Reinventing Thailand’s Plant Protection Regime

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Thailand’s plant protection regime presents a unique sui generis plant protection system. The current Thai Plant Variety Protection (PVP) law has attracted some criticism, and whether or not farmers and breeders actually benefit from the system is in doubt. Thailand can provide a more coherent framework for PVP by carefully calibrating the PVP provisions and establishing a coherent set of rules in the form of a new legislative framework. The proposed regulatory reforms suggest that Thailand’s PVP provisions should be amended in three major areas, including (1) provisions for the rights of farmers and local societies, (2) legal protection for plant breeders’ rights, and (3) institutional apparatus governing plant protection issues in Thailand.

Keywords: Plant variety protection, plant breeders’ rights, farmers’ rights, and intellectual property

The statutory framework for plant variety protection in Thailand currently represented by the Plant Variety Protection Act B.E.2542 (AD1999) (PVP Act)1 is obsolete and ineffective in many significant ways. The author examined in his previous works how the current statutory framework for plant variety protection serves the interests of all actors in agricultural management.2 This examination reveals the inadequacy of the current PVP regime. The author, therefore, proposed alternative provisions intended to serve the interests of all actors involved in the Thai agricultural practice. He also briefly reasoned the need for a new coherent framework, as well as the necessity to strengthen the role of organisational body to oversee plant protection issues.3 This article specifically reiterates the need for a new comprehensive framework for plant IP protection and the institutional body in Thailand.

The following section discusses the current framework for plant variety protection in Thailand and organisational body governing the area of plant variety protection, and examines their sufficiency in satisfying the need of all stakeholders in agricultural management. Based on this examination, a case for the new statutory framework for plant IP protection and the new institutional body is proposed. Later section explores the possible elements of the new legislative PVP framework and the role of new organisational apparatus. This section further addresses the need for the new organisational apparatus concerning plant variety protection in Thailand. The final section draws a conclusion of this article based on the foregoing discussion.

Inadequacies Current Rules: Need for Rule Modifications

The ineffectiveness of the current PVP provisions in Thailand is an issue. For instances, Thailand’s current plant variety protection regime gives preference to farmers and local communities, with the majority of the protection related to local domestic plant varieties, thus providing special and differential treatment to farmers and local communities. This preference has been criticised as not being very helpful for both farmers and local societies, considering that no farmers and local communities have yet been able to claim the benefits of the generous provisions to protect local domestic plant varieties.

Furthermore, Chapter III of the Thai PVP Act concerning the protection of breeders’ varieties shows detrimental lack of appreciation of the role of breeders. The ineffectiveness of these provisions relates to three important areas:

(i) Low standards of protectability;
(ii) Insufficient term of protection providing to breeders’ varieties; and
(iii) Lack of guaranteed rights for plant breeders.

Thus, consideration should be given to the establishment of a coherent set of rules in the form of

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a new legislative framework in order to address plant variety protection issues more effectively and consistently.

In terms of the regulatory elements to be included in the new PVP framework, specific legal provisions should be developed in line with international standards, i.e., the standards adopted by several other countries and applied to their national PVP legislations. The new PVP framework should also provide coherent and diverse protection terms that apply to the duration of the protection. Specifically, the following discussions propose that reforms of the regulatory PVP regime are necessary in two areas: (1) Rules regarding the rights of farmers and local societies, and (2) Rules for the protection of plant breeders’ rights. As discussed in the following sections, these proposed reforms can be incorporated in the new PVP regime, although they do not comprise an exhaustive list of provisions.

**Suspension of Local Domestic Plant Variety Protection Provisions**

Elements of the new PVP framework could include the suspension of local domestic plant variety protection provisions. The introduction of these provisions was meant to balance breeders’ rights with those of other players in Thailand’s agricultural practices. The typology for the protection of local domestic plant varieties was first introduced to protect traditional knowledge and indigenous rights. Local domestic plant varieties could be registered by a community, which was required to provide the method of their conservation or development, the landscape together with the concise adjacent area, as well as a list of members of the community. At the time of writing this article, no local domestic plant varieties have been registered in Thailand.

