

THE DYNAMICS OF THE INDONESIAN PLANT VARIETY PROTECTION SYSTEM

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ABSTRACT

This paper describes the enactment and implementation of the *Plant Variety Protection Law* (PVP) in Indonesia between 2000-2010. It is divided into three sections. The first provides a report on the legal state of affairs prior to the enactment of the PVP and regulations between 1997 and 2000. It should be noted that the enactment of the law was a consequence of Indonesia's ratification of the WTO/TRIPS Agreement, and the significant pressure applied by plant breeders and the agriculture community. The second section describes the structure of the PVP, and provides data on new plant varieties that have been granted protection under the legislation. This section discusses how the PVP adopted some provisions from the International Convention for the Protection of New Varieties of Plants, 1978 (UPOV). It also addresses the inclusion of other PVP provisions covering areas, such as local variety registration, as well as exclusions and exceptions relating to plant breeders' rights. The third section discusses issues pertaining to the implementation of the PVP in Indonesia between 2000-2010. In particular, it deals with policy issues regarding the implementation of the PVP Law and socio-cultural issues relating to its implementation. This section also includes recommendations for further reforms to the PVP law that may provide valuable lessons for other developing countries seeking to formulate or refine their laws on plant breeders' rights.

The introduction of plant breeders' rights into Indonesian law

Indonesia became a member of the World Trade Organization (WTO) in 1994.¹ In 1997, the Government revised the country's laws on copyright, patents, trademarks, industrial designs, trade secrets, integrated circuit layout-designs, and plant breeders' rights (PBR) under the Plant Variety Protection law (PVP). Prior to this, the Government invited academics, lawyers and other stakeholders (including non-governmental organizations working in agricultural and environmental policy) to provide feedback on the draft legislation.

The stakeholders discussed how to align Indonesian intellectual property law with the WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement). In addition, they addressed the issue of how such legal reforms would benefit and promote Indonesia's economic development through the transfer of technology to small and medium-sized industries, as well as

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¹ Indonesian Government *Law No. 7/1994* on Ratification of the Agreement Establishing the World Trade Organization.

technology-based industries.² The promotion of national products, trademarks and local art were also central objectives underpinning the proposed legal reforms.

The discussions regarding the reform of the patent and PBR laws were the most difficult. The reason for the tension and heated debate that took place was the question of whether Indonesia should adopt Article 27.(3)(b) of the TRIPS Agreement on the patentability of life forms.³ The Government invited academics and NGOs to seek their opinions.

Three competing factions emerged during those discussions. One faction believed that all life forms (including microscopic organisms such as algae, fungi, bacteria, protozoa and viruses) should never be patented or protected through PBR. Another faction argued that the government should not grant product or process patents for living organisms, except for microbiological life forms. The third faction's position was that product patents should not be granted for living organisms, but should be granted for microbiological products and processes, through a specifically crafted '*sui generis*' system for new plant varieties.

In 1997, the Indonesian Government revised the 1989 patent law. Under the 1997 law (Law No. 13/1997)⁴, Article 27(3)(b) of the TRIPS Agreement was adopted, such that all living organisms could not be patented, with the exception of microbiological life forms. Further, new plant varieties could be protected under a special *sui generis* regime. This law elicited significant criticism, especially from Indonesian scientists and NGOs that opposed the dissemination of innovations, such as genetically modified plants and organisms (GMOs and GM Plants), transgenic technologies, as well as agricultural and medicinal products derived from these technologies.

Following the Asian financial crisis, which also affected Indonesia, President Soeharto's regime was toppled. Consequently, the debate on the patentability of various life forms was suspended until 1999.

In 1999, the Government invited academics, lawyers, and NGOs to provide feedback on the draft bill of the Plant Variety Protection Law, referred to locally as the *Perlindungan Varietas Tanaman* (PVT). As part of the author's Bachelor thesis on this topic, he interviewed some of the drafters of the bill, including government breeders, and agri-businesses representatives (especially seed producers). The interviews raised several key questions.

² The technology-based industries include organizations or legal entities (corporations, firms, foundations, etc.) whose core business involves research and development in the technology sector.

³ Graeme Dinwoodie, et al. *International Intellectual Property Law and Policy*. (Mass: Mathew Bender and Company Inc., 2008), Second Edition, page 492. Article 27.3(b) of the TRIPS Agreement provides that Members may also exclude from patentability: plants and animals other than microorganisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide protection for plant varieties either by patents, a *sui generis* system or any combination thereof.

