THE POSSIBLE OVERLAP BETWEEN PLANT VARIETY PROTECTION AND PATENT: APPROACHES IN AFRICA WITH PARTICULAR REFERENCE TO SOUTH AFRICA AND ETHIOPIA*

*Sileshi Bedasie***

I. Introduction

The growth of intellectual property as a consequence of scientific and technological advancement has given rise to complex relationships among the various forms of intellectual property rights. As different forms of intellectual property rights have expanded, some have moved toward protecting the same or similar subject matters. Such is the case with patent and plant variety protection, which have experienced a growing overlap. This overlap can affect the right holders if the effective exploitation of a patent cannot be made without infringement of the plant breeders' rights and vice versa. Moreover, the possible overlap may adversely affect the interests of farmers, because patent protection does not recognize the farmers' privilege, typically granted by plant variety protection, to save and exchange seeds.

Plant variety protection has become an important issue since the adoption of the TRIPS Agreement on intellectual property rights in 1994. However, it remains a novelty for all but a few African countries, and constitutes a significant departure from the customary practice based on the free sharing of knowledge.[1] The TRIPS Agreement generally provides for the patentability of inventions in all fields of technology, and specifically

---

* This is a partly modified version of a work initially contributed to a team report prepared following the 12th European Intellectual Property Institutes Network ("EIPIN") Congress, held at Strasbourg, France, February 24-25, 2011, on a theme entitled "Constructing European IP: Achievements and New Perspectives," and in Alicante, Spain, April 8-10, 2011 on a theme entitled "New Trends in International Intellectual Property Protection." The writer is thankful to the external assessor and the editors of the *Haramaya Law Review* for their constructive comments.

** LL.B. (Haramaya University), LL.M. (Munich Intellectual Property Law Center, Augsburg University, Germany), Lecturer, Haramaya University College of Law.

1. Philippe Cullet, *Plant Variety Protection in Africa: Towards Compliance with the TRIPS Agreement*, 45 J. AFRICAN L. 97, 97 (2001).

calls for "protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof."[2] Member states of the TRIPS Agreement from Africa are under an obligation to comply with this mandate, though they may take any approach they wish. The most common means of implementation throughout the continent has been the adoption of the International Convention for the Protection of New Varieties of Plants (UPOV Convention), rather than "devising an alternative to monopoly rights."[3]

So far, there is no uniform approach in the treatment of the possible overlap between patents and plant variety protection. In Africa, the relevant regional intellectual property organizations—the African Intellectual Property Organization ("OAPI") and the African Regional Intellectual Property Organization ("ARIPO")—have adopted different approaches. OAPI deals directly with plant variety protection, requiring members' adherence to the 1991 version of the UPOV Convention, while ARIPO has not specifically addressed the issue of plant variety protection.[4] The African Union's model law dealing with access to biological resources and the rights of farmers and breeders rejects patents on life forms and "exclusive appropriation of any life form, including derivatives."[5] Unsurprisingly, different African countries employ diverse approaches to the relationship between patents and plant variety protection.

II. Approaches to the Protection of Plant Varieties

A. The Approach in South Africa

South Africa is one of the few African countries that had a plant variety protection regime in place prior to the adoption of the TRIPS Agreement.[6] As a member of both the TRIPS Agreement and the UPOV Convention, South Africa has taken legislative measures to protect plant varieties in addition to protection of patents. Accordingly, the Plant

2. Agreement on Trade-Related Aspects of Intellectual Property Rights art. 27.3(b), Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299.

3. Cullet, *supra* note 1, at 102.

4. *Id*. at 103.

5. *Id*. *See also* Org. of African Unity, African Model Legislation for the Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources (2000), *available at* http://www.opbw.org/nat_imp/model_laws/oau-model-law.pdf.