There is a doubt that local domestic plant varieties exist in Thailand. Also, the inherent complexity and difficulty in meeting the requirements of local domestic plant variety registration have created a widespread perception that the PVP system would never have resulted in the registration of local domestic plant varieties. The inefficiency of this set of provisions in the current PVP regime has led to the inclusion of local domestic plant variety protection provisions in the amendment agenda, with the possibility of rule modification. Nonetheless, it is unlikely that the inherent difficulty in providing local domestic plant variety protection could be settled to a satisfactory level.

The rights to local domestic plant varieties belong to local communities or indigenous groups in Thailand, and Section 3 of the Thai PVP Act defines ‘local community’ as ‘a group of people residing and commonly inheriting and passing over culture continually and registered under the Thai law’. Obviously, there is no express mention of indigenous people, but the term ‘local community’ in the PVP Act is also used to refer to the recognition of local indigenous groups. Such a community is a dynamic concept, the components of which change over time as people move from one community to another. Thus, it is virtually impossible to derive a suitable single definition of such a versatile concept. Indeed, considering the historical context of Thailand, local domestic plant variety protection should not be included in the PVP system. Thailand has made statements to the United Nations, which relates to the rights of indigenous people. From the country’s perspective, there is no such thing as indigenous groups in Thailand. Instead, all Thais are considered to be indigenous people, and each indigenous group forms an integral part of the Thai nation, and thus cannot be considered in isolation. Based on Thailand’s declaration to the United Nations, proposing that local domestic plant varieties should belong to local Thai communities overlooks the fact that a single community or indigenous owner of a plant variety in Thailand cannot be identified.

The number of local domestic plant variety registrations since its inception has proven that there is no justification for such plant variety protection in Thailand. In fact, the farmer–saved seed exemption, discussed below, can provide sufficient protection for farmers’ way of life. Moreover, general domestic plant and wild plant variety protection measures make it easier for predatory breeders to misappropriate domestic plants, and the provision of a benefit-sharing arrangement also represents a sense of consideration to rewarding farmers and local custodians. Each of the elements discussed below not only represents farmers’ rights protection, but also demonstrates that the rights are contoured to suit the unique national conditions. Consequently, it can be said that the local domestic plant variety protection needs to be suspended in the new PVP regime.

**Database and Registration System for General Domestic Plant & Wild Plant Varieties**

Another area that is highly relevant to the protection of the rights of farmers and local
communities is general domestic plant and wild plant variety protection. The protection of general domestic plant and wild plant varieties was introduced as a means to emphasize common knowledge and strengthen traditional knowledge rights, which is a concept ignored by the UPOV. The manner of stylising protection reflects a keen sense of consideration to capture all types of plant varieties within the Thai sovereign domain. This clearly adheres to the principles of the CBD and responds to domestic concern about the misappropriation of plant genetic resources. Other countries with similar concerns about their sovereign control of plant varieties may also wish to establish the same cover-all protection as Thailand, including general domestic plant and wild plant varieties. However, such protection of plant varieties is controversial, because provisions in the Thai PVP law do not require such varieties to be registered, leaving general domestic and wild plant varieties officially unprotected, as discussed above.

It has been suggested by some commentators that Thailand has witnessed a great number of biopiracy incidents. The patenting of the medicinal extract plant from Plao Noi in 1983 by a Japanese corporation is a good example. A more recent example is the patenting of the so-called “Kwao Krua” variety by the United States in 2002. Both of these varieties are common in Thailand, having been cultivated for a long time in many geographical areas of Thailand. It has been suggested that a major cause of the illegitimate appropriation of plant genetic resources is that relevant offices (patent offices) are often unaware of the existence of such resources in the field for which they are granting protection. For example, in the United States, the United States Patent and Trademark Office (USPTO) do not investigate existing knowledge unless the legitimacy of a particular patent is challenged. Thus, there is an obvious need to establish a registration system and a database for extant general domestic plant and wild plant varieties of Thailand.

