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## The Protection of Farmers' Rights Under International Law and its Implementation in Indonesia

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Farmers' rights are a concept proposed by Mooney in the 1980s to reconcile the growing conflict over plant genetic resources, known as the "seed war".<sup>1</sup> The concept was then promoted by a Canadian non-governmental organisation, the Rural Advancement Foundation International (RAFI),<sup>2</sup> to address growing concerns over genetic erosion and the North-South "gene drain". RAFI argued that these farmers' rights should be considered a new type of collective intellectual property right (IPR) meant to counter Plant Breeders' Rights (PBRs) as stipulated under the International Convention for the Protection of New Varieties of Plants (UPOV Convention).<sup>3</sup> The underlying principle of protecting farmers' rights was to counterbalance the protection of new plant varieties through IPR regimes, operating to ensure the right of farmers to access their community-developed varieties. In 1989, this concept was endorsed by the Conference of the UN Food and Agriculture Organization (FAO) in Resolution 5/89,<sup>4</sup> incorporating that concept into the International Undertaking on Plant Genetic Resources for Food and Agriculture (the International Undertaking).<sup>5</sup> Since that date, farmers' rights have gradually come to be formally recognised and acknowledged under other (binding and non-binding) instruments in international law.

Scholars have theorised that the farmers' rights concept, as set forth in the International Undertaking, was intended to be supported by an international genetic conservation fund, created in conjunction with the Undertaking, which was to be administered by the FAO.<sup>6</sup> Proponents of farmers' rights through these negotiations emphasised four issues:

- (1) the right to grow, improve and market local varieties and their products;
- (2) the right to access improved plant varieties and use farm-saved seeds of commercial varieties for planting and exchange;
- (3) the right to be compensated for the use of local varieties in the development of new commercial varieties by others; and

- (4) the right to participate in all processes of decision making related to acquiring, improving and using of plant varieties.<sup>7</sup>

From that perspective, it can be said that the concept of farmers' rights under international law cannot be separated from the protection of IPRs involving particular plants. This article analyses the concept of the protection of farmers' rights under international law and how member nations like Indonesia implement such international obligations at the national level. The first part of this article focuses on the development of the concept of farmers' rights under international instruments, including the International Undertaking, the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), the UPOV Convention and the Convention on Biological Diversity (CBD). It also examines the relationships between these conventions, and whether they are contradictory or mutually supportive. On that basis, this research analyses the adequacy of Indonesian national law in implementing international protection of farmers' rights.

### The International Undertaking

The International Undertaking<sup>8</sup> was negotiated and adopted under FAO in 1983. It is a non-binding legal instrument with the main objective of managing the global system of plant genetic resources (PGR) as enshrined in its Article 2 which states that PGR "will be explored, preserved, evaluated and made available for plant breeding and scientific purposes" based on the principle of "common heritage of mankind".<sup>9</sup> The formulation of this article, and other articles related to it, were to form the basis for new controversies with regard to the protection of IPRs on plants, and PBRs. These controversies then provide the basis for the introduction of farmers' rights as a political concept at that moment.

The International Undertaking was the first comprehensive international instrument dealing with the political issues surrounding the control of PGR. Since its adoption, however, both the objective and the definition

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of PGR have been matters of substantial controversy between developed and developing countries,<sup>10</sup> due to their different interests. Developed countries, which have plant breeding technologies and capital investments in utilising PGR, have influenced the effective implementation of the International Undertaking.<sup>11</sup>

As mentioned earlier, the International Undertaking, as written, regards genetic resources as the “common heritage of mankind”.<sup>12</sup> In 2003, Stephen Brush considered, as a definitional matter, that this phrase means that the Undertaking is intended to encompass genetic resources belonging to the public domain and not owned or otherwise monopolised by a single group or interest.<sup>13</sup> He identified the logical foundations of a “common heritage” in a crop’s genetic resources to be the universal processes of diffusion and dispersal, supplemented by historical practices of reciprocity.<sup>14</sup> A crop’s genetic resources derive originally from natural and amorphous processes or crop evolution, such as mutation, natural selection, exchange and decentralised selection. He noted that, because no one person or group can control crop evolution, it is inappropriate for anyone to claim authorship or ownership.<sup>15</sup>