6. Cullet, *supra* note 1, at 104.

Breeders' Rights Act provides for protection of new varieties of plants, both conventionally bred and genetically modified.[7] However, the Patents Act excludes patents for both plant and animal varieties.[8] This exclusion does not extend to a variety developed through a microbiological process,[9] such as plants modified through genetic engineering.[10] Such a process, carried out with human intervention, is not considered to be an "essentially biological process," so its product could be the subject of both a patent and plant breeders' rights under the respective legislations.[11] This is also evident from the Genetically Modified Organisms Act of 1997.[12]

Apart from its legal regimes for the protection of plant varieties and patents, the country has also introduced the South African Biodiversity Act of 2004 in order to comply with its obligation under the 1992 Convention on Biological Diversity ("CBD"), to which it is a signatory.[13] The Act provides a benefit-sharing mechanism under which a patent holder must ensure compensation to a person allowing access to an indigenous biological resource.[14] This act, in contrast to the aforementioned Patents Act, seemingly implies the possible grant of a patent over biological plant material, which may still involve some aspects of a plant variety. Moreover, the grant of plant breeders' rights over the biological material is not excluded, implying a possible interface between the two systems of protection. This implication was confirmed by the 2005 amendment to the Patents Act, at least with regard to the protection of genetic resources.[15] The benefit-sharing mechanism functions to regulate the possible competing interests of right holders and the community with a vested

7. Plant Breeders' Rights Act 15 of 1976 (amended 1980, 1981, 1983, 1986, 1996) (S. Afr.).

8. *See* Patents Act 57 of 1978 s. 25(4)(b) (amended 1979, 1983, 1986, 1988, 1996, 1997, 2001, 2002) (S. Afr.).

9. *Id.*

10. Genetic engineering is the process of inserting genetic information into the genomes of different plants; the traits or characteristics associated with the genes will be expressed in the plants. *See* ROBYN MERRY, GENETICALLY MODIFIED PLANTS: MAKING DUAL PROTECTION A PRIORITY (2009), *available at* http://www.bowman.co.za/LawArticles/Law-Article~id~2132417435.asp.

11. *Id*.

12. *Id*.

13. David Kaplan, *Intellectual Property Rights and Innovation in South Africa: A Framework*, *in* THE ECONOMICS OF INTELLECTUAL PROPERTY IN SOUTH AFRICA 1, 14 (2009)

14. *Id.*

15. *See* Patents Amendment Act 20 of 2005 s. 2 (S. Afr.) (indicating the possible grant of a patent on an invention "based on or derived from" genetic or biological resources). It is possible that a genetic resource (particularly a genetically modified one) to which a patent pertains may involve a plant variety developed through microbiological process.

interest in the genetic resource, but there exists no explicit approach for resolving the possible conflict between the holders of different intellectual property rights over the biological material. The benefit-sharing approach also fails to regulate cases where the interest of the users other than the community may be affected due to the overlap. Hence, the competing interests at stake are not only that of the respective right holders but also of the users.

B. The Approach in Ethiopia

Ethiopia is not a party to the TRIPS Agreement and is currently under no obligation to comply with its provisions, despite the country's application for accession to the WTO in 2003. Nevertheless, Ethiopia introduced legal regimes for the protection of patents and plant varieties in 1995 and 2005, respectively.[16] Moreover, Ethiopia has ratified the African Union Model Law and the 1992 Convention on Biological Diversity ("CBD"), both of which deal with some aspects of plant variety in different contexts.[17] It is important not to overlook the relevance of these legal regimes for the protection of plant varieties, which are a subset of the broader concept of all biological resources.[18]

Ethiopia's Patent Proclamation categorically excludes from patentability all plant varieties "or essentially biological processes for the production of plants."[19] In so doing, the Proclamation theoretically avoids the possible extension of patent rights into the realm of plant variety protection. Furthermore, the law that protects plant varieties (under a *sui generis* system) does not explicitly indicate any possible relationship with the protection of patents under the patent legislation.[20] In this regard, the

16. A Proclamation Concerning Inventions, Minor Inventions and Industrial Designs Proc. No. 123/1995, NEGARIT GAZETA OF THE TRANSITIONAL GOVERNMENT OF ETHIOPIA [hereinafter Patent Proc.]; Plant Breeders' Right Proc. No. 481/2005, FEDERAL NEGARIT GAZETA [hereinafter Plant Breeders' Proc.].