The creation of such a database may serve to mitigate this problem. By recording all the plant varieties found in Thailand on a database, patent offices or relevant authorities anywhere in the world could easily conduct searches to determine whether the plant-related invention to be protected was or was not derived from extant plant varieties (prior art). Such a system has already been adopted to an extent by the India-based Society for Research and Initiatives for Sustainable Technologies and Institutions, which is in the process of creating a “traditional knowledge database”, working closely with the communities concerned.

Considering domestic concern about the misappropriation of genetic resources, a general domestic plant and wild plant variety database created under the Thai PVP Act should be established. Consequently, there should be a registration system and database for these types of plant varieties that exist in the public domain. This type of registration system could potentially have prevented the initial patenting of extant plants found in Thailand, by providing patent offices with an easily accessible database on which the search is to be conducted.

**Permit Licence for the Use of Extant Varieties**

In relation to the use of extant varieties, which refer to ‘general domestic plant and wild plant varieties’, those seeking to use such plants for commercial purposes are required to apply for a permit licence from the Ministry of Agriculture and Cooperatives. This licence can be issued subject to certain conditions; for example, it must include a profit-sharing agreement. The royalties from the licences and profit-sharing agreements will be put into a Plant Variety Protection Fund, which will be distributed to local farmers and local farming communities in Thailand to support plant breeding research and development. The objective is to promote innovation while at the same time rewarding the farmers.

While the objective of this provision is to be commended, the poorly drafted language of the statute can lead to its misuse. For the most part, the statute does not define the type of licence, and the absence of a definition for such licences seems to create regulatory ambiguity. More importantly, the law provides the same level treatment to users of extant varieties with widely different levels of income, including subsistence farmers who sell extant varieties for survival rather than profit. The failure to comply could lead to harsh penalties for infringement. The statute tries to deter infringement by providing stringent penalties at THB 400,000 (roughly US $13,400) or a term of imprisonment not exceeding two years, or both. In developing countries like Thailand, where literacy among the farming community is limited, this can result in farmers
engaging in more infringement than they had intended. The case of Surat Maneenoprattanasuda, a vendor of CDs, demonstrates this point. While the case is not directly relevant to plant variety protection issues, it provides a good analogy.

In 2010, Surat Maneenoprattanasuda was found guilty of selling copyrighted VCDs without a licence under the Motion Pictures and Video Act B.E.2551 (AD2009) of Thailand, and was fined 133,400 baht (about US$ 4,250) by the Thai Criminal Court. The Court reasoned that he had a duty to obtain a licence to sell CDs, and non-compliance may lead to severe punishment. What is wrong with this case is that, in a country like Thailand where the level of literacy among poorer people is limited, a certain level of innocent infringement is only to be expected. In such circumstances, the imposition of a duty to obtain a permit licence on all people, including those living below subsistence level, as outlined in Surat Maneenoprattanasuda’s case, would create a huge burden on society considering the lack of sophistication among poorer people.

As for the case of a permit licence for the use of extant varieties, subsistence farmers should be exempt from this in order to maintain national welfare and social justice, considering the poverty level of the farming communities in Thailand. In terms of adopting standards to determine the status of users of extant varieties, individuals’ income level could be considered. Normally, the government of Thailand uses individuals’ income level to categorise them into different income groups; therefore, this economic indicator could be used as a primary determinant of the status of users of extant varieties. Methods for differentiating special treatment for different levels of users/farmers should be sought, and exceptions to the licence should be made in line with individuals’ income level in order to minimise the abuse of the provision. Such an exception is economically efficient because the Thai courts are already burdened. Furthermore, a standard of one rule for all regarding the use of extant varieties could generate huge protests from farmers. Thus, it is arguable that the exception to the licence allowed by the law is outstanding with a unique national flavour.

