Promoting Innovation for Sustainability in Agriculture – The Role of Malaysian Legal Framework

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ABSTRACT
Sustainable agriculture is a system that can evolve indefinitely towards greater human utility, efficient use of resources, balanced with an environment which is favourable to humans and most other species. One of the ways to encourage sustainability in agriculture is by encouraging innovations. These include innovation in new and more efficient plant and animal breeds that will increase efficiency and less negative effects on the environment which will increase productivity and income for the participants in the agriculture sector.

This article examines how the Malaysian Patents Act 1983 (MPA) and the Protection of New Plant Varieties Act 2004 (PVP) can best be used to encourage innovations that will promote growth and sustainability in agriculture. MPA and PVP provide intellectual property protection for inventions. Specifically the PVP provides intellectual property protection for new breeds of plants that meet the necessary requirements. MPA is more relevant to other related inventions such as in the field of biotechnology.

Nevertheless, the opportunities provided by the two legislations are not without their shortcomings. Such shortcomings include the high related costs, the perception that they are only suitable for big and rich inventors or big business, that they are utilized mostly by foreigners, and that the time taken for protection to become effective is too lengthy. The article will explore such shortcomings and their effects on small farmers and smallholders. Taking into account of developments at the international level, the article also provides recommendations on how small farmers and smallholders can benefit from the protection systems to encourage them to be more innovative and to become more sustainable in the agriculture sector.

INTRODUCTION
Sustainable agriculture is a system that can evolve indefinitely towards greater human utility, with the efficient use of resources balanced with an environment which is favourable to humans and most other species. One of the ways to encourage
sustainability in agriculture is by encouraging innovations. These include innovation in new and more efficient plant and animal breeds that will increase efficiency, and less negative effects on the environment that will increase productivity and income for the participants in the agriculture sector.

Innovation is not an art and can be defined in different ways, all of which lead to the same conclusion. Innovation is defined by Niosi et al. (2000) as: ‘technical novelty – new or improved products or processes…’. The term is defined by Lundvall (1993) as: ‘the creation of qualitatively different, new things and new knowledge’. Innovation can be seen as being the main contributor to long-term economic growth, including in the agriculture sector.

National and international communities are looking to intellectual property protection as one of the methods to encourage innovation, especially in the private sector. For example, the rationale for a patent is to provide an advantage to the society as a whole by rewarding the development of new inventions. It promotes the advancement of technology and protects the inventor. The investors are rewarded by being provided exclusive rights over the inventions as a financial motivation for their effort. It is argued that if there is no patent, individual inventors would not be encouraged to invent new products or to share their inventions with the public.

Although there are arguments for and against the intellectual property protection regimes, intellectual property protection continues to exist and are being employed within the national legal framework. Malaysia has several legislations to encourage innovation and to protect intellectual properties. In relation to agricultural innovation, two such laws are pertinent, namely the Malaysian Patents Act 1983 (MPA) and the Protection of New Plant Varieties Act 2004 (PVP).

This article examines how the MPA and the PVP can best be used to encourage innovations that will promote growth and sustainability in agriculture. MPA and PVP provide intellectual property protection for inventions. Specifically, PVP provides intellectual property protection for new breeds of plant that meet the necessary requirements. MPA is more relevant to other related inventions such as in the field of biotechnology. Nevertheless, most of the discussion will focus on PVP as this is a new law that can give a big impact on innovations in agriculture.

Nevertheless, the opportunities provided by the two legislations are not without their shortcomings. Such shortcomings include the high related costs, the perception that they are only suitable for big and rich inventors or big business, that they are utilized mostly by foreigners, and that the time taken for protection to become effective is too lengthy. The article will explore such shortcomings and their effects on small farmers and smallholders. Taking into account of developments at the international level, the article also provides recommendations on how small farmers and smallholders can benefit from the protection system to encourage them to be more innovative and to become more sustainable in the agriculture sector.

