

INTELLECTUAL PROPERTY IN PLANT MATERIAL IN THE ASEAN COUNTRIES

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obligations.⁹ But while the WTO provides a list of least developed countries,¹⁰ it allows for self-identification as “developing” or “developed” country.¹¹ This has led to controversies over the status of ASEAN countries Singapore and Brunei Darussalam, classified as “high income countries” by the World Bank,¹² but remaining as “developing countries” in WTO terms.¹³ ASEAN is equally diverse when it comes to the importance of agriculture. According to World Bank data, the share of agriculture, forestry and fishing in national GDP of ASEAN members ranges from 0% and 1.2% in the high-income economies of Singapore and Brunei Darussalam to 22% and 22.4% in the least-developed countries Myanmar and Cambodia.¹⁴ In spite of this diversity of interests, ASEAN as a regional group has concluded numerous Free Trade Agreements (FTAs) with

rural population.¹⁶ It will adopt the current World Bank classification of ASEAN countries into high-income, upper and lower middle-income and low-income economies. It will demonstrate that in relation to agriculture and food security, countries do not always adopt policies and laws in accordance with their position in the pecking order of standard development models, but that local socio-economic and political concerns remain important and can lead to different results. It will also suggest that the development of a local seed and agro-chemical industry, which is usually stated as the policy goal behind legislative changes, will require more than simply adopting industry-friendly laws in fields such as intellectual property law. It will also involve trade-offs with environmental and social concerns, which countries may find impossible to ignore.

2. INTELLECTUAL PROPERTY IN PLANT MATERIAL IN SMALL AND HIGH-INCOME COUNTRIES: SINGAPORE AND BRUNEI DARUSSALAM

Apart from being small and prosperous and being situated in a region of Malay-speaking sultanates, the city state of Singapore and the Islamic monarchy of Brunei Darussalam, at first sight, seem to have little in common. While Singapore is lauded as one of the world's most competitive economies and strong in financial services, manufacturing and transportation,¹⁷ Brunei Darussalam relies on the oil and gas sector for over 50% of its GDP and imports nearly all of its manufactured products and about 80% of its food requirements.¹⁸ Reliance on food imports is even stronger in Singapore, where over 90% of the consumed food is imported.¹⁹ As a result, agriculture plays a minor role in the economy, contributing 1.2% to the national GDP of Brunei Darussalam and 0% to that of Singapore.²⁰ Both countries' interest in supporting and attracting research into agricultural input material rather than in conducting agriculture is reflected in the choice of their intellectual property tools for plant material. Double protection for such material under both patent and plant variety

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use of the saved seeds “for propagating purposes, on their own holdings” and declared it an “optional” exception.²⁹ The 1991 version of the UPOV Convention further extended protection to “essentially derived” varieties³⁰

rest of ASEAN.³⁶ Both countries have ambitions in biotechnology research,³⁷ with Thailand also envisaging a transition to “smart farming.”³⁸ However, while investment promotion material stresses the industry friendly policies of the governments, an examination of the intellectual property laws related to plant material shows that there is still considerable concern about the traditional and small-scale farming sector. In their attempt to provide for the interests of emerging industries as well as traditional farmers, they are in fact more similar to the laws in the older lower-middle-income countries of Indonesia and the Philippines, which will be discussed in the subsequent section of this article, than to those in the high-income countries discussed in the previous section. In particular, all of these countries continue to exclude plants and animals, essentially biological processes for the production of plants and animals and plant and animal varieties from patentability.³⁹ In addition, Thailand also excludes extracts from animals or plants.⁴⁰

Rather than offering double protection under patent and plant variety protection laws as Singapore and Brunei Darussalam, all the other ASEAN countries have chosen the *sui generis* option of Article 27.3.b. TRIPS, as the following analysis will show. India’s Protection of Plant Varieties and Farmers’ Rights Act of 2001 has been often discussed in the literature as a model for other middle-income economies, which struggle to balance industrial ambitions with social and environmental concerns.⁴¹ Laws of this type usually create a two-tier registration system for local and new varieties with benefit-sharing funds and forms of compensation for the former. The state centred and relatively limited role of communities in such laws has been criticised,⁴² and it has been pointed out that the benefit sharing

36. Cf. WBG *Value Added*, *supra* note 14.

37. See *Biotechnology Industry in Malaysia*, MIDA, <https://www.mida.gov.my/biotechnology-industry-in-malaysia/> (last visited Oct. 19, 2022).

