ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

FACULTY OF LAW

The Ethiopian Legal Regime on Plant Variety Protection: Assessments of Its Compatibility with TRIPS Agreement, Implications and the Way Forward.

By: Gizachew Silesh

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A Thesis submitted to Addis Ababa University, the school of Graduate Studies, Faculty of Law in Partial fulfillment of the Requirements for the Degree of Master of Laws (LL.M) in Business Law

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Declaration

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in any other University and that all sources of materials used have been aptly acknowledged.

Name_____

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January, 2010

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ACKNOWLEDGEMENT

I got a bulky list of people whose contribution is invisibly imprinted in this research but I have to limit myself. Great thanks to Tesfaye Ayalew whose companionship has always been a source of rejuvenation whenever I felt fragility, beyond the contribution of his friendly and scholarly critiques in the first draft of the research. Again great thanks to Ato Getnet Temechew whose material and moral support has equally contributed to that of the author to assemble the corpus of this research and finally and principally my deepest gratitude goes to my advisor Dr. Fikremarkos Merso whose unreserved effort and constructive comments gave life to the corpus of the research.

Also I owe debt of gratitude to zenaye and meseret who patiently and with due concern undertook the painstaking secretarial task. Asme, Adam, Zed, Habtamu, Alemitu, Bamlaku, Melak, Hi guys you deserve utmost gratitude for being with me all the time I need your support and for your aspiration to see the work completed have been a source of energy.

Abbreviations and Acronyms

ADLI	Agricultural Development-Led-Industrialization.
CBD	Convention on Biological Diversity.
EDVs	Essentially Derived Varieties
GRAIN	Genetic Resource Action International.
IPGRI	International Plant Genetic Resource Institute
IP	Intellectual Property.
IPRs	Intellectual Property Rights
ITPGR	The International Treaty on Plant Genetic Resources for Food and Agriculture.
MoARD	Ministry of Agriculture and Rural Development.
PBRs	Plant Breeders' Rights.
PVP	Plant Variety protection(by the *sui generis* option)
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
UPOV	International Union for the Protection of New Varieties of Plants.
WTO	World Trade Organization.

ABSTRACT

Historically the recognition and enforcement of intellectual property rights (IPRs) were solely a matter of respective national governments. As such they could have been manipulated so as to fit in a nation's overall policy objectives. International agreements have long began to restrain this autonomy of national governments but the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), which is one of the agreements administered by WTO, has never been paralleled by any prior IPR Agreement in its broader scope of applicability with wider sets of WTO Members and in its comprehensiveness of various IPRs. TRIPS ventures into a "one size fits all" approach by prescribing minimum level of IPR protection and enforcement to be adhered by all of its Members in the various fields of IP.

Nonetheless, in relation to plant variety protection, the TRIPS Agreement purports to deviate from the one size fits all approach by permitting Members either to use patent, or an *effective sui generis* system or a combination thereof. In most cases the patent option is ruled out. Particularly developing and least developed countries resort to the *sui generis* option so as to derive some flexibility to accommodate local contexts and to align plant variety protection into their socio-economic policy objectives. However, the absence of clarity in the agreement as to what it takes for a Member to comply with "effective" *sui generis* system has rendered the depicted flexibility unreliable.

While there have been some efforts in designing plant variety protection laws that suits particular context of a given country, restrictive interpretations of the open ended clauses of the TRIPS Agreement have been advanced to equate the effective *sui generis* option to some pre-existing precedents developed in the context of developed countries such as the UPOV system of plant variety protection. And as such there is a tendency to neglect the context of less developed countries and to close the policy space deliberately left in TRIPS in relation to protection of plant varieties. In particular, this open ended nature of the clause have been utilized to give the impression that countries acceding to the WTO need to join UPOV or align their plant variety protection laws to that of UPOV, not to

mention the bilateral and multilateral trade and investment agreements used by developed nations towards that end.

However, close investigation of the TRIPS Agreement shows that considerable leeway is left to Members in designing plant variety protection laws. TRIPS does not directly or implicitly require Members to align their plant variety protection laws to that of UPOV system. In some respects adopting the UPOV system particularly the latest revised one may not fit well into the context of less developed countries. Other models of plant variety protection laws can as well meet the effective *sui generis* requirement of TRIPS.

Currently, Ethiopia is in the process of accession to WTO and as part of its accession process its legal regime on plant variety protection shall be the subject of scrutiny. The study examined whether the Ethiopian plant variety protection law, which is not based on UPOV, coheres or not with the legal requirements of TRIPS. It first examines the legal regime in TRIPS and the Ethiopian law so as to explain where Ethiopian law lies for possible demands from TRIPS. The study concluded that from legal point of view Ethiopian law virtually coheres with TRIPS and warns the negotiators not to yield to political pressures. And to that effect the research has attempted to identify the potential areas of interest that negotiating parties might tend to limit the nation's policy space, by way of political pressure though these obligations do not spring from law in strict sense.

INTRODUCTION

A. Background of the Study

IPRs on plants-as they pertain to agriculture-were among the most controversial issues in the long history of intellectual property protection.[1] Traditionally, in the majority of cases, plants were excluded from national and international IPR regimes.[2] IPRs in plant varieties and other life forms and processes generally have evoked opposition from diverse groups for socio-economic, ethical, and environmental reasons.[3]There had been deep-rooted social antipathy towards the consolidation of commercial interest in food production.[4] It is viewed as inappropriate as it may restrict the traditional agricultural practices of seed saving and exchange.[5] Particularly patent on plants was described by some as a design that will "reduce rural population to beggars."[6]

From ethical point of view, the morality of transferring genes from one species to another and manipulating what God has created has been questioned. [7] The possibility of someone owning a life or part of it is severely criticized. From environmental point of view, some argue that IPRs on plants have provided perverse incentives for erosion of genetic diversity. [8] According to this view, seed companies have a propensity to

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[1]Stephen A. Bent, Intellectual Property Rights in Agricultural Developments: History and progress (2003) p.1.
[2]Ibid., p.2; Philippe Cullet, Revision of the TRIPS Agreement Concerning the Protection of Plant Varieties, Journal of World Intellectual Property,Vol.2 (International Environmental Law Research Center, 1999) p.4, at http://www.ielrc.org/content/a9903.pdf, accessed on 23/5/2009.
[3] Barbara A. Claffey, Patenting Life Forms: Issues Surrounding the Plant Variety Protection Act (of US), Southern Journal of Agricultural Economics (December,1981), pp.33-36.
[4] Bent, above note 1 , p.2.
[5] Cullet(1999), above note 2.
[6] Bent, above note 1, p.3.
[7] Silvia Salazar, "The World of Biotechnology Patents," in Christophe Bellmann *et al* (eds.), TRADING IN KNOWLEDGE: DEVELOPMENT PERSPECTIVES ON TRIPS, TRADE AND SUSTAINABILITY" (Earth Scan Publications Ltd, 2003), p.124. Claffey, above note 1, pp.33-36.
[8] Biswajit Dhar, *Sui generis* System for Plant Variety Protection: Options under TRIPS (Quaker United Nations Office, Geneva, a discussion paper, 2002), p.27, available at www.**geneva**.quno.info/pdf/sgcol1.pdf , accessed on 25/6/2009.

concentrate their research on commonly used high value crops and develop varieties that can be grown as widely as possible that would lead to spread of monoculture.[9]

On the other hand, it was conceived that lack of IPRs in agriculture has hampered the development of the seed industry and agricultural business generally.[10] The pressure from interest groups eventually led to the development of a special form of legal protection different from patent that somehow reflected a compromise between monopoly concerns related to IPRs in agriculture and interest of the private sector in the seed industry.[11]At international level, this was first achieved within the context of the 1961 International Union for the Protection of New Varieties of Plants, known by its French acronym, UPOV.[12] The UPOV Convention came up with a new form of protection by granting breeds the so called Plant Breeders' Right (PBRs).[13]

From the very inception the Convention recognized broad exemptions than that could have been in patent: it recognized the farmers' privilege to reuse and exchange propagating material, and breeders' exemption to use the protected variety in order to breed and commercialize other new varieties. The Convention has undergone through revisions and amendments in 1972, 1978 and 1991-the last two being important revisions that have resulted in progressive strengthening of the rights of breeders.

Decades of strengthening of IPRs on plant varieties within and out of UPOV has culminated in the incorporation of plant variety protection within the Agreement on Trade Related Intellectual Property Rights (TRIPS),[14] which is one of the agreements administered by the World Trade Organization (WTO)-the organization that administers

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[9] Ibid., p. 25; Claffey, above note 3, p.35-36.
[10] Cullet(1999), above note 2.
[11] Ibid.
[12] Bent, above note 1, p.4.
[13] UPOV recognizes the rights of persons who have developed or discovered and developed plant varieties which are new, distinct, uniform and stale. William H Lesser&Susan Eckert Lynch, "Plant Breeders' Rights: An Introduction," in HANDBOOK OF BEST PRACTICES (Cornell University, 2007),p.381.
[14] Agreement on Trade-Related Aspects of Intellectual Property Rights, Annex 1C of the Marrakesh Agreement Establishing the WTO, Morocco, 15 April 1994(hereinafter TRIPS).

trade agreements. Nowadays, IPRs on plant varieties and other life forms and processes are recognized and universalized through TRIPS Agreement.[15]

Article 27.3(b) of TRIPS requires Members to provide for the protection of plant varieties. It states that "…members shall provide for protection of plant varieties either by patents or by effective *sui generis*[16] system or by any combination thereof." This provision has brought substantial legal complexity and ambiguities as to the scope of obligations and flexibilities available to Members in implementing their obligations. It requires that failing provision of patent protection, all Members are required, at minimum, to provide alternative protection by way of effective *sui generis* system in relation to plant varieties. However, TRIPS neither defines what constitutes an effective *sui generis* system nor does it refer to any specific existing IPRs regime or treaty. It simply obliged all WTO Members to extend protection to plant varieties and comply with the agreement.

B. Statement of the Problem.

Historically, IPRs had been jurisdictionally limited and their recognition and enforcement could have been manipulated as a given state deems it appropriate for its development and other policy objectives.[17] International agreements pertaining to IPRs protection has long begun to restrain such flexibility at national level. Currently, the TRIPS Agreement is at the center of the international regime concerning the protection of IPRs. It has attempted to universalize IP protection by imposing minimum standards in the various fields including agriculture by requiring protection of plant varieties.

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[15] Art.27 of TRIPS.

[16] The Latin term *sui generis* means 'of its own kind'. International Plant Genetic Resource Institute (IPGRI), Key Questions for Decision-Makers: Protection of Plant Varieties under the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (1999)(hereinafter IPGRI), p.5. A *sui generis* system of protection is a special purpose system of IP protection that applies to a specific sector-in this case to plant varieties.

[17] Laurence R. Helfer, Intellectual Property Rights in Plant Varieties: International Legal Regimes and Policy Options for National Governments(United Nation Food and Agricultural Organization (FAO), FAO Legislative Study 85, Rome, 2004), p.4, available at http://www.fao.org/docrep/007//y5714e/y5714e02.htm, accessed on 7/4/2009.