17. Ethiopia ratified the CBD on July 4, 1994, and UPOV on October 2, 2005. The country has also ratified the International Treaty on Plant Genetic Resources for Food and Agriculture (2001).

18. Cullet, *supra* note 1, at 122.

19. Patent Proc., *supra* note 16, art. 4(1)(b). According to European law, "A process for the production of plants is essentially biological if it consists entirely of natural phenomena such as crossing or selection." Council Directive 98/44/EC, art. 2(2), The Legal Protection of Biotechnological Inventions, 1998 O.J. (L 213) 13 (EC) [hereinafter Biotech Directive].

20. *See* Plant Breeders' Proc., *supra* note 16. The provisions of the legislation reveal the protection of plant breeders' rights without any explicit mention of patent rights. This indicates the exclusive treatment of issues of plant variety protection, which is excluded from the scope of patentable inventions under the patent legislation.

issues of patent and plant variety protection are apparently regulated by two different, exclusive legal regimes. However, like its South African counterpart, the Ethiopian patent law's plant exclusion does not include micro-organisms and plant varieties produced through nonbiological or microbiological processes.[21] Thus, genetically modified plants produced through a microbiological process may be subject to dual protection under patent and plant variety legislation.[22]

In addition, the Proclamation on Access to Genetic Resources and Community Knowledge (implementing the CBD and other related treaties)[23] provides for the possible grant of a patent on protected biological resources, subject to authorization from the concerned authority and the sharing of benefits.[24] This envisages the possibility of overlapping rights, with a possible relationship between patent and plant variety in the context of protection of biological resources under a separate legislation. The rights may be created in particular over "derivative" biological materials, defined by the legislation to include plant varieties, chemicals, and proteins.[25] This suggests the possibility of both rights in the same derivative biological material, a situation apparently inconsistent with the exclusion under the patent legislation. However, the possibility is tenable only if the biological material exclusively or substantially constitutes a plant variety, which *as such* is not subject to utility patent protection. In other words, there is no categorical exclusion of the concurrent existence of patent and plant breeders' rights over the same biological material as long as the respective legal requirements are met. The question, then, is how the exploitation of the different rights (with different scopes of protection) can be regulated.

---

21. Unlike the corresponding provisions of the South African Patent Act, which are a verbatim copy of Article 27(3)(b) of the TRIPS Agreement, article 4(1)(b) of the Ethiopian Patent Proclamation does not expressly include or exclude the exceptions concerning micro-organisms or nonbiological and microbiological processes for the production of plants or animals. As long as they are not expressly excluded, they may be subject to patent rights and plant variety protection, despite the argument that the exclusion of plant variety may embrace micro-organisms as well. Moreover, the total exclusion from patent protection of micro-organisms or plants produced through microbiological or nonbiological processes is inconsistent with the TRIPS Agreement. Ethiopia will be required to remove the inconsistency following the finalization of its accession to the WTO.

22. *See* MERRY, *supra* note 10.

23. The relevant treaties ratified by Ethiopia include the International Treaty on Plant Genetic Resources for Food and Agriculture (ratified June 29, 2004); the Agreement for the Establishment of the Global Crop Diversity Trust (July 15, 2004); and the Cartagena Protocol on Biosafety (October 21, 2004).

24. Access to Genetic Resources and Community Knowledge, and Community Rights Proc. No. 482/2006, FEDERAL NEGARIT GAZETA, art. 17(12-15).

25. *Id.* art. 2(3).