**INTELLECTUAL PROPERTY AND INNOVATION IN AGRICULTURE – MALAYSIAN LEGAL FRAMEWORK**

### Plant Variety Protection

Protection of plant varieties is important as it will protect the interests of both investors and plant breeders. This has a direct effect on technology development in agriculture, including plant and agriculture biotechnology.

Protection of plant varieties is based on three major international agreements, namely the Trade Related Intellectual Properties Agreement (TRIPs) of the WTO, the International Convention for the Protection of New Varieties of Plant 1961 (revised in 1978 and 1991) (UPOV Convention), which sets up the International Union for the Protection of New Varieties of Plants (UPOV), and the International Treaty on Plant Genetic Resources for Food and Agriculture which came into force in 2004.

Many national statutes are based on the UPOV Model law and the 1991 UPOV Convention. The convention provides for the registration and granting of intellectual property rights in relation to new, distinct, stable and uniform plant varieties.

Under UPOV, a plant variety is: ‘a plant grouping within a single botanical taxon of the lowest known rank, which grouping, irrespective of whether the conditions for the grant of a breeder’s right are fully met, can be – defined by the expression of the characteristics resulting from a given genotype or combination of genotypes, – distinguished from any other plant grouping by the expression of at least one of the said characteristics and – considered as a unit with regard to its suitability for being propagated unchanged.’ (Art.1)

Consequently, in the United States and in Europe, the definition is identical, whereas the Andean Community seems to work to a different definition. For the Andean Community, a plant variety will be ‘a set of cultivated botanical individuals that are distinguished by specific
morphological, physiological, cytological and chemical characteristics and can be perpetuated by reproduction, multiplication or propagation.’

However, a plant defined by single recombinant DNA sequences is not such an individual plant grouping, but an abstract and open definition embracing an indefinite number of individual entities, as the taxonomic category within the plant kingdom to which plants belong is not specified.

Requirement for Protection

In Malaysia, the main objective of the PVP is ‘to provide for the protection of rights of breeders of new plant varieties and the recognition and protection of contributions made by farmers, local communities and indigenous people towards the creation of new plant varieties; and to encourage investment and development of breeding new plant varieties in both public and private sectors.

Thus, Parliament recognizes that such protection would be able to encourage innovation in the agriculture sector by encouraging investment and research and development of new plant varieties.

At the same time, Parliament also recognizes the importance of farmers, local and indigenous people towards the creation of new plant varieties. Farmers are not only users of seeds but also key players in the process of conservation and improvement of plant varieties. Their activities ensure crop evolution, whereby new varieties arise through genetic recombination, mutations, hybridization within and between cultivated and wild plant populations.

It has been argued that a carefully designed intellectual property regime in traditional knowledge could help developing countries become full players in global agricultural markets, whilst equitably rewarding indigenous peoples for their contributions to international well-being (Cottier and Panizzon, 2004).

In Malaysia, Section 14 (1) of PVP provides that a plant variety shall be registered as a new plant variety and granted a breeder’s right if the plant variety is new, distinct, uniform and stable. The term ‘breeder’ refers to ‘a person who (i) has bred or (ii) has discovered and developed a new plant variety’. Where a plant variety is bred, or discovered and developed by a farmer, local community or indigenous people, the plant variety may be registered as a new plant variety and granted a breeder’s right, if the plant variety is new, distinct and identifiable. This leaves out the requirement of uniform and stable.

A plant variety is identifiable if (i) it can be distinguished from any other plant grouping by the expression of one characteristic, and that characteristic is identifiable within individual plants or within and across a group of plants; and (ii) such characteristics can be identified by any person skilled in the relevant art.

A plant variety is new if on the filing date of the application, the propagating or harvested material of the plant variety has not been sold or otherwise disposed of on a commercial basis by or with the consent of the breeder (i) within Malaysia, earlier than one year before the filing date of the application for registration of a new plant variety and granting of a breeder’s right; and (ii) in other countries earlier than six years before the filing date of the application for registration of a new plant variety and granting of a breeder’s right in respect of trees and vines; and earlier than four years before the filing date of the application for registration of a new plant variety and granting of a breeder’s right in respect of other plant varieties.