⁴ After 1994 when Indonesia ratified the WTO Agreement, the Government made a two-step revision of the patent law (Patent Law 1989). The first revision is in Patent Law No. 13/1997 that is arguably in compliance with the TRIPS Agreement. After much criticism from academics, lawyers, and NGOs, the 1997 Patent Law was revised again in 2000 and issued as Patent Law No. 14/2001. The latest version of the law is currently in force. See also Christoph Antons 'Intellectual property law reform in Indonesia: patent law reform in Indonesia', *Indonesian Law and Society*. Ed. Timothy Lindsey, (Annandale: The Federation Press, 1999), 311-315.

The drafters explained that the PVT was a system of law that empowered the Government to grant exclusive rights to breeders of new plant varieties. These rights were referred to as '*Hak Pemulia Tanaman, atau Hak Perlindungan Varietas Tanaman*' (plant breeders' rights or plant variety protection rights/PBR/PVPR). The rights would work in much the same way as patents, but would be modified for the peculiarities of the plant breeding sphere.

One of the drafters and some Government officials admitted that the PVT draft had been crafted to adopt the PBR system set out in the *Union Internationale Pour la Protection des Obtentions Vegetales* (UPOV) Convention of 1978. One academic mentioned that before Indonesian independence in 1945, the Dutch colonial government had established a patent protection regime for plant-related innovations in the *Breeder's Ordinance, 1941*.⁵ According to this law, people living in Dutch territories could obtain an 'octroi' or patent for their inventions only if they filed for protection in the Netherlands.

Based on these interviews, it could be concluded that TRIPS Article 27(3)(b) was largely regarded as mandating Indonesia to adopt the UPOV system, even though the Government was still considering whether to become a party to the UPOV Convention.

The other question raised in the interviews was why Indonesia had to adopt the PBR/PVP Law at all. Different responses were proposed by two factions. The first faction argued that the law was a necessary outcome of Indonesia's ratification of the WTO Agreement (1994), of which TRIPS is an Appendix. Therefore, enacting such a law had to be 'accepted' as part of Indonesia's commitment to adopt, respect and benefit from the rules of the international trading community.

The second faction consisted mostly of academics, plant breeders working in Government research centres and private seed companies. They mentioned that *Law No. 12 1992, Undang-Undang Sistem Budidaya Tanaman*⁶ (National Plantation System), was not conducive to encouraging breeders and the private sector to invest in accelerating seed research, development and innovation in Indonesia.⁷ Furthermore, they were considering the option of supporting the adoption of the European PBR/PVP system. They hoped that this system would encourage the Indonesian agricultural sector (especially breeders, farmers, and private investors) to invest in seed development.

The third interview question presented to the stakeholders was who would be designated to implement the PBR/PVP regime. The response was that the Ministry of Agriculture (MoA) should perform this function through the new Plant Variety Protection Office. In order to obtain the rights, plant breeders would submit their applications to MoA. The applicant would have to provide evidence that they were indeed responsible for developing the new plant variety.

In 2000, the Indonesian Government finally enacted *Law No. 29/2000*. This legislation became the basis of the Indonesian plant variety protection system.

⁵ Suryasaladin Ranggalawe, 'Legal protection for invention of new plant variety and improved seeds. Thesis for Bachelor Degree in Law. University of Indonesia Faculty of Law 2000: Interview with Mrs Ita Gambiro, lecturer in Intellectual Property Law at the University of Indonesia Faculty of Law, Jakarta, 1999. See also Dinwoodie, page 488.

⁶ In Indonesian this law regulates the national agricultural system managed by the Government. In particular, it regulates the system of farming, agricultural environmental management, variety registration, seedling and release procedures.

⁷ Suryasaladin Ranggalawe, Interview with Ahmad Baihaki, University Padjajaran, West Java, Bandung 1999.

The structure and administration of the Indonesian *Plant Variety Protection Law*

The structure of the Indonesian Plant Variety Protection Law

As mentioned in the previous section, before the enactment of the PVP in 2000, the only law that governed new plant varieties was *Law No. 12/1992* on the National Plantation System. Under this law, breeders that 'invented' or 'engineered' a new or improved variety of plant could register their innovation with the Government.⁸ They would obtain a reward through an acknowledgment known as '*penghargaan*'.⁹ The reward included a lump-sum payment of money, research funds, trophies, or the privilege of naming the new plant variety. Under this law, the breeders were not granted any exclusive rights, or any other rights with respect to marketing, production, replication, and so on. The Government controlled the release of new varieties.¹⁰ This policy changed in 2000 with the enactment of the PVP, which actually granted exclusive intellectual property rights.