38. *Thailand is Emerging as Southeast Asia’s Prime Destination for Biotechnology Development*, THAI BOARD OF INVESTMENT, https://www.boi.go.th/upload/content/Thailand%20as%20prime%20destination%20for%20biotech%20business%20Final_36306.pdf (last visited Oct. 19, 2022).

39. Christoph Antons & Michael Blakeney, *Intellectual Property, Farmers’ Rights and Agriculture*, in *INTELLECTUAL PROPERTY LAW IN SOUTHEAST ASIA* (Christoph Antons & Michael Blakeney eds., 2023).

40. Patent Act B.E. 2522, 1979, section 9(1) (Thai.).

41. See N. S. Gopalakrishnan, *Protection of Traditional Knowledge: The Need for a Sui Generis Law in India*, 5 J. WORLD INTELL. PROP. 725, 730 (2002); Christoph Antons, *Sui G2&fa8dTc -0.003 Tw [S]14.1 (ui)3.4 (G2eS(s)*

The register of new varieties⁵⁰ at the Malaysian Ministry of Agriculture shows that the vast majority of new variety registrations is held by foreign companies, followed by Malaysian public research institutes and universities and, finally, a few local companies and private individuals. The picture is different in the National Plant Varieties Register.⁵¹ According to Kanniah, this list constitutes an inventory established under Section 4(g) of the Act of *in situ* genetic resources “to award recognition to the breeder of the variety. To enable official identification of the sources of the country’s genetic resources, and to bolster the country’s genetic resource pool.”⁵² In the Register, there are farmers, local companies, universities, and government research institutions.⁵³

As Malaysia did, in 1999, Thailand also introduced a Plant Varieties Protection Act designed to accommodate not just commercial plant breeders, but also the concerns of farmers and conservationists.⁵⁴ It also introduced a two-tier protection system with a second-tier protection for “local domestic plant varieties.”⁵⁵ The Thai legislation has attracted much attention in the academic literature over the years.⁵⁶ It appears, however, that regulations on the application and profit-sharing necessary to implement the “protection of local domestic plant varieties” have never been issued.⁵⁷ As a consequence, there have been no registrations of local domestic plant varieties.⁵⁸ The law also relies on an outdated and essentialising concept of “community” for the registration process by a *sui juris* person that is “commonly inheriting and passing over culture continually” and taking part in the conservation and development of the

50. *Plant Variety Protection Malaysia – Register of New Plant Varieties*, JABATAN PERTANIAN, <http://pvpbkkt.doa.gov.my/> (last visited Nov. 18, 2022).

51. *Plant Variety Protection Malaysia–National Plant Varieties*, JABATAN PERTANIAN, <http://pvpbkkt.doa.gov.my/> (last visited Nov. 18, 2022).

52. Kanniah, *supra* note 44, at 82.

53. *Id.*

54. *See generally* Plant Variety Protection Act B.E. 2542, 1999 (Thai.).

55. *Id.* ch. IV.

56. DANIEL ROBINSON, CONFRONTING BIOPIRACY: CHALLENGES, CASES AND INTERNATIONAL DEBATES 147-149 (2010); Kanniah & Antons, *supra* note 23, at 17; Gabrielle Gagné & Chutima Ratanasatien, *Commentary on Thailand’s Plant Variety Protection Act, in FARMERS’ CROP VARIETIES AND FARMERS’ RIGHTS: CHALLENGES IN TAXONOMY AND LAW* 310 (Michael Halewood, ed. 2016); Pawarit Lertdhamtewe & David J. Jefferson, *A Fresh Look at the Protection of ‘Domestic’ and ‘Wild’ Plant Varieties in Thailand*, in INTELLECTUAL PROPERTY LAW AND PLANT PROTECTION: CHALLENGES AND DEVELOPMENTS IN ASIA 143-160 (K. Adhikari & D. J. Jefferson eds., 2020).

57. *See* Gagné & Ratanasatien, *supra* note 56, at 314.