A plant variety is distinct if on the filing date of the application right it is clearly distinguishable from any other plant variety, the existence of which is a matter of common knowledge.

A plant variety is uniform if, subject to the variation that may be expected from the particular features of its propagation, it is sufficiently uniform in its relevant characteristics. The issue of sufficiently uniform was discussed in the case of Moulin Winter Wheat by the Plant Varieties and Seeds Tribunal of England.

A plant variety is stable if its relevant characteristics remain unchanged after repeated propagation or, in the case of a particular cycle of propagation, at the end of each particular cycle.

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3 Malaysian Plant Variety Protection Act 12004, s.2.
4 s.14(2).
5 s.14(e).
6 s.14(3) (a).
7 s.14(3)(b).
8 s.14(3)(c).
9 (1985) FSR 283.
10 S.14(d).
Under the Malaysian PVP, an application for a breeder’s right shall not be approved unless the Plant Varieties Board (the Board) approves the denomination of a plant variety. In order to be approved by the Board, the denomination shall be the generic designation of the plant variety; it must enable the plant variety to be identified, shall not consist exclusively of numerals, and shall be different from other plant variety denominations which identify an existing plant variety of the same plant species or a closely related species. When the Board rejects a denomination, it may require the applicant to furnish a new denomination within a prescribed time.

The approved denomination of a protected plant variety shall be used when the plant variety is offered for sale on a commercial basis and where a trademark, trade name or other similar indication is used together with the approved denomination, the denomination must remain easily recognizable. This applies notwithstanding that the duration of the plant breeder’s right has expired.

Section 12 of the Malaysian law states that an application for breeder’s right shall be filed with the Board in the prescribed manner and shall:

a. state the name, address, nationality and other particulars of the applicant;
b. be supported by documents and information relating to the characteristics of the plant variety which distinguishes the plant variety from other plant varieties;
c. specify a plant variety denomination in accordance with Section 17;
d. contain information relating to the source of the genetic material or the immediate parental lines of the plant variety;
e. be accompanied with prior written consent of the authority representing the local community or the indigenous people in cases where the plant variety is developed from land races or traditional cultivars;
f. be supported by documents relating to the compliance of any law regulating access to genetic or biological resources; and
g. be supported by documents relating to the compliance of any law regulating activities involving genetically modified organism/s in cases where the development of the new plant variety involves genetic modification.

This law clearly requires the consent of the local people or the indigenous people. As the Act is not yet come into force, it is not known how the law will be implemented and to what extent the interest of local farmers and indigenous people will be protected.

Under the Act, the following persons are entitled to file an application for breeder’s rights: a breeder; the employer of the breeder; the successor in title of the breeder; a farmer or group of farmers, local community or indigenous people who have carried out the functions of a breeder; and any government or statutory body which has carried out the functions of a breeder.

If the applicant is a local community or an indigenous people, the authority representing the local community or indigenous people shall be the agent for such applicant and notice or process relating to the application and other matters relating to the registration of a new plant variety or breeder’s right may be served on it.

**Holder’s Rights**

A holder of the breeder’s rights, in respect of the propagating material or the protected plant variety and the harvested material including the entire plants and parts of the plants in the case where the propagating material is obtained through the unauthorized means, have the right of authorization in respect of the following acts carried out on a commercial basis:

a. producing and reproducing; conditioning for the purpose of propagating;
b. offering for sale;
c. marketing inclusive of selling; and
d. exporting; importing or stocking the materials for the purposes above mentioned.

The breeder’s rights shall also extend to plant varieties which are essentially derived from the protected plant variety, provided that the protected plant variety is not essentially derived from another plant variety; plant varieties which are not clearly distinguishable from the protected plant variety; or the production of other plant varieties which require the repeated use of the protected plant variety.