Viewed in this way, genetic resources for food and agriculture were treated as a free good to which everybody had the right of access/use. Based on this principle, the International Undertaking stipulated under Article 5 that States which had PGR under their control were expected “to allow access to samples of such resources, and to permit their export, if the resources have been requested for the purpose of scientific research, plant breeding or genetic resources conservation”.<sup>16</sup> One interpretation of this article argued that “[t]he Undertaking sought to put all plant genetic resources on an equal footing as ‘the heritage of mankind’, which mean that this heritage should be preserved for the use of present and future generations...and be freely available to benefit all peoples”.<sup>17</sup>

The International Undertaking also stipulates that access to PGR be free of charge “on the basis of mutually agreed terms”(MAT),<sup>18</sup> as this “common heritage concept” of international law is based on the notion that humanity has a vital interest in certain natural resources and, because of that, the benefits and burdens related to the exploitation and preservation of such resources should be shared by all.<sup>19</sup> This concept has been applied to regulate the deep seabed (or “Area”)<sup>20</sup> under the United Nations Convention of the Law of the Sea (UNCLOS) and outer space under international law. Under the UNCLOS, Section 2 Regarding Principles Governing the Area, Article 136 provides that “the Area and its resources are the common heritage of mankind”. Then, Article 137 regarding the Legal Status of the Area and its Resources provides that:

*(1) No State shall claim or exercise sovereignty or sovereign right over any part of the Area or its resources, nor shall any State or natural or juridical person appropriate any part thereof. No such claim or exercise of sovereignty or sovereign rights nor such appropriation shall be recognized.*

*(2) All rights in the resources of the Area are vested in mankind as a whole, on whose behalf the Authority shall act. These resources are not subject to alienation. The minerals recovered from the Area, however, may only be alienated in accordance with this Part and the Rules, regulations and procedures of the Authority.*

*(3) No State or natural or juridical person shall claim, acquire or exercise rights with respect to the minerals recovered from the Area except in accordance with this Part. Otherwise, no such claim, acquisition or exercise of such rights shall be recognized.*

This “common concern” approach contrasts sharply with the “national sovereignty” or State-controlled approach of the CBD, as discussed below.

As another contrast, the following is the International Undertaking’s definition of “plant genetic resources”, as adopted in 1983:

*(a) ... the reproductive or vegetative propagation material of the following categories of plants:*

- i. cultivated varieties (cultivars) in current use and newly developed varieties;*
- ii. obsolete cultivars;*
- iii. primitive cultivars (landraces);*
- iv. wild and weed species, near relatives of cultivated varieties;*
- v. special genetic stocks (including elite and current breeders’ lines and mutants).<sup>21</sup>*

This definition did not discuss ownership or public domain, and included both cultivated varieties<sup>22</sup> (cultivars) currently in use and newly developed varieties. This inclusiveness was the main reason why developed countries stated reservations to the Undertaking. They considered that the newly bred varieties, which were usually developed by private breeding corporations, were the proper subject of IPRs or other forms of protection, and should not be treated as a part of the “common heritage of mankind” like farmer varieties<sup>23</sup> – they felt that farmer varieties and breeder varieties should be treated differently under the Undertaking.

Furthermore, the principle of “common heritage” was regarded as providing an opportunity for developed countries to obtain easy access to the resources of developing countries and then, as a result of such access, to produce new varieties, which could then be protected by formal IPRs (specifically, PBRs).<sup>24</sup> In this connection, Marin (referring to Kloppenburg and Kleinman’s arguments) noted that “[g]ermplasm flows from the South as the ‘common heritage of mankind’, it returns as a commodity. Therefore, the value of PGR is recognized as soon as it enters the markets. PGR have undergone biotechnological processing, they are highly priced, while germplasm is taken for granted”.<sup>25</sup>

From the perspectives of the developed countries, the International Undertaking was perceived as an attempt to constrain other international instruments, especially UPOV and their national patent laws.<sup>26</sup> As a result, its free access principle was then limited by three resolutions: Resolution 4/89 adopted the Agreed

Interpretation of the International Undertaking; Resolution 5/89 incorporated the concept of Farmers' rights; and Resolution 3/91 which, *inter alia*, created the fund mentioned above. Those three resolutions were then enclosed as an Annex of the Undertaking, both to harmonise their content with that of the International Undertaking and as an attempt to achieve a more fair and equitable balance of the concerns of developed and developing countries by accommodating both PBRs and farmers' rights. Marin argued, however, that although Resolution 4/89<sup>27</sup> expressly declared the Undertaking to be compatible with the UPOV concept of PBRs,<sup>28</sup> in practice they contradict each other.<sup>29</sup> He noted that Resolution 4/89 addressed only a fraction of the consistency questions.<sup>30</sup> Interestingly, at point 5(a), the Resolution also incorporated the catch phrase of the negotiations: that "free access does not necessarily mean 'free of charge'" — an approach that can prove useful in developing an equitable benefit-sharing scheme.