TRIPS is a minimum standard setting agreement.[18]It outlines the minimum standards to be adhered by all of WTO Members in the various areas of IP, and this approach constrained the autonomy of Members to design IP laws in line with their development needs and other policy objectives. However, in relation to plant variety protection TRIPS Agreement purports to endorse some level of flexibility. It offers Members the option to protect plant varieties either by means of patents or by effective *sui generis* system or a combination thereof. The patent based system has been ruled out in most cases. Particularly developing and least developed countries prefer to resort to the *sui generis* option[19] owing to the special place of the agricultural sector in their economy which is dominantly subsistence nature. The problem, however, is that TRIPS neither defines nor provides verifiable clues as to what constitutes an *effective sui generis* system that Members and acceding countries should follow.

The ambiguity in the content of the *sui generis* system precipitated in divergent views as to what constitutes an effective *sui generis* system of plant variety protection and uncertainties as to the nature and scope of obligations and flexibilities in TRIPS. In the maze of such ambiguity some tend to assert that UPOV is the appropriate effective *sui generis* system to satisfy the requirement of TRIPS. Most developed nations are already either a member of the 1978 or the 1991 version of the UPOV Convention or have enacted plant variety protection (PVP) laws modeling the Convention.[20] Developed countries urge developing countries to follow the same route .i.e. either to join UPOV or

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[18] TRIPS is a minimum standard Agreement. Art.1(1) provides that " Members shall give effect to the provisions of this Agreement. Members *may, but shall not be obliged to*, implement in their law *more extensive protection* than is required by this Agreement, provided that such protection does not contravene the provisions of this Agreement.(emphasis added).

[19] GRAIN, Developing Countries and TRIPS: A Case for a Full-fledged Review of Article 27.3(B), 2000, available at www. IPRsonline.org/ictsd/docs/GRAIN.pdf , accessed on 5/32009.

[20].Crucible II Group, Seeding Solutions Volume 1. Policy Options for Genetic Resources: People, Plants, and Patents Revisited (International Development Research Centre/International Plant Genetic Resources Institute/Dag Hammarskjöld Foundation, 2000), p.91.

at least to model their laws consistent with UPOV so as to satisfy their obligation under TRIPS.[21]

Practically some developing and least developed countries have subscribed to this demand either due to a perceived lack of any other well defined *sui generis* options, political pressures or perhaps for the sake of simplicity taking UPOV as a ready-made solution for compliance with TRIPS.[22] Nevertheless, observers contended that UPOV system is designed for developed countries and may not be in the interest of Member or acceding least developed and developing countries.[23]

Some countries such as India have come up with their own unique *sui generis* system but they are faced with uncertainties as to the scope of flexibilities to accommodate their local interest and assume the risk of accusation for non-compliance with TRIPS.

Currently, Ethiopia is acceding to WTO and thereby to TRIPS Agreement. Like that of India and some others, Ethiopia has enacted its own unique plant variety protection law[24] that would be the subject of scrutiny in its accession process. Therefore it is very important to examine how the Ethiopian legislations pertaining to plant variety protection are designed, what adjustments are expected to comply with TRIPS, predict the ramifications such adjustments will have, and to examine the possible out ways to accommodate national interests.

C. Research Questions.

This research targets the following questions.

1. What could possibly constitute *effective sui generis* system for protection of plant varieties under the TRIPS Agreement?

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[21] GRAIN, "TRIPS-Plus" Through the Back Door: How Bilateral Treaties Impose Much Stronger Rules For IPRs on Life than the WTO , July 2001, at www.grain.org, accessed on 15/9/2009.
[22] Is UPOV the "One Fits-All" Solution to the Plant Variety Protection Requirement of the TRIPS Agreement? Available at http://www.economics.adelaide.edu.au/workshops/doc/fowdur.pdf. , accessed on 4/24/2009.
[23] Id; Crucible II Group, above note 20, p.101.
[24] Plant Breeders Right proclamation No. 481/2006, Fed. Neg. Gaz, Year 12, No. 12., at www.grain.org, accessed on 25/2/2009.

2. How far does the existing plant variety law of Ethiopia accord to the demands from TRIPS?
3. Is it feasibile for Ethiopia to devise a plant variety protection law that accommodates the Ethiopian context and still TRIPS compliant?

D. Objective of the Study.

The general objective of this research is to assess the compatibility of existing Ethiopian legal regime pertaining to plant variety protection with TRIPS Agreement for acceding Ethiopia and to look into out ways to accommodate national interests without offending the TRIPS Agreement. Within that general objective, the research has the following specific objectives:

- To examine international legal instruments having direct and indirect bearing on plant variety protection;
- To make survey of laws of different countries on plant variety protection;
- To analyze the TRIPS Agreement on plant variety protection;
- To analyze Ethiopian laws on plant variety protection;
- To enquire the actual situations of Ethiopia that are factors in designing plant variety protection in particular the agricultural context, the seed system and research and development on plant varieties;
- To appraise the possible impacts of the existing Ethiopian plant variety protection law in stimulating research and development on plant varieties;

E. Methodology.

The researcher has employed a combination of several approaches. Literature review has provided the conceptual basis on the subject matter. Analysis and explanation of the legal regime governing plant variety protection is made by exploring a number of international and national laws that have direct or indirect bearing on shaping a national plant variety protection law. Of all others, the analysis and explanation of TRIPS regime on effective

sui generis system is made based on the context of TRIPS as a whole, comments of scholars, somehow panel rulings in other areas of IP, and subsequent developments of trends in connection with review of the provision like the Doha declaration.

Analysis of Ethiopian law is made based on the source law from which it is adapted i.e. OAU model law, and general trends in plant variety protection legislations. Comparison of TRIPS rules with Ethiopian legislations on each and every points of critical importance and how the two resolved the issues are used to assess compatibility. Stakeholders such as the Ethiopian seed growers association and the Ethiopian Agricultural Research Organization (EARO), Ethiopian Pioneer Hi-bred Seeds Inc. are contacted to obtain the necessary information on Ethiopian context and concerned persons interviewed.

F. Significance of the study

This research examined and explained the contents of various legal regimes on plant varieties. In particular the possible elements of an effective *sui generis* system in the context of TRIPS are exposed. In line with that it has determined the possible points of convergence and divergence between TRIPS and Ethiopian PVP. Possible future trends in relation to plant variety protection are also depicted. Thus, it will have significant contribution to different stakeholders. First at this moment Ethiopia is in the process of accession to WTO whereby assessment of implications and necessary adjustments is a necessity. This research will provide basic guidance to that effect- in evaluating Ethiopia's current stance and implications of acceding to the WTO. For stakeholders in the private sector, it will offer a chance to appreciate the current trend towards the legal regime pertaining to plant variety protection. It would also serve as a base for future research on the current contentious issue of IPRs in agriculture.

G. Limitation of the Study.

The research embarks upon a relatively recent issue. There are only few relevant published materials. Reliance is made on electronic sources and even in this case the

majority of apparently relevant materials are encrypted-are not freely accessible. This has hindered accommodation of as many diverse views as possible.

Also while some guiding solutions could have been obtained from WTO panel and Appellate Body decisions, the absence of cases on the subject matter deprived us the opportunity to utilize them. Further, the absence of private sector in research and development of varieties in Ethiopia has impeded an in depth investigation of issue due to information constraints and views on the law.

H. Organization of the Study.

This research has attempted to explore what the TRIPS Agreement could possibly demand so as to comply with its effective *sui generis* system of plant variety protection and to what extent Ethiopian PVP coheres with it. In doing so the writer has opted to divide the work into four chapters preceded by an introduction part that introduce background of the study, statement of the problems, objectives of the research, methods employed in the research process, significance of the study and limitation of the study.

Following that, chapter 1 briefs the development of IPRs on plant varieties and other life forms including the development of special purpose IPR regime(PBRs) to plant varieties, explain what led to that and the features of that regime as it evolved within the context to UPOV. It also highlights concerns attached to introduction of IPRs on plant varieties.

Chapter 2 explorers the international legal regimes pertaining to plant variety protection that directly or indirectly affects the design of national PVP. It exposes the UPOV system of plant variety protection followed by expositions of the implications of the Convention on Biological Diversity (CBD), International Treaty on Plant Genetic Resources (ITPGR), and OAU model law in devising PVP regimes. The core issue of plant variety protection as envisaged in TRIPS Agreement is treated in this chapter. Attempts are made to expose what could possibly constitute an effective *sui generis* system approaching the matter from diverse perspectives.

Chapter 3 is devoted to the assessment of the compatibility of the Ethiopian legal regime on plant variety protection with TRIPS Agreement. It evaluates compatibility by

comparing TRIPS and Ethiopian PVP on each and every important elements of an IPR regime. Reflections on the positions taken by Ethiopian law on some important issues in PVP design are also included. Also the possible impact of the Ethiopian PVP in stimulating the private seed industry and whether it could have any impact on public research institutions are briefly assessed.

The fourth chapter is captioned as ‘conclusion and the way forward.’ It summaries the main findings of the research and attempts to provide some guidance in future matters pertaining to PVP issues.

CHAPTER ONE

INTELLECTUAL PROPERTY RIGHTS ON PLANT VARIETIES: HISTORICAL AND THEORETICAL OUTLOOK.

1.1. The Evolution of IPRS on Plant Varieties and Other Life Forms in General.

The recognition of IPRs had its beginnings in the litterae patentes ("open letters")[25] by which monarchs in medieval Europe granted an exclusive privilege, for a prescribed period, as an incentive for the recipient's development of raw land or a strategic commodity, such as a mining resource. Similar patterns had been in place in ancient Venetian city state of the 1200s in which a 10 year monopoly used to be granted to innovators in the manufacture of silk.[26]

Historically, systems for the protection of intellectual property were applied principally to mechanical inventions of one kind or another, or to artistic creations.[27] Hitherto, the patent system protected machines, articles, tools and devices confining patent rights as the exclusive province of "industrial" law.[28] The laws of that time generally made industrial applicability a prerequisite for patentability and they did not extend patent right to living products and process.[29]

The application of IPRs to plant varieties and other life forms is a relatively recent phenomenon in the long history of IPRs.[30] Each step to recognize IPRs in plants and

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[25] Bent, above note, p.1.

[26] Ibid. These historical incidents had laid down the foundation for modern patent- the grant to an inventor, by a national government, of a temporary property right to prevent the unauthorized use of an invention.

[27] Carlos Correa *et al,* Integrating Intellectual Property Rights and Development Policy (Report of Commission on Intellectual Property Rights, London, September 2002), p.57.

[28] Salazar, above note 7, p.121.

[29] Bent, above note 1, p.2. Generally the laws of that time omitted mention of or even prohibited the patenting of plants and animal variety.