The breeder’s rights shall not extend to:

a. any act done privately and for non-commercial basis and any act done for an experimental purposes;
b. any act done for the purpose of breeding other plant varieties and any act referred to in S.30(1)(a)-(g) in respect of such other

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11 s.16(1).
12 s.13(1).
13 s.13(3).
14 s.30.
15 s.30(2).
plant varieties, except where such other plant varieties have been essentially derived from the protected plant variety, any act of propagation by small farmers on their own holdings using the harvested material of the protected plant variety planted on their own holdings;

c. any exchange of reasonable amounts of propagating materials among small farmers; and

d. the sale of farm-saved seeds in situations where a small farmer cannot make use of the farm-saved seeds on his own holding due to natural disaster or emergency or any other factor beyond the control of the small farmer, provided that the amount sold is not more than what is required for his own holding.

The breeder’s rights shall not be applicable to any material of the protected plant variety or any material derived from that material which has been sold within Malaysia on a commercial basis by the breeder or by any other person with his consent. The rights remain for such material that is used for purposes involving further propagation of the protected plant variety or the export of the material to a country which does not protect varieties of the plant genus or species to which the variety belongs and the exported material is not for final consumption.16

**Period of Protection**

Periods of protection vary from one country to another. In Malaysia, the periods of protection are as follows:

a. 25 years from the filing date for plant varieties that are new, non-obvious and useful;
b. 20 years from the filing date for plant varieties that are new, distinct, uniform and stable;
c. 15 years from the filing date for plant varieties that are new, distinct and identifiable; and
d. 25 years could be granted for trees or vines.17

This period may be extended on the grounds of national need and interest where an application of extension has to be made in advance before the expiry of the right.

Under Malaysian law, the holder shall ensure that the propagating material, of the registered plant variety, is available in reasonable quantities within three years from the date of application for registration of the new plant variety and granting of a breeder’s right, and at such reasonable price as may be determined by the Board. The holder is also required to maintain at his own expense samples deposited at a centre approved by the Board; to furnish the Board with the propagating material of the protected plant variety which is capable of reproduction (throughout the duration of the breeder’s right if requested by the Board); and provide the Board with facilities and information regarding the protected plant variety, without any charge.

**Malaysian Patent Act**

Under the Malaysian Patent Act 1983, an invention is patentable if it is new, involves an inventive step and is industrially applicable.18

The Malaysian Patent Act excludes from patentability discoveries, scientific theories, plant or animal varieties, or essentially biological processes for the production of plants or animals, other than man-made living micro-organisms, micro-biological processes and the products of such micro-organism processes and methods for the treatment of human or animal body by surgery or therapy, and diagnostic methods practiced on the human or animal body other than to products used in any such methods.19

Malaysian law excludes patentability for any variety of animal or plant or any essentially biological process for the production of animals or plants, not being a micro-biological process or the product of that process.

The issue is whether a plant is patentable under the Malaysian patent system, whilst waiting for the PVP system to be in operation. The legal foundation of the patentability of plants in general is built upon the same basic principles as those that prevail for other inventions, namely that any type of invention in any kind of technology is largely considered as patentable subject-matter. Also, it has been agreed that there should be no discrimination in patent law between different areas of technology. For instance, the Paris Convention provides that ‘…industrial property shall be understood in its broadest sense, comprising both manufactured and natural products’ (Art.1.3). Nevertheless, the question remains as to whether plants may be considered to be ‘inventions’.

Under the TRIPs Agreement, there is no general exclusion of inventions in the sphere of animate nature. On the contrary, Article 27 of TRIPs states that WTO members may exclude from patent protection plants other than micro-organisms as well as essentially biological processes for the

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16 s.31(2).
17 s.31.
19 s.13.
production of plants (again, other than micro-biological ones). Furthermore, the TRIPs Agreement neither excludes nor obliges the granting of patents for plant varieties, but requires nevertheless plant varieties to be protected either by patent protection or protection by a *sui generis* system. The TRIPs Agreement thus only requires that micro-organisms, non-biological and micro-biological processes be patentable.