The PVP has 76 articles. These are divided into twelve chapters. The most important articles discussed in this paper are those regarding the definitions of PVP, PVP rights, the duration of rights, local varieties collectively owned by society, and plant varieties to which PVP rights cannot be granted. These articles are important to review, especially in comparison with UPOV's PBR system. Though Indonesia was not a member of UPOV at the time this paper was written, it appears that the Indonesian Government has already adopted most of the PBR system set out in the UPOV Convention, 1978. This is evident through the many similarities between Indonesian Law No. 29/2000 and the UPOV Convention, especially regarding the definitions of PVP rights, farmer privileges, breeders' exemptions and the duration of rights.

Articles 1.1. and 1.2. of the PVP provide the definitions of the plant variety protection system or *perlindungan varietas tanaman/PVT*¹¹, the rights associated with plant variety protection, and the scope of the plant variety protection rights. Under these provisions, the Government grants breeders exclusive rights (*Hak Pemulia Tanaman/Hak PVT*¹²) over the protected plant variety.

The scope of the *Hak PVT* (or plant breeders' rights) are defined as 'the rights to solely use the variety' (in the form of the harvest, seeds and seedlings that can be used for propagation).¹³ Further, the term also includes¹⁴ the production, preparation, commercial advertising, import, export, and propagation of protected seeds for any purpose.¹⁵

The scope of PVP rights are very similar to Article 14 of the UPOV Convention. The Convention grants plant breeders exclusive rights with respect to production, reproduction,

⁸ Indonesian Ministry of Agriculture, Law and Regulations Bureau, *Seedling Law and Regulation Compendium*, Jakarta, (2008): Law No. 12/ 1992, and Government Regulation No. 44/1995 on Plant Seedlings.

⁹ Indonesian Ministry of Agriculture, Law and Regulations Bureau, *Seedling Law and Regulation Compendium*, Jakarta, (2008): Law No. 12/1992, Article 55.

¹⁰ Ibid. See also Government Regulation No. 44/1995 on Plant Seedlings.

¹¹ PVT law in Indonesian.

¹² Ibid.

¹³ Law No. 29/2000 on Plant Variety Protection, Article 6.1.

¹⁴ Law No. 29/2000 on Plant Variety Protection, Article 6.3.

¹⁵ Any infringing acts under Article 6 of Law No. 29/2000 will be subject to civil remedies and criminal sanction, which includes a maximum of seven years imprisonment and a fine of up to 2.5 billion rupiah.

conditioning for the purpose of propagation, offering for sale, selling or marketing, exporting, and stocking.¹⁶

The term of protection under the Indonesian PVP is similar to that provided by UPOV. The PVP protects crop-related innovations for 20 years and trees for 25 years. The application requirements under the Indonesian PVP are also similar to Chapter 3 of UPOV regarding 'Conditions for the Grant of the Breeder's Rights' (Article 5-9: *Novelty, Distinctiveness, Uniformity, Stability - DUS*). In 2004, the Ministry of Agriculture issued Decree No. 422 on Requirements and Procedures on Application and Grant of PVP Rights. Under this Decree, the Government sets the administrative procedures and standards for the PVP office staff conducting examinations of the DUS requirements.

Apart from the aforementioned similarities with the UPOV Convention, the Indonesian PVP has some provisions that differ from, or are not addressed under UPOV. These include exclusions from local plant variety registration and a provision detailing non-infringing acts.

Plant varieties will be excluded from protection by the PVP if their utilization violates laws and regulations relating to public order¹⁷, religious norms¹⁸, public health, and environmental conservation.

Conditions of local variety registration are set out under Article 7 of the PVP. It provides that local varieties that already exist in nature and are actively used, cultivated and bred by peasant farmers (and their ancestors) are owned and controlled by the State. These local varieties must be registered or reported by local communities. Institutions licensed by the Government are obliged to manage the benefits derived from the utilization of the local varieties on behalf of the public.¹⁹

The head of the PVP Office has indicated that the policy objective of Article 7 was to provide for the collection of data on Indonesia's plant genetic resources.²⁰ Local variety registration data can also provide the basis for determining the novelty of plant varieties claimed by applicants. She also added that this provision should be independently regulated under specific laws and regulations regarding national data collection of plant genetic resources in the forestry and agricultural sectors.

