. selected and improved their own varieties, and the restriction of this right may impede this process of improvement.[87] The third subsection is couched in conditionality derived from Article 14 UPOV Convention 1991. It has already been established that this article sufficiently malleable to deny meaning to Article 15(1)(iii) UPOV Convention 1991. The poor drafting gives the impression of intentionality as we observe that the translation into national law of these ambiguities can lead to a further erosion of farmers' right to the point of destruction.

[85] A field study was conducted in Indonesia by Saurav Ghimire. The study was carried with financial support from the Vlaamse Interuniversitaire Raad (VLIR-UOS) as a Global Minds Small Great Projects of Vrije Universiteit Brussels (SGP 018) in collaboration with Universitas Airlangga, Surabaya, Indonesia (October–December 2018) (VUB GM 2018).

[86] Christinck and Tvedt (2015), p. 69.

[87] CIPR (2002), p. 63.

The second exception allows Contracting Parties to UPOV Convention 1991 to 'restrict the breeder's right in relation to any variety in order to permit farmers to use for propagating purposes, on their own holdings, the product of the harvest which they have obtained by planting, on their own holdings, the protected variety or a variety covered by Article 14(5)*(a)*(i) or (ii)' This option is encapsulated in a double condition, namely that the restriction is 'within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder'.

State practice is inconsistent with few countries explicitly protecting the rights of farmers in a balanced approach to the rights of commercial breeders and farmers, whereas other countries use the UPOV Convention's ambiguity to maximize the rights of commercial breeders.

The right to sell seed is crucial for maintaining the livelihood of farming communities and many nation's self-reliance in agriculture.[88] In order to protect the freedom of farmers to save and exchange seeds, the Indian PVP law has made a noteworthy provision. A farmer in India is entitled to save, use, sow, resow, exchange, share or sell his farm produce including seed of a PVP protected variety. The Indian PVP law only restricts farmers from selling seeds of a protected variety in packages and containers with labels bearing the registered name of a protected variety.[89] Indian and Australian PVP laws have made some provision in relation to innocent infringement. These national laws free farmers from culpability if it can be shown that the farmer was not aware of the existence of the right at the time of the infringement.[90] The proof of innocence can include matters like the literacy level of the farmer, or the lack of licenses written in his local language, etc.[91]

Examples of state practice prioritising the rights of commercial breeders and employing criminal law to enforce this priority, can be seen in Indonesia. Although Indonesia is not a party to the UPOV Convention, it has been in continuous contact with UPOV for assistance in the development of laws based on the UPOV Convention.[92] There have been several cases in Indonesia where farmers are prosecuted for breeding and exchanging their seeds. The Indonesian Human Rights Committee for Social Justice, a non-governmental organization, has recorded about fifteen such cases involving the criminalization of farmers as of 2016.[93] The farmers were charged with infringements such as copying of a breeding technique, theft of parental seeds, cross-breeding, and illegal distribution of seeds, amongst others. Farmers were arrested and some had to stay for months in prison despite the lack of evidence.[94]

[88] Braunschweig et al. (2014), p. 7; Gene Campaign (n.d.).

[89] Protection of Plant Variety and Farmers Right Act, of India 2001 (PPVFR Act), Sec. 39 (1)(iv).

[90] Protection of Plant Variety and Farmers Right Act, of India 2001 (PPVFR Act), Sec. 42; Plant Breeder's Rights Act 1994 of Australia, Sec. 57.

[91] Ragavan and O'Shields (2007), p. 121.

[92] UPOV (2019).

[93] IHCS (2016).

[94] GRAIN (2019a).

Moreover, in almost all the cases, farmers had no legal representative to represent them in court, and most of them did not understand the reason they were being convicted for practicing something that they have been doing since long.[95] In order to seek redress over the infringement of plant breeders' rights, non-IPR specific seed laws like seed certification/registration laws are also often deployed along with the IPR laws.[96] Likewise, in most of the cases, the farmers in Indonesia have been accused of seeds distribution without certification based on the Law No. 12/1992 on plant cultivation system. Moreover, the 'Laws of the Republic of Indonesia No. 29 of 2000 on Plant Variety Protection' is often enforced outside the court through settlements between companies and farmers and case do not make it to court.[97]