[30] Salazar, above note 7, p.121.Vegetatively propagated plants were first made patentable in the US only in 1930. And the protection of plant varieties (or plant breeder's rights - PBRs), a new form of intellectual property, only became widespread in the second half of the 20th Century.

other life forms were faced with oppositions from different groups on various grounds that range from philosophical and moral arguments to social, environmental and economic reasons.[31] Ultimately, the United States of America pioneered the extension of patents to cover life forms[32]. Though there were few earlier instances of IPRs on life forms,[33] it was only in the 1930 Plant Patent Act[34] that asexually propagating plants were formally first made patentable in US[35]. In Europe as well as in other countries,[36] there had been heated arguments over whether and how to achieve plant variety protection. During the 1940s, Germany and the Netherlands experimented with special IPR systems, national PVP systems which became forerunners of UPOV.[37]

These precedents gave impetus to the process of acceptance of IPRs in agriculture at international level by a larger set of countries by creating a new treaty organization in 1961, the International Union for the Protection of New Varieties of Plants, known by its

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[31] Claffey, above note 3, p.32; See also Bent, above note 1.
[32] Salazar, above note 7, p.122.
[33] Ibid., P.122. As early as 1873, Pasteur was granted a patent involving a yeast culture as a manufacturing process. Ibid. In Europe as well, as early as 1883, the convention of Paris for the protection of Industrial property defined the field of protectable subject matter to include not only the products of industry in the strict sense but also agricultural products. "Industrial property" is defined at article 1(3) of the Paris Convention to include "all manufactured or natural products, for example, wine, grain, tobacco leaf, fruit, cattle, minerals, mineral waters, beer, flowers, and flour." See Convention of Paris for the Protection of Industrial Property, March 20, 1883.
[34] Salazar, above note 7, p.122.
[35] Ibid.
[36]Bent, above note 1, p.4. Introducing IPRs in the area of food gave rise to concerns about a rise in price because of the exclusive rights granted to a single person. The concern over the creation of monopolies in as basic a commodity as food was early raised in the countries that pioneered the IPRs introduction in the field themselves, particularly in the USA and Europe. See Dhar, above note 8, p.4. Adoption of UPOV as a *sui generis* system of plant variety protection was the reflection of the general view was that a "special law" other than the grant of patents to plant varieties, was needed for granting IPR on new plant varieties. Ibid, p.5. The USA Plant Patents Act of 1930 had, as a compromise for extremely opposing views, limited its coverage to only asexually propagated plants (plants not normally sown from seeds), which was intended to exclude the major food species and thus to prevent the emergence of grain monopolies. Ibid, p. 4.
[37] GRAIN, The End of Farm-Saved Seed?: Industry's Wish List for the Next Revision of UPOV(GRAIN Briefing, February 2007), p.2, available at www.grain.org, accessed on 15/9/2009.

French acronym UPOV.[38] Following the precedent laid by UPOV 1961, the US Congress came up with the Plant Variety Protection Act of 1970 that extended coverage to sexually reproduced plants as well[39].

The advent of biotechnology[40] revolution in the 1980s and increasing globalization of the world economy through market liberalization and free trade agreements have eventually culminated in an expanded recognition of IPRs not only on plants but also on all life forms and processes thereof[41]. A new step was taken in 1977 when the US Patents and Trademark Office held that any product of nature isolated from its natural form can be patented.[42] The other critical moment took place in 1980 in the Dianomd versus Chakrabarty case.[43]

Subsequent US Case laws affirmed that plants and parts of plants, including genes and fruits as well as animal inventions could be protected under the patent law.[44] The first plant variety was granted to a maize variety and the first animal patent was granted to Harvard University for the oncomouse.[45] In 1989 the US patent and trademark office approved a patent on human genetic material, specifically a cell line from an organ of

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[38] The 1961 UPOV Convention established an exclusive grant that was limited to a particular variety defined by distinctive characteristics, uniformity, and stability (DUS). It has also exempted uses by others of a protected variety as an initial source of variation for creating other new varieties and use by farmers. See Act of 1961 International Convention for the Protection of New Verities of plants, at www.**upov**.int/en/publications/conventions/, accessed on 12/5/2009.

[39] Salazar, above note 1, p.122. The contents of the 1961 UPOV became hallmarks of later UPOV texts and national laws. Bent, above note 1, p.4.

[40] Biotechnology refers to methods of using plants, animals and microbes either wholly or in part to produce useful substances or improve existing species. In short, it is the use of technologies based on living systems to develop commercial processes and products. Ibid., p.118.

[41] Ibid., pp.119&121.

[42] Ibid.

[43] Bent, above note 1, p.4, footnote 11. The Chakrabarty case involved the development of a genetically engineered bacteria with a unique trait. In this case the Supreme Court ruled that any invention, including a life form, was patentable under the utility patent law. Salazar, above note 1, p.122.

[44] Salazar, p.123; Bent, *supra* note 1, p.3.

[45] Salazar, p.123

John Moore.[46] The extension of patents to living matters has come to be a common practice in Europe and Japane, though not in the scope as in US.[47]

Nowadays, IPRs on plant varieties and other living matters and processes are almost universalized through TRIPS Agreement. The TRIPS Agreement requires Members to extend patent protection to any invention in any field of technology including biotechnology. Art 271(1) of the Agreement reads as "…patents shall be available *for any inventions*, whether products or processes, *in all fields of technology*, provided that they are new, involve an inventive step and are capable of industrial application." Further, Art. 27(3)(b) states that "members may also exclude from patentability…plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an *effective sui generis system* or by any combination thereof…."(emphasis added) As such, failing provision of patent protection, Members are required, at minimum, to provide alternative protection system in relation to plant varieties.

1.2. The *Sui generis* System for Protection of Plant Varieties: An Alternative to Patent.

The application of patent to plant varieties and other life forms has been confronted with various criticisms. Principally, patents on life forms and processes have aroused the question of are they discoveries or inventions? In the very drafting process of TRIPS, it was stated that: "... biotechnological developments did not meet the requirements of patentability; the isolation of a gene of an animal species or plant variety was not an invention but a discovery of a pre-existing phenomenon.[48] Traditionally, patent law has made distinction between "inventions" which are patentable, and "discoveries" which are

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[46] Ibid.
[47] Carlos M. Correa, Intellectual property Rights, the WTO, and Developing Countries: the TRIPS Agreement and Policy Options (2000) pp.177-178.
[48] Victor Mosoti and Ambra Gobena, International Trade Rules and the Agriculture Sector: Selected Implementation Issues (Food And Agriculture Organization Of The United Nations (FAO) Legislative Study 98, Rome, 2007), p.120, available at ftp://ftp.fao.org/docrep/fao/010/a1477e/a1477e00.pdf, accessed on 25/1/2010.

not.[49] It is contended that the increasing tendency of patents in the field of biotechnology has blurred this distinction,[50] and that patents may not be appropriate in this sector.[51]The common criteria of patentability are[52] that an invention must be novel/new,[53] non-obvious/involve inventive step,[54] and must be useful/capable of industrial application.[55]It is felt that plant material could not meet the novelty requirement for patents and that plant breeding programmes were not sufficiently inventive[56]in so far as most developments in biotechnology encompass traditional methods of plant and animal breeding techniques or in most cases based on known function of protein.[57]

It is contended that patents should not be granted on plants or any of their parts (cell lines, genomes, genes, seeds...) or the process of creating them.[58] What normally happens is, they claim, reshuffling and manipulation of genes across species through genetic engineering techniques or even other rather less technical methods.[59] Though such mixing of genetic

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[49]Correa(2000), above note 47, pp.177-178.
[50]Ibid.
[51]Jill Mackeough and Andrew Stewsart, Intellection Property in Australia (Butterworths, 2nd ed.,1997), p.339.
[52] David I. Bainbridge, Intellectual Property (Pearson Education Limited, 6th ed., 2007), p.378
[53] Novelty, though its meaning display variation in different legal systems, refers to idea of establishing that the invention was not available to the public or anticipated in any way and was not described in any form before the filing date of the patent or where recognized before the priority date/grace period. This guarantees that the society is not giving monopoly right to something already in public domain. Ibid..
[54] The requirement of inventive step is about the idea of establishing that, though the subject matter of patent claim may be novel, it should not be obvious to a person skilled in the art-one who does not have inventive ability but does have knowledge common to the particular art. In other words, it should not be a matter of intuition but of ingenuity. Ibid., p.383.
[55]This requirement of patentability requires that the result claimed is capable of being achieved following the instruction in the specification. Mackeough and Stewsart, above note 51, p.307.
[56]Mosoti and Gobena, above note 48, p. 145, available at ftp://ftp.fao.org/docrep/fao/010/a1477e/a1477e00.pdf, 25/1/2010.
[57] Mackeough and Stewsart, above note 51, p.51.
[58] Vandana Shiva, Protect or Plunder: Understanding Intellectual Property Rights (Penguin Books India, 2001), pp.64,120.
[59] Ibid.

material would not happen in nature, the production of plants with genes introduced from other species takes place through the natural process of reproduction.[60]

Apart from such technical issues, it was the need to reduce monopoly rights over plant varieties which are the basis of food security that pushed nations in search of alternative forms of IPRs that resulted in the adoption of the 1961 UPOV Convention as a *sui generis*[61] system-a special purpose system of IP protection that applies to a specific sector. The 1961 UPOV Convention and its subsequent revisions have laid down the framework for a special regime of protection of plant varieties, in departure from the patent form of protection.

1.2.1. Plant Variety and Plant Breeder.

Defining plant variety is essential particularly in view of the fact that there are cases where plant varieties are protected by PVP legislations while other plants might be patentable. Defining plant variety is a technical and complicated matter. Often resort is made to the UPOV Convention. The1991 version of the Convention defines a plant variety as "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."[62]

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[60] Ibid.
[61] IPGRI, above note 16, p.5.
[62] Art.1(vi) of Act of 1991 International Convention for the Protection of New Varieties of Plants of December 2,1961 as Revised at Geneva on November 10,1972,on October 23,1978,and on March 19,1991, available at www.**upov**.int/en/publications/conventions/, accessed on 12/5/2009.

Normally, taxonomic classification of plants comprises many divisions and sub-divisions.[63] The rank of species, by which most plants are known, represents a group of organisms sharing a long number of heritable characteristics, which are reproductively isolated[64]. Thus, plants of different species such as rose, potato, wheat and apple cannot inter-breed by natural means. Although the rank of species is an important botanical classification, plants within a species can be very different. Farmers and growers use a more precisely defined group of plants, adapted to the environment in which they are grown and which are suited to the cultivation practices employed selected from within a species, called a "plant variety".[65]. Therefore, when the UPOV Convention defines a plant variety by stating that it is "a plant grouping within a single botanical taxon of the lowest known rank,...", it is confirming that a plant variety results from the lowest sub-division of the species as characterized by the above elements of the definition.

The definition also clarifies that a variety must be distinguishable by its characteristics, perceptibly different from any other variety and remains unchanged through the process of propagation. If a plant variety grouping does not meet these criteria, it is not considered to be a variety within the UPOV system. However, the definition makes clear that this is irrespective of whether the conditions for the grant of a breeder's right are fully met and this is not as such a condition for determining if a variety is eligible for protection.

The 1991 Act of the UPOV Convention has defined a breeder as well. Article 1(iv) defines a breeder as:" the person who bred, or discovered and developed a variety,…" The phrase "the person who bred, or discovered and developed…" also clarifies that a mere discovery or find would not entitle the person to PBR. Development is necessary. Thus, any person, irrespective of their scientific or legal background, irrespective of the breeding method used and irrespective of the effort expended to create the variety, is a potential breeder.

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[63] International Union for the Protection of New Varieties of Plants(UPOV), the UPOV System of Plant Variety Protection, available at www.upov.int/en/about/upov_system.htm accessed on 10/12/2009(UPOV), p.2.The most commonly used ranks in classification of plants are, in descending order, Kingdom, Division, Class, Order, Family, Genus and Species. Thus, in general, each species belongs to a genus, each genus belongs to a family, etc. Ibid.

[64] Ibid.

[65] Ibid.

