

INTELLECTUAL PROPERTY IN PLANT MATERIAL IN THE ASEAN COUNTRIES

Christoph Antons*

| | | |
|----|---|-----|
| 1. | INTRODUCTION: INTELLECTUAL PROPERTY IN PLANT MATERIAL AND REGIONAL GROUPINGS | 529 |
| 2. | INTELLECTUAL PROPERTY IN PLANT MATERIAL IN SMALL AND HIGH-INCOME COUNTRIES: SINGAPORE AND BRUNEI DARUSSALAM | 532 |
| 3. | UPPER-MIDDLE-INCOME COUNTRIES WITH AMBITIONS IN BIOTECHNOLOGY: MALAYSIA AND THAILAND..... | 534 |
| 4. | LOWER MIDDLE-INCOME COUNTRIES WITH VARYING APPROACHES TOWARDS <i>SUI GENERIS</i> PLANT VARIETY PROTECTION: INDONESIA, THE PHILIPPINES AND VIETNAM | 539 |
| 5. | INTELLECTUAL PROPERTY IN PLANT MATERIAL IN ASEAN'S LOW-INCOME ECONOMIES: CAMBODIA, LAO PDR AND MYANMAR | 545 |
| 6. | CONCLUSION: THE FUTURE OF INTELLECTUAL PROPERTY RIGHTS IN PLANT MATERIAL IN THE ASEAN COUNTRIES..... | 547 |

1. INTRODUCTION: INTELLECTUAL PROPERTY IN PLANT MATERIAL AND REGIONAL GROUPINGS

Because of its importance for food security and food sovereignty,¹ the topic of intellectual property rights in agriculture has remained controversial. While proponents of intellectual property rights in agriculture point to the particularly strong needs for protection of commercial plant

* Professor of Law, Macquarie Law School, Macquarie University, Sydney, Australia; Senior Fellow, Center for Development Research, University of Bonn; Associate Researcher, German Development Institute, Bonn. This research was supported under the Australian Research Council's *Discovery Projects* funding scheme (project number DP170100747).

1. For the differences between these concepts, *see generally* NORA MCKEON, FOOD SECURITY GOVERNANCE: EMPOWERING COMMUNITIES, REGULATING CORPORATIONS (2015).

breeders due to the ease with which new varieties can be replicated,² others express concerns about the loss of crop genetic biodiversity³ and the impact of intellectual property rights on traditional farming practices, including the saving and replanting of seeds.⁴ But while concerns about agricultural biodiversity and the quality and safety of food are universal, they are accompanied in developing countries by further environmental and social justice concerns due to the much larger share of agriculture in the national economy, a much larger rural population and the continuing importance of small scale and subsistence forms of agriculture in food supply.⁵

Therefore, it is hardly surprising that developing countries, with very few exceptions prior to the WTO Agreement on Trade Related Intellectual Property Rights (TRIPS), were not providing intellectual property protection for plant material and excluded plants from patent protection.⁶ Article 27.3.b. of the TRIPS Agreement changed this situation dramatically. It required WTO members to “provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof.” Although this left considerable freedom to member states to design their own systems, the vast majority of developing countries adopted a system that closely follows the models provided by UPOV, the French acronym for the International Convention for the Protection of New Varieties of Plants.⁷ Further, although adoption of UPOV style plant variety protection rights did not require countries to become members of UPOV, many did join the Convention, whose membership expanded significantly after WTO TRIPS.⁸

The Association of Southeast Asian Nations (ASEAN), a regional association of high-income, developing, and least-developed countries, has experienced these pressures, due to its diverse membership, in different ways. The WTO TRIPS Agreement stipulates different transition periods for developing and least-developed countries with regard to their

2. MARK D. JANIS ET AL., *INTELLECTUAL PROPERTY LAW OF PLANTS* 2 (2014).

3. KEITH AOKI, *SEED WARS: CONTROVERSIES AND CASES ON PLANT GENETIC RESOURCES AND INTELLECTUAL PROPERTY* 4 (2008).

4. *Cf.* the sources in JANIS ET AL., *supra* note 2, at 3 n.8.

5. According to MCKEON, *supra* note 1, at 3, small-scale producers are responsible for producing some 70 per cent of the food consumed in the world.

6. Christoph Antons, *Intellectual Property in Plant Material and FTAs in Asia*, in *THE FUTURE OF ASIAN TRADE DEALS AND IP* 229, 234 (Kung-Chung Liu & Julien Chaisse eds., 2019).

7. Antons, *supra* note 6, at 236. For reasons, *see* 236-237.

8. *Id.* at 237.