Similarly, in 2019, in India, PepsiCo India brought cases against four farmers claiming that they have been illegally growing, producing, selling a registered potato variety without its permission.[98] Experts considered this as a biggest test of India's PPVFR Act as this was a first case of such kind.[99] However, a farmer in India is entitled to save, use, sow, resow, exchange, share or sell his farm produce including seed of a PVP protected variety. The Indian PVP law only restricts farmers from selling seeds of a protected variety in packages and containers with labels bearing the registered name of a protected variety.[100]

Similarly, it is also important to note that the claimed variety was registered as an 'Extant Variety' meaning 'a variety of common knowledge'.[101]

This implies that the said variety of potato was already available in the country before it was registered and that there was common knowledge about this variety in the country.[102] In this regard Dhar states, 'Registration of extant varieties was allowed in the PPVFR Act despite opposition from several experts, and the justification used was that farmers' varieties can be registered under this provision. The benefits that the farmers are deriving are not clear, but what can easily be understood is that companies like PepsiCo that got the opportunity to register their older varieties can now sue the farmers for using known plant varieties.'[103] Similarly, it

[95] GRAIN (2019a).

[96] Wattnem (2014), pp. 14 and 17.

[97] Consultation with local farmers and farmers' right activists by Ghimire during a field research in Indonesia (as yet unpublished) (VUB GM 2018).

[98] Commercial Court at City Civil Court, Ahmedabad (2019a) PepsiCo India Holdings Pvt Ltd versus Bipin Patel – Commercial Trademark Suit Number 23 of 2019; Commercial Court at City Civil Court, Ahmedabad (2019b) PepsiCo India Holdings Pvt Ltd versus Vinod Patel – Commercial Trademark Suit Number 24 of 2019; Commercial Court at City Civil Court, Ahmedabad (2019c) PepsiCo India Holdings Pvt Ltd versus Chabilbhai Patel – Commercial Trademark Suit Number 25 of 2019; Commercial Court at City Civil Court, Ahmedabad (2019d) PepsiCo India Holdings Pvt Ltd versus Haribhai Patel – Commercial Trademark Suit Number 26 of 2019.

[99] Dhar (2019).

[100] Protection of Plant Variety and Farmers Right Act, of India 2001 (PPVFR Act), Sec. 3 (1)(iv).

[101] Dhar (2019) and Bhutani (2019).

[102] Dhar (2019).

[103] Dhar (2019).

has also been suggested that sometimes spuds too small for processing end up on grey market without original name and denomination that it is IPR-protected, and this may drag farmers to unintended infringements.[104] It is necessary to note however that, in India a farmer cannot be convicted on charges of infringement if he proves that he was not aware of the existence of the right so infringed at the time of infringement.[105] After much criticism, PepsiCo India submitted to the Court that it wanted to settle the dispute with the farmers and it offered the famers that either they do not use the registered variety or they should enter into an agreement with the company to purchase seeds from it and thereafter produce and sell to it on its terms.[106]

In the field study conducted in Indonesia, it was established that the PVP law and the associated court cases had a chilling effect on the seed practices of farmers.[107] It can be expected that the Indian court case, even though it did not lead to any finding of guilt on behalf of the farmers, will have a chilling effect on their practices as farmers are not in a position to fight their case in the court. Thus, a threat of enforcement is as powerful as actual enforcement. This is justice denied for the Indian farmers who have acted in compliance with the PPVFR Act.

An important issue in interpreting the scope of the UPOV Convention is the definition of a breeder. The fact that plant breeders can secure rights over plant varieties, but that traditional farming communities, who have been improving plant varieties for generations receive no recognition, demonstrates a serious asymmetry.[108] It is crucial for developing countries to carefully consider their objectives and realities in the area of agriculture and plant breeding when considering who may qualify as breeder under their PVP law.[109] The UPOV Convention 1991, which defines a breeder as 'the person who bred, or discovered and developed, a variety'.[110] This ostensibly includes farmers and farming communities but an informal group of farmers or farming communities do not qualify as breeder unless they have obtained the status of a legal person. This is evident in the Explanatory Note which clarifies that only a breeder defined in the UPOV Convention 1991 is entitled to be a right-holder and such a right-holder should be a physical person or should be an entity with rights and obligations in accordance with the legislation of the member country.[111]

Thus, the definition of a breeder in the UPOV Convention 1991 includes farmers who show that they have bred a variety. However, as Sanderson writes, there are several practical challenges for farmers claiming to be plant breeders under the

[104] Bhutani (2019).