58. Lertdhamtewe & Jefferson, *supra* note 56, at 155; Gagné & Ratanasatien, *supra* note 56, at 315.

variety.⁵⁹ The registration requires, among other matters, names of the members of the community and a description of the landscape with a concise map showing the boundary of the community and adjacent areas. The variety can only be registered if it exists exclusively “in a particular locality within the Kingdom.”⁶⁰ Expectations of such rigid delineations contradict the fluidity of ethnic and geographic boundaries,⁶¹ the political nature and negotiating processes regarding ethnic identity,⁶² and the difficulties to neatly distinguish between forest-conserving tribal people in the uplands and biodiversity conserving farmers in the lowlands.⁶³

Even if a community was successful in registering a local domestic plant variety, it would need (for benefit sharing agreements with certain commercial users) the approval of the Plant Variety Protection Commission.⁶⁴ The seed saving privilege is also modified in the case of government promoted new plant varieties—only three times the amount obtained from the harvest may be used in such cases.⁶⁵ Analysts have further pointed out that a Plant Variety Protection Fund set up subsequent to a Government Regulation in 2011 has received only “modest income” from benefit sharing related to commercial use of “general domestic plant varieties” and “wild plant varieties.”⁶⁶ As late as 2016, Gagné and Ratanasatien concluded that “there is still no money in the fund,”⁶⁷ while Lertdhamtewe and Jefferson found in 2020 that “the extent to which disbursements from the Plant Varieties Protection Fund have actually benefitted farmers is unclear.”⁶⁸ Although it appears that there has been no serious implementation of the *sui generis* aspects of the Thai Plant Variety Protection Act, the government has prepared a draft amendment legislation

to “endeavour” to become a UPOV member,⁷⁵ but, significantly, adds in Article 116 an obligation to introduce UPOV 1991 standards.⁷⁶ The same obligation was more recently included in the Comprehensive Economic Partnership Agreement (CEPA) between Indonesia and the European Free Trade Association (EFTA) with its member countries Iceland, Norway, Liechtenstein, and Switzerland. In this agreement, concluded in 2018,⁷⁷ the parties agree to comply with the substantive provisions of the 1991 UPOV Act. The obligation is modified, however, by a footnote reserving the rights of Indonesia to protect its local plant varieties.⁷⁸ This reservation concerns Article 7 of the Indonesian Plant Variety Protection Act of 2000, which provides that “local varieties owned by the community shall be under the control of the state.”⁷⁹ An implementing Government Regulation of 2004⁸⁰ makes it plain that the purpose of the provision is the protection of Indonesia’s agricultural heritage and genetic resources rather than the establishment of community intellectual property rights. The Government Regulation empowers the Governor of a province, Mayor of a city or, where a variety is spread over several provinces, the Plant Variety Registration Office in the Ministry of Agriculture to represent the community and register the variety on its behalf. Potential users of such a local variety, who want to produce an essentially derived variety, then have to come to an agreement with these authorities. Compensation for the

ASEAN after Vietnam.⁹¹ As Kanniah has pointed out, however, the high number of private domestic companies among the registrants could be explained by the fact that “in Indonesia, many international companies have domestic subsidiaries or local joint venture partners.”⁹² This is indeed easy to follow in the case of companies on the register, which are clearly subsidiaries of a foreign multinational⁹³ or which publicise their ownership and group structures on their websites.⁹⁴ In other cases, it is more difficult, but research shows a strong presence of foreign invested companies on the register,⁹⁵ with domestic companies and government research institutes not far behind, as well as some universities and private individuals. Horticultural varieties are regulated separately and have their own register. Law No. 13 of 2010 on Horticulture includes some controversial restrictions on foreign ownership in the domestic horticulture market.⁹⁶ A World Bank funded study of 2017 found that foreign multinationals accounted for 70% of the seed sale in this sector in Indonesia; it also pointed out, however, that this domination did not apply universally and that in some commodities, a domestic company was dominant.

revision of the plant variety protection legislation is currently being debated in the Indonesian parliament.⁹⁹