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 regional partners, which include provisions on intellectual property, including plant variety protection.¹⁵

This article will explore this dynamic of overlapping national and regional initiatives and obligations. It will suggest that legislative changes are in accordance with the different income levels and economic structures of the countries, which follow development policy models that assume an inverse relationship between a nation’s per capita income and the size of its

9. Agreement on Trade-Related Aspects of Intellectual Property Rights, arts. 65-66, Apr. 15, 1994, 1869 U.N.T.S. 299, 33 I.L.M. 1197 (1994) [hereinafter TRIPS Agreement].

10. *Least-developed Countries*, WTO, https://www.wto.org/english/thewto_e/whatis_e/tif_e/org7_e.htm (last visited Nov. 18, 2022).

11. *Who are the Developing Countries in the WTO?* WTO, https://www.wto.org/english/tratop_e/devel_e/d1who_e.htm (last visited Nov. 18, 2022).

12. *World Bank Country and Lending Groups*, WBG <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups> (last visited Oct. 19, 2022).

13. Charissa Yong, *Singapore Does not Exploit WTO Provisions for Developing Nations*, THE NATION THAI. (July 29, 2019), <https://www.nationthailand.com/international/30373791>.

14. *Agriculture, Forestry, and Fishing, Value Added (% of GDP)*, WBG <https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS> (last visited Oct. 19, 2022) [hereinafter *WBG Value Added*].

15. The Asia Regional Integration Center of the Asian Development Bank lists 12 FTAs as “signed and in effect,” “negotiations launched,” or “proposed/under consultation and study.” See *Free Trade Agreements*, ASIA REG’L INTEGRATION CTR., <https://aric.adb.org/fta-group> (last visited Nov. 2, 2022). Not surprisingly, most FTAs “signed and in effect” were concluded with ASEAN’s most important regional trading partners: Australia, New Zealand, India, Japan, the People’s Republic of China and the Republic of Korea, a group referred to as ASEAN+6, in addition to an agreement with Hong Kong, China. For a detailed analysis see Thitapha Wattanapruttipaisan, *The Topology of ASEAN FTAs, with Special Reference to IP-Related Provisions*, in INTELL. PROP. AND FREE TRADE AGREEMENTS IN THE ASIA-PACIFIC REGION 109-152 (Christoph Antons & Reto M. Hilty eds., 2015).

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

16. JAMES M. CYPHER & JAMES L. DIETZ, *THE PROCESS OF ECONOMIC DEVELOPMENT* 331 (1997).

17. *The World Bank In Singapore – Overview*, WBG <https://www.worldbank.org/en/country/singapore/overview#1> (last visited Oct. 19, 2022).

18. *Insights, Brunei Darussalam*, DFAT, <https://www.dfat.gov.au/sites/default/files/brunei-darussalam-market-insight.pdf> (last visited Oct. 19, 2022).

19. *Food and Agribusiness to Singapore*, DFAT, <https://www.austrade.gov.au/australian/export/export-markets/countries/singapore/industries/food-and-agribusiness-to-singapore#:~:text=Singapore%20imports%20over%2090%25%20of,brands%20to> (last visited Oct. 19, 2022).

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

laws has been allowed for UPOV members since a revision of the UPOV Convention in 1991 and in the industrialised countries these different intellectual property rights typically co-exist.²¹ A similar trend towards double protection under patents and plant variety legislation began in some developing countries in Asia, Africa and Latin America, after they concluded Free Trade Agreements with the United States, which either eliminated the choice of Article 27.3.b. TRIPS to impose a straightforward obligation to introduce patents or asked countries to “endeavour” to do so.²² The US-Singapore FTA of 2004 is one example of such an elimination of choice,²³ although it merely consolidated an existing position in Singaporean patent law at that time.²⁴ As a consequence of such developments and in accordance with the structures of their economies and their economic interests, both Singapore and Brunei Darussalam offer patent protection for plant material. This protection has been available in Singapore since 1994²⁵ and in Brunei Darussalam since the Patents Order of 2011.²⁶

Important differences in agricultural policies also become visible in the attitude of governments towards membership in UPOV. UPOV style plant variety rights had long been regarded as more farmer-friendly because of the so-called “farmers’ privilege” to save and reuse seeds from a protected variety.²⁷ However, the 1991 revision of the UPOV Convention narrowed this privilege to the saving of seeds “within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder.”²⁸ It limited it to

21. Christoph Antons, *Article 27(3)(b) TRIPS and Plant Variety Protection in Developing Countries*, in *TRIPS PLUS 20: FROM TRADE RULES TO MARKET PRINCIPLES* 389, 395 (Hanns Ullrich et al., eds., 2016).

22. *Id.* at 394-395.