Benefit-Sharing of Rewards through Plant Variety Protection Fund

Benefit-sharing of rewards through the PVP Fund in Thailand’s PVP law should also be reconsidered. Thailand’s benefit-sharing scheme is similar to that of Indian PVP law, and some commentators have suggested that such sharing of rewards is disconnected from the farmer and cumbersome to implement. Critics assert that, considering the social, economic, and educational conditions of local farming communities, farmers may not be vigilant in applying for benefits. Consequently, communities will be left uncompensated for breeder appropriations.

Another issue relates to the administrative strain. It is possible that the dearth of regional offices among local communities could pose procedural complications for farmers, requiring them to apply to remote offices. Thus, a practical solution would perhaps be to authorise NGOs or local government bodies to apply for benefit-sharing on farmers’ behalf. Thus, further regulations or rules could be developed to assist this matter.

Modifications to New Plant Varieties Rules

It is safe to assume that UPOV-style plant breeders’ rights provide a starting template for new plant variety protection. This practice is evident in the case of the unique laws, such as the Indian Protection of Plant Varieties and Farmers’ Rights Act of 2001 (PPVFR Act), which adopts some salient features for new plant variety protection that is drawn from the text of the UPOV Convention. As member of the WTO, Thailand must therefore provide for the protection of new plant varieties in accordance with the core principles of the UPVO treaty. Consequently, the proposed regulatory reforms suggest that Thailand’s PVP provisions need to be amended in many areas of plant breeders’ rights protection to be in line with the 1991 International Convention for the Protection of New Varieties of plants (UPOV Convention), as discussed below.

Setting New Standards of Eligibility for Protection

Sections 11 and 12 of the Thai PVP Act are the major provisions that regulate the standards for eligibility for new plant variety protection; however, as previously discussed, these provisions have low standards for eligibility. Instead of contributing to innovation in plant breeding, the low standards for eligibility in Thailand’s current PVP regime can result in granting rights for miniscule innovations that can shift plants from the public to the private domain. This diluted version of the requirements for eligibility means that the PVP Act provides insufficient protection, which is partly the result of the country’s reluctance to adopt the provisions of the 1991 UPOV
Convention concerning the protection of plant breeders’ rights when drafting its PVP Act in 1999. Thus, establishing new requirements for the protection of new plant varieties may clarify the situation, and one way to do this is to redraft the requirements for eligibility for new plant variety protection in the current PVP Act of Thailand in line with the UPOV treaty.

Under the 1991 UPOV Act, a new plant variety is generally understood to be a variety that has been bred to exhibit traits that are novel when compared to known varieties, but that also retains distinctive, homogenous or uniform characteristics and stability between breeding cycles. Moreover, the novelty criteria are defined in terms of commercial novelty: a plant variety cannot be protected if it has been offered for sale in the relevant market prior to the date of application. No other conditions are required under the 1991 UPOV Convention, neither is the equivalent of utility/industrial application, nor inventive step/non-obviousness required. It can be said that no definite amount of human intervention is necessary in order to qualify for protection. Thus, in principle, all plant varieties, including plants that grow in the wild, may be eligible for protection simply if they are distinctive from earlier known species. However, the criteria of DUS in UPOV-style law exclude local varieties developed by farmers and local communities from protection, because they are more genetically heterogeneous and less stable. Thus, the criteria of DUS can specifically serve as a statutory bar to prevent common well-known varieties from clearing the eligibility threshold.

A disclosure of source and legal provenance requirement in the Thai PVP law should still be sought. The Thai PVP law sets out such requirement for the registration of new plant varieties by requiring that every application must include details of the origin of the new plant variety and all information regarding the use of genetic material in the breeding process or development of the new plant variety. Thus, this provision of the Thai PVP law is commendable.

**Extension of Terms for Protection**

A provision offering the term of protection to breeders’ varieties is provided in the Thai PVP Act without any coherent standards, i.e., standards that several countries apply to their protection term. Under the current PVP Act of Thailand, new crop varieties have a specific term of 12 or 17 years, depending on the type. Such a term of protection is considered to be too short for breeders to secure the maintenance of their enormous and costly breeding practices, as discussed in previous part, and it seems to provide little incentive for research and development for creating new plant varieties. A recent study emphasizes the need for a longer duration of protection in the Thai PVP Act. Hence, the new legislative framework for plant variety protection should provide a new standard for the term of new plant variety protection to enhance the clarity and rationality of the PVP system.