Due to the contention of some developed nations, those plant varieties which were protected under IPR law were excluded from the common heritage principle and, in turn, developing countries received a dispensation in the form of farmers' rights.<sup>31</sup> Accordingly, in endorsing farmers' rights, FAO Resolution 5/89<sup>32</sup> described the concept as follows:

*Farmers' rights mean rights arising from the past, present and future contributions of farmers in conserving, improving, and making available plant genetic resources, particularly those in the centres of origin/diversity. These rights are vested in the international community, as trustee for present and future generations of farmers, for the purpose of ensuring full benefit to farmers and supporting the continuation of their contributions, as well as the attainment of the overall purposes of the International Undertaking.*

Thus, while underlining the concept of common heritage, Resolution 3/91 indicates that it is "subject to the sovereign rights of the States over their PGR".<sup>33</sup>

Unfortunately, the existence of the International Undertaking together with its three resolutions above was still unable to provide legal certainty concerning the regulation and ownership of PGR, and particularly to provide a boundary between public and private genetic resources.

### **International Treaty on Plant Genetic Resources for Food and Agriculture**

In November 2001, after seven years of negotiation, the IUPGRFA was supplanted by a formal binding instrument — the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).<sup>34</sup> (Interesting sidelight: the final negotiation and adoption happened in the same month as the WTO Ministerial Meeting in Doha, Qatar).<sup>35</sup> The ITPGRFA covers all plant genetic resources for food and agriculture (PGRFA) with the objectives of their conservation and sustainable use, and fair and equitable benefit sharing arising out of

their use. It also specifically protects farmers' rights and, as such, constitutes a remarkable development in this field that will have a substantial impact. It is regarded as a formal instrument that seeks to accommodate both the proposition of common heritage and the States' sovereign rights to exploit their own resources. The ITPGRFA specifically declares itself to be in harmony with the CBD,<sup>36</sup> however, it has been observed that those two treaties have quite different objectives. The CBD aims for preservation of biodiversity while the purpose of the ITPGRFA is to achieve food security.

The centrepiece of the ITPGRFA is the establishment of a multilateral system of access and benefit sharing,<sup>37</sup> access to which is only provided to recipients who will "not claim any intellectual property or other rights that limit facilitated access to the plant genetic resources for food and agriculture, or their genetic parts or components, in the form received from the Multilateral System".<sup>38</sup> In addition, Article 12.3(f) provides that: "access to plant genetic resources for food and agriculture protected by intellectual and other property rights shall be consistent with relevant international agreements, and with relevant national laws".

Those substantial Articles are the result of a compromise between developed and developing countries, and as a result there has been conflict about the construction of the language.<sup>39</sup> In particular, the interpretation of the phrase "in the form received from the Multilateral System" under Article 12.3(d) is still a matter of dispute.

Helfer, for example, asked "how far a seed's genetic blueprint must be modified so that the resulting genetic material is no longer 'in the form' received from the multilateral system".<sup>40</sup> This question is not easily answered because each nation has a different approach. Nevertheless, Helfer suggests that the Governing Body of ITPGRFA has discussed three approaches to resolving such conflicts:

1. drafting, in cooperation with the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore of the World Intellectual Property Organization, material transfer agreements that address the scope of IPR protection;
2. amending the Treaty in a way that allows all Parties to accept an expansion of the multilateral system; and
3. encouraging private parties to participate in a multilateral system by providing incentives.<sup>41</sup>

In principle, the ITPGRFA reaffirms the commitment to farmers' rights as protecting traditional knowledge relevant to PGR, recognising a right to equitable benefit sharing, and recognising the right to participate in decision making at national levels on matters related to conservation and use of PGR.<sup>42</sup> However, the ITPGRFA allowed the most important issue with regard to farmers' rights, namely "the right to use, exchange, and sell farm-saved seeds of traditional as well as improved varieties", to remain within the sole discretion of national governments.<sup>43</sup> Instead, it sought to achieve farmers' rights by exchanging



information, facilitating technology transfer and capacity building, and sharing the benefits, monetary and otherwise, of the commercialisation of PGR.<sup>44</sup>