There exists no single provision in the relevant laws that addresses this issue even implicitly. As the law stands now, it arguably appears that Ethiopia has adopted a "dual approach" in addressing the possible relationship between patent and plant variety protection over the same biological material. That is, both patent and plant breeders' rights can be concurrently created over the same subject matter even if plant variety protection *as such* is excluded from the patent law regime. However, this possible overlap is left ungoverned. The issue may be contractually resolved between the right holders when it arises, but the contractual approach may fail to solve the problem if an agreement cannot be reached. This will hinder the effective exploitation of the respective rights by the right holders, which may result in costly litigation. It can also erode the incentives for innovation.

The concern may be even more critical where the possible overlap tends to limit the farmers' privilege under plant variety protection. The current law for plant variety protection explicitly provides a farmers' exemption, which encompasses the right to use, save, sell, and exchange the protected variety or propagating material[26] without paying compensation to the plant breeders. The only limitation to the exemption is that "farmers cannot sell farm-saved seed or propagating material . . . on [a] commercial scale."[27] Patent protection, unlike plant variety protection, does not contain a farmers' exemption.

Even though one may question the practical relevance of the issue from the current economic perspective of Ethiopia, it is likely to pose a challenge in the future. The relevant laws need to be proactive enough to accommodate future developments in the seed and biotechnology industries,[28] and to ensure predictability and legal certainty in order to

---

26. *See* Plant Breeders' Proc., *supra* note 16, art. 6.

27. *Id*. art. 6(2).

28. The seed industry in Ethiopia is currently at its infant stage compared to those in the developed countries. The public Ethiopian Seed Enterprise "was virtually the sole producer of seeds in the formal seed sector" until 1990. Getenet Gebeyehu, General Manager, National Seed Industry Agency, Ethiopia, Keynote Address at the Workshop on Finance and Management of Small-Scale Seed Enterprises: The Role of Seed in Agriculture 3 (Oct. 26-30, 1998). The first National Seed Industry Policy (NSIP), announced in 1992, was followed by the establishment of the National Seed Industry Agency in 1993 and the enactment of seed legislation in 1997. The legislation "aims at regulating activities of the seed industry by protecting the interests of plant breeders, distributors and farmers." *Id.* at 3-4. The government plays an active role in ensuring quality control for the seeds released to farmers. *Id.* at 4.

Regarding the biotechnology industry, there are only a few patents which have been granted in Ethiopia since the enactment of the patent law in 1995, and almost all of the patents owned by foreigners are unrelated to biotechnological inventions. However, this trend does not rule out future developments, especially with regard to protection of genetic resources in

promote investment in these areas. At present, Ethiopia has no developed seed or biotechnology industries as such that compete for plant variety and patent protection on food crops.[29] However, some cases involving food crops such as *teff* and barley have been recently identified indicating claims for protection by foreign companies.[30] These crops are extremely vital food sources in Ethiopia, and the grant of a patent over any gene forming part of the varieties would limit farmers' access to the seeds. Moreover, there is increasing foreign and domestic investment in the production of cash crops such as flowers, cotton, and fruits. It is thus possible that these agricultural products may be subject to various intellectual property rights, including patent and plant variety.

III. The "Interface Problem" and Possible Alternatives

A. The Interface Between Patents and Plant Variety Protection

Despite the existence of separate legal regimes for patent and plant variety protection in most countries, there remains a delicate issue of interface, mainly due to the absence of a clear delineation between the scopes of the relevant laws. This interface is evident from the approaches adopted by some jurisdictions. For instance, in the European Union, despite a directive on the protection of biotechnological inventions and the European Patent Convention ("EPC"), which theoretically exclude possible overlap, recent case law developed by the European Patent Office ("EPO") has confirmed a grant of patent over a claim consisting of plant varieties where no specific plant varieties were individually claimed.[31] In the U.S., where plant patents are common in addition to plant variety protection, it is even more common than in other countries that a utility patent may

Ethiopia. At present, biotechnology research and development in Ethiopia appears to be negligible, and is largely confined to some governmental agencies, research institutions, and universities.