[105] Protection of Plant Variety and Farmers Right Act, of India 2001 (PPVFR Act), Sec. 42.

[106] Bhutani (2019).

[107] VUB GM 2018.

[108] Correa (2000), p. 4.

[109] QUNO (2013), pp. 2–3.

[110] UPOV Convention 1991, Art. 1(iv).

[111] UPOV (2013).

UPOV definition.[112] These challenges stem from the collective and collaborative nature of traditional plant breeding. Most of the time, farmers are involved in collective or community breeding, and such informal groups escape the definition of a breeder because of the Explanatory Note. Few countries have addressed this issue in their national legislation. Again, India has taken a global leadership role in this matter though the inclusion of a group of farmers under the definition of a breeder. Section 2(c) of the Protection of Plant Varieties and Farmers' Rights (PPVFR) Act, 2001 states that breeder means a person or group of persons or a farmer or group of farmers or any institution which has bred, evolved or developed any variety. Any farmer or group of farmers or community of farmers claiming to be the breeder of the variety can, therefore, make an application for registration.[113] Several farmers' varieties have been registered in India. As of 30 October 2018, 774 registration certificates were issued to private seed companies whereas 1587 certificates were issued to individual farmer/farming community.[114]

Expanding the scope of plant breeders' rights, the UPOV Convention 1991 introduced the concept of EDV to include varieties that are derived directly or indirectly from a protected initial variety.[115] EDV are varieties derived either from a protected variety or from a variety predominantly derived from the initially protected variety. They are the first-or-second-generation derivatives from the protected varieties.[116] The degree of similarity (the treaty uses the terms distinguishability and distinctness) between the protected variety and other varieties in this context is of concern to farmers. There are situations where material used by farmers is quite similar to a protected variety. Traditional varieties can be similar to a protected variety.[117] Therefore, it becomes crucial to ensure that the characteristics that define a protected variety can be distinguished from the propagating material used by farmers. Difficulties arise when varieties used by farmers cannot be distinguished clearly enough from protected varieties.[118] The fact that the EDV could be obtained indirectly from an initial variety implies that the characteristics could be obtained from another source, including gene flow. Therefore, if a protected variety enters into the farmer-managed breeding and seed system, where it may be altered through farmers' seed management activities, if the essential characteristics are still present, the breeder's right would be enforceable.[119] This will be case even if the

[112] Sanderson (2017), p. 112.

[113] Protection of Plant Variety and Farmers Right Act, of India 2001 (PPVFR Act), Sec. 14, 16(d), 39(1).

[114] PPVFRA (2018).

[115] UPOV (1991).

[116] Ragavan and O'Shields (2007), p. 4.

[117] Christinck and Tvedt (2015), p. 64.

[118] Christinck and Tvedt (2015), p. 64.

[119] Christinck and Tvedt (2015), pp. 67–68.

initial variety is a traditional variety that has acquired an 'essential characteristic' through a natural mutation.[120]

7.4.2 Long-Term Implications

Recent international and regional policy discourses have shown a shift in the way smallholders and family farmers are seen, 'from being a part of the hunger problem, to now being central to its solution'.[121] Smallholder agriculture shows an impressive productivity and contributes to world food security and nutrition.[122] Family farms produce at least 53% of the world's food.[123] A report by the UN High-Level Panel of Experts on Food Security and Nutrition (HLPE) concluded:

> Smallholders contribute to world food security and nutrition while performing other related roles in their territories. Historical evidence shows that smallholder agriculture, adequately supported by policy and public investments, has the capacity to contribute effectively to food security, food sovereignty, and substantially and significantly to economic growth, the generation of employment, poverty reduction, the emancipation of neglected and marginalized groups, and the reduction of spatial and socio-economic inequalities. Within an enabling political and institutional environment, it can contribute to sustainable management of biodiversity and other natural resources while preserving cultural heritage.[124]

The report further states that the orientation of policies towards large-scale and industrial, rather than small-scale and agrarian agriculture can be attributed to the inability to achieve the first of the Millennium Development Goals, the alleviation of poverty and the eradication of hunger.).[125] Similar findings were reported in a World Bank Report of 2019 that affirms that increasing smallholder productivity is effective at reducing poverty because it raises the income of the poor directly.[126]