The term of protection provided by the 1991 UPOV Convention can be regarded as being a standard for the Thai PVP Act. The UPOV Convention uses a fixed period of no less than 20 years, and this provision can be used as a basis for providing the period of plant breeders’ rights protection in the Thai PVP regime. Methods for differentiating the terms of protection for different types of plant varieties should still be sought, and the sub-categorisation of protection terms, such as the one used by the UPOV Convention, can be adopted for such differentiation. For instance, Article 19(2) of the 1991 UPOV Convention authorises a longer term of protection to be applied to trees and vines. This additional duration can be differentiated according to the characteristic of the particular plant varieties, such as trees and vines, because these types of plant varieties typically do not become obsolete in the sense that it is relatively rare for a new and better tree and vine to be bred.

Achieving regulatory coherency for protection terms also requires the establishment of a provision for term extension and adjustment. It is still not clear if such a period of protection is consumed by the typical delay in the application process and prosecution. Thus, extensions may be provided to counter certain administrative delays, as in the US, where it is possible to obtain an extension if the USPTO delays the issuance of a patent. This may result in patents being issued for longer periods than 20 years. The reasons for extension include: (i) Delayed response to an application for a patent; (ii) Patent application being considered for more than 3 years; and (iii) Delay due to a secrecy order or appeal. It is possible to receive an extension of time equal to the delay. In view of this, it can be persuasively argued that the new PVP law in Thailand should also provide extended-protection periods.
which may be similar to those of U.S. law. Such term extensions are deemed necessary to compensate for administrative delay, considering that the protection term for plant variety in Thailand is calculated from the date of filing the application.

**Redefining the Scope and Limitations of Breeder’s Rights**

The scope of plant breeders’ rights in the Thai PVP Act should be reconsidered. As examined in previous section, the exclusive rights of plant breeders are subjected to certain exemptions under the Thai PVP law. Exemptions, such as the research exception, are somewhat controversial. Section 33 of the Thai PVP Act specifically provides a weak research exception.\(^{48}\) The clause of experimental exemption in the Thai PVP Act is not well defined, nor does the legislation indicate who holds the ownership rights over a new variety resulting from the protected variety.\(^{49}\) Based on this provision, no authorisation is required from breeders in cases where the protected variety is sought for plant breeding and other experimental activities. One of the most contentious issues is whether or not a simple duplication of the protected variety to develop a hybrid or different plant variety constitutes any infringement. Thus, it is crucial to provide a clear explanation to determine the scope of breeders’ rights and the extent of its limitations to avoid potential disagreement between breeders and other actors.

Obviously, the scope of breeders’ rights in UPOV is too contentious and problematic. Breeders’ rights, by virtue of the Article 14(5) of UPOV, extend to the protected variety and “essentially derived varieties” (EDVs).\(^{50}\) EDVs are varieties derived either from the protected variety, or from another variety that is derived from the initial protected variety. Thus, breeders’ rights over the protected variety extend to both first and second varieties under UPOV regime. In this sense, UPOV enables breeders to claim rights to the experimental varieties of other farmers and breeders.\(^{51}\) It can be said that, from the standpoint of a country involved in exploiting new varieties for the purpose of stimulating innovation in plant breeding, using the scope of breeders’ rights in UPOV-style law would amount to the statutory marginalisation of farmers and local breeders.

Thailand should provide other forms of incentives to breeders and farmers of plant varieties. The new PVP law should promote research on protected varieties by allowing anyone to use a registered variety to conduct experiments or research, or as an initial source of variety for the purpose of creating other varieties. The statute should also require authorisation from the owner of the initial variety to derive the second-generation variety. Such authorisation should only be required where the repeated use of such variety as a parental line is necessary for the commercial production of a newly-developed variety. The objective is to promote research while preventing the premature exploitation of protected varieties in the name of research.