The Philippines is not a member of the CPTPP and has largely avoided stringent obligations regarding intellectual property in plant material in its FTAs and EPAs. An exception is the agreement concluded with the EFTA countries in 2016.¹⁰⁰ In an annex on intellectual property protection, it gives parties the choice to join UPOV or comply with a list of specified standards, which, with some modifications, are the UPOV 1991 standards. The willingness of the Philippines to agree to such standards is unsurprising. Already in 2007, UPOV had examined the Philippines Plant Variety Protection Act of 2002 and found it largely in conformity with UPOV 1991.¹⁰¹ One important exception to this conformity is a broadly worded seed saving privilege, which allows also for the sale of the material for reproduction and replanting in farmers' own land, unless a sale is for reproduction under a commercial marketing agreement.¹⁰²

Similar to Thailand, the Philippines legislation introduced a Gene Trust Fund "to be administered by the Board, for the benefit of bona fide organizations or institutions managing and operating an accredited gene bank."¹⁰³ The NGO SEARICE (Southeast Asia Regional Initiatives for

by private domestic and foreign companies,” with Pioneer Hi-Bred, for example, controlling a significant portion of the seed market for corn.¹⁰⁵

Vietnam is among the four ASEAN country members of the CPTPP, which came into force in Vietnam in January 2019. As a consequence, it most recently amended its Law on Intellectual Property of 2005, which includes the protection of plant varieties in Part Four,¹⁰⁶ to bring the legislation into accordance with its obligations under the CPTPP.¹⁰⁷ However, the plant variety part required no changes. Vietnam’s plant variety legislation with a narrow seed saving privilege, confined to “individual households for self-propagation and cultivation in the next season on their own land areas”¹⁰⁸ has conformed to UPOV 1991 for a long time and Vietnam became a UPOV member in 2006. Given the efforts of UPOV to extend its model to other ASEAN countries¹⁰⁹ and the strong interest of the seed industry in the ASEAN market, it is unsurprising that Vietnam has become a model for those advocating stronger plant variety protection systems and a subject for heated debates about Vietnam’s experience with NGOs focusing on the ecological effects of commercial farming and the plight of small-scale farmers. A UPOV initiated and funded study points to a steep increase in the number of applications and plant breeders’ rights titles issued, the strong performance of domestic breeders in this context and the shift from the public to the private sector.¹¹⁰ It attributes increased yield and productivity, increased income of farmers and the overall economic performance of Vietnam to the country’s UPOV membership. Claims in such studies are critically analysed in a research paper published by the NGO SEARICE,¹¹¹ which regards the “complex interaction of various interventions by the government which evolved over time” rather than the plant variety protection law as crucial for Vietnam’s

105. Kanniah, *supra* note 44, at 83.

106. Intellectual Property Law, No. 50/2005/QH11, Part Four: Rights to Plant Varieties (Nov. 29, 2005).

107. Council for Trade-Related Aspects of Intellectual Prop. Rights, *Viet Nam: Law No. 42/2019/QH14 Dated 14 June 2019—Amendments to Some Articles of Law on Insurance Business and Law on Intellectual Property*, WTO Doc. IP/N/1/VNM/14, IP/N/1/VNM/C/5, IP/N/1/VNM/I/12, IP/N/1/VNME/11, IP/N/1/NVM/O/19 (Apr. 7, 2021).

108. Intellectual Property Law, *supra* note 106, article 190(1)(d).

109. Kanniah & Antons, *supra* note 23, at 8-11.

110. STEFFEN NOLEPPA, THE SOCIO-ECONOMIC BENEFITS OF UPOV MEMBERSHIP IN VIET NAM: AN EX-POST ASSESSMENT ON PLANT BREEDING AND AGRICULTURAL PRODUCTIVITY AFTER TEN YEARS 38-40 (2017), <https://hffa-research.com/projects-publications/agriculture/plant-breeding/socio-economic-benefits-upov-membership-viet-nam/>.