A human rights impact assessment of UPOV Convention 1991 by the Association for Plant Breeding for the Benefit of Society (APBREBES) based on case studies of Kenya, Peru and the Philippines concluded that restrictions on the use, exchange and sale of protected seeds are likely to have negative human rights implications:

> UPOV 91 restrictions on the use, exchange and sale of farm-saved PVP seeds will make it harder for resource-poor farmers to access improved seeds. This could negatively impact on the functioning of the informal seed system, because if implemented and enforced, UPOV 91 would sever the beneficial interlinkages between the formal and informal seed systems. Moreover, selling seeds is an important source of income for many farmers. From a human rights perspective, restrictions on the use, exchange and sale of protected seeds could

[120] UPOV Convention 1991, Art. 14(5)(c).
[121] Graeub et al. (2016), p. 1.
[122] HLPE (2013), p. 46.
[123] Graeub et al. (2016), p. 1.
[124] HLPE (2013), p. 12.
[125] HLPE (2013), p. 45.
[126] Christiaensen and Vandercasteelen (2019).

> adversely affect the right to food, as seeds might become either more costly or harder to access. These restrictions could also affect other human rights, by reducing the amount of household income which is available for food, healthcare or education.[127]

Pointing out the impact of UPOV-based laws on farmers' freedom to exchange and sell farm-saved seeds, De Schutter, former Special Rapporteur on the right to food, suggested that the developing countries should design a *sui generis* form of protection.[128] Similarly as stated above, in an open letter to ARIPO Member States, Elver, present Special Rapporteur on the right to food urges the Member States 'to refrain from endorsing and/or ratifying the Arusha Protocol which provides UPOV-based PVP regime'.[129] The UPOV Convention 1991 has been identified as an obstacle in the realization of human rights obligations including the right to food as stipulated in International Covenant on Economic Social and Cultural Rights 1966 (ICESCR), the right of indigenous people as stipulated in ILO Convention 169 and the rights of farmers as stipulated in International Treaty on Plant Genetic Resources for Food and Agriculture 2001 (ITPGRFA).[130]

The ITPGRFA explicitly acknowledges the rights of farmers to save, use and exchange, and sell farm-saved seeds (Article 9 ITPGRFA) and the Convention on Biological Diversity (CBD) provides for access and benefit sharing. When the PVP system expands, it can be anticipated that the formal sector will grow over time and because of the inherent but intentional ambiguities in the UPOV Convention 1991 that serves as the model, basis or inspiration for many national laws, it will be difficult for farmers to stay outside the formal seed system, should they wish so.[131]

The growth of the formal seed system, and the strong protection of breeders' right will cause farmers' dependence on the formal sector for seeds. Because farmers are increasingly prohibited from harvesting and using or selling seeds under the UPOV system (directly and indirectly), they must purchase their seeds from commercial breeders. Recognizing the farmers' dependency on commercial breeders' seeds as a serious problem, the Committee On Economic, Social And Cultural Rights (CESCR) recommended in 2008 that India provide '[s]tate subsidies to enable farmers to purchase generic seeds which they are able to reuse, with a view to eliminating their dependency on multinational corporations.'[132]

Recently, there has been an increasing realization of the detrimental impact of IPR strengthening to protect the interests of commercial breeders on the poor and marginal sections of society. A European Parliament Report recalls 'need to prevent the potentially negative impact of IPR clauses, e.g. on seed privatisation, in trade agreements on food sovereignty'.[133]

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[127] Braunschweig et al. (2014), p. 7.

[128] De Schutter (2009), para 40.

[129] Elver (2016).

[130] Christinck and Tvedt (2015) and Braunschweig et al. (2014).

[131] Christinck and Tvedt (2015), p. 63.

[132] CESCR (2008), para 69.

[133] EU Parliament (2018), para 18.

The Report continues by stressing 'that women who work in subsistence agriculture face additional barriers to maintaining food sovereignty owing to the strong protection of new varieties of plants under the International Convention for the Protection of New Varieties of Plants (UPOV Convention) in trade agreements'.[134] The adoption of the 'United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas' by the UN Human Rights Council confirms the 'right to save, use, exchange and sell their farm-saved seed or propagating material.'[135]

7.5 Conclusion

The decisions made at global level have a huge impact on national level. Farmers who had been engaging in activities of planting newer and better seeds; and exchanging seeds among themselves are now brought under the framework of IPR due to the TRIPS obligation to implement a PVP system in one of three ways: a patent, a sui generis system or a combination of both. TRIPS does not specify the criteria to judge whether a *sui generis* system is effective. This is left to WTO Members to assess. This allows developing countries to design national laws that are locally rooted and relevant to the circumstances of their communities.