23. Rajeswari Kanniah & Christoph Antons, *Plant Variety Protection and Traditional Agricultural Knowledge in Southeast Asia*, 13 *AUSTL. J. ASIAN L.* 1, 3 (2012). Singapore was among the first countries to enter into negotiations with the United States on what became known as “TRIPS-Plus” standards. See Robert E. Lutz, *Linking Trade, Intellectual Property and Investment in the Globalizing Economy: The Interrelated Roles of FTAs, IP and the United States*, in *INTELLECTUAL PROPERTY AND FREE TRADE AGREEMENTS IN THE ASIA-PACIFIC REGION*, 155, 166 (Christoph Antons & Reto M. Hilty, eds., 2015).

24. Wee Loon Ng-Loy, *IP and FTAs of Singapore: Ten Years On*, in *INTELLECTUAL PROPERTY AND FREE TRADE AGREEMENTS IN THE ASIA-PACIFIC REGION* 337, 343, 347 (Christoph Antons & Reto M. Hilty, eds., 2015).

25. *Id.* at 343.

26. CONSTITUTION OF BRUNEI DARUSSALAM, PATENTS ORDER, 2011, Oct. 17, 2011, BRUNEI DARUSSALAM GOVERNMENT GAZETTE No. S 57.

27. Aoki explains that the “farmers’ exemption” of the 1978 version of the UPOV Convention was implicit, because art. 5(1) limited the rights of plant breeders to only preventing the commercial exploitation of their varieties, see AOKI, *supra* note 3, at 65 n.24.

28. Int’l Union for the Prot. of New Varieties of Plants [UPOV], *International Convention for the Protection of New Varieties of Plants*, art. 15 (2), UPOV Publication no: 221(E) (Mar. 19,

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 and required new UPOV members to extend protection to fifteen plant genera or species immediately and to all plant genera and species within ten years.³¹

Singapore is a member of the 1991 version of the UPOV Convention (hereinafter, UPOV 1991). Brunei Darussalam is not yet a member but is one of four ASEAN member states that have signed the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), concluded in 2018.³² As such, it is required under Article 18.7(2) to join UPOV once it ratifies the CPTPP. According to Jefferson,³³ the UPOV Council reviewed the Brunei legislation in 2017 and found it in compliance with UPOV 1991. Indeed, both plant variety laws of Brunei and Singapore exceed the initial membership requirements of UPOV by immediately extending protection to all genera and species.³⁴ Further, both restrict the seed saving privilege of Article 15 of UPOV 1991 by tying it to an express exemption of the genera or species within which the protected variety is classified.³⁵

3. UPPER-MIDDLE-INCOME COUNTRIES WITH AMBITIONS IN BIOTECHNOLOGY: MALAYSIA AND THAILAND

Malaysia and Thailand are classified by the World Bank as upper middle-income economies, and this is reflected in the quite similar share of agriculture in national GDP of these two countries. With 8.2% in the case of Malaysia and 8.6% in the case of Thailand, it is significantly higher than that of Singapore and Brunei, but lower than the double-digit figures in the

1991), https://www.upov.int/edocs/pubdocs/en/upov_pub_221.pdf [hereinafter 1991 UPOV Convention].

29. JANIS ET AL., *supra* note 2, at 86-87.

30. LAURENCE R. HELFER & GRAEME W. AUSTIN, HUMAN RIGHTS AND INTELLECTUAL PROPERTY: MAPPING THE GLOBAL INTERFACE 383 (2011).

31. 1991 UPOV Convention, *supra* note 28, art. 3.

32. The other ASEAN members of the CPTPP are Malaysia, Singapore and Vietnam. Of these countries, Singapore and Vietnam have meanwhile ratified the CPTPP. See D. J. Jefferson, *Plant Breeders' Rights Proliferate in Asia: The Spread of the UPOV Convention Model*, in INTELLECTUAL PROPERTY LAW AND PLANT PROTECTION: CHALLENGES AND DEVELOPMENTS IN ASIA 12, 21 (K. Adhikari & D. J. Jefferson eds., 2020).

33. Jefferson, *supra* note 32, at 18.

34. Plant Varieties Protection Act, 2004, art. 4 (Sing.); Plant Varieties Protection Order, 2015, art. 4 (Brunei).

35. Plant Varieties Protection Act, art. 31(2); Plant Varieties Protection Order, art. 30(2).

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 Generis Protection for Plant Varieties and Traditional Agricultural Knowledge: The Example of India*, 29 EUR. INTELL. PROP. REP. 480, 480 (2007).