For European Union as well as for the European Patent Office, biological material shall be patentable to the extent that it has been isolated from its natural environment or produced by means of a technical process, regardless of whether the same material has previously occurred in nature. Hereby, plants have explicitly been found patentable provided that the technical feasibility of the invention is not confined to a particular plant variety.\(^{20}\)

In the United States, a distinction has not been made between plants and plant varieties as in Europe, but instead between sexually and asexually reproduced plants.\(^{21}\) Whereas asexually reproduced plant varieties became patentable under the 1930 Plant Patent Act, sexually reproduced, or tuber-propagated\(^{22}\) ones (other than fungi or bacteria) were protected by the 1970 Plant Variety Protection Act.\(^{23}\) Later on, as a result of the impact of Chakrabarty,\(^{24}\) it was decided in the *Ex Parte Hibberd decision*,\(^{25}\) and confirmed by the Supreme Court in its Pioneer Hi-Bred decision\(^{26}\), that plants (e.g. plants *per se*, seeds and plant parts)\(^{27}\) are also patentable under the General Utility Patent Act.\(^{28}\) However, plants in their natural form will not be patentable as they remain a mere discovery. Finally, in the United States, micro-organisms are patentable\(^{30}\) as well as non-naturally occurring essentially biological processes for the production of plants.

The patentability of plant-related inventions will therefore often depend on definitions made and interpretations given to the concepts of plant variety, micro-organisms and essentially biological processes. The borderlines between these scientific definitions usually originating from varying jurisprudence within different jurisdictions trigger distortion of the regulations between the different national or regional patent systems.

In countries which have a tradition of protecting plant varieties by PVP/UPOV systems, such as Malaysia, whatever falls within the scope of PVP protection will mostly be excluded from patentability. Therefore, precise definition of the term ‘plant variety’ will be of importance in order to delimitate between the two. In Europe, for example, as plant varieties are protected under Community Plant Variety Protection, inventions related to plants in general are not excluded from patentability provided that the technical feasibility of the invention is not confined to a particular plant variety.

However, in countries which do not grant patents for plant-related inventions at all, but do confer PVP protection, the definition of plant varieties will obviously not serve to delimitate between patent and PVR protection, but instead to clarify what will be protectable under PVR and what will not. For example, the Andean Community excludes plants from patentability,\(^{31}\) but protects plant varieties under Decision 345 on Common Provisions on the Protection of the Rights of Breeders of New Plant Varieties.\(^{32}\)

Finally, in certain countries, the two systems coexist. In Australia, for instance, neither plants nor plant varieties are excluded from a ‘standard’ patent. Moreover, plant varieties will also be protected

\(^{20}\) Rule 23 (c) (b) to the EPC and Article 4 & 2 Directive 98/44/EC.

\(^{21}\) See point 2.3 of this paper for a definition and further comments.


\(^{28}\) Even if for instance a new medicinal use is discovered.
under the 1994 Plant Breeder’s Rights Act. On this matter, Australia has expressed to the WTO that the granting of a right under one system does not in itself affect any entitlement under the other system, provided all conditions for eligibility are met.

**ISSUES WITHIN THE LEGAL FRAMEWORK**

**Interface between PVP and the Patent System**

The existence of a dual protection available for plant-related innovations has been a subject of continuous discussions in countries where a dual protection is available. Moreover, these concerns remain pronounced even in those countries where a single system of protection exists. Generally, it relates to the interface of rights provided by these two systems, availability of exemptions under one system and absence in another.

One of the issues is whether breeding in itself could breach a patent. The ‘breeders’ exemption’ provided for by the UPOV 1991 recognizes the right of breeders to use protected varieties to create new varieties. As long as the general patent law does not contain this exemption, it has been questioned whether the plant breeder would be allowed to use patented material in his breeding activities, and if so, whether that could fall under the research exemption of general patent law.

In the European Union, the EU legislations perceive the risk that patents on plant-related inventions might be detrimental to innovation activities in the plant breeding industry. Article 12 of the EU Biotech Directive contains a provision on the possibility of obtaining a non-exclusive compulsory license in cases where a plant variety right cannot be exploited without infringing a prior patent, and vice versa. To obtain the licence, the applicant must demonstrate that he had unsuccessfully requested the right holder to grant him a license, and that the plant variety or the invention constitutes significant technical progress of considerable economic interest.