1.2.2. Conditions for the Grant of the Breeder's Right

According to the UPOV Conventions,[66] a variety shall be granted protection if it is: new, distinct, uniform and stable.[67] Newness (or novelty) requires that the applicant's variety has not been "sold or otherwise disposed of to others" for more than a specified period which ,for instance in the 1991 UPOV, is one year in the country of application or for four years (six for trees or vines) elsewhere.[68] This requirement assures that the public is not giving away exclusivity rights to something already available, while recognizing that some limited use or testing will typically be required prior to application.

The uniformity and stability criteria help to ascertain that the variety reproduces true to form across individual plants (uniformity) and across generations (stability)[69]. Stability and uniformity serve the important function of making a variety identifiable after propagation.

In relation to criterion of distinctness, the 1991 UPOV provided that " a variety shall be deemed to be distinct if it is clearly distinguishable from any other variety whose existence is a matter of common knowledge at the time of the filing of the application"[70]. The wording in the 1978 UPOV is nearly identical, except for the inclusion of "by one or more important characteristics."[71] It signifies that the variety must be distinguishable by one or more characteristics, such as flavor, color, or virus resistance but what characteristics are considered to be distinguishing ones is a matter open to interpretation.

1.2.3. A Glance at the Nature and Scope of PBRs.

The nature of the right provided by the UPOV Convention and national PVP legislations designed in that trajectory has the nature of exclusivity. PBR is a patent-like system that allows the plant variety owner to prohibit specific unauthorized uses of the variety.[72]

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[66] See for instance, Art.5 of Act of 1978 International Convention for the Protection of New Plant Varieties of Plants of December 2,1961 as Revised at Geneva on November 10,1972,on October 23,1978(1978 UPOV), Art.6; the 1991 UPOV.
[67] Lesser & Lynch, above note 13, p. 384.
[68] Art.6.(1) of the 1991 UPOV.
[69] Lesser & Lynch, above note 13, p. 384
[70] Art.7 of the 1991 UPOV.
[71] Art.6(1)(a) of the 1978 UPOV.
[72] Lesser & Lynch, above note 13, p. 383.

However, historically, plant breeders' rights laws implementing UPOV provided for broad exemptions than patent system does.[73] Typically, PBRs allow a broader breeders' exemption necessary to preserve open access to breeding materials as opposed to the rather narrow research exemption in patent statutes[74]. Again PBRs recognize the farmers' privilege to save and exchange propagating material which normally does not have a counterpart in patent legislation[75].

1.3. Basic Policy Objectives in Tension with IPRs on Plant Variety Protection.

IPRs on life forms specifically those awarded to developers of new plant varieties have aroused a number of environmental, economic, moral, and social concerns.

1.3.1. Impact on biodiversity

A major environmental issue is whether or not IPRs on plant varieties would lead to loss of biodiversity. The consequences of granting IPRs to plant breeders have remained uncertain as far as preservation of plant genetic diversity is concerned. Given the incentives that IPRs create for private parties to invest in research and breeding techniques relating to new plant varieties, it might be thought that IPRs would lead to an increase in plant genetic diversity over time.[76]

On the other hand, a number of commentators have argued that diversity is eroded rather than enhanced by granting IPRs to plant breeders.[77] According to this view, conservation of diverse genetic resources by indigenous farmers would be diminished as they began to

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[73]Ibid., p. 384.
[74].Wolfgang E. Siebeck *et al* (eds.), Strengthening Protection of Intellectual Property in Developing Countries: A Survey of the Literature (The World Bank, World Bank Discussion Paper, 1990), p.8, available at www.bvindecopi.gob.pe/colec/wolfgangs.pdf ,accessed on 12/2/2009. See also Art.15.1, of 1991 UPOV and Art. 5.3 of 1978 UPOV.
[75]Ibid., 70. Under the 1978 UPOV this is inferred from the acontrario reading that authorization is required only for commercial production and marketing that in case of farmers there is no commercial marketing. Lesser & Lynch, above note 13, p. 384.The 1991 UPOV makes this exemption (typically known as the "farmer's privilege") optional. Art. 15.2 of 1991 UPOV.
[76] Helfer, above note 17, p.16.
[77] Dhar**,** above note 8 , p.27.

rely on commercial plant breeders for seeds and other propagating material. Rather than using informal breeding techniques to experiment with the creation of new varieties suitable for local growing conditions, indigenous farmers may depend upon third party plant breeders to provide them with seeds possessing uniform genetic characteristics.[78] Seed companies have a propensity to concentrate their research on commonly used high value crops and develop varieties that can be grown as widely as possible that would lead to spread of monoculture.[79] Studies in US and UK suggest that there is a propensity for research activities to become concentrated on a few crops.[80]Typically, a study in US attested that genetic losses have occurred but it remained unclear to what extent IPRs have contributed to that effect.[81] Also the requirements for uniformity and stability in the UPOV Convention have been identified by the literature as a contributing factor to crop uniformity, potentially leading to loss of on-field biodiversity.[82]On the other hand it is defended that plant variety protection increases the spectrum of improved varieties available to farmers and potentially increases genetic variability. It is reported that over 100,000 new varieties are released and protected under the UPOV system, and it is estimated that about 5, 000 new varieties receive protection in member states each year.[83] In general empirical studies that do exist often focus on industrialized countries and tend to rely on anecdotal evidence.[84] As a result, the broader applicability of their conclusions remained uncertain and often controversial but inclined to suggest that IPRs could contribute for genetic erosion.

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[78] Helfer, above note 17, p.16.
[79] Dhar, above note 8, p. 25; Claffey, above note 3, pp.35-36.
[80] Dhar, above note 8, p. 23.
[81] Claffey, above note 3, p.35.
[82] Helfer, above note 17, p. 16.
[83] Barry Greengrass, Plant Variety Protection and the Protection of Traditional Knowledge (UNCTAD Expert Meeting on Systems and National Experiences for Protecting Traditional Knowledge, Innovations and Practices, Geneva, 30 October-1 November 2000),p.7, available at www.**unctad**.org/trade_env/docs/upov.pdf , accessed on 17/8/2009.
[84] Dhar, above note 8, p.28.

1.3.2. Impact on economic concentration in the seed industry

The other concern arising from IPRs on plant varieties is the effect on the degree of competition in the seed industry and other agricultural inputs necessary for farmers. Empirical studies offered some evidence that over the last three decades the seed industry has undergone a remarkable process of consolidation through acquisitions and mergers, mainly driven by the attempts of chemical and agro-chemical companies to exploit the complementarities between seed and other inputs as well as the need to access IPRs related to critical biotechnology research tools.[85]

For instance, in US a number of independent seed firms have been acquired by large corporations many of whom are involved in the agrichemical and petrochemical business since 1970[86]. It was found that there had been "762 corporate 'changes' in the seed industry which have taken place since the adoption of IPRs in agriculture."[87] Of these 762 firms, it was estimated that, 529 appeared to have been acquired outright, 165 may either have been developed by the parent company or were acquired and the remaining 68 may have been controlled by larger entities or may only have had a contractual relationship.[88] In similar vein, expenditures for seeds and other inputs such as pesticides and fertilizers have tripled over the decade.[89] However, both the acquisitions and increase in agricultural input are not conclusive evidence of the allegation that they are the result of introduction or strengthening of IPRs but only as a contributing factor.[90] Moreover, the 1990s have witnessed a rise in mergers and acquisitions in the global seed industry which coincided strengthening of IPRs via the 1991 UPOV.[91] Thus it seems that IPRs serve as a catalyst for consolidation in the seed industry if not the only factor.

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[85] C.S.Srinivasan, The International Trends in Plant Variety Protection, *e* JADE *electronic* Journal of Agricultural and Development Economics, Vol.2,No.2,(2005),182-220,available at www.fao.org/es/esa/eJADE, accessed on 7/5/2009.
[86] Claffey, above note 3 , p.32.
[87] Dhar, above note 8, p.24.
[88] Ibid.
[89] Claffey, above note 3, pp.33-34.
[90] See Ibid., pp.32-35.
[91] For typical instances in this regard, see Dhar, above note 8, p.24.

1.3.3. Farmers' Interests.

The other and possibly major challenge to IPRs concerns the relationship between farmers' interests and IPRs in plant varieties. Farmers' interests are in tension with IPRs for plant breeders for a number of reasons.

First, farmers and other communities do not claim exclusive rights in the cultivated landraces (also known as traditional varieties or cultivars) they have cultivated over time. The subject matter requirements of existing IPR laws are designed to protect innovations in new and clearly distinguishable plant varieties. Often the requirements cannot accommodate contributions of farmers using more informal methods to select for better crops or sought-after plant characteristics.[92] On the other hand, in most cases plant breeders create new varieties and do claim exclusive rights utilizing farmers' or other traditional varieties without paying compensation for farmers' conservation effort. This creates free riding by breeders. At worst, the extension of intellectual property protection does carry the risk of restricting farmers' practices of reuse, exchange and sell of seed-the very practices which form the basis of their traditional role in conservation and development of genetic diversity as well as the basis of their food security.[93] However, it all depends on the type and strength of IPRs adopted.

Efforts are made to recognize and reward the contributions that farmers, particularly in the developing world, have made to the preservation and improvement of plant genetic resources. The concept of farmers' rights[94] was developed to that effect and different approaches are proposed to recompense farmers for their contributions to plant genetic diversity (see section 3.3.1& 3.3.2).

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[92] Helfer, above note 17, p.17.
[93] This holds true in cases where patent protection or 1991 UPOV is used for protection of plant varieties.
[94] FAO Resolution 5/89 defines farmers' rights as "rights arising from the past, present and future contributions of farmers in conserving, improving and making available plant genetic resources, particularly those in centers of origin/diversity." FAO Resolution No. 5/89 adopted by FAO Conference, 25th Session, Rome, 11-20 November 1989.

1.3.4. Food Security.

Agricultural biotechnology and associated IPRs have given rise to hopes and expectations as well as to fears. Two completely opposite visions of agricultural biotechnology have been evoked: a vision of an omnipotent "benign science able to liberate farmers from the forces of nature to alleviate hunger and feed the world" and one in which it is portrayed as an "evil instrument in the hands of multinationals to gain greater control over civil society."[95] Proponents of agricultural biotechnology often claim that IPRs increase food security by stimulating the development of improved varieties with significant yield increment as has been witnessed in the green revolution era. [96]

The concern that agricultural biotechnology and associated IPRs might lead to food insecurity rather than security has been pointed out from different perspectives. IPRs are likely to encourage the spread of monoculture which leads to a homogenization of species and eventually greater susceptibility to pests and diseases and thereby a cause for food insecurity.[97] The typical UPOV criteria for plant variety protection-uniformity and stability- are criticized for being instruments designed to serve the seed/pesticide industry but risky for farmers whose productivity depends on seed diversity rather than uniformity.[98]

Also breeders are likely to promote commercial plants for profit rather than for food. A study on PVP grants in UPOV member countries showed that all countries taken together, horticultural crops (including ornamentals, fruits and vegetables) account for 70% of grants, while ornamentals alone account for 51.5%.[99] Also in African countries

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[95] George Tzotzos, Regulation of Biotechnology in LDCs: Implications for Technology Development and Transfer , Agbioforum – Volume 2, Number 3 & 4(1999),p.212.

[96] Philippe Cullet, Plant Variety Protection in Africa: Towards Compliance with the TRIPS Agreement, Journal of African law; Vol. 45 No. 1 (2001), p.107.

[97] Ibid.