### The Convention on Biological Diversity

The CBD<sup>45</sup> was adopted by the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil in 1992. It was aimed at conserving biodiversity, but is perceived to have direct implications on the issue of IPRs relating to PGR. The CBD's negotiations arose out of environmental concerns expressed by member countries of the Organisation for Economic Co-operation and Development.<sup>46</sup> To address them, the CBD negotiators took the position that economic incentives are necessary for developing countries to conserve their biodiversity, rather than seek quick gains through activities like deforestation that result in the destruction of biodiversity.<sup>47</sup>

The CBD did not focus solely on PGR for food and agriculture, addressing general concerns relating to the conservation of all plants and other organisms in the global ecology. Interestingly, some of the controversies that appeared in the FAO debates over the International Undertaking had also previously occurred in the CBD negotiations:

- the North-South divide over distribution of the benefits of biological materials;
- the propriety of granting IPRs over living organisms; and
- transfer-of-technology questions regarding access to technologies needed to maximally utilise the benefits of such biological material.<sup>48</sup>

However, in one main aspect, the CBD is different from the International Undertaking. The CBD negotiators did not take a "common heritage" approach to biological resources, but applied the notion that countries of origin of biological resources exercised a "sovereign right" over plants, animals and microorganisms within their national territories.<sup>49</sup> With this notion, they posited that this sovereign right was a foundation for prior informed consent and benefit sharing.<sup>50</sup> At the same time, however, they acknowledged that many nations had already granted IPRs for biotechnological inventions.

### The UPOV Convention of 1961, 1978 and 1991

In 1961, five European nations (Italy, Germany, France, Belgium and the Netherlands) met to create the International Union for the Protection of New Varieties of Plants (UPOV-1961).<sup>51</sup> UPOV-1961 was designed to create a legal foundation for PBRs in privately bred varieties of plants. It offered legal protection for all new varieties of plants provided they were distinct, uniform and stable.<sup>52</sup> In 1970, the US passed its own form of plant varieties protection (PVP) legislation at the height of the so called "Green Revolution" of improving agricultural processes worldwide to increase food production. These legislative instruments were indications

that plant breeding in North America and Europe was becoming significantly dominated by plant breeders from the private sector.

The UPOV-1961 was amended in the 1970s, ultimately revised into a document that became known as UPOV-1978 under which local varieties grown by farmers were considered as open access because, to be protected, they would need to fulfil the requirement of uniformity and stability, which was often difficult. It included, however, a specific "farmers' exemption" that allowed any farmer who purchased seeds of a protected variety to save seeds from those crops for subsequent replanting without paying additional royalties.<sup>53</sup> The seed industry lobbied many governments to restrict this farmers' exemption, when adopting their national implementing legislation.<sup>54</sup>

This lobbying effort and opposition to it resulted in another round of negotiations producing yet another amended version – UPOV-1991,<sup>55</sup> in which farmers' rights were changed as follows:

- (1) Article 15.2 made farmers' rights optional, by providing an opportunity for each UPOV member nation to decide freely whether or not to implement such rights;
- (2) the farmers' privilege to save and exchange seed was erased;
- (3) plant breeders' exemptions were limited in Article 14.5, which meant that "essentially derived" varieties could not be marketed without prior authorisation from the original plant breeders.<sup>56</sup>

### Implementation of Farmers' Rights in Indonesia – the Plant Varieties Protection Act

Indonesia enacted new PVP legislation in 2001 – the Plant Variety Protection Act (PVPA) – with the rationale of supporting plant breeding and encouraging the development of the new superior crops needed by society.<sup>57</sup> There is an indication that the PVPA's enactment was driven by a desire to facilitate the development of the seed industry,<sup>58</sup> and to enable the business world, rather than farmers, to play a bigger role in the development of high-yielding varieties.<sup>59</sup> The PVPA was also enacted to comply with Article 27.3.b of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs).<sup>60</sup>