42. See Gopalakrishnan, *supra* note 41, at 730; Antons, *supra* note 41, at 484-485.

mechanisms of the Indian legislation do not seem to work.⁴³ The tweaking of otherwise UPOV style plant variety protection principles in the interest of the traditional farming sector usually also means that such a legislation is no longer in conformity with UPOV 1991. UPOV reviewed the Malaysian Protection of New Plant Varieties Act 2004 in 2005 and recommended revisions of some provisions, if Malaysia wanted to join UPOV.⁴⁴ If Malaysia ratifies the CPTPP, it will be required to join UPOV and, therefore, must revise its plant variety legislation.

While the Malaysian legislation is said to be inspired by the Indian model,⁴⁵ it goes further and provides different registration requirements for local varieties. While new varieties must be “distinct, uniform and stable,” local varieties “bred or discovered by a farmer, local community or indigenous people” only need to be “new, distinct and identifiable.”⁴⁶ The wording of this provision also shows that Malaysia is the only country in ASEAN to include indigenous people in national plant variety legislation. This is an important recognition of upland swidden forms of agriculture, which otherwise in government discourse, are too often described as destructive and separated from mainstream agriculture.⁴⁷ Further, the Malaysian legislation is more generous than UPOV 1991 in defining the limits of the seed saving privilege. It allows “small farmers” not just the propagation by using the harvested material of a protected variety on their own holdings,⁴⁸ and the exchange of “reasonable amounts” of propagating material, but also the sale of farm-saved seed, where small farmers cannot make use of it on their own holdings due to natural disaster or emergency or any other factor beyond their control, provided that not more seed material is sold than what is required on their own holdings.⁴⁹

43. Karine Peschard, *Seeds Wars and Farmers' Rights: Comparative Perspectives from Brazil and India*, 44 J. PEASANT STUD. 144, 154 (2016).

44. See Kanniah & Antons, *supra* note 23, at 10; Rajeswari Kanniah, *Implementation of the Plant Variety Protection Laws of Indonesia, Malaysia and the Philippines: Trends and Future Prospects*, in INTELLECTUAL PROPERTY LAW AND PLANT PROTECTION: CHALLENGES AND DEVELOPMENTS IN ASIA 62, 71 (K. Adhikari & D. J. Jefferson eds., 2020).

45. Ida Madiha bt. Abdul Ghani Azmi, *The Protection of Plant Varieties in Malaysia*, 7 J. WORLD INTELL. PROP. 877, 889 (2004).

46. Protection of New Plant Varieties Act, 2004, section 14 (Malay.).

47. See discussion in ROBERT A. CRAMB, LAND AND LONGHOUSE: AGRARIAN TRANSFORMATION IN THE UPLANDS OF SARAWAK 28 (2007); AMY A. DOOLITTLE, PROPERTY AND POLITICS IN SABAH, MALAYSIA: NATIVE STRUGGLES OVER LAND RIGHTS 62 (2005).

48. *Cf.* Protection of New Plant Varieties Act, 2004, section 31(1)(d).

49. *Id.* section 31(1)(f).

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 that, if enacted, will aim at harmonization with UPOV standards.⁶⁹

59. Plant Varieties Protection Act, B.E. 2542, 1999, section 44 (Thai.).

60. *Id.* Section 3.

61. See generally THONGCHAI WINICHAKUL, *SIAM MAPPED: A HISTORY OF THE GEO-BODY OF A NATION* (1994).

62. Anna Lowenhaupt Tsing, *Becoming a Tribal Elder and other Green Development Fantasies*, in *ENVIRONMENTAL ANTHROPOLOGY: A HISTORICAL READER* 393-422 (Michael R. Dove & Carol Carpenter, eds., 2008).

63. TIM FORSYTH & ANDREW WALKER, *FOREST GUARDIANS, FOREST DESTROYERS: THE POLITICS OF ENVIRONMENTAL KNOWLEDGE IN NORTHERN THAILAND* 60-63, 222 (2008).

64. Plant Varieties Protection Act, section. 48 (Thai.).

65. *Id.* section 33.

66. Gagné & Ratanasatien, *supra* note 56, at 312, 315.

67. *Id.* at 315.

68. Lertdhamtewe & Jefferson, *supra* note 56, at 159.

69. *Id.* at 151-152; Noppanun Supasiripongchai, *The Legal Protection of Breeder's Rights for New plant varieties in Thailand: The Need for Law Reform Considering the International*

4. LOWER MIDDLE-INCOME COUNTRIES WITH VARYING APPROACHES
TOWARDS *SUI GENERIS* PLANT VARIETY PROTECTION: INDONESIA, THE
PHILIPPINES AND VIETNAM