29. Most of the plant varieties identified in Ethiopia are largely the outcome of research conducted by a few research and academic institutions.

30. *See generally* GETACHEW MENGISTE, AFRICAN CTR. FOR TECH. STUDIES, BIOPROSPECTING IN ETHIOPIA: ENHANCING SCIENTIFIC AND TECHNOLOGICAL CAPACITY (2001).

31. The Enlarged Board of Appeal of EPO, in its decision on the *Novartis* case, has made clear the conformity of the new Rule 23c(b) EPC with Article 53(b) of the EPC, thereby indicating possible patentability of genetic inventions in animals and plants. *See* Joseph Straus, *Biotechnology and Patents*, 54 CHIMIA INT'L J. CHEMISTRY 293, 297 (2000).

embrace a plant variety, thereby giving rise to an interface problem.[32]

The concurrent existence of two different rights over the same subject matter can pose challenges to the exploitation of the rights by the proprietors and the interests of users, given the temporary monopoly conferred by the systems. The overlap between the rights can lead to infringement suits between the different right holders or between right holders and users.[33] A conflict of the latter sort led to a recent case in Canada in which Monsanto, a multinational agricultural biotechnology company, filed suit against a farmer for infringement of its patent on glyphosate-resistant plant cells and genes, due to the farmer's use of seed containing the patented element.[34] Such conflicts may be especially problematic in Africa, where intellectual property systems are less developed and efficient than in the West.

Conflicts may also occur when plant variety protection is obtained over a plant variety and a patent is also granted over a certain genetic ingredient or biological material that forms part of the protected variety. For example, a biological material produced by an isolated and purified plant gene falls within the domain of patent protection as long as the isolated gene has a specific function worthy of protection.[35] Subsequently, the isolated plant gene may be inserted via recombinant DNA technology into a targeted plant, creating a new plant variety.[36] This new plant variety may thus incorporate patented biological material or involve the use of a patented technique,[37] creating an overlap between the patents involved and protection for the new plant variety.

Due to the different scopes of the rights,[38] the exploitation of such

---

32. *See* J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc., 534 U.S. 124 (2001) (U.S.). *See also* Mark D. Janis & Jay P. Kesan, *U.S Plant Variety Protection: Sound and Fury . . . ?*, 39 HOUS. L. REV. 727, 728 (2002).

33. Infringement suits between right holders may be avoided in advance where cross-licensing is adopted.

34. *See* Monsanto Canada, Inc. v. Schmeiser, [2004] 1 S.C.R. 902 (Can.).

35. Patent protection for isolated and purified genes was confirmed in the U.S. in the landmark case of *Diamond v. Chakrabarty*, which opened the gate for the development of the biotechnology industry. 447 U.S. 303 (1980) (U.S.).

36. Surinder Kaur Verma, *Fitting Plant Variety Protection and Biotechnological Inventions in Agriculture Within the Intellectual Property Framework: Challenges for Developing Countries* 8, UNCTAD/ICTSD/HKU/IDRC Regional Dialogue on Intellectual Property Rights (IPRs), Innovation and Sustainable Development (Nov. 8–10, 2004), *available at* http://www.iprsonline.org/resources/biotechnology.htm.

37. *See* Barbara Fleck & Claire Baldock, *Intellectual Property Protection for Plant-Related Inventions in Europe*, 4 NATURE REVIEWS GENETICS 834, 836 (2003).

38. A patent generally entitles the owner to exclude third parties from making, using, or selling the invention under protection, while plant variety protection includes exclusive rights

patent rights will unavoidably infringe the right in the plant variety and vice versa, in particular where the respective rights are owned by different right holders.[39] Further, the scope of a patent over a new use of (or genetic material integral to) a certain plant variety is likely to embrace the whole, or a substantial part, of the protected variety. This scenario is growing more likely as patent and plant variety protection expand their scopes to include similar or the same subject matters, and biotechnological science continues to advance.