To be protected by the PVPA, varieties must meet the threshold requirements of newness, distinctiveness, uniformity, stability and have a denomination (name).<sup>61</sup> Both newness and distinctiveness are determined at the time of the approval of the PVP application. A plant variety is regarded as new if the propagation material or the harvested products either have not been traded at all, have been traded in Indonesia for less than a year, or have been traded overseas for no more than four years for a seasonal plant and six years for an annual.<sup>62</sup> A variety is "unique" if it can be clearly differentiated from other varieties which are already in the public

domain.<sup>63</sup> A variety is “uniform” if its main characteristics are proven to be uniform (although they may vary as a result of changes in planting methods and environment).<sup>64</sup> A variety is considered as “stable” if the plant’s characteristic does not experience any changes when multiplied in large quantities through specific reproduction cycles and does not undergo change at the end of each reproduction cycle.<sup>65</sup> The PVPA is not designed to provide protection for traditional varieties developed by farmers, as it is very difficult for such varieties to satisfy the threshold requirements of uniformity and stability.

It seems also that this Act treats breeders’ rights and farmers’ rights<sup>66</sup> inequitably and promotes an imbalance in protection between the interests of the general public and the PVP right-holder. Article 6 stipulates that, for the purpose of propagation, the holder of the PVP right has the right to use and exercise the right and give consent to any parties or other legal entities to use the varieties not only in the form of seeds but also harvested products.<sup>67</sup> Article 6(2) points out that Article 6(1) applies to a wide range of varieties, including allowing its use to protect an “essentially derived variety”(EDV),<sup>68</sup> that cannot be distinguished from protected varieties, as well as produced varieties created using a protected variety. Under the PVPA, one may use a variety for production and multiplication of seeds; preparation for propagation purposes; advertisement; offering; selling or trading; exporting; importing; and preparation for any of the above activities.<sup>69</sup>

Article 6(4) provides that the use of harvested products originating from protected varieties for propagation purposes is permitted with the consent of the PVP right-holder. This provision aims to ensure that part of the harvested product is not used for seed multiplication.<sup>70</sup> However, the only right given to the farmer is the use of part of the harvested crops from the protected varieties as long as it is not for a commercial purpose. The non-commercial purposes under this Article are the farmer’s individual activities, particularly those of small farmers for their own needs and it does not include activities that are extended to meet the needs of their group.<sup>71</sup>

This aspect of the Act, favouring breeders’ rights and offering very limited use to farmers, shows the market-oriented commercial value of the system. For many generations, farmers in Indonesia have exchanged seeds amongst the larger farming community. These seed exchange activities have not been for commercial purposes, but for friendship and solidarity with the community aim of achieving *kerukunan* or social harmony. Accordingly, some argue that the PVP Act may have potential implications for the seed-exchanging tradition among traditional farmers.

Consequently, farmers are required to use PVP seeds to achieve competitiveness, but since the harvested varieties of these seeds cannot be exchanged and even certain types of seeds cannot be re-sown, the dependency of the farmers on the seed industry may be inevitable. It is important to note that the typical farmer in Indonesia is a small farmer with limited land and who is

economically marginalised. If the farmer is forced to rely upon expensive purchased seed, this may potentially destroy their livelihood.

Article 6(5) also stipulates not only that the re-use of “new protected varieties” needs the consent of the PVP right-holders, but also the re-use of “essentially derived varieties”. This is because EDVs are eligible for PVP rights, thus the consent from the owner of the original variety is needed to ensure that the holder of PVP rights or the owner of the denomination of the original variety continues to enjoy economic rights from the EDVs. This is another example of the emphasis upon the commercial rights of breeders. To a certain extent this Article has limited the possibility for farmers to develop a new seed derived by using their traditional breeding methods upon protected new varieties bought from the commercial seed industry.

Furthermore, in the context of local varieties, the Act provides that the State controls local varieties owned by a community.<sup>72</sup> Local varieties are those that are already in existence and have been cultivated by farmers for generations and have become communal property.<sup>73</sup> The control of the State will be implemented by the Government.<sup>74</sup> This includes the regulations on right to payment, the use of the local varieties in relation to PVP and other genetic resources conservation efforts.<sup>75</sup> The Government is also responsible for giving a denomination to the local varieties.<sup>76</sup>

Thus, the PVPA gives the government controlling authority over plant varieties.<sup>77</sup> This may have been an effort to exclude outside misappropriation; however, a local community which has developed these plants may reject excessive governmental control. This sort of provision is justified by the principle of sovereign control, but may go against ITPGRFA principles of farmers’ rights and the effort in the CBD Bonn Guidelines to extend the control of biological resources to local farmers and communities.<sup>78</sup> In order to meet these principles, the State authority over local plant varieties can specify that it will obtain prior informed consent from, and agree to share benefits with, local communities if their varieties are sought for research and commercialisation.<sup>79</sup> Clearly, the Act has the potential to severely limit the opportunities for small farmers.