ASEAN's lower-middle-income countries are the most populous countries in the region. Significant clusters of industry around cities with very high urban density exist side-by-side with rural and densely forested areas. The share of agriculture in national GDP is again higher than in the countries discussed in the previous sections and accounts for 10.2% in the Philippines, 13.7% in Indonesia and 14.9% in Vietnam.⁷⁰ Despite the similarities in the statistical data, there are important differences in history and development models between the ASEAN founding members Indonesia and the Philippines and the “socialist market economy” of Vietnam, which became the seventh ASEAN member in 1995. Indonesia and the Philippines are also founding members of the WTO, whereas Vietnam became a member in 2007 after several years of access negotiations, which included the submission of an action plan for the implementation of the WTO TRIPS Agreement.⁷¹ In the field of intellectual property protection for plant material, the lower middle-income country of Vietnam joined UPOV in 2006, as the only other ASEAN country besides high-income Singapore.⁷² Indonesia and the Philippines have so far not taken this step, but UPOV is influential in both countries providing technical advice and promoting the UPOV model of plant breeders' rights protection.⁷³ Both countries are also under pressure from provisions in Free Trade Agreements (FTAs) and Economic Partnership Agreements (EPAs) to either join UPOV or apply UPOV 1991 standards or modified standards.⁷⁴

This pressure to join UPOV or apply UPOV standards stems in the case of Indonesia from the Japan-Indonesia EPA. It requires Indonesia only

Convention for the Protection of New Varieties of Plants 1991, 1 J. WORLD INTELL. PROP. 1-26 (2020).

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

71. Accession of Viet Nam, *Action Plan for the Implementation of the TRIPS Agreement*, WTO Doc. WT/ACC/VNM/21 (Dec. 5, 2001).

72. MEMBERS OF THE INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS, INTERNATIONAL CONVENTION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS STATUS ON NOVEMBER 3, 2021, https://www.upov.int/edocs/pubdocs/en/upov_pub_423.pdf. (last visited Oct. 19, 2022).

73. Kanniah & Antons, *supra* note 23, at 8-12; Rajeswari Kanniah & Christoph Antons, *The Regulation of Innovation in Agriculture and Sustainable Development in India and Southeast Asia*, in THE ROUTLEDGE HANDBOOK OF ASIAN LAW 287, 295 (Christoph Antons, ed., 2017).

74. Antons, *supra* note 6, at 248-250.

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 community “can” be included in such agreements.⁸¹ If it is included, authorities have a broad discretion to use it for broadly worded purposes of raising the prosperity of the community, conservation of the local variety and conservation of genetic resources in the locality.⁸²

75. Agreement Between Japan and The Republic of Indonesia for an Economic Partnership, Japan-Indon., art. 106(3)(c), Aug. 20, 2007, 2780 U.N.T.S. 133, <https://www.mofa.go.jp/region/asia-paci/indonesia/epa0708/agreement.pdf>.

76. *Id.* art. 116.

77. *Indonesia*, EFTA, <https://www.efta.int/free-trade/Free-Trade-Agreement/Indonesia> (last visited Oct. 19, 2022).

78. Comprehensive Economic Partnership Agreement Between The Republic of Indonesia and The EFTA States, Annex XVII, art. 2(2), Dec. 16, 2018, EFTA, <https://www.efta.int/sites/default/files/documents/legal-texts/free-trade-relations/indonesia/fta-indonesia-annex17-intellectual-property-rights.pdf>.

79. Kanniah & Antons, *supra* note 23, at 16 (pointing out that the Indonesian term “*milik masyarakat*” is subject to interpretation and can refer to “community property” as well as “public ownership”).

80. Government Regulation No. 13/2004, The Naming, Registration and Use of Original Varieties for Producing Essential Derivative Varieties, (Mar. 17, 2004) (Indon.) [hereinafter Government Regulation of 2004].

81. *Id.* art. 9(4) and (10).

82. *Id.* art. 10; see also Christoph Antons, *Legal and Cultural Landscapes: Cultural and Intellectual Property Concepts, and the ‘Safeguarding’ of Intangible Cultural Heritage in*

Besides “local varieties” (*varietas lokal*), Indonesian law also regulates “varieties resulting from plant breeding” (*varietas hasil pemuliaan*).⁸³ Different from the community-owned local varieties, these are varieties that have been developed by private or public breeders. They are also different from “new varieties” under Indonesia’s Plant Variety Protection Act and do not meet the criteria for registration, but they can nevertheless be useful for propagating purposes in the development of new varieties.⁸⁴ The Plant Variety Protection Centre maintains a separate list of these “varieties resulting from plant breeding.”⁸⁵ Users of this material for further breeding are expected to conclude an agreement with the registered owners, which, again, “can” include compensation.⁸⁶ Most prominent on this list are government research centres, followed by private domestic and foreign companies as well as universities and university departments.