In addition to experimental exemption, farmers’ privilege should still be sought in the Thai PVP law. Generally, the Thai PVP law provides that authorisation from breeders is unnecessary in cases where farmers use a product of the harvest they have obtained by planting on their own holdings, for cultivating and propagating protected varieties listed in the Thai PVP law.\(^{52}\) Thus, the Act is showcased by allowing farmers to retain their traditional right to save and re-use seeds from their harvests. On the basis of this exemption, farmers do not have to buy seeds in each planting season. This clearly adheres to the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA),\(^{53}\) and responds to Thailand’s strong sentiment against the impact of prohibitive prices for seeds sold by large agribusiness producers. In developing countries like Thailand, which has a considerable farming population, it is important to make concessions and exceptions to maintain the balance between trade and national welfare. Thus, the save seed exception in the PVP regime is outstanding, with a unique national flavour. The experimental exemption coupled with the farmer-saved seed exemption demonstrates that breeders’ and farmers’ rights can be adequately and concurrently protected.

**Adjusting Provision Related to Compulsory Licensing**

The Thai PVP Act provides a means for a person other than the plant variety rights holder to use the protected new variety.\(^{54}\) The Ministry of Agriculture and Cooperatives can grant a compulsory licence to a third party to use the plant variety without the authorisation of the plant breeder.\(^{54}\) While this compulsory licensing provision provides an essential stability to national welfare, such as food security,\(^{55}\) the poorly drafted language of the section can lead to the misuse of the compulsory licensing provision. The fundamental deficiencies of the compulsory licensing
provision in the Thai PVP Act lie in four important areas, reflecting the lack of guarantee of the rights of breeders. firstly, the law does not limit the scope of the licensees; thus, in practice, the licensees may include competitors of the holder of the variety’s rights. Secondly, no time limit is imposed on the duration of the use of a compulsory licence. More importantly, there is no provision that would lead to the termination of the compulsory licence if the circumstances that led to its issuance cease to exist. Lastly, breeders do not have the legal right to appeal before an independent administrative body or court in order to issue a compulsory licence. Thus, regulations or rules of the new PVP regime could be developed to provide guidance for the scope of a compulsory licensing exception and determine the duration and termination of the use of a compulsory licence. Such a provision is not unreasonable or unrealistic, as a precedent exists in Article 31 of the WTO/TRIPS Agreement, which has been incorporated in the Thai patent law, and the case for such rules has already been made in some other literature.

Unlike the current PVP Act, the Patent Act B.E.2542 (AD1999) of Thailand provides a set of rules that regulates when the government of Thailand may compel patent holders to licence their products to other parties, and provides a variety of conditions to be included in the compulsory licence, thereby incorporating the principles of compulsory licensing under TRIPS Article 31. At the end of three years, any protected product can be subject to compulsory licensing if the reasonable requirements of the public for the patented product have not been satisfied or the patented product is not available to the public at a reasonable price. Price is also a consideration when determining whether or not the reasonable requirements of the public have been satisfied. Furthermore, the person or company applying for a licence must have first been unsuccessful in an attempt to obtain a voluntary licence from the rights holder on reasonable commercial terms. If no agreement has been reached by the parties, the government can fix the remuneration and prescribe the conditions and restrictions as deemed appropriate subject to the following requirements:

(i) The scope and duration of the licence, which cannot be more than necessary under the circumstances;

(ii) The patentee shall be entitled to further licence others;

(iii) The licensee shall not be entitled to assign the licence to others, except with that part of the enterprise or goodwill, particularly of the part under the licence;

(iv) The licensing shall be aimed predominately for the supply of the domestic market;

(v) The remuneration fixed shall be adequate for the circumstances of the case.