## Conclusion

It is very important to understand the concept of farmers’ rights under international law, particularly to compare the appearance of such rights from the historical perspective. By understanding the notion and the driving force behind the introduction of the concept of farmers’ rights under international law, including the scope of such rights, member States can implement their obligation to provide adequate legislation to protect these rights. Member States can also take necessary measures to ensure that their farmers are protected in accordance with the international treaties they have ratified. In implementing their obligations, member nations should take into consideration the provisions of these treaties and harmonise them with their national legislation.

Indonesia is a member of ITPGRFA and the CBD, but not the UPOV Convention. As such, Indonesia needs to design its protection of farmers' rights based on the treaties that bind it. This protection is particularly important as Indonesia is an agricultural country and the majority of its people are farmers. Implementation of farmers' rights under existing national legislation alone, however, is inadequate. The protection of farmers' rights founded only on the PVPA would not be enough, because it only takes into account the UPOV Convention, while ignoring the country's obligations stipulated under other treaties. This suggests that Indonesia will need to craft a *sui generis* protection for farmers' rights.

## Notes

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- 3 International Convention for the Protection of New Varieties of Plants, 2 December 1961, as revised in Geneva on 10 November 1972, on 23 October 1978, and on 19 March 1991.
- 4 UN FAO Conference Resolution 5/89, Rome, 1989. Available in the "Report of the 24th Session of the FAO Conference". According to this Resolution, "Farmers' rights mean rights arising from the past, present and future contributions of farmers in conserving, improving, and making available plant genetic resources, particularly those in the centres of origin/diversity".
- 5 The International Undertaking on Plant Genetic Resources for Food and Agriculture, 22<sup>nd</sup> Session of the FAO Conference, Rome, 5–23 November 1983, Resolution 8/83. The International Undertaking has since been formally interpreted and complemented by three further Conference Resolutions: Resolutions 4/89, 5/89 and 3/91.
- 6 See Helfer, L.R. 2004. "Regime Shifting: The TRIPs Agreement and New Dynamics of International Intellectual Property Lawmaking". *Yale Journal of International Law* 29: 1–83, at 37. [That fund generally failed and lapsed due to lack of donations/funding. See Dufield, G. 2000. *International Property Rights, Trade and Biodiversity*, at 103. Ed.]
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- 12 *Supra*, note 5, Article 1.
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- 14 *Ibid.*
- 15 *Ibid.*
- 16 See the analysis about this concept in Baslar, K. 1998. *The Concept of the Common Heritage of Mankind in International Law*, at 307–310. The Hague; Boston and Cambridge MA: M. Nijhoff Publishers.
- 17 *Ibid.*
- 18 *Ibid.*
- 19 *Ibid.*
- 20 According to Article 1(1) of the United Nations Convention on the Law of the Sea (UNCLOS) of 10 December 1982, UN Doc. A/Conf.62/122 (entered into force on 16 November 1994), the term "Area" means "the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction".
- 21 *Supra*, note 5, Article 2.1. Definition and Scope.
- 22 In the background documentation, "cultivated varieties" were classified into "modern varieties" and "farmers' varieties". Modern varieties were defined as "the product of plant breeding in the formal system (sometimes called 'scientific breeding') by professional plant breeders working in private companies or publicly-funded research institutions". These varieties are sometimes called "high-yielding varieties or high-response varieties". Meanwhile farmers' varieties are known as "landraces", and were defined as "the product of breeding or selection carried out by farmers either deliberately or not, continuously over many generations". See Background Documentation for the International Technical Conference on Plant Genetic Resources, Leipzig, Germany, 17–23 June 1996, at 11.
- 23 See Marin, *supra*, note 10, at 27.
- 24 *Ibid.*, at 48.
- 25 Kloppenburg Jr, J.R. and Kleinman, D. 1988. "Plant Genetic Resources: The Common Bowl", at 10. In: Kloppenburg Jr, J.R. (Ed.) *Seeds and Sovereignty: The Use and Control of Plant Genetic Resources*. Chapel Hill NC: Duke University Press.
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- 29 See Marin, *supra*, note 10, at 50.