[98] Devlin Kuyek, Intellectual Property Rights in African Agriculture: Implications for Small Farmers (Genetic Resource Action International (GRAIN), Grain Briefing, August 2002), P.11, available at www.grain.org, accessed on 15/ 7/2009.

[99] Srinivasan, above note 85. Of course, it is suggested that the large share of ornamentals cannot be explained by their share in the commercial market for seed/propagating material or their share in the value of crop output. It is partly a reflection of the sheer diversity of ornamental species. More importantly, it may reflect

with PVP regimes efforts has been geared for the European cut flower market than food security.[100] In Kenya, only one variety out of the 136 applications filed and tested since 1997 has been on a food crop, while more than half were for roses[101]. In Zimbabwe, as of 1999, only 30% of all applications covered what can be classified as food crops and in South Africa, where 1,435 PVP grants were issued by the end of 1998, more than 40% were for ornamental varieties.[102]

Moreover, application of the technology in agriculture often demands substantial investment in seeds, fertilizers, pesticides, and irrigation. Subsistence farmers in most developing nations cannot afford that.[103]

1.3.5. Access to plant genetic resources and protection of traditional knowledge: Biopiracy?

Plant breeders and others seeking to develop plant-related innovations need access to existing stocks of plant germplasm for breeding, research and development and sometimes base their innovation on traditional knowledge.[104] One of the main issues in debate is the relationship between IP protection and the ownership and rights related to the knowledge on which the IPR has been based.[105] Advocates assert that those claiming IPRs in plant genetic resources and plant varieties frequently utilize such knowledge without adequately acknowledging the contributions of the communities who possess it.[106] A related matter is the relationship between the ownership rights pertaining IP protection and the genetic material on which the IPR has been based.

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the fact that the scope of breeders' rights in the case of ornamentals is significantly different from that in other crops. It is suggested that the absence of farmers' exemption and the ease of detecting infringements in the case of ornamentals might have increased the appropriability of returns from protected varieties.

[100] Kuyek, above note 98, P.11.
[101] Ibid., p.10.
[102] Ibid.
[103] Cullet(2001), above note 96, p.108.
[104] Carlos Correa *et al,* above note27, .pp.81-83
[105]. Ibid., p.83.
[106] Helfer, above note17, pp.19-20.

> Granting of IPRs without due recognition to genetic resources and traditional knowledge is often referred to as "biopiracy." In fact, it seems that there is no accepted definition of "biopiracy." The Action Group on Erosion, Technology and Concentration (ETC Group) defines it as 'the appropriation of the knowledge and genetic resources of farming and indigenous communities by individuals or institutions seeking exclusive monopoly control (usually patents or plant breeders' rights) over these resources and knowledge.'[107]

As reported in one study,[108] not only instances in which IPR grants clearly fall short of meeting the legal requirements but also those that seemingly in accordance with national laws fell in the category of biopiracy. For instance, in the case of patent, the granting of IPRs for inventions that are either not novel or lack inventive step having regard to traditional knowledge already in the public domain are labeled as the typical categories of the so called biopiracy due to 'wrong' patents.[109] This can happen owing either to oversight during examination of the patent or simply because the patent examiner did not have access to the knowledge.

On the other hand, patents may be correctly granted according to national law on inventions derived from a community's traditional knowledge or genetic resources. While apparently these are 'right' patents, it is contended that this as well amounts to "biopiracy" for several reasons.[110] First, patenting standards may be too low, whereby inventions which amount to little more than discoveries could be patented. Second, the national patent regime (for example, as in the US) may not recognize some forms of public disclosure of traditional knowledge as prior art. Moreover, even if the patent represents a genuine invention, however defined, absent prior informed consent of the communities providing the knowledge or resource, and arrangements for sharing the benefits of commercialization to reward them appropriately in accordance with the principles of the CBD (see section 2.2) are labeled biopiracy according to this definition.

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[107] Correa et al, above note 27, P.74.
[108] Ibid.
[109] Ibid.
[110] Ibid.

Efforts are underway, particularly by developing countries to provide mechanisms to address the problems. Inspired by the Convention on Biological Diversity (CBD), which grants states the sovereign right to control their plant genetic resources, a number of states have enacted national access laws and regulations that demand prior informed consent and benefit sharing in order to control access to genetic resources.[111] Suggested mechanisms to rectify problems related to biopiracy of traditional knowledge include disclosure (of the knowledge on which the new innovation is based) requirement and modifying existing IPR laws to recognize traditional knowledge as a form of intellectual property.[112] However, efforts to counter "biopiracy" have confronted with various practical and legal challenges.[113]

1.3.7. Plant Breeders' Research Interests.

IPRs in plant varieties raise special concerns to the breeding sector. Unlike patents in articles and machines, plant breeding indispensably depends on utilization of existing genetic resource. Conflict arises between breeders who have secured legal protection for new varieties and breeders who seek to utilize those new varieties to develop still more varieties.[114] Exceptions and limitations provisions of national IPR laws provide adjustment options to permit such activities but the scope raises tension among the interest of right holders and the exempted researchers.

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[111] Hefler, above note 17, p.19. For instance, Section 41 of the Indian PVP Act provides for benefit sharing in which any village local community can claim benefit for contributing to the development of a variety registered under the Act.
[112] Correa et al, above note 27, pp.70-80.
[113] Ibid.
[114] Helfer, above note17, p.20.

CHAPTER TWO

THE TRIPS AGREEMENT AND OTHER INTERNATIONAL LEGAL INSTRUMENTS CONCERNING PROTECTION OF PLANT VARIETY

The international regime pertaining to the protection of plant varieties has shown significant progress in the past few decades whereby a variety of instruments with direct or indirect relevance in shaping the regime on plant variety protection evolved.

However, the regime is characterized by different instruments that belong to different areas of international law and whose main subject matter differs. In this regard one author stated that "…the different instruments do not necessarily add up to form a coherent whole. Indeed, while one can identify a trend towards the privatization of plant genetic resources over the past decades, one also find a continuous emphasis on the sovereign rights of states over their natural resource generally".[115]

The Convention on Biological Diversity (CBD), the International Treaty on plant Genetic Resources (ITPGR), the International Treaty for Protection of New Plant Varieties (UPOV), the model law of the Organization of African Union (OAU model law), and the TRIPS agreement are the main ones that merits discussion under this chapter.

2.1. The International Convention for the protection of new varieties of plants (UPOV).

UPOV is the only international treaty directly and solely dedicated to plant variety protection. This convention originated in western European nations due to pressure from the private sector[116] that alleged lack of IPRs in this field hindered development of the

[115] Cullet(2001), above note 96, p.99.
[116] The International Association of Plant Breeders for the Protection of plant varieties(ASSINSEL) and others like the International Association for the Protection of

sector. However, it was held that, if at all introduction of IPRs in this sector was necessary patent right in agriculture would be inappropriate since it does not cohere with the prevalent practices of free exchange of seeds and knowledge among farmers.[117] As a consequence, the convention came up with an alternative system of IPRs-PBRs- that attempts to strike a balance by allowing exclusive rights but with broader exceptions than patent. The requirements to obtain the right were also less rigorous.[118]

As noted earlier, since its adoption in 1961 the Convention has undergone through repeated revisions and amendments in 1972, 1978 and 1991. Though the convention begins with developed countries as its members, its influence has grown and extended to developing nations as well. A number of developing countries have either acceded to the Convention or many modeled their national PVP legislations in that line. As of October 22, 2009, it has 68 members of which 45 are members to the 1991 UPOV, 22 to the 1978 and Belgium being a member to the 1961 UPOV[119]. Also there are indications that its influence would grow more and more.[120] While the 1972 revision was more of procedural, the latter two revisions (1978 & 1991) brought about important changes. Accession to all the earlier versions is now closed and only the 1991 UPOV is open to accession.[121] We shall now expose the salient feature of the Convention as an IPR system and outline important differences that the 1991 UPOV has brought with respect to the common elements of international IPR regime.

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industrial Property (AIPPI) have played significant role for the adoption of UPOV. See Dhar, above note 8, p. 3-4.

[117] Ibid.

[118] The requirements for PBRs i.e. novelty, distinctness, uniformity and stability are less rigours than the requirements of novelty, inventive step, and industrial applicability in the patent sense. Correa et al, above note 27, p.61.

[119] Members of The International Union for the Protection of New Varieties of Plants, International Convention for the Protection of New Varieties of Plants ,UPOV Convention (1961), As Revised At Geneva (1972, 1978 And 1991), Status On October 22, 2009, www.**upov**.int/en/about/**members**/pdf/pub423.pdf, accessed On 6/5 2009.

[120] See Harbir Singh, Emerging Plant Variety Protection Legislations and Their Implications for Developing Countries: Experience from India and Africa, available at http://www. IPRsonline.org/ictsd/docs/ResourcesTRIPShabir_singh.doc., accessed on 4/29/2009.

[121] Art.37 of 1991 UPOV.

2.1.1. Subject matter protected /Coverage of Varieties.

The subject matter of UPOV being plant variety in all of its versions, the scope of coverage of varieties differs in the various version of the convention. The 1961 UPOV covered specified sets of genera and species mentioned in the Annex of the convention. The coverage was not required to be automatic but in a phased manner.[122] The 1978 UPOV permissibly /paved the way for extending protection to cover all botanical general and species, and mandatory coverage of at least twenty four genera and species.[123] The 1991 UPOV requires a compressive coverage of all general or species within a grace period.[124]

2.1.2. Forms of Protection

The 1961 UPOV brought protection of plant varieties by special title (PBRs) without denying the possibility to use patent system of protection. While countries were left free to choose either form of protection, protection of one and same genera or species by both category of protection were prohibited.[125] The 1978 revision were footed on the same logic but brought an exception recognizing double protection so as to accommodate states such as US already having dual protection.[126] By eliminating the provision that prohibits double protection, 1991 UPOV allows dual protection.

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[122] See UPOV1961. The phases were that five of the genera on joining; within the next two years at least two more, within six years, four further general and within eight years to all that are included in the annex. Wheat, barely, oats or rice, maize, potato, peas, beans, Lucerne, red clover, apples, roses were among the listed general/species to be protected.

[123] Art. 4 of 1978 UPOV. At least five general or species upon the entry into force of the convention, and to at least twenty four general or species within eight years.

[124] Art. 3 of 1991 UPOV. States that were bind by prior UPOV acts and become a member to 1991 UPOV, within a transition period of five years and acceding members are required to protect 15 on accession and to all general or species within 10 years.

[125] Art.2(2) of 1961 UPOV.

[126] Art. 2(1) of 1978 UPOV.

2.1.3. Conditions and Duration of Protection.

The conditions for grant of protection for plant varieties in a special title (PBRs) still remain more or less the same.[127] PBR would be granted if the variety meets the requirements of newness, distinctness, uniformity /homogeneity/, and stability. Should patent protection be given, the traditional requirements of patentability should be adhered. In relation to term of protection there existed progressive extension. A minimum of 18 years for vines, fruit trees and their root-stocks, and 15 years for the rest in the 1961 UPOV is raised to 25 and 20 years in 1991 UPOV respectively.[128]

2.1.4. Scope of Protection.

From the very inception, acts that demand prior authorization of the breeder were confined to production and commercial marketing of the reproductive or vegetative material, and the offering to sale of such material. For instance, the 1978 UPOV vested the breeder control over some activities associated with reproductive or vegetative propagating material: production for commercial marketing, offering for sale and marketing, and some other rights if a state wants to extend.[129] In the 1991 UPOV, the main goal for the revision being strengthening the breeders' right, the scope of protection was extended. The acts that require breeder's authorization are defined in four categories: those on propagating material, on the harvested material, certain other products of the harvested material, and on essentially derived varieties (EDVs).