The Thai Patent Act further indicates that ‘a compulsory licensing issued may be terminated if and when the circumstances, which led to it ceases to exist and are unlikely to recur’. Given the fact that the Patent Act’s compulsory licensing exception is wider than that in Thailand’s PVP law and covers the protection of public order or vital interests, as well as the security of right holders, more crucially, the patent holders may appeal the order to issue such a compulsory licence to the court within a certain period of time. All of these elements are important for the country to know when farmers can benefit from the applicable flexibility, and thus avoid future disputes between right holders and other parties on the question of the use of the compulsory licensing exception, an element otherwise lacking in the current PVP law of Thailand. Therefore, the new PVP framework should be styled similar to the provisions of the Thai Patent Act of 1999 in order to more fully and comprehensively address the problem of the compulsory licensing exception in Thailand’s plant protection regime. By introducing such clauses of compulsory licensing, the new PVP law could remove the most crippling impediments to introduce extensive compulsory licensing provisions, thereby representing a balance between fully allowing public interest exception and taking a position that tends toward preventing breeders’ security altogether.

**Conclusion**

Overall, this article suggests that Thailand should conform to some of the key elements of plant breeders’ rights protection as stipulated in the 1991 UPOV Convention, without signing up to the UPOV. The reason for this is that Thailand can come close to international norms and maintain flexibility to develop its own sui generis plant variety protection regime while specifically addressing the country’s socio-economic priorities. This may also create some flexibility for Thailand to create its own unique system that may be different from the text of the UPOV Convention, thus providing a broader space for future law-making flexibility.
It can be said that the potential benefits of the regulatory reforms of the PVP law lie in catering to the needs of nations that prefer to promote innovation without threatening farmers’ livelihoods. The TRIPS Agreement grants members the flexibility to prioritise farmers when shaping a policy for plant variety protection. The new PVP regime is exemplary in its ability to capitalise on the flexibility in TRIPS by compromising international legal norms with specific regulatory provisions to address local conditions.

Each of the suggested elements not only represents a fairly high level of compliance with the norms of international law, but also showcases rights contoured to suit unique national conditions. Nowhere is such a balance more important than in agrarian third world countries where farmers generally belong to poorer societal classes.

References
4. Several academic studies suggest that developing countries should adopt different durations of protection; for example, Culpet P, Intellectual property rights and food security in the South, Journal of World Intellectual Property, 7 (3) (2004) 261, 282.
5. Lertdhamtewe P, Thailand’s plant protection regime: A case study in implementing TRIPS, Journal of Intellectual Property Law and Practice, 7 (3) (2012) 186-192 (suggesting that the important aspect of a local domestic plant variety protection is to create community property rights in contrast to breeders’ variety, a concept ignored by UPOV).
6. The Plant Variety Protection Act B.E.2542 (1999) (Thailand) (PVP Act) § 44(1), (2), and (3).
12. Lertdhamtewe P, Thailand’s plant protection regime: A case study in implementing TRIPS, Journal of Intellectual Property Law and Practice, 7 (3) (2012) 192 (arguing that there are several local communities and local people relative to local plant varieties in Thailand, so that no one can claim for itself the precise right to register and benefit from local domestic plant variety protection provisions).
18. Correa Carlos M, Implementing the TRIPS Agreement in the patents field: Options for developing countries, Journal of World Intellectual Property, 1 (1) (1998), 75, 83. Professor Correa suggested that, in order to prevent biopiracy facilitated by the relative novelty requirement of patents, some institutions initiated the publication of community knowledge, thus destroying its novelty for the purpose of patentability). India’s Council of Scientific and Industrial Research is reported to have launched a programme to analyse nearly 500 medicinal plants, in order to place the information on CD-ROMs and make it available to patent offices as a reference guide.
25. Bangkok Post, Police, Pirate Tapes, Poverty and Polices: A Sad Tale, Bangkok Post (26 August 2010). According to Mr. Surat’s version of the story, besides working as a temporary employee at City Hall, he also collects saleable scrap from the garbage to make extra income to feed his family. On the day he was arrested by the police, he was selling the scraps he’d collected, which included some
copyrighted CDs. He claimed that two other vendors who were selling pirated CDs and DVDs right next to him were left untouched by the policemen. What is most troubling about the case is that the police appear to have applied a double standard in arresting Surat while ignoring the two other vendors.