While the scope of this exception is not clear-cut, in Europe it is believed that it allows research which is aimed at improving the invention. However, at present, it is not clear whether all plant breeding activities automatically will be exempted from patent infringement. Additionally, an expert workshop of the OECD held in January 2002 underlined that unclear definitions of exemptions could have a negative effect on the progress of basic science.

**Farmer’s Rights: Whether Seed-saving Constitutes Infringement?**

PVP rights are also limited by a ‘farmer’s privilege’ provision, which allows farmers who grow protected varieties to save the resulting seed for the production of the subsequent crop ‘on their own holdings’. Apart from these series of exceptions, in the United States, PVP rights are subject to a compulsory licensing requirement, which could be issued in public interest to maintain an adequate food supply.

A good example of the US approach with respect to the interface at issue is the recent decision by the US Court of Appeal for the Federal Circuit in Monsanto Co vs McFarling. In this case, the Court recognized that plants were subject matter eligible for utility-patent protection under 35 USC 101, and that hybrid seeds also eligible for protection under the PVP were not an exception to that general rule. The Court recognized that ‘there are no exemptions for ... saving seed under a utility patent,’ as there is in the PVP. The Court yet held nonetheless that the two statutory schemes could ‘mutually coexist’.

In the traditional fields of technology where living matter is not involved when a purchaser buys a patented item from an authorized seller, the purchaser is deemed to receive a license under the relevant patent unless the seller and purchaser make an express agreement to the contrary. In the usual context, this ‘implied’ license would be construed to allow the purchaser to use and resell the patented item, but not to make a new patented item. It is sometimes stated that the patent owner’s rights are ‘exhausted’ in the sold item.

The implied-license doctrine is not easy to apply to biological subject matter, such as the patented

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37 Apart from these series
38 7 U.S.C. 2404.
39 Monsanto Co. vs. McFarling, 23 August 2002, 64 USPQ2d 1161,1166.
41 United States Court of Appeals for the Federal Circuit, 03-1177, 1228.
seed. Thus, the issue remains unanswered, such as whether when the patented seed grows and produces new seed, is the new seed a new ‘making’ of the patented seed outside the implied license?42

Malaysia’s view at the Fourth International Technical Conference on Plant Genetic Resources summarises the concerns relating to the protection and intellectual property of plant genetic resources, which include rights of farmers (Anon., 1996).43 Malaysia considered that: ‘private firms will be unwilling to supply their near-commercial materials at least until they have obtained proprietary rights’; privatizations of genetic resources under national intellectual property law have placed restrictions on the access and exchange of such resources; and, fostered by proprietary rights, multinational corporations in biotechnologically advanced developed countries continue to forge ahead with plant breeding, development of biofertilizers, biopesticides, animal vaccines, diagnostic tools and other biotechnological products and processes.44

The Malaysian PVP’s approach towards farmer’s privilege is commendable. As discussed above, the PVP excludes from the breeder’s exclusive rights the following acts: any act of propagation by small farmers on their own holdings using the harvested material of the protected plant variety planted on their own holdings; any exchange of reasonable amounts of propagating materials among small farmers; and the sale of farm-saved seeds in situations where a small farmer cannot make use of the farm-saved seeds on his own holding due to natural disaster or emergency or any other factor beyond the control of the small farmer, provided that the amount sold is not more than what is required in his own holding.

Are They for Big Business Only?

There are arguments that PVP and patent systems are for big businesses and not for small farmers and local and indigenous communities. This argument cannot be true as any one who meets the conditions for protection is eligible for such protection.

However, one could argue that the discrimination against small businesses, farmers and local and indigenous communities is unintentionally part of the system. For example, small farmers will have to go through the same system as those of the big companies, and will have to show that the new variety meets almost the same requirement, whilst having to meet the denomination requirement.