Among the major aims of the plant variety protection legislation, according to the preamble, are the development of new and superior seed varieties,⁸⁷ encouragement of the growth of the seed industry⁸⁸ and compliance with international conventions.⁸⁹ With regards to the latter, the main concern at the time of introducing the legislation was to meet the WTO TRIPS deadline for compliance with that agreement. However, the government’s explanatory memorandum accompanying the preamble also mentions the UN Convention on Biological Diversity and the UPOV Convention.⁹⁰ The mentioning of UPOV already at this stage is surprising, given that TRIPS does not require UPOV membership or UPOV conforming legislation. It confirms the model character of the various alternatives under the UPOV Convention. The development of superior seed varieties prior to the plant variety legislation would have been a matter for public research institutions and universities. More recently, the plant variety protection office has been celebrating the success of the new legislation by pointing to 506 registrations, the second highest number in

Southeast Asia, in THE ROUTLEDGE HANDBOOK OF ASIAN LAW 250, 257 (Christoph Antons, ed., 2017).

83. Government Regulation of 2004, *supra* note 80, art. 1 No. 8 and Chapter IV.

84. *Id.* Elucidation on art. 16 (1) (2004).

85. *Id.* arts. 13, 14.

86. *Id.* art. 16.

87. Plant Variety Protection Act, No. 29 of 2000, Preamble (b), (c), and (d), Gov’t Gazette of the Rep. of Indon. 4043 (Indon.) [hereinafter PVP].

88. *See id.* under (c).

89. *See id.* under (e).

90. *See id.* Government Explanation of the Plant Variety Protection Act, under I. General.

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.⁹⁷

The Indonesian Plant Variety Protection Act includes a broadly worded seed privilege in Article 10(1) allowing for the use of a portion of the harvest if it is not for commercial purposes. This is narrowed in the government explanatory memorandum to the provision as referring to “the individual activities particularly those of small farmers for their own needs.”⁹⁸ Not included is further distribution for the benefit of a group. A

91. *Kementan: 506 Varietas Tanaman Sudah Dapatkan Hak PVT*, MEDCOM.ID (Apr. 9, 2021, 8:30 AM), <https://www.medcom.id/ekonomi/bisnis/GNGWdQpN-kementan-506-varietas-tanaman-sudah-dapatkan-hak-pvt>.

92. Kanniah, *supra* note 44, at 79.

93. *See, e.g., Global Locations*, DUPONT, <https://www.dupont.com/locations.html> (last visited Oct. 19, 2022).

94. *See Ownership Structure*, PT BISI INTERNATIONAL TBK, <https://bisi.co.id/en/index.php/2015/10/17/ownership-structure/> (last visited Oct. 19, 2022); *see also Group Structure*, PT BISI INTERNATIONAL TBK, <https://bisi.co.id/en/index.php/2015/10/17/group-structure/> (last visited Oct. 19, 2022).

95. Antons & Blakeney, *supra* note 39.

96. Kanniah, *supra* note 44, at 80.

97. ARIEF DARYANTO, ET AL., FDI RESTRICTIONS IN THE INDONESIAN HORTICULTURE SECTOR: IMPLICATIONS OF HORTICULTURE LAW No.13, 2010, THE WORLD BANK 13 (2017), <https://documents1.worldbank.org/curated/en/856711540798662861/pdf/131404-WP-PUBLIC-2017-Daryanto-et-al-Horticulture-law-report.pdf>.

98. Elucidation of the PVP Act, *supra* note 90, Art. 10 (1)(a).

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 Community Empowerment) had helped farmer organisations to establish community seeds banks and registries, which are encouraged under Section 72 of the legislation. The NGO regarded the Gene Trust Fund, however, as "a radical departure from the original concept of community gene/seed banks" finding it limited to supporting "the gene banks of the International Rice Research Institute (IRRI), the Philippine Rice Research Institute (PhilRice), other public research institutions and private entities that operate accredited gene banks."¹⁰⁴ Kanniah concluded in her survey of the major users of the system that "the Filipino PVP system has been used prolifically

99. *RUU tentang Perubahan atas Undang-Undang Nomor 29 Tahun 2000 tentang Perlindungan Varietas Tanaman*, DEWAN PERWAKILAN RAKYAT REPUBLIK INDONESIA, <https://www.dpr.go.id/uu/detail/id/97> (last visited Oct. 19, 2022).

100. *Philippines*, EFTA, <https://www.efta.int/free-trade/Free-Trade-Agreement/Philippines> (last visited Oct. 19, 2022).