- 30 Resolution 4/89, in fact, was adopted prior to 1991, so only considers the provisions of UPOV-1978, which allowed farmers to save the seed from their harvest, but ignored the existence of UPOV-1991.
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- 32 It was adopted at the 25th Session of the FAO Conference in Rome, 29 November 1989.
- 33 Resolution 3/91.
- 34 The ITPGR opened for signature on 3 November 2001, and entered into force on 29 June 2004, 90 days after 40 governments had ratified it. By the time it entered into force, it had been ratified by 55 nations and signed by an additional 50. Most of the States Parties are developing countries and members of the European Union. The US has signed but not ratified it yet.
- 35 WTO Ministerial Declaration, Document WT/MIN (01)/DEC/W/1 (14 November 2001).
- 36 *Supra*, note 34, Article 1.
- 37 *Ibid.*, Part IV.
- 38 *Ibid.*, Article 12.3(d).
- 39 See Helfer, *supra*, note 26, at 221.
- 40 *Ibid.*
- 41 See further explanation of the three suggestions in Helfer, *supra*, note 26, at 221–224.
- 42 *Supra*, note 7, at 97.
- 43 Article 9.3. of ITPGRFA stating that "nothing in this Article shall be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seed/propagating material, subject to national law and as appropriate".
- 44 Article 13.2 of the ITPGRFA.
- 45 Convention on Biological Diversity, 5 June 1992, 1760 U.N.T.S. 143.
- 46 For background on the CBD, see in Hubbard, A. 1997. Comment: "The Convention on Biological Diversity's Fifth Anniversary: A General Overview of the Convention – Where Has It Been and Where Is It Going?". *Tulane Environmental Law Journal* 10(2): 415–446.
- 47 McManis, C.R. 1998. "The Interface Between International Intellectual Property and Environmental Protection: Biodiversity and Biotechnology". *Washington University Law Quarterly* 76(1): 255–279, at 260.
- 48 See Van Cleve, G. 2002. "Regulating Environmental and Safety Hazards of Agricultural Biotechnology for a Sustainable World". *Washington University Journal of Law & Policy* 9: 245–309, at 252.
- 49 *Supra*, note 44, Article 3.
- 50 *Ibid.*, Articles 15.5 and 8(j).
- 51 UPOV is the French acronym for *Union Internationale pour la Protection des Obtentions Vegetales*. International Convention for the Protection of New Varieties of Plants, 1 December 1961, 33 U.S.T. 2703, 815 U.N.T.S. 89.
- 52 Biber-Klemm, S. et al. 2006. "The Current Law of PGR and Traditional Knowledge". In: Biber-Klemm and Cottier, *supra*, note 9, at 81.
- 53 The so-called "farmers' exemption" in the 1978 UPOV is implicit and can be found in Article 5(1).
- 54 Barron, N. and Couzens, E. 2004. "Intellectual Property Rights and Plant Variety Protection in South Africa: An International Perspective". *Journal of Environmental Law* 16(1):19–47, at 36.
- 55 International Convention for the Protection of New Varieties of Plants, 2 December 1961, as revised in Geneva on 10 November 1972, on 23 October 1978, and on 19 March 1991.



56 UPOV-1991 now also includes so-called “essentially derived varieties”. Protection of an essentially derived variety is obtained if “the variety is predominantly derived from the initial variety and retains its essential characteristics. It must also be clearly distinguishable from the initial variety while conforming to the initial variety in the expression of the essential characteristics”.

57 General Explanatory Memoranda of the Indonesian PVP Act, para. 4.

58 *Ibid.*, paras 3 and 4 state as follows:

*Some means of increasing competitive ability is by increasing productivity, the quality of the product, and by developing a solid agri-business system.... Therefore, individual and legal entities which work on plant breeding must be given reward in creating a new, unique, uniform and stable plant variety. One of the rewards is to provide legal protection on intellectual properties in creating new varieties. This includes giving them the economic benefits and other rights as a cultivator.*

59 *Ibid.*, para. 5 states that:

*This protection of crop variety is also enforced because it motivates and gives the opportunity to the business world to increase their role in the agricultural industry. This becomes even more significant considering that presently the yielding of new varieties is mostly done by Government Agencies. Hopefully, the business world will continue to play a bigger role until more new and high yielding varieties may be produced.*

60 Agreement on Trade-Related Aspects of Intellectual Property Rights. Marrakesh, 1994. Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299, 33 I.L.M. 1197 (1994).