Another PVP provision worth noting is that on non-infringing acts. These include the 'farmers' privilege', 'breeder's exemption' and other acts.²¹ The farmer's privilege is found under Article 10(1)(a). This provision states that the use of crop yield for non-commercial purposes is not an infringement of PVP rights. This includes the use of protected propagating material and the replanting of seeds for subsistence purposes. This has posed some challenges for breeders and law enforcement

¹⁶ International Union for the Protection of New Varieties of Plants (UPOV): 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, UPOV Publication No. 221(E) 2010, page 12.

¹⁷ PVP Law 29/2009 citing cannabis as an example of a plant variety that would violate public order.

¹⁸ PVP Law 29/2009 mentions an example of a plant variety that will infringe religious norms, such as a variety that contains genes from animals that cannot be consumed due to religious norms.

¹⁹ Under PVP Law 29/2009, Article 7.

²⁰ Interview with Mrs Hindarwati, Head of the Centre of Plant Variety Protection Office, Jakarta, March 2010.

²¹ UPOV Convention 1978, Article 15.

officials in Indonesia, especially with respect to monitoring and measuring whether farmers using PVP-protected seeds are validly asserting this privilege or infringing PVP rights.²²

The breeders' exemption is provided under PVP Article 10(1)(b). This Article permits the utilization of PVP-protected varieties for research activities, and plant breeding for the production of other new varieties. This exemption is crucial for nurturing and encouraging Indonesian breeders, the newly developed national seed industry, and the Government's agricultural research programmes. Ultimately, this exemption could reduce the costs since under this provision, breeders do not need to pay royalties or licensing fees.

Article 10(1)(c) allows the Government to use protected plant varieties for the purposes of supplying food and drugs under circumstances, such as food crises. However, such government use must consider the PVP rights holder's entitlement to compensation. In the author's opinion, the government or the courts should establish procedures for determining whether any such Government use is valid or justified to address food security and public health concerns.

The administration of the Indonesian Plant Variety Protection Law

PVP rights are granted through the Ministry of Agriculture's PVP Office. The institution mandated to administer PBR law is the Ministry of Agriculture's Centre of Plant Variety Protection Office (CPVP/*Kantor Perlindungan Varietas Tanaman Departemen Pertanian Republik Indonesia/Pusat PVT*). This office started servicing breeders seeking PBRs in 2002. This followed the Ministry's release of Decree No. 401/2002 regarding the organization of the Centre of Plant Variety Protection (CPVP).

The functions of the CPVP are receiving and examining PVP applications, registering PVP rights, registering PVP consultants²³, granting and canceling PVP rights, managing data relating to PVP registrations, and other administrative services. The CPVP is also mandated to disseminate information about the PVP system to the public and other stakeholders.

After more than eight years in operation, the CPVP has granted and certified 99 PVP rights. A review of the Indonesia Department of Agriculture Statistical Data, especially the CPVP publication, revealed that the most registered varieties were (by rank): horticultural plants (fruits and vegetables); ornamental plants (flowers); and food crops. Apart from PVP grants, the CPVP office has processed registrations from farmers, local government institutions and corporations. As of June 2010, the total number of local varieties registered amounted to 217, which included 29 varieties of *oryza sativa*, three varieties of *zea mays*, ten varieties of coconut, 32 varieties of Dorian fruit, 14 varieties of oranges, two varieties of cacao, four varieties of cloves, seven varieties of mango, three varieties of nutmeg, three varieties of soybean and four varieties of orchids.

²² In 2008, the author interviewed some breeders of a company specializing in horticulture seed production, research and development in East Java. A red chilli indicated that many of the breeders had concerns how to enforce their PVP rights.

²³ The only professions authorized to assist breeders in applying for PVP rights are patent attorneys or patent agents.