This possible conflict is unavoidable in virtually all jurisdictions unless the rights are exclusively regulated by separate laws. Nonetheless, the adoption of separate laws alone is not adequate to address the problems in practice. This can be discerned from the approaches adopted in Ethiopia and South Africa, which indicate the possibility of interface between the protection of patent and plant variety protection even where separate legal regimes are provided for the protection of the two subject matters. Because of this unavoidable overlap, even with separate laws, compulsory cross-licensing is a preferred approach in other jurisdictions such as the EU when the rights are held by different right holders.

There also exists a concern that the existence of overlapping rights with different scopes of protection can have an adverse impact on food security and sustainable agriculture in developing and least developed countries.[40] For instance, the limited exceptions to patent protection may hinder the farmers' right to use the protected material, even if they are entitled to a saved seed exemption under the plant variety protection law.[41] Thus, farmers would be deprived of a privilege[42] that is allowed under plant

---

of producing or reproducing the variety, conditioning the variety for propagation, sale or marketing of the variety, and exporting or importing. Moreover, plant variety protection includes broad exceptions (such as the farmers' privilege to save seeds) that are not available against patents, which are broader in scope of protection, with limited exceptions. *See, e.g.*, Patent Proc., *supra* note 16, arts. 22, 25; Plant Breeders' Proc., *supra* note 16, arts. 5-7.

39. *See* Fleck & Baldock, *supra* note 37.

40. This is particularly a concern for African countries whose economies are primarily based on agriculture, because farmers need free access to seeds in order to guarantee food security in such countries. For instance, "in Ethiopia, farmers contribute about 96 per cent of the annual seed requirement." Cullet, *supra* note 1, at 106.

41. This may occur where patented genetic material forms part of seeds, so that using or reusing such seeds would amount to infringement of the patent. There is no saved seed exemption under the Ethiopian patent law except in a limited case for acts done for non-commercial purposes. This exception does not include the right to sell or exchange the protected seeds to other farmers. Such an exemption exists under the EU Biotech Directive (Recital 47), while there is no exemption in the U.S. *See, e.g.*, Monsanto Co. v. McFarling, 302 F.3d 1291 (Fed. Cir. 2002) (U.S.).

42. The farmers' privilege to use, share, save, and sell a protected plant variety does not extend to acts committed for commercial purposes. In particular, farmers cannot sell farm-

variety protection but prohibited under patent protection (except in case of personal use for noncommercial purposes),[43] as long as the respective rights stem from the same subject matter. In other words, the broader limitations and exceptions to the protection of plant varieties[44] cannot be fully exploited without infringement of the concurrent utility patent (with a much broader scope of protection). This encumbrance can ultimately affect food security where the monopoly rights are created over food crops.

B. Possible Solutions to the Interface Problem

The intricate conflict of rights indicated above necessitates a clear solution. One approach, which is followed by the European Union, is partly based on a compulsory cross-licensing scheme for cases where the respective rights cannot be acquired or exploited without infringing each other.[45] This should not be confused with the benefit-sharing mechanisms adopted in South Africa and Ethiopia, which serve only to resolve the conflict of interests between right holders and the community that may arise in the context of biodiversity and genetic resource protection. This approach is typical in cases of patent rights over biological resources, for which the patent holder is obliged to share the derived benefits with the concerned community.[46] However, this does not address the interface between patent and plant variety protection in the course of their exploitation by the respective right holders. Nor do the existing laws in these countries provide for a European-style cross-licensing scheme.