With respect to breeder's right on propagating material, the breeder's right covers:[130] production or reproduction(multiplication), conditioning for the purposes of propagation, offering for sale, selling or marketing, exporting, importing, and stocking for any of the purposes stated above. Exporting, importing and stocking in relation of propagating material are additions in 1991 version of the convention.

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[127] Compare for instance Art.6 of 1978 UPOV and Art.5 of 1991 UPOV.
[128] Art of 6 1961 UPOV; Art. 5 of 1991 UPOV.
[129] Art. 5(1) of 1978 UPOV.
[130] Art. 14 of 1991 UPOV.

The other extension of breeders' right pertains to harvested material. In case a breeder had no reasonable opportunity to intervene on the propagating material, he can assert his claim on the harvested material.[131] Still more, products of harvested material might be claimed where prior intervention could reasonable not be feasible.[132]

2.1.5. Essentially Derived Varieties (EDVs)

The incorporation of the provision on EDVs[133] in the 1991 version is considered to be the most important change in the UPOV system. It strengthens the rights of the breeders by bringing within protection EDVs that otherwise could have been freely exploited under the breeders' exemption. The earlier UPOV acts protected breeders only if repeated use of protected variety would be made by a new breeder. But now all acts done in relation to EDVs are subjected to authorization from the first breeder.

2.1.6. Exemptions and limitations to Breeders' rights.

As is the case in most IPR agreements, UPOV permits national governments to restrict exercise of IPRs to achieve competing social or policy objectives. Restrictions of this nature are generally known as "exceptions and limitations" to exclusive IPRS.[134] The exceptions and limitations have been reflected in the UPOV systems.[135] In relation to exemptions, the 1991 UPOV has brought two important changes: limited breeders'

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131 Art. 14(2) of 1991 UPOV.

132 Art. 14(3) of 1991 UPOV.

133 As per Art. 14(3)(b)of1991 UPOV, a variety shall be deemed EDV when:

i. it is predominantly derived from the initial variety, or from a variety that is itself predominantly derived from the initial variety, while retaining the expression of the essential characteristics that result from the genotype or combination of genotypes of the initial variety,

ii. it is clearly distinguishable from the initial variety and

iii except for the differences which result from the act of derivation, it conforms to the initial variety in the expression of the essential characteristics that result from the genotype or combination of the genotypes of the initial variety.

134 Helfer, above note17, p.8. The restrictions take two forms. The first form permits third parties to engage in specified uses of IP products without the permission of the right holder and without remuneration. The second modality allows third parties to use IP products without permission of right holder but only against payment of remuneration. This is often effected via compulsory license.

135 Arts.5 and 9 of 1978 UPOV and Arts.15 and17 of 1991 UPOV. The exemptions in the 1978 UPOV are inferred by acontrario reading from the acts that require authorization as they focus on commercial exploitation.

exemption and limited farmers' exemption. By introducing the concept of EDVs, it has restricted the scope of breeders' exemption in preceding UPOV versions.

Second, under the 1978 UPOV the general emphasis of the Convention on commercial exploitation of the propagating material have been understood and applied as permitting saving, exchange and sell of propagating material among farmers though practices among nations differ in the scope of exemption.[136] The 1991 UPOV limited the scope of farmers exemption to "use for propagating purposes, on their own holdings, the product of the harvest which they have obtained by planting, on their own holdings."[137] Further, this exemption must be exercised "within reasonable limits and subject to the safeguarding of the legitimate interest of the breeder"[138] which is interpreted by some to require payment of royalty.[139] Further limitations are also suggested to be within the spirit of this provision of the Convention. It was claimed that the farmers' privilege should be used only in relation of varieties of "specified plant general and species", and not to all genera or species protected.[140]

The other form of limitation in UPOV system premises on the need to protect public interest whereby rights of breeder may be restricted against remuneration.[141] The 1978 UPOV explained that rapid and wide distribution of new varieties and their availability to the public at adequate and reasonable prices are the grounds on which public interest may be invoked but the 1991 UPOV does not give such clue. Where such requirements for safeguarding public interest are met, the remedy would be compulsory license.

Given such differences in the different versions of UPOV, national laws modeled on the different systems would vary. Existing members of UPOV may use the 1961/1972 or the

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136 Helfer, p.25,29. Most of the exemptions including the farmers' exemption in the 1978 UPOV are inferred from acontrario reading of the acts requiring the authorization of the right holder but the 1991 UPOV explicitly provided that the breeders' right will not extend to acts done privately and for non-commercial purpose; done for experimental purposes; done for purposes of breeding other varieties.
137 1991 UPOV, Art 15(2).
138 1991 UPOV, Art 15(2).
139 Dhar, above note 8, p.13.
140 Ibid.
141 Art. 17 of 1991 UPOV; Art. 9 of 1978 UPOV.

1991 Act at their option but countries yet desiring to join the UPOV system can only accede to the 1991 UPOV since accession to earlier acts is closed.

2.2. The convention on Biological Diversity (CBD)

The CBD does not specifically deal with the protection of plant variety. While its main objectives remain the conservation of biological diversity, sustainable utilization of its components and fair and equitable sharing of benefits there from,[142] the CBD contains provisions having a bearing on IPRs including those pertaining to plant variety protection. Some provisions of CBD are believed to provide legal counterweight to legal instruments focusing on breeders' right. The Convention asserts the sovereign right of states over their biological resources and calls for fair and equitable sharing of the benefits arising out of utilization of genetic resources.[143] Furthermore, Art. 16(5) of the CBD specifically obliges member states to cooperate in order to ensure that IPRS are "supportive of and do not run counter to" the treaty's objectives."

The reliance on CBD approach to IPR design and implementation seem to have gone beyond the text of CBD. Convocation of members to CBD at the conference of parties (COP) has stressed the need to harmonize IPRs with CBD's objectives. The 2002 COP "Bonn Guidelines on access to Genetic resources and fair and equitable sharing of benefits arising out of their utilization" encourages IPR applicants to disclose the country of origin of the genetic resources or the traditional knowledge.[144]

The disclosure requirement would be an essential tool to monitor whether applicants for IPRs have obtained prior informed consent of the country of origin and complied with conditions of access in a country (if any). Countries, mainly developing ones, have designed their PVP legislation in such trajectory. For instance, the Indian PVP

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[142] The Convention on Biological Diversity (5 June 1992), Art. 1. The Convention was opened for signature at the United Nations Conference on Environment and Development, the "Earth Summit", in Rio de Janeiro (Brazil) on 5 June 1992, entered into force on 29 December 1993, 90 days after the 30th ratification, as stated in its Article 36, available at www.paclii.org/pits/en/treaty_database/**1992**/1.html , accessed on 4/7/2009.

[143] The Convention on Biological Diversity, Arts.3&15.

[144] Helfer, above note 17, pp.13-14.

legislation requires declaration that genetic material was lawfully acquired as a precondition for PBR grant, and provides for arrangements for benefit sharing.[145] In some cases, like in Ethiopia[146] national legislations require proof of actual arrangements for fair and equitable sharing of benefits arising out of their utilization of genetic resources. These requirements that springs from CBD obviously pose demands on IPR holders.

2.3. The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGR)

ITPGR[147] is the other fundamental international agreement that affects the design of PVP legislations. The treaty rests its premises on similar philosophy to that of the CBD in that it aims at the conservation, sustainable use and benefit sharing in plant genetic resources for food and agriculture.[148]

The treaty aspires to facilitate germplasm flow in two interrelated approaches. First it has come up with multilateral system of access and benefit sharing.[149] Second, the treaty asserts that *recipients shall not claim any intellectual property or other rights that limit the facilitated access to plant genetic resources for food and agriculture, or their parts or components, in the form received from the multilateral system.*[150] While utilization and commercialization of plant genetic resources are encouraged, provided accompanied by benefit sharing, any intellectual property claim having the impact of restricting access to plant genetic resources for food and agriculture is seemingly rejected.[151] These aspects of the treaty led it in tension with legal instruments advancing exclusive IPRs.

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[145] See Act 53 of 2001, the Protection of Plant Varieties and Farmers' Rights Act, 2001, section 18 (h) and chapter IV.
[146] Proc.481/2006,Art.14(3).
[147] The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGR) was adopted as a binding text on November 2001, at an intergovernmental conference sponsored by FAO. The treaty entered into force on 29 June 2004.
[148] ITPGR, Art.1.
[149] ITPGR, Art. 10.
[150] ITPGR, Art,12.3(d).
[151] The meaning of Art,12.3(d) of ITPGR is controversial. [151] Some argue that the exclusion of IPRs applies only to raw germplasm only and does not extend to individual genes and DNA fragments that are isolated and purified. According to this interpretation the treaty poses no demand on existing IPR regimes. The other view holds

The clear impact of the treaty on PVP regimes is felt in its provisions on farmers' right. First, by openly recognizing the contribution of farmers and the need to reward that effort, ITPGR poses explicit demand on IPR regimes hesitant to acknowledge farmers' rights. The treaty recognized the farmers' right but left the responsibility for realizing Farmers' rights relating to plant genetic resources for food and agriculture on the contracting parties.[152] It provides a sort of definition for "farmers' rights" by describing why their rights should be recognized[153] and mentions instances of farmers' rights. Among others the right to equitably participate in sharing benefits arising from utilization of plant genetic resources for food and agriculture and protection of traditional knowledge relevant to plant genetic resources are emphasized.[154] It also acknowledges rights of farmers to save, use, exchange and sell farm-saved seed /propagating material in accordance with national law.[155]

The treaty's emphasis on sharing of benefits arising out of utilization of genetic resources confirmed CBD's stance but likely to be in potential conflict with other IPR regimes silent about such matters such as TRIPS.[156] With such features the treaty will have impact on IPR regime on plant varieties to be adopted in a country.

2.4. The Model Law of the Organization of African Unity (OAU)

The obligations under TRIPS and other bilateral pressures have enticed attention from African countries. The need for alternatives to monopoly rights that takes into account African context drives African States to develop suitable model for national legislations. As a result the Organization of African Unity ("OAU") (now African Union) adopted a

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that the original plant material as well as its genetic components will remain within the multilateral system for free exchange and utilization by others. See Helfer, p.89

[152] ITPGR, Art. 9.2.

[153] Art.9.1 describes the origin of farmers' right by stating "that the contracting parties recognize the enormous contribution that the local and indigenous communities and farmers of all regions of the world, particularly those in those in the centers of origin and crop diversity, have made and will continue to make for the conservation and development of plant genetic resources which constitute the basis of and agriculture production throughout the world "which tries to reason out why they should be rewarded and more of equity based.

[154] ITGPR, A rt. 9.2(a) & (c).

[155] ITGPR, A rt. 9.3.

[156] Helfer, above note17, p.91.

Model Legislation on the Protection of the Rights of Local Communities, Farmers, Breeders and the Regulation of Access to Biological Resources(OAU model law) to provide appropriate guidance for African countries on the issues as covered in the title[157]. The OAU Heads of States endorsed the Model Law and recommended that it become the basis of national laws on the matter across the continent,[158] which in fact is just a model- a non binding legal instrument.