Following the enactment of the PVP in 2000, the Government also released related administrative regulations.²⁴

The dynamics of the Indonesian Plant Variety Protection system

Indonesia's agricultural plant resources and potential: a brief historical perspective

The history of the Indonesian archipelago's agricultural system can be traced back to the period before European colonialization. Local historians and archeologists referred to this period as the Classical Era ('*Nusantara*' era). The staple foods of the archipelago kingdoms (*Tarumanagara*, *Old Mataram*, *Srivijaya*, and *Majapahit*) were rice (*padi* in the Bahasa language:), sweetener (*gula*, derived from honey, palms, or tropical fruits), and coconuts (*kelapa*). The farming and agricultural practices of the Indonesian people can be seen in wall carvings of Buddhist and Hindu temples in Central and Eastern Java.²⁵

During the 'European Age of Discovery', the archipelago's most popular plant species were cloves (*cengkeh*) and nutmeg (*myristica fragrance*) from Molluca (Maluku).²⁶ It is worth noting that 'In medieval Europe, cloves and nutmeg were literally worth their weight in gold'²⁷. Those spices were believed to be useful not only for the preservation of meat, but for use in medicines that could treat ailments ranging from the plague to lover's anguish.²⁸ Many references mention that these species were already popular long before the arrival of Europeans.²⁹ During the early period of the Han Dynasty (206 BC-200 AD), cloves from the Spice Islands called *xiang ding* (fragrant nails) were used by officers of the court as oral fragrances before meeting the emperor. The price of a kilogramme of dried cloves is now less than \$US10.

In a Roman Empire law digest from AD 176, it is noted that the people of Rome bought Maluku cloves from Alexandrian merchants.³⁰ They used them as scents in the temples or at funerals, as well as for cooking. In the tales of Sinbad (AD 1001), cloves are also mentioned.³¹ Nowadays, *cengkeh*, one of the common ingredients used in *kretek* cigarettes, is regularly cooked with nutmeg in one of Indonesia's culinary dishes. Kitchen spices (*bumbu dapur*) are used to prepare soups, barbecues and cakes.

²⁴ These included Government Regulation (G.R.) No. 13/2004 on Denomination, Registration, and Utilization of Primary Varieties Being Used to Produce Essential Derived Variety; G.R. No. 14/2004 on Requirements and Process of Assignment of PBR Rights Granted by Government (assignment, licence, and compulsory licence procedure); Decree of Ministry of Agriculture No. 401/2002 on the Administration of PVP Office; (PVP office under MoA); D.M.A. No. 422/2004 on Requirements and Procedures on Application and Grant of PVP Rights; D.M.A. No. 443/2004 on PVP Application and Management Fee; D.M.A. No. 444/2004 on the Establishment of the PVP Commission; D.M.A. No. 445/2004 on the Administration of PVP Appellate Commission; D.M.A. No. 446/2004 on the Registration Requirement of PVP Consultant.

²⁵ D. H. Burger and P. Atmosudirjo, ed., *Indonesian Socio-Economic History*, (Jakarta: J. B. Wolters, 1957).

²⁶ Muller, Kal. Maluku, *Indonesian Spice Islands*, (Singapore: Periplus Editions (HK) Ltd. 1997), page 27. See also Karl J. Pelzer, 'The Agricultural Foundation' in B. Glassburner, *The Economy of Indonesia, Selected Readings*, (Singapore: Equinox Publishing), page 128.

²⁷ *Ibid.*, Muller, page 26.

²⁸ *Ibid.*, page 26.

²⁹ *Ibid.*, Muller, Burger.

³⁰ *Ibid.*, Muller, page 27.

³¹ *Ibid.*, Muller, page 27.

In the sixteenth and seventeenth centuries, the Portuguese and Spaniards introduced a number of crops to the archipelago. These included maize (corn), cassava, sweet potatoes, tobacco, red peppers, and a host of other fruits and vegetables.³²

Through its trading company, the Netherlands colonized the Indonesian archipelago in the sixteenth century. In the nineteenth century, the colonial government established a plantation economy and introduced other plant species, such as tea, coffee, rubber, sugar cane, pine trees, and cinchona.³³ The plantation system was basically a scheme of economic exploitation in the 'Dutch East Indies'. Whether working in their own fields or for European land owners, the colonial government mandated them to plant agricultural commodities that would be most valuable on the European market.³⁴ This economy enriched the colonial government, native landlords and the colonial state itself. The historical record also shows that the techniques of modern plant breeding were already being used in Indonesia during the nineteenth century.