101. Kanniah & Antons, *supra* note 23, at 10.

102. An Act to Provide Protection to New Plant Varieties, Establishing a National Plant Variety Protection Board and for other Purposes, Rep. Act No. 9168, Section 43(d) (June 7, 2002) (Phil.), https://www.lawphil.net/statutes/repacts/ra2002/ra_9168_2002.html; *see also* Kanniah, *supra* note 44, at 74.

103. *See* An Act to Provide Protection to New Plant Varieties, Section 71; *see also* Kanniah, *supra* note 44, at 75.

104. *Recognition and Protection of Farmers' Rights: An Initial Critique on the Plant Variety Protection Act of 2002*, SEARICE (July 2002), <https://drive.google.com/file/d/16gRTsPuCZfEgvJEYOidrXwmrXw9kn26C/view>.

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/VNM/E/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 MYANMAR

ASEAN's low-income countries are the association's most recent members, with the Lao PDR and Myanmar joining in 1997 and Cambodia in 1999. They are also classified as least-developed countries (LDCs) by the United Nations and the WTO.¹¹⁷ As LDCs, they are exempted from applying the provisions of the TRIPS Agreement other than Articles 3, 4 and 5.¹¹⁸ This exemption was originally for a transitional period of ten years, but the TRIPS Council was authorised in Article 66 of TRIPS to grant extensions to this period. In June 2021, WTO members agreed to extend the transitional period for LDCs for a third time to July 1, 2034.¹¹⁹ While Myanmar is a WTO founding member, Cambodia and the Lao PDR joined more recently, in 2004 and 2013 respectively. The share of agriculture, forestry, and fishing in the national economy in these low-income economies is again higher than in the lower middle-income group discussed in the previous section. It reaches from 16.2% of GDP in the Lao PDR to 22% and 22.4% in Myanmar and Cambodia respectively.

Although not obliged to exercise the choice of Article 27.3.b. of TRIPS due to their LDC status, all three countries have introduced *sui generis* plant variety legislation and excluded plant material from patentability. In their exclusion provisions, Cambodia and the Lao PDR rely on the TRIPS baseline of "plants and animals other than micro-organisms, and essentially

112. *Id.* at ix.

113. See *id.* at 40.

114. *Id.* at 31-34.

115. *Id.* at 36-37.

116. *Id.* at ix.

117. *Least-developed Countries*, *supra* note 10.

118. TRIPS Agreement, *supra* note 9, art. 66.

119. *WTO Members Agree to Extend TRIPS Transition Period for LDCs Until 1 July 2034*, WORLD TRADE ORGANIZATION (June 29, 2021), https://www.wto.org/english/news_e/news21_e/trip_30jun21_e.htm.

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).

121. Law on Intellectual Property, *supra* note 120, art. 21 No. 1.

122. Patent Law, No. 7, section 14(a) under (d) and (e), (Mar. 11, 2019) (Myan.).

123. Law on Intellectual Property, *supra* note 120, Part IV.

124. Law on the Seed Management and Plant Breeder’s Rights (Jan. 7, 2009) (Cambodia).

125. *See* Jefferson, *supra* note 32, at 27.

126. *New Plant Variety Protection Law: To Help the Growth of Agricultural Sector by Generating and Cultivating New Improved Varieties*, MYANMAR DIGITAL NEWS (May 30, 2019), <http://www.mdn.gov.mm/en/new-plant-variety-protection-law-help-growth-agricultural-sector-generating-and-cultivating-new>.

127. The New Plant Variety Protection law, No. 29, section 12(a)(ii), (v) (Mar. 11, 2019) (Myan.).

128. *Cf.* Jefferson, *supra* note 32, at 28-29.

129. *Id.* at 29-30.

the case of the Lao PDR¹³⁰ and to joint regulations by the Ministry of Industry, Mines and Energy and the Ministry of Agriculture, Forestry and Fishery in the case of Cambodia.¹³¹ It seems doubtful that UPOV would accept the regulation of this important exception in administrative regulations, if the two countries would seek to join UPOV. The Lao PDR also maintains its flexibility with regards to the genera and species to which the law applies, which the government will notify separately.¹³²

6. CONCLUSION: THE FUTURE OF INTELLECTUAL PROPERTY RIGHTS IN PLANT MATERIAL IN THE ASEAN COUNTRIES

The expansion of intellectual property rights in plant material in the ASEAN countries started over two decades ago, when those countries that were WTO members at the time were exercising their choices under Article 27.3(b) of TRIPS with regard to patent protection and *sui generis* plant variety legislation. Other factors pushing all ASEAN members further in this direction since then have been obligations under Free Trade and Economic Partnership Agreements, the accession negotiations for latecomers to the WTO as well as ambitions to establish domestic seed industries and to shift some of the agricultural R&D from the public to the private sector and attract foreign investment in this context. Although there has been a general pattern of expansion,¹³³ it has been uneven and at different paces, depending on the socio-economic conditions of each country and the balance it seeks to find in the encouragement of R&D between private sector R&D, public research institutions and farmers as consumers of the resulting technologies, but also in their traditional role as plant breeders in their own rights.¹³⁴ At the same time as governments have been pondering such questions, there has also been much activism opposed to intellectual property rights in seeds and other agricultural input material.¹³⁵ The activism influenced the adoption by the UN General Assembly of the United Nations Declaration on the Rights of Peasants and