The model law attempts to define the rights of communities, farmers and breeders, and regulation of access to biological resources.[159] The farmers' right as defined in the model law encompasses the right for protection of traditional knowledge relevant to plant and animal resources; obtain an equitable share of benefits arising out of the use of such resources; and where feasible, intellectual property right on varieties with specific attributes identified by a community, without the need to stick to the usual requirements of distinctness, uniformity and stability.[160]

The breeders' rights are vaguely defined in general terms as the exclusive right to produce or sell the plants or the propagating material of the variety subject to farmers' rights.[161] In general even though it lacks precision and clarity[162] it seems that the model law resolved the interface between farmers' right and breeders' right with broad scope of exemptions being granted to farmers. Included in the list of exemptions are the right to

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157 African Model Legislation for the Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources (Algeria, 2000) (OAU model law).

158 Abebe Abebayehu, Granting Intellectual Property Rights on Life Forms and Processes: Does it Ensure Food Security? A Developing Country Perspective (University of the Western Cape, May 2005), p.23.

159See generally OAU model law.

160 See OAU model law, Part V.

161 See OAU model law, Part VI. The farmers' rights recognized and having a bearing on breeders' rights include use of a protected variety to develop farmers' variety; collectively save, use, multiply and process farm saved seed of a protected variety. By way of exceptions to breeders' right farmers are allowed to Farmers will be free to save, exchange and use part of the seed from the first crop of plants which they have grown for sowing in their own farms to produce a second and subsequent crops subject restriction that they shall do it on commercial scale.

162 There seems to be redundancies and even confusions. For instance most of these mentioned as exemptions to breeders' rights are impliedly covered by the farmers' rights provisions. As to possibly confusing provisions compare section 26(2)&31(2).

use the protected variety for purposes other than commerce, the right to sell the plant or the propagating material as food, the right to sell within the place where the variety is grown and the use of the variety as an initial source of variation for developing new variety.[163]

The model law has been utilized by some countries in crafting PVP legislation. For instance, Namibian[164] PVP legislation and Ethiopian[165] PVP legislations are mainly based on the model law.

2. 5. The Protection of Plant Variety under TRIPS

TRIPS Agreement is currently at the center of the international regime concerning the protection of IPRs. It has extended and attempted universalize IPR protection in all fields including agriculture- customarily exempted and allegedly very sensitive sector. In the coming sub-sections we will entertain the feature, nature, and scope of protection in TRIPS.

2.5.1. TRIPS behind the Divergent IPR Regimes on Plant Varieties?

The only textual provision of the TRIPS Agreement concerning plant variety protection is article 27.3 (b). The provision in its relevant part states:

> *Members may exclude from patentability: (b) plants and animals other than micro-organisms; and essentially biological processes for the production of plants or animals other than non-biological and micro-biological processes. However, members shall provide protection for plant varieties either by patents or by an effective sui generis system or by a combination thereof.*[166]

Based on this provision, WTO Members are permitted to pursue one of the three distinct approaches: Members may use patent law; or an "effective" *sui generis* system; or a combination of these approaches. The provision offers Members significant latitude of discretion to opt plant variety protection system of their choice and by doing so the possibility of availing the discretion differently in different Members is contemplated.

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[163] See OAU model law, Sec.31.
[164] Dhar, above note 8, p.14.
[165] See Proc.481/2009.
[166] Art. 27.3(b) of TRIPS.

Moreover, not only that member may choose among the three different approaches but also that within a single approach there could be multitude of them. TRIPS sets minimum standards. It does not, for instance, require patent protection for plant varieties but only optional. It follows that the agreement does not compel Members to employ a specified form of patent protection. Accordingly, Members are vested with the discretion to utilize existing utility patents or even enact a separate patent legislation applicable to plants in so far as the traditional elements of patent law are utilized and adjusted within the confines of TRIPS.[167]

Even more complex is the "effective *sui generis*" option. As noted earlier, the TRIPS Agreement does not define what an effective *sui generis* system is. Nor does it refer to or incorporate any specific preexisting intellectual property agreements including UPOV systems. This omission is in sharp contrast with other fields of IP such as patent and copyrights whereby Members are required to comply with preexisting IPR agreements such as the Paris Convention and the Berne Convention.[168] As a result, Members are left without verifiable framework within the bounds of which they should act that will have disharmonizing effect among the PVP legislations in different countries.

This discretion would give rise to divergent approaches on protection of plant variety. The threat of complexities and uncertainties for plant breeders seeking to market and exploit protected varieties will be there in so far as laws in different countries markedly differ.[169] On the other hand, the discretionary flexibilities in plant variety protection are viewed positively as instrumental for Members to balance IPRs against other competing societal goals.[170] As stated by one author "seen from this perspective, Article 27.3(b) provides a much needed 'safe space' for governments to harmonize conflicting norms and policies-a space that is lacking in other areas of the TRIPS agreement."[171]

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[167] Helfer, above note 17, pp.42-43.
[168] See Arts.2 and 9(1) of TRIPS.
[169] Helfer, above note 17, P.39.
[170] Ibid.
[171] Ibid.

Following this claimed discretions in TRIPS, a number of developed countries including the United States, Japan, Australia, New Zealand, Sweden and the United Kingdom have utilized this opportunity by allowing patent protection for plant varieties.[172] On the other hand, others particularly developing countries have availed the option to shun patent protection and often resort to the *sui generis* option with all complexities and uncertainties faced in designing "effective" *sui generis* system.

The current state of play in plant varieties protection encompasses those countries aggressively pushing for a PBR akin to patent and/or patent protection to those advocating flexible and allegedly week PVP legislation. But why so divergent approaches in designing IPR in plant varieties?

In general, though the design of IPR in plant varieties in a certain country needs an overall compromise of various considerations, mainly three factors have given rise to a demonstrable division of countries based on their level of development, in their IPR approaches on plant variety protection. These factors are the status of agricultural economy, the status of plant breeding sector, and the level of genetic resource endowment.[173]

Industrialized agriculture that needs to be backed by strong IPR regime is the feature of developed countries while traditional farming in developing countries does not need to appeal for strong IPR.[174] Also plant breeding in developing countries is mainly

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[172] Ibid., p.42.
[173] IPGRI, above note 16, pp 9-12.
[174]Ibid., p.10. A country with industrialized and market oriented agricultural economy might be advised to use a patent or strong sui generis system. Such legal and policy tools may be desirable to facilitate exports of harvested products as the IPR System of many importing countries prevents import of harvested products of protected variety in as far as such acts are done without the consent of the right holder. In similar vein, such IPR system may aid in facilitation of imports of better quality propagating material without which breeders might be reluctant to market to countries without adequate protection system. On the other hand for countries whose agricultural economy is mainly domestic market oriented and which depends largely on traditional varieties cultivated by small-scale and subsistence farmers, strong PVP may not have much to offer. Strong PVP could rather increase imports to such countries. Countries that rely upon traditional varieties and plant breeding are advised rather to focus on expansive farmers' and community rights, benefit sharing, equity, and promotion of on farm conservation and landraces. Ibid., pp.9-12.

dominated by public sector that does not see IPRs as a much needed companion. On the other hand, strong private breeding sector, which is a feature virtually confined to developed countries,[175] demand strong IPRs - patent or assimilated PVP. In Kenya, for instance, where PVP has been enforced since 1994, as of 2002, 90% of all PVP applications were from outside and 90% of the commercial vegetable seeds are imported from the EU, USA, and Asia.[176] Even in South Africa, where the domestic seed industry is stronger, the figure rises to 60%.[177]

With regard to genetic resource composition, it is estimated that developing countries posses about 90 percent of the world's genetic resources.[178] Biodiversity rich countries tend to devise IPRs counter balanced by access provisions on genetic resources that in effect would reduce benefits of breeders. The divergence and division of countries into developed countries with a tendency for strong IPRs on plant varieties, and the general trend towards loose IPRs by developing countries on the other hand is somehow a reflection of such contextual polarization.

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[175] Kuyek, above note 98, p.10. The nature and status of the plant breeding sector counts much in designing IPR system. A country may be reliant on public sector breeding or private sector and the capacity of these sectors should be taken into account. A country with modest capacity of private breeders such as those reliant on classical scientific breeding short of biotechnology may consider UPOV like PVP rather than patent. Such policy option could enhance plant breeding while ensuring availability of germ plasma for their breeding and within limits, allowing flexibility for using farm saved seed. In countries with strong capacity in modern plant biotechnology and those having prospect to that effect, strong IPR including patent are suggested to be of critical mechanism to recoup research and development costs, to promote alliances with companies abroad, and to facilitate trade in biotechnology products. IPRS are generally more important where breeding activities are carried out by private sector rather than public sector. In such set up, the public sector breeding needs to be strengthened so as to keep alternatives available and promote competition. In that respect it should focus on subsistence agriculture and marginal areas where private sector is likely to have little or no interest. See IPGRI, above note 16, p.12.

[176] Ibid.

[177] Ibid.

[178] Bernard Hoekman et al, Development Trade and the WTO: A Handbook (2002), p.382; Dhar, above note 8, p.7.

2.5.2. Review of Article 27.3(b): Disagreements over the Scope of Review.

In addition to the controversial substantive content it embodies, Article 27.3 (b) of TRIPS Agreement provides in its last sentence that "the provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement." Accordingly a review process was commenced in December 1998 under the TRIPS Council.[179] Nevertheless, the scope of the review is not clearly specified and this has led to a disagreement between developed and developing countries.[180]

The US and Japan sought to limit the scope of review to evaluation of the extent Members have implemented their obligation under the provision, with UPOV 1991 Act serving as a preferred benchmark.[181] On the other hand, developing countries led by India, Brazil and African states demanded that the review should be of a substantive nature and TRIPS be amended in connection with the review.[182]

Due to this contention the review was not concluded in its scheduled time, and soon the time to launch a new round of WTO trade negotiation arrived.[183] In the meantime attention shifted from review of Art. 27.3(b) in isolation as Members had to prepare for this round of trade negotiation but taken to the subsequent forums[184] including the 1999 WTO Seattle Ministerial Conference[185] and the Doha Round trade negotiation-named the

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[179] Boniface Guwa Chidyausiku, 'Article 27.3(b) of TRIPS Agreement: The Review Process And Developments At National And Regional Level', in CHRISTOPHE BELLMAN *ET AL* (EDS.), TRADING IN KNOWLEDGE: DEVELOPMENT PERSPECTIVES ON TRIPS, TRADE AND SUSTAINABILITY (International Centre for Trade and Sustainable Development, Earthscan Publications Ltd, London,2003), p.104

[180] Helfer, above note 17, p.84.

[181] WTO Council for Trade-Related Aspects of Intellectual Property Rights, Review of the Provisions of Article 27.3(b): Summary of Issues Raised and Points Made (WTO, IP/C/W/369/Rev.1, 9 March 2006)(hereinafter, TRIPS Council), pp.4 and 20.

[182] Ibid.p.4.

[183] Crucible II Group, above note 20, p.100.

[184] Chidyausiku, above note 179, p.104.

[185] The WTO Seattle Ministerial Conference was held in Seattle, 29november-4 December 1999. At this time members failed to launch a new round of trade negotiation. Rather it was later in 2001 that Members were able to launch a new round of trade negotiation .