Karl Pelzer noted that Goodyear, the American tyre company, leased hectares of land in Bogor and West Java to plant the rubber it needed for its tyre production.³⁵ The rubber tree research center from those days is now owned by the Government.³⁶ The 'Puncak' Highlands (Cianjur) and Cipanas in West Java are the plantation centres for tea and ornamental plants (especially flowers such as chrysanthemums, sunflowers, roses, and tulips) developed by the Dutch colonial government before Indonesian independence in 1945.³⁷

After independence, the Indonesian Government often touted the potential of Indonesian plant and genetic resources to the Indonesian people and foreign governments. During the rule of President Soekarno (1945-1965), his administration endorsed the concept of independence and the empowerment of rural communities in order to build the Indonesian economy through agricultural development. Though political turmoil led to price increases that precipitated a food crisis in 1965, Indonesia's agricultural production soon recovered.³⁸

Between 1967 and 1998, the Soeharto administration also endorsed agricultural development efforts. During the 'golden' era of rapid economic growth following the oil boom between 1970 and 1984, the Soeharto administration introduced the so-called 'Indonesian Green Revolution'. Its purpose was to stimulate investment in innovative seeds, fertilizers and agricultural pesticides for Indonesian agriculture. This policy adopted an intensification strategy in the production of food crops. Even

³² Pelzer, page 129.

³³ Pelzer, page 129. The coffee bush, brought to West Java by the Dutch in the 17th century, spread from there to other parts of archipelago. Tea, cinchona, rubber, oil palm, sisal, abaca, and other less important economic plants reached the country in the nineteenth and twentieth centuries, during the heyday of Indonesian agriculture.

³⁴ D. H. Burger and P. Atmosudirjo, ed. 'Indonesian Socio-Economic History', (Jakarta: J. B. Wolters, 1957), page 45 and pp. 197-234, chapter VII: *culturstelsel*. See also A. M. Djuliaty Suroyo, 'State Plantation in Java and Colonial State', Bahasa Indonesia version, in T. J. Linblad, *The Historical Foundations of a National Economy in Indonesia*, pp. 115-142.

³⁵ Pelzer, page 129, footnote 1.

³⁶ Author of PBR Research Report 2009.

³⁷ Author of Research Report 2009, interview with Government breeders of ornamental plants, Cipanas, West Java.

³⁸ B. Glassbuner, *The Economy of Indonesia, Selected Readings*, (Singapore: Equinox Publishing, 2007). See also Hal Hill, 'Agricultural Modernization: Food Crops', pp. 128-137. *The Indonesian Economy since 1966*, (Cambridge University Press, 1996).

though the policy was criticized by agricultural NGOs and academics, on the basis that it would have a negative impact on peasant farmers and the environment, by 1985 Soeharto's policy brought about Indonesia's self-sufficiency in rice production.³⁹

According to many experts, the Government's agricultural development policy faces some challenges in the post-Soeharto era. The first challenge is that Indonesia has to import certain staple foods, such as rice, soybeans, and other essential food crops to supply national food demand. The second major challenge is the decrease in land available for farming, and other trends that could reduce participation in farming activities.⁴⁰

The Indonesian Government plans to increase the production of food crops through intensification, the use of new and innovative seeds to increase production, and the mitigation of risks associated with farming. The State also intends to provide incentives to the agricultural industry and to promote research and the identification of local seed varieties. In an era of increasing competition in international trade and environmental challenges, such as climate change, these strategic options are important for addressing future hurdles to Indonesia's food security.

The policy issues

The PVP is the subject of dynamic discussions in Indonesia. The system has strong proponents and opponents. The proponents argue that this law has been successful in attaining its policy objectives. It has provided incentives for breeders and the national seed industry to invest in research and development of improved seed varieties.

Proponents also point out that following the enactment of the PVP, some national private agricultural companies (as well as breeders in university and government research centres) became more confident to invest in the research and development of new plant varieties (especially in horticulture). They note that after 2000, an increasing number of large seed industry companies from developed countries have eagerly invested their research and development efforts in Indonesia.

However, the proponents' arguments have not yet been supported by a comprehensive academic study on the economics of PBR/PVP.⁴¹ The Government, academics in Indonesia and international organizations competent in PVP system development could accelerate the production of studies on the micro and macroeconomic impact of developing countries' PVP systems on agriculture.

The proposed studies could address two issues. The first would be the impact of the enactment of the PVP on national agricultural development and on individuals sectors, such as the national seed industry. The second issue would be the impact of the PVP on local farmers and peasants, since they are the consumers of improved seeds protected by PVP.⁴² Such studies are very important and should be further engaged by academics and policymakers.