61 See PVPA, Chapter II, Part I, Article 2(1).

62 *Ibid.*, Article 2(2).

63 *Ibid.*, Article 2(3).

64 *Ibid.*, Article 2(4).

65 *Ibid.*, Article 2(5).

66 See FAO Resolution 5/89, which endorses the concept of farmers’ rights of the International Undertaking.

67 Article 6(2) of the Indonesian PVP Act of 2000.

68 Under the Government Regulation Number 13 of 2004 Regarding Denomination, Registration, and the Use of Original Varieties for Development of Essentially Derived Varieties (State Gazette of the Republic of Indonesia Number 30 of 2004, Supplementary State Gazette of the Republic of Indonesia Number 4373), in Article 1(6), EDVs means varieties resulting from the process referred to as ‘perakitan’ (assembling) of original varieties by using certain selection in such a way that varieties express essential features of the original varieties (minimum 70 percent), but can be clearly distinguished from the original variety by the characteristics which occur as a result of the derivation. Furthermore, this EDV is a variety resulting from certain selection methods, including natural mutation; induction mutation; individual selection of existing varieties; cross breeding; some clonal variations; and genetic engineering. See Article 2(2) of this Government Regulation above; see also Article 6(5)a, b and c of the Indonesian PVP Act, *ibid.*

69 Indonesian PVP Act of 2000, Article 6(3).

70 *Ibid.*, Explanatory Memoranda of Article 6(4).

71 *Ibid.*, Explanatory Memoranda of Article 10(1)a.

72 *Ibid.*, Article 7(1).

73 *Ibid.*, Explanatory Memoranda of Article 7(1).

74 *Ibid.*, Article 7(2).

75 *Ibid.*, Explanatory Memoranda of Article 7(2).

76 *Ibid.*, Article 7(3).

77 Robinson, D. 2007. *Exploring Components and Elements of Sui Generis Systems for Plant Variety Protection and Traditional Knowledge in Asia*, at 29. UNCTAD/ICTSD Programme on IPRs and Sustainable Development.

78 *Ibid.*

79 *Ibid.*



## REGIONAL LAW AND POLICY DEVELOPMENTS

### Coral Triangle

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## A Call for Open Access for Marine Bioprospecting

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The search for bioactive compounds and molecules from marine organisms for medical applications is becoming an increasingly important topic, as is the impact of this activity on the marine environment. There is a growing body of scientific data on the pharmacological value of natural products extracted from marine organisms. These chemicals are secondary metabolites that are not needed by the organisms for primary or basic metabolic processes but believed to offer them adaptive or evolutionary advantages for survival in the sea. The marine environment is very diverse and poses difficult challenges to survival, however, its organisms produce a very considerable number of diverse chemical complexes. Many organisms in the sea live in harsh environments and dense concentrations. They have to defend against predators, catch their prey, and prevent other organisms from settling and growing on their bodies. Most marine animals have primitive immune systems but they still

manage to combat infections. A large number of species in the sea use chemical cues to synchronise breeding activities and bring members of the same species closer in a vast space. Natural products that marine organisms synthesise in their bodies are unique in many ways to deal with their environmental conditions and biological processes. These metabolites make such species useful in formulating many drugs effective in treating human health problems. They exhibit several features, not seen in natural products of terrestrial animals. The identified natural products belong to the categories of polyketides, terpenes, steroidal or triterpene saponins, carbohydrates, aliphatic compounds, amino acids, alkaloids, peptides, lipopeptides and proteins.

The small molecular structures, relatively low partition coefficients, rotatable bonds and stereogenic natures of marine secondary metabolites make them a favourable biomaterial for drug discovery.<sup>1</sup> Some of their well-known pharmacological effects are immune-modulation, anti-inflammatory, antibacterial and antiviral actions. Comprehensive reviews of research in this area have been carried out.<sup>2,3,4,5,6,7</sup> Among the various groups

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