To understand how the PVP system works can be a big puzzle for small farmers. They have to understand each and every legal requirement, and this could lead to confusion and could put off potential applicants. At the same time, in order to understand the system, such potential applicants will very likely require the service of professional advisors such as PVP and patent agents. Professional service can be expensive and beyond the means of many farmers.

According to the World Bank Report, Intellectual Property Rights: Designing Regimes to Support Plant Breeding in Developing Countries, commissioned by the World Bank’s Agriculture and Rural Development Department (World Bank, 2006), policy makers must also consider cost-effective means for implementing an IPR regime and ensuring that the IPR system is consistent with enforcement capabilities. If they are to have their intended effect, IPR systems in plant breeding must be tailored to the conditions of national seed systems. Even within a single country, the requirements and conditions of different crop production systems are not uniform, and each country may consider legal options that address this variability. For example, strong protection may be provided for export agriculture, and weak or no protection for non-commercial sectors that primarily cater for subsistence farmers.

It is suggested that the government is to provide some forms of assistance for certain groups of potential applicants. The assistance could come in the form of legal aid or a reduction in certain fees.

In addition, the government could also look at the possibility of introducing a special domestic protection system for selected groups of applicants. This is not a unique system and has been introduced in Thailand.

Chapter IV of the Thai law provides for Protection of Local Domestic Plant Varieties. Section 43 states that a plant variety capable of registration as a local domestic plant variety under the Act shall have the following descriptions: (1) being a plant variety existing only in a particular locality within Thailand; (2) being a plant variety not registered as a new plant variety. A sui juris person, residing and commonly inheriting and passing over culture

42 Ibid, at 1163.
44 According to FAO report CPGR-6/95/15E, some 2000 field trials of transgenic plants involving 36 crop species were undertaken in the USA between 1987 and 1994. The main genetic improvements tested were quality (42%), herbicide tolerance (28%), virus resistance (20%) or insect-resistance (12%).
continually, who takes part in the conservation or development of the plant variety which is of the descriptions specified in Section 43, may register as a community under the Act.\textsuperscript{45} For this purpose, the community is required to appoint a representative who shall submit an application in writing to the local Changwad Governor.

The application shall contain at least the following particulars:

a. the plant variety jointly conserved or developed, and the method of its conservation or development;

b. the names of members of the community; and

c. the landscape together with a concise map showing the boundary of the community and adjacent areas.

Chapter V deals with the Protection of General Domestic Plant Varieties and Wild Plant Varieties. Section 2 states that a person who collects, procures or gathers general domestic plant varieties, wild plant varieties or any part of such plant varieties for the purposes of variety development, education, experiment or research for commercial interest shall obtain permission from the competent official and make a profit-sharing agreement under which the income accruing shall be remitted to the Plant Varieties Protection Fund in accordance with the rules, procedures and conditions prescribed in the Ministerial Regulation.

The profit-sharing agreement shall have the following particulars:

a. the purposes of the collection and gathering of the plant variety;

b. the amount or quantity of samples of the intended plant variety;

c. the obligations of the person to whom permission is granted;

d. the stipulation as to intellectual property rights in the products which result from the development, study, experiment or research of or into the plant variety and which are derived from the use of the plant variety under the agreement;

e. the stipulation as to the amount or rate of, or the term for, the profit-sharing under the profit-sharing agreement in respect of products derived from the use of the plant variety;

f. the term of the agreement;

g. the revocation of the agreement;

h. the stipulation as to the dispute settlement procedure; and

i. other items of particulars as prescribed in the Ministerial Regulation.

CONCLUSION

Malaysia has in place two important laws that can encourage innovation in the agriculture sector in the form of the PVP and the MPA. These laws are generally in compliance with Malaysia’s international obligations. Nevertheless, there could still be improvement in the implementation of the laws to encourage active participation in agriculture innovation. Where necessary, reforms as discussed above could take place to ensure that such laws do not encroach on the rights of certain groups, such as farmers and local, and indigenous groups. Incentives could also be offered to ensure potential users are not excluded by the system.

REFERENCES