Another approach—one that excludes the possible interface from the beginning—is a mutually exclusive system of protection under clearly delimited separate laws. This approach, as adopted in countries like South Africa and Ethiopia, theoretically avoids the possible overlap between patent and plant variety rights. However, these laws are not clear enough to avoid the problem in practice, taking into account possible future developments in patent and plant variety protection. The overlap problem may be avoided only when the subject matters to which the rights attach are

saved seeds or propagating material of a protected variety in the seed industry on a commercial scale. *See, e.g.,* Plant Breeders' Proc., *supra* note 16, art. 6(2).

43. *See* Patent Proc., *supra* note 16, art. 25(1)(a).

44. *See* Janis & Kesan, *supra* note 32, at 751-52.

45. *See* Biotech Directive, *supra* note 19, art. 12.

46. It is important to note that the benefit sharing arrangement in South Africa is limited to the traditional knowledge contained in biodiversity, and does not extend to biological resources themselves. *See* Nadine Barron & Ed Couzens, *Intellectual Property Rights and Plant Variety Protection in South Africa: An International Perspective*, 16 J. ENVTL. L. 19, 40 (2004).

specifically and exclusively regulated. This may eventually entail the exclusion of one subject matter from being protected under the other legal regime except under its own category. Alternatively, the creation of a prior right may exclude the subsequent creation of another right.

Each of these solutions has its own merits and demerits, and each country's approach should be adapted to its own needs and economic realities so as to achieve the objectives envisaged by both systems. For instance, the exclusion of certain agricultural innovations from patent protection can avoid both the overlapping rights problem and the strong, broad monopoly rights inherent to patent protection which tend to limit farmers' access to the products. However, the exclusion will ultimately hamper the possible innovation in that sector which otherwise would be achieved via patent protection. A less intrusive approach short of total exclusion may be achieved by adapting the farmers' exemption under plant variety protection into the patent system. The existing exception under Ethiopian patent law does not apparently embrace the farmers' right to sell or exchange the protected product.[47] A limited approach that resembles the exemption under plant variety protection has already been adopted in some jurisdictions in the context of biotechnological inventions.[48]

IV. Conclusion

The issue of overlap between plant variety and utility patent protection is becoming more critical than ever, with practical implications for the exploitation of the respective rights by different right holders. The diverse approaches adopted worldwide often pose an interface problem, impeding harmonious exploitation of the rights. Moreover, measures adopted by some countries to solve the problem are not clear and effective, and may hamper the protection and enforcement of the rights. This may largely affect developing and least developed African countries like Ethiopia, which strive hard to achieve sustainable food security and agricultural development. The problem may even raise concerns with regard to the mandates of member states to comply with the relevant international treaties.

A well-designed *sui generis* system of plant variety protection with a clearly delineated scope is much more apt than a dual protection system in

47. The primary exception to patent holders' rights under Ethiopian law is for "acts done for non-commercial purposes," which would (arguably) not include selling the patented products to other farmers. Patent Proc., *supra* note 16, art. 25(1)(a).

48. *See* Fleck & Baldock, *supra* note 37.

countries where agriculture is the backbone of the economy. For one thing, it is difficult to draw a bright line between the scopes of the different intellectual property rights, while it is much easier to provide for the clear, proper exclusion of certain subject matters from patent protection under the relevant patent law. Additionally, patents over a plant varieties have the potential of diminishing or even denying farmers' access to seeds or propagating material,[49] while this need not be the case in *sui generis* systems. The situation may be even more restrictive when the patent rights exist concurrently with plant variety protection over genetic resources.

Nevertheless, the mere adoption of a *sui generis* system may not necessarily rule out the possible overlap between the rights of different rights holders. Crafting a systematic approach such as compulsory cross-licensing into the relevant laws is imperative to ensure effective exploitation of the rights with a view to promoting innovation and sustainable economic development. To protect farmers, the farmers' exemption under plant variety protection can be provided in the patent law as well for certain important subject matters. In both cases, the approaches should be designed to achieve a balance among the competing interests and sustainable development.

49. *See* Phillip Cullet, *supra* note 1, at 108-09.