³⁹ Hal Hill, page 132.

⁴⁰ In Indonesia, the increase in the urbanization or emigration of the young (18-30 year olds) from rural-agricultural settings pursuing industrial labour is significant.

⁴¹ These kinds of studies, e.g. the economic impact of the PVP system in some developed and developing countries, are already being reported by UPOV in its publications. However, at the time of writing, the author was unable to find a comprehensive research report on the economics of the PVP system in Indonesia.

⁴² In interviews with farmers in West Java, they expressed the need for inexpensive high quality seeds that would give them better yields (harvest), whether or not they were protected by PBR.

These studies could use the economic analysis of patent systems as proposed by Landes and Posner.⁴³ For example, future research on PBR could investigate the economic rationales of such a regime in Indonesia.⁴⁴ In particular, it could assess to what extent the PVP is influencing the structure of the seed market in Indonesia.

Opponents of the PBR argue that the system reduces the Government's power to control the utilization of new seeds and plant varieties. Further, it impedes the Government's ability to provide local farmers with inexpensive seeds of good quality (especially food crops). Critics usually focus on questioning the constitutional basis of the PVP. Under Article 33 of the Indonesian Constitution, the State controls natural resources, including plant genetic resources in the country.⁴⁵ The opponents of the PVP argue that when breeders assert their rights to a new plant variety released into the national genetic pool, this could reduce the State's control over the nation's resources, as mandated by the constitution.

It could be argued that the PVP still falls under Article 33 of the Constitution. The PBR law is being implemented side by side with other laws and regulations concerning the release of new plant varieties. Under these laws, any new plant variety shall be screened and examined by government authorities before being released into the environment or the market. Such screening will be conducted on all new varieties regardless of whether or not they are protected by the PVP. Thus, the State's power to control plant genetic resources in Indonesia remains.

Support for the constitutionality of the PBR Law can also be found in Article 31.5 of the Indonesian Constitution which mandates the Government to nurture, promote and develop science and technology. Arguably, this article could cover the need to improve and develop new plant varieties created through modern breeding techniques.

The need for greater clarity with respect to the boundaries of the farmers' privileges

During research conducted in 2008, the author interviewed rice farmers and breeders working at both government and private corporations.⁴⁶ Three of the farmers were from West Java. The interview discussed the farmers' practices with respect to the management of seed stocks for the production of rice grain (*padi/gabah*). Rice farmers in Bekasi and Karawang, in the northern regions of West Java, grew the IR64 and Ciherang varieties. These are the most popular varieties of rice that had been introduced by the Government and used by farmers in Indonesia.

It was notable that many of the farmers preferred non-hybrid seeds, in addition to the two varieties that had been introduced more than five years before (IR 64 in 1986 from the International Rice Research Institute/IRRI, and Ciherang in 2000). When questioned about the PVP, some farmers

⁴³ William Landes and Richard Posner, *The Economic Structure of Intellectual Property*, (Harvard, 2000).

⁴⁴ Ibid. Landes and Posner have articulated a theory regarding the economic rationale that should be considered by lawyers and policymakers in the context of the patent system. In this article I argue that the Government and lawyers could pursue this kind of approach in assessing the economic rationale of the PVP system and its impact on the national economy as well as on farmers in Indonesia.

⁴⁵ Indonesian Constitution, Article 33.3: 'The land and the waters as well as the natural riches therein are to be controlled by the state to be exploited to the greatest benefit of the people.'

⁴⁶ Some of them were employed by the Ministry of Agriculture to use the *oryza* variety that is still being field-tested by government breeders.

demonstrated a special interest in the concept, as well as the desire to become breeders eligible for PBR rights, if they could develop the capacity.

The farmers also expressed concern about the possibility of being sued by the owners of varieties if they 'improperly' (under the law) used or sold the PVP-protected seeds. Some farmers admitted that there were a lot of circumstances where some of them buy prime seeds after producing a bad yield in a given season. They then exchange the resultant yield as seeds in exchange for fertilizer from other farmers. They also frequently reserve some of the yield for the next planting season, although they acknowledge that this often fails to produce better yields.