27 The detailed content and scope of a permit certification for the use of extant varieties, which can be prescribed by the Plant Variety Protection Commission, need to be further analysed and discussed.


31 Daniel Robinson, Exploring components and elements of *Sui Generis* systems for plant variety protection and traditional knowledge in Asia, (ICTSD Programme on IPRs and Sustainable Development, March 2007) 22.


34 *UPOV Convention*, Articles 5, 6, 7, 8 and 9.

35 UPOV Article 6.1 establishes that a variety shall be deemed to be new if it has not been sold by, or with the consent of, the breeder “earlier than 1 year before the date of application, within the territory of the Contracting Party in which the application has been filed, earlier than 4 years or, in the case of vines, earlier than 6 years before the said date, outside the territory of the Contracting Parties” *UPOV Convention*, Article 6 [emphasis added].

36 UPOV Article 5.2 states that “the grant of the breeder’s right shall not be subject to any further or different conditions, provided that the variety is designated by a denomination in accordance with the provisions of Article 20, that the applicant complies with the formalities provided for by the law of the Contracting Party with whose authority the application has been filed and that he pays the required fees, *UPOV Convention*, Article 5.2 [emphasis in original].


38 Commentators have suggested that there has been no thorough economic analysis to determine the optimum duration of new plant variety protection in Thailand and it remains to be seen whether such a term of protection will create 'an unnecessary burden on society or provide unreasonably large profits for the holders of new plant varieties, Lertdhamtewe P, Thailand’s plant protection regime: A case study in implementing TRIPS, *Journal of Intellectual Property Law and Practice*, 7 (3) (2012) 192.

39 The PVP Act of Thailand, § 31.

40 Verma S K, *Fitting Plant Variety Protection and Biotechnology Inventions in Agriculture Within the Intellectual Property Framework: Challenge for Developing Countries*, in Conference on Intellectual Property Rights, Innovation and Sustainable Development, Hong Kong, People’s Republic of China, 8–10 November 2004, (arguing that the *sui generis* system for plant variety protection providing less protection may give little incentive for research and development in this field).


42 The UPOV Convention, Article 19.

43 The UPOV Convention, Article 19(2).


45 As discussed earlier, experience to date has shown that part of the term of protection is automatically consumed by the typical delay in the application process and prosecution. Specifically, the average duration for examining and inspecting an application is approximately 24 to 36 months; Plant Variety Protection Division, *Procedure and Guideline for the Examination of New Plant Variety Protection Application* (Bangkok: Ministry of Agriculture and Cooperatives, Thailand).

46 Such an extension or adjustment is the result of certain specified types of delays which may occur when an application is pending before the administrative process and prosecution.

47 35 U.S.C. § 154(b) [emphasis added].

48 Plant breeders’ rights in Thailand’s PVP Act are subjected to several exemptions; The PVP Act of Thailand, § 33.

49 The PVP Act of Thailand, § 33(2).

50 The PVP Act of Thailand, Articles 14(5) (b).

51 As discussed earlier, a number of leading scholars, such as Professors Dutfield, Suthersanen and Ragavan, have been critical of the 1991 UPOV Convention for altering the scope of breeders’ rights to favour more technologically-advanced breeders over other breeders and farmers. Professors Dutfield, Suthersanen and Ragavan explain that the breeder of protected variety A has a legal right to demand that the breeder of variety B secure his authorisation to commercialise variety B if it was essentially derived from A. Essentially-derived varieties (EDVs) are somewhat controversial because there is still little consensus over the genetic conformity threshold required to identify EDVs from the initial variety. For example, a potential incremental modification of the initial variety can be obtained by the selection of a natural or induced mutant, or a somaclonal variant, the selection of a variant individual from plants of the initial variety, backcrossing, or a transformation by genetic engineering. Thus, EDV protection means that breeders will not be able to get away with making a minor...

52 The PVP Act of Thailand, § 33(2).
54 The PVP Act of Thailand, § 37.
56 The PVP Act of Thailand, § 37.