While TRIPS allows flexibility in relation to the protection of PVP in national laws, most of developing and least-developed countries are being influenced by developed countries and by multinational corporations linked to these countries to adopt laws based on UPOV Convention 1991 despite these rules being inappropriate for them. Developed countries and multinational corporations are exerting undue influence on many developing and least-developed countries to adopt national laws that are in conformity with the UPOV Convention 1991, often in its most extreme version and sometimes even beyond it.

The PVP laws based on UPOV Convention 1991 affect the farmers in developing and least-developed countries by severely restricting their rights to save, exchange and breed seeds. Such restrictions, over the long run are unfavourable for these countries to realize their national objectives of poverty alleviation and human right

[134] EU Parliament (2018), para 19.

[135] United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas, (UN Human Rights Council, adopted 28 September 2018 (A/HRC/RES/39/12), Article 19(1)(d). The Resolution was adopted by a recorded vote of 33 to 3, with 11 abstentions (in favour: Afghanistan, Angola, Burundi, Chile, China, Côte d'Ivoire, Cuba, Democratic Republic of the Congo, Ecuador, Egypt, Ethiopia, Iraq, Kenya, Kyrgyzstan, Mexico, Mongolia, Nepal, Nigeria, Pakistan, Panama, Peru, Philippines, Qatar, Rwanda, Saudi Arabia, Senegal, South Africa, Switzerland, Togo, Tunisia, Ukraine, United Arab Emirates, Venezuela (Bolivarian Republic of); against: Australia, Hungary, United Kingdom of Great Britain and Northern Ireland; abstaining: Belgium, Brazil, Croatia, Georgia, Germany, Iceland, Japan, Republic of Korea, Slovakia, Slovenia, Spain.

protections. One of the inherent problems with the UPOV Convention 1991 is its textual ambiguity and unclear drafting, which, in our opinion, are intentional bad faith strategies, to expand the rights of commercial breeders. Moreover, the 'Recommendation Relating to Article 15(2)' surreptitiously added to UPOV Convention 1991, even outright destroys farmers' rights in favour of commercial breeders' rights.

WTO members are obliged to provide for PVP under TRIPS and should do so by devising suitable laws in line with their national objectives. TRIPS explicitly provides the freedom to develop appropriate national PVP systems. There is no TRIPS obligation to accede to any bilateral or regional obligation that incorporates the PVP system of the UPOV Convention. *A fortiori*, there is no obligation to accede to the UPOV Convention as a way of meeting the TRIPS obligation.

With its 164 Members, the WTO is a representative organisation for the world community. TRIPS as a core WTO treaty obliges all WTO Members to adopt IPR for PVP. For least-developed countries, the special and differential treatment allowed them a delay in meeting this obligation until 1 July 2021. There is thus some urgency in ensuring that these countries adopt a *sui generis* regime without detrimental effects on smallholder farmers, and deploy the IPR regime in novel way to achieve their national objectives, for e.g. for food security and human rights.[136] The IPR for plants can be reworked, both to limit the exclusivity granted to plant breeders, and to expand protections for varieties that farmers maintain and develop.[137] Such national legislation should be tailored to the national and local interest though wider participation of concerned stakeholders.[138]

India, Thailand, and Malaysia have already adopted *sui generis* regimes. Scholars, INGOs and international agencies have guidelines for developing countries to assist them to design *sui generis* regimes.[139]

We urge all countries to adopt an appropriate *sui generis* system that is in line with the Sustainable Development Goals (SDG) and the realisation of human rights. We call on countries that have already adopted national PVP legislation to review their legislation and to amend or to repeal, in whole or in part, any national PVP legislation that does not meet the ambitions of the SDG or the rules, standards, expectations and aspirations of international human rights.

[136] Jefferson and Adhikari (2019).

[137] Jefferson and Adhikari (2019), p. 18.

[138] Adebola (2019).

[139] For instance, Correa (2015) and Narasimhan (2008).

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