130. Law on Intellectual Property, *supra* note 120, art. 86.

131. Law on the Seed Management and Plant Breeder's Rights, *supra* note 124, art. 16.

132. Law on Intellectual Property, *supra* note 120, art. 68.

133. See e.g., Kanniah & Antons, *supra* note 23; Kanniah & Antons, *supra* note 73; Antons, *supra* note 6; Kanniah, *supra* note 44; Jefferson, *supra* note 32.

134. Christoph Antons, et al., *Farmer-plant-breeders and the Law on Java, Indonesia*, 52 CRITICAL ASIAN STUDIES 589-609 (2020). See also the contributions in BISA DÈWEK: KISAH PERJUANGAN PETANI PEMULIA TANAMAN DI INDRAMAYU (Yunita T. Winarto, ed., 2011).

135. See Jack Kloppenburg, *Re-Purposing the Master's Tools: The Open Source Seed Initiative and the Struggle for Seed Sovereignty*, 41 J. PEASANT STUD. 1225, 1233 (2014) (discussing opposition to intellectual property rights in seeds and their policy positions).

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 and effectively.¹⁴⁰ Renewed concerns about local research and manufacturing capacity in the pharmaceutical sector¹⁴¹ may influence debates about local capacity related to agricultural technology and input material.

Some twenty years after the introduction of intellectual property rights in plant material the registries show that the range of owners in many countries include multinational as well as emerging domestic companies, besides public sector research agencies, universities, and some individuals. Several countries are currently reviewing their plant variety protection laws.

136. See Human Rights Council, *Draft United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas*, U.N. Doc. A/HRC/WG.15/5/3 (Sept. 10, 2018).

137. MCKEON, *supra* note 1, at 73-81.

138. Abdi Latif Dahir, *‘Instead of Coronavirus, the Hunger Will Kill Us’*. *A Global Food Crisis Looms*, N.Y. TIMES (Mar. 16, 2021), <https://www.nytimes.com/2020/04/22/world/africa/coronavirus-hunger-crisis.html>; Raymond Zhong, *This Chemical Is in Short Supply, and the Whole World Feels It*, N.Y. TIMES (Dec. 8, 2021), <https://www.nytimes.com/2021/12/06/business/urea-fertilizer-food-prices.html>.

139. Christoph Antons, *Intellectual Property Policies and Vaccine Diplomacy in Asia*, in THE REALM OF CORONA NORMATIVIITES II: THE PERMANENCE OF THE EXCEPTION 369, 374-375 (Werner Gephart & Jure Leko, eds., 2022).

140. *A Dose of Reality: How Rich Countries and Pharmaceutical Corporations are Breaking Their Vaccine Promises*, UNAIDS (Oct. 21, 2021), https://www.unaids.org/en/resources/presscentre/featurestories/2021/october/20211021_dose-of-reality.

141. Stephanie Nolen, *Here’s Why Developing Countries Can Make mRNA Covid Vaccines*, N.Y. TIMES (Oct. 22, 2021), <https://www.nytimes.com/interactive/2021/10/22/science/developing-country-covid-vaccines.html>.

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.¹⁴⁴ The provision is placed, somewhat confusingly, in the chapter on criminal sanctions, thus possibly restricting its impact to that of a defence against criminal charges only. Legislative proposals like the one in Indonesia show, however, the concern about local environmental conditions, the remaining role of public sector research and the plight of farmers. This balancing act between public interest and private industry considerations is common to most ASEAN countries and it may slow down, for the time being, the further expansion of UPOV 1991 conform laws in the region, in spite of the pressures from bilateral and regional FTAs and EPAs.

142. *RUU tentang Perubahan atas Undang-Undang Nomor 29 Tahun 2000 tentang Perlindungan Varietas Tanaman*, *supra* note 99.

143. Decision of the Regional Representative Council of the Republic of Indonesia No. 25/DPD RI/II/2016-2017 Concerning the Draft of a Law on the Protection of Plant Varieties, <https://jdih.go.id/files/489/KEPUTUSAN%20DPD%20RI%20NO.%2025%20TAHUN%202016.pdf>.

144. *Id.* art. 34.