111. CID RYAN P. MANALO & NORMITA G. IGNACIO, PLANT VARIETY PROTECTION IN PRACTICE IN VIETNAM: THE PAINS IN THE GAINS ACHIEVED (Ines Vivian D. Domingo ed., 2021), https://www.apbrebes.org/sites/default/files/2021-03/PVP%20TPGA_Fin_compressed.pdf.

agricultural development.¹¹² The shift from the public to the private sector is due to public R&D institutions being mandated to apply for PVP certificates and seek private funding, thereby facilitating technology transfer to seed companies.¹¹³ The dominance of local applicants is confined to rice, while foreign applications dominate with regards to other crops.¹¹⁴ In comparison with foreign applications, almost twice as many domestic ones are subsequently cancelled.¹¹⁵ The heavy focus on rice could threaten R&D on other crops in Vietnam.¹¹⁶

5. INTELLECTUAL PROPERTY IN PLANT MATERIAL IN ASEAN'S LOW-INCOME ECONOMIES: CAMBODIA, LAO PDR AND

biological processes for the production of plants or animals other than non-biological and microbiological processes.”¹²⁰ The Lao PDR intellectual property law excludes in addition also “living organisms or parts of living organisms that exist in nature.”¹²¹ Myanmar enacted a Patents Act in 2019 with a different and rather detailed provision excluding besides “biological production processes mainly used for growing plants or rearing animals, except non-biological and microbiological production processes” also “plants and organisms which include all organism and plant species, DNA—including complementary DNA sequences, cells, cell lines, cell cultures and seeds, including whole or part of organisms and biological materials found in nature, with the exception of man-made microbiological organisms.”¹²²

While all three countries have opted for plant variety protection laws, their form and level of UPOV compliance differs. The Lao PDR protects plant varieties as part of a general intellectual property law¹²³ and Cambodia combines plant breeders’ rights protection with seed management.¹²⁴ Myanmar enacted a Plant Variety Protection Act in 2016, which had been assessed as conforming to UPOV standards.¹²⁵ It was replaced in 2019 by a new Act meant to further integrate the legislation with the UPOV 1991 system.¹²⁶ This is evident from references to other “members of UPOV” in parts of the new legislation.¹²⁷ The Lao PDR and Cambodia introduced plant variety protection laws earlier, partly as a result of WTO accession negotiations, which founding member Myanmar did not have to go through.¹²⁸ Although largely modelled on UPOV 1991,¹²⁹ both laws include provisions on the seed saving privilege, which refer for details to implementing regulations by the Ministry of Science and Technology in

120. TRIPS Agreement, *supra* note 9, art. 27(3)(b); *see also* Law on the Patents, Utility Model Certificates and Industrial Designs, NS/RKM/0103/005, art. 4, (Jan. 22, 2003) (Cambodia), <https://wipolex.wipo.int/es/text/223116>; Law on Intellectual Property, No. 38/NA, art. 21 No. 4, (Nov. 15, 2017) (Lao PDR).

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other people working in rural areas.¹³⁶ It also successfully initiated a debate on “food sovereignty” rather than “food security,”¹³⁷ opposing industry and yield focused policies from a human rights, environmental and consumer protection perspective.

While such debates may be less relevant for a small and wealthy high-tech focused country such as Singapore, they are relevant to the balancing acts in most of the other countries between high-tech and industry ambitions and the need to provide for still rather large rural populations. The disruption of agricultural supply chains due to the COVID-19 crisis has led to great hardship for the urban poor and for farmers, in particular in developing countries.¹³⁸ Developing countries have also been unimpressed with the lack of support from leading pharmaceutical producer countries for a proposal by India and South Africa for a waiver of the obligation of WTO members to implement certain sections of the TRIPS Agreement in relation to prevention, containment or treatment of COVID-19¹³⁹ and, more generally, the refusal to share vaccines and vaccine technology more widely.¹⁴⁰

In Indonesia, legislative proposals submitted during the previous sitting period of the Indonesian parliament show the continuing attempts to develop a local plant breeding industry and to accommodate the interests of farmers and local environmental conditions at the same time.¹⁴² A detailed legislative proposal of the Regional Representative Council (*Dewan Perwakilan Daerah*)¹⁴³ mentions in the elucidation as one of the reasons for the proposed amendments that the current law adopts the UPOV provisions with too little consideration for the conditions in Indonesia. It foresees a strong role of the government at various levels in the implementation of the law and in the administration of local varieties. The draft law also contains a provision on the seed saving privilege, to allow for research and plant breeding activities and use by various levels of government for food and medicine supply, provided the economic interests of the right holder are taken into account.

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