The enforcers of the PVP, especially the courts, should carefully elaborate on the analytical framework for identifying the spectrum of actions that amount to infringement under the PVP. Even though the law provides for 'farmer's privilege' and excludes the use of PVP-protected seeds for subsistence farming, greater clarity is needed. More detailed information should be widely disseminated to breeders, corporations and farmers that use the PVP system.

The social issues: the culture of sharing and perceptions of rewards

In Indonesian culture, there is a social concept called '*gotong royong*'. This term describes the 'moral obligation' of each individual to help their neighbor in activities, such as farming, clearing farmland, and providing pesticides and fertilizers. '*Gotong royong*' is still a common practice in Indonesia.

A senior government researcher working on an improved rice variety in Sukamandi, West Java, stated that he was not working for material rewards. He was motivated by the satisfaction of knowing that the varieties he helped develop would give smaller and poorer farmers better harvests. It was his belief that this satisfaction would bless him with '*pahala*', a spiritual reward from God in Islam. The researcher believed that such community service was his moral duty.

Horticultural breeders (of the *kenaf* variety) working in the Government institution in East Java expressed the same outlook. Lawyers could argue that such motives and perceptions are outdated compared with the modern reward system of intellectual property. However, such non-material motivations are still very common in the Indonesian agricultural community.⁴⁷ Many lawyers and intellectual property policymakers from developed countries often question why the social acceptance of intellectual property in developing countries has been slow to increase. The answer could be traced back to the aforementioned 'perception of rewards' for engaging in plant breeding.

Summary and recommendations

Summary of key points

Though Indonesia has never been a member of UPOV, it has created a similar *sui generis* regime for the protection of new plant varieties resulting from modern breeding techniques. The PVP Law (Act No. 29/2000) was enacted in the context of agricultural economists' concerns that Indonesia

⁴⁷ See D. H. Penny and J. Price Gittinger, 'Economics and Indonesian agricultural development': innovation versus subsistence mindedness, in B. Glassbuner, ed. *The Economy of Indonesia: Selected Readings*, (Singapore: Equinox Publishing, 2007). See also Mohammad Sadli, 'Reflections on Boeke's theory of dualistic economies' in the same book.

needed to satisfy the increasing national demand for food crops, utilize its vast plant genetic resources, and embrace international competition in seed commerce.

The enactment of the PVP was supported by national breeders working in government research and development institutions and private sector breeding companies. The passing of the legislation was also influenced by Indonesia's membership in the World Trade Organization (1994).

Indonesia's PBR law is unique because it regulates the registration of protected local varieties for the purpose of promoting and enhancing national data collection on plant genetic resources.

The Indonesian PBR legal regime of 2000 introduced many key legal rights and provisions including farmers' privileges, breeders' exemptions, compulsory licences, PBR mediation, capacity building for the resolution of PBR disputes, and the registration of local varieties and PBR licence agreements.

The application of the PBR laws also depend on other agricultural developments, especially in the national seed system. In Indonesia, the relevant legal instruments are Law No. 12/1992 regarding the National Plantation System, and Government Regulation No. 44 /1995.

It should be acknowledged that PBRs provide incentives for breeders, as well as driving greater public participation in the development and enhancement of national seed supplies.

Recommendations

The implementation of the PBR law in Indonesia will give rise to conflicting interests that need to be reconciled. On the one hand, the farmers need affordable seeds. On the other, the seed companies, especially those producing improved varieties, want to recover their investments in research and development. The Government should find a balanced approach that provides incentives for breeders, while facilitating access to high quality seeds for farmers (especially poor farmers). This would increase the welfare of farmers and secure the country's food security.

If the Indonesian Government is to promote a system that values both breeders and farmers, it should focus on reforming the laws relating to the plantation system and procedures governing the introduction of new plant varieties into the environment. It should also make these systems more efficient and accountable.

In the future, Indonesia (and other developing countries) should focus on developing dispute settlement mechanisms in the field of PBR. Further, the judicial institutions should also develop and elaborate on the associated frameworks for determining infringement, the farmers' privilege, and breeders' exemption mechanisms.

Countries should also establish clear and comprehensive regulations and legal frameworks detailing the term of PVP/PBR rights protection, local variety conservation (especially harmonizing the PBR Law with national law on the sustainable utilization and the conservation of genetic resources), PBR' licences, compulsory licences, and assignment mechanisms.

Governments adopting PVP laws should disseminate information regarding the importance of PBR laws in promoting the welfare of farmers, the national seed industry and the economy. This would be especially crucial for cases of developing countries.

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