Doha Development Agenda[186]. In these subsequent forums sharply contrasting proposals have been submitted. The African group generally called for total exclusion of patents on all life forms and processes and in relation to plant variety protection the group proposed clarifications on requirement of *sui generis* option that allows measures to accommodate their national interest, mainly in defense of proposals by developed countries that UPOV is the only effective *sui generis* option.[187]

Other developing countries such as India and Brazil sought that the review process should open the way for harmonizing TRIPS with the CBD and ITPGR, recognize farmers' rights and protect traditional knowledge and rights of indigenous communities.[188] US expressed that it favors protection of plant varieties by US-style patent and warns that any *sui generis* model for plant variety protection not modeled on 1991 UPOV needs to be examined on case by case basis.[189] US also favored elimination of exceptions to patentability of plants and animals [190]. Also intergovernmental organizations like WIPO and UPOV suggest that UPOV 1991 should be explicitly named as an /the effective *sui generis* system.[191]

The review of Art. 27.3(b) is tabled to be addressed simultaneously along the host of issues posed in Doha round negotiation. Of course, currently the whole of TRIPS is also

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[186] In November 2001 Trade Ministers from 142 countries launched a new round of world trade negotiations at the 4th WTO Ministerial Conference, in Doha, Qatar. The work programme that was adopted (known as the Doha Development Agenda(DDA) envisaged a broad round of trade negotiations, which alleged to have placed the needs and interests of developing countries at its heart. See Doha Development Agenda, Subjects Treated under the Doha Development Agenda, available at www.wto.org.

[187]See WTO Council for Trade-Related Aspects of Intellectual Property Rights, Taking Forward The Review Of Article 27.3(b) of the TRIPS Agreement, Joint Communication from the African Group(IP/C/W/404,26 June2003).

[188] See WTO Council for Trade-Related Aspects of Intellectual Property Rights, Elements of The Obligation To Disclose The Source And Country Of Origin Of Biological and/or Traditional Knowledge Used In An Invention, Submission from Brazil, India, Pakistan, Peru, Thailand, and Venezuela(IP/C/W/429,21 September 2004)(hereinafter Submission from Brazil et al).

[189] Crucible II Group, above note 20, p.101.

[190] TRIPS Council, above note 181, p.4, footnote 8.

[191] Crucible II Group , above note 20, p.101.

under review as per Art. 71.1 of TRIPS Agreement. The Doha Declaration[192] Paragraph 19 reads as:

> *We instruct the Council for TRIPS, in pursuing its work programme including under the review of Article 27.3(b), the review of the implementation of the TRIPS Agreement under Article 71.1 and the work foreseen pursuant to paragraph 12 of this declaration, to examine, inter alia, the relationship between the TRIPS Agreement and the Convention on Biological Diversity, the protection* of traditional knowledge and folklore, and other relevant new developments raised by members pursuant to Article 71.1. In undertaking this work, the TRIPS Council shall be guided by the objectives and principles set out in Articles 7 and 8 of the TRIPS Agreement and shall take fully into account the development dimension.[193]

This declaration enlarges the scope of review to substantive issues to encompass matters concerning appropriate scope of protection in light of other competing social objectives and international obligations beyond implementation issues. Moreover, the content of this declaration is reflective of that the position of developing countries regarding the scope review of article 27.3 (b) has largely prevailed. In particular the reference to Articles 7 and 8 reaffirms that TRIPS is to be interpreted to permit Members to adopt balanced system of intellectual property protection.[194] Although, this does not predetermine the outcome of the TRIPS review process since amendment requires consensus, some are optimistic that the Doha round of trade negotiations has opened "a window of opportunity for states seeking to balance the protection of plant breeders' rights against other societal objectives."[195]The review process is still pending. The discussion in the TRIPS Council has gone into considerable detail with a number of ideas and proposals for dealing with these complex subjects but did not come up with agreed up on content of effective *sui generis* system.[196]

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[192] The November14 2001 declaration of the Fourth Ministerial Conference in Doha, known as Doha declaration, sets out agreement of the Members on Work Programme in DDA. See World Trade Organization, Ministerial Declaration, WT/MIN(01)/DEC/1, Adopted On 14 November 2001, Ministerial Conference Fourth Session, Doha, 9 - 14 November 2001(hereinafter Doha Declaration).
[193] Doha Declaration 2001, paragraph 19.
[194] Helfer, above note 17, p. 84.
[195] Helfer, above note 17, p.84.
[196] See TRIPS Council, above note 181.

The present debate focuses on how the TRIPS Agreement relates to the Convention on Biological Diversity particularly on the issue of whether disclosure should be incorporated as a TRIPS obligation that patent applicants are required to disclose the country of origin of genetic resources and traditional knowledge used in the inventions, evidence that they received "prior informed consent", and evidence of "fair and equitable "benefits haring.[197]As things stand now, it seems that other issues pertaining to Art.27.3 (b) will be left where they were.

2.5.3. What Amounts to an "effective" Sui generis system under TRIPS? Minimum Requirements?

As noted earlier, TRIPS Agreement permits WTO Members to use the option of effective *sui generis* system for protection of plant varieties. The Agreement neither defines *sui generis* nor elaborates what makes a *sui generis* system 'effective'. The Latin word *sui generis* gives the meaning-'of its own kind' or 'unique'[198]. Inherent in the language of *sui generis* systems is a degree of flexibility but with no clear guidance in the scope. From this Ravi opined that a PVP legislation of a country need not maintain either total identity or similarity with PVP legislations of another country or groups of countries.[199]

On the other hand, there is common denominator for all TRIPS based PVPs that they all should be "effective"-that tends to require adoption of a global regime.[200] Vandana Shiva hypothesizes the possibility of interpreting "effective" *sui generis* option as necessitating the adoption of a global regime tracing the origin of the term in its drafting history. She explained that the tem "effective" was inserted by US in the Biodiversity Convention[201]

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[197] TRIPS: Reviews, Article 27.3(B) and Related Issues: Background and the Current Situation, available at http://www.wto.org/english/tratop_e/trips_e/art27_3b_background_e.htm ,accessed on 9/1/2010.
[198] IPGRI, above note16, p.5.
[199] S.Bala Ravi, Effectiveness of Indian *Sui generis* Law on Plant Variety Protection and its Potential to Attract Private Investment in Crop Improvement, Journal of Intellectual property rights Vol. 9 (2004), p.534.
[200] Shiva, above note 58, p.121.
[201]Art.16 (2) of CBD states that in the case of transfer of technology which is subject to patents and other IPR, access to and transfer of the technology shall only be provided

and the TRIPS Agreement and that the same term is found in Section 301 of the Trade and Competitiveness Act of 1988, that has been used to retaliate against countries whose IPR laws do not conform to US standards.[202] Therefore, she lamented that, the use of the term "effective" in all negotiations related to IPRs and biodiversity is an attempt by US to globalize IPR regimes.[203]

Although the TRIPS Agreement does not specify any criteria of effectiveness, attempts were made to define minimum requirements of "effective" *sui generis* system. Endeavors to construct the contents the term "effective" was designed to have has given rise to differing interpretations.[204] However, some commentators agree that there are at least four core elements that any national PVP law must comply with in order to quality as an "effective" *sui generis* system: protection of all plant varieties, intellectual property right form of plant variety protection, National Treatment (NT) and Most-Favored Nation (MFN) treatment, and effective enforcement mechanism for right holders.[205]

2.5.3.1. Protection of all Plant Varieties

The TRIPS Agreement neither defines the term 'plant variety' nor does it specify any species or genera the varieties of which have to be protected. Art. 27.3. (b) states that "…members shall provide for the protection of plant varieties…." No further qualifications. This provision has led Leskien and Flitner to conclude that Members have to provide protection of all species and botanical genera. "Any other interpretation of Art. 27(3)(b) TRIPS", they asserted, "would have to indicate for how many species or for which types of species member states have to grant *sui generis* protection,"[206] which is absent in the TRIPS Agreement. This argument is further augmented by inferences from

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on terms "which recognize and are consistent with the adequate and *effective* protection of Intellectual Property Rights."

[202] Shiva, supra note, p.121.

[203] Ibid.

[204] Dan Leskien and Michael Flitner, Intellectual Property Rights and Plant Genetic Resources: Options for a *Sui generis* System (International Plant Genetic Resources Institute (IPGRI), Rome, Issues in Genetic Resource No. 6, June 1977), p.32; Dhar, above note 8, p.7.

[205] Helfer, above note 17, p.21; Leskien and Flitner, above note 204, pp.28-32.

[206] Leskien & Flitner, above note 205, p.28.

the very feature of TRIPS and historical setting at time of its drafting. First it is true that TRIPS carves out numerous and specific exceptions to patent protection. Had it been the intention of drafters to limit the number or types of plant varieties to be accorded protection, the drafters would have done so by express provision.[207] At the time of its drafting indeed the drafters were aware that UPOV Acts permitted such limitations but "chose neither to refer to those Acts nor to their limited scope of protection."[208]

On the contrary, Victor Mosoti and Ambra Gobena argue that in the absence of clear indication of extent or coverage of varieties in the provision and also no record of the negotiating history that cast light on the scope that was considered by the negotiators it is difficult to accept such a conclusive language of the Leskien & Flitner ascribing such a broad scope.[209] Rather relying on the objectives and principles of TRIPS under articles 7 and 8(see the discussion in section 2.1.3.5.), they opined that potentially significant leeway is left for exclusions of certain plant varieties.

However, it seems that both sides of authors seem to have neglected or did not have notice of the fact that, unlike the English and the French versions, the Spanish version, which is equally authentic as the other two are, makes it clear that all plant varieties have to be protected.[210] Therefore, it appears that Members are bound to provide protection to all varieties and cannot in advance exclude varieties they can only exclude PBR applications on case by case bases where they can be justified in a manner comparable to the general exception under Art. XX of GATT and Art. 27(2) of TRIPS.

2.5.3.2. Intellectual Property Right Form of Plant variety Protection Required.

The word 'protection' taken alone would leave Members virtually unbounded and protection of plant varieties could take different forms such as "a system of taxation on

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[207] Helfer, above note17, p.57.
[208] Id.
[209] Mosoti and Gobena, above note 48, p.136.
[210] WTO Council for Trade-Related Aspects of Intellectual Property Rights, Review of the Provisions of Article 27.3(b): Summary of Issues Raised and Points Made (WTO,IP/C/W/369/Rev.1, 9 march 2006) p. 17.

seeds".[211] However, it is held that the protection granted to plant varieties must take the form of an IPR.[212] Art. 1(2) of the TRIPS Agreement signifies that for the purposes of the Agreement the term "Intellectual property" refers to "all categories of intellectual property that are the subject of sections 1 through of 7 part ". The subject matters covered in these sections are Copyrights and Related rights (section 1), Trademarks (section 2), Geographical indications (section 3), Industrial designs (section 4), Patent(section 5), Layout designs of integrated circuits(section 6), and the protection of Undisclosed information(section 6).

The requirement for protection of plant varieties by patents or by an effective *sui generis* system or by a combination thereof appears in section 5 of TRIPS agreement that deals with patents. Therefore, like patents and other rights specified through sections 1 to 7, "the *sui generis* system has also to be an IPR regime."[213]

The opposite view contended that the TRIPS Agreement contemplates *sui generis* protection of plant varieties only casually as an exception to patentability. It is claimed that, neither the requirements nor the scope of the *sui generis* system are defined that should have been addressed had it been intended to give the system an IPR form. Therefore, they concluded, the *sui generis* system does not constitute parts of the intellectual property rights within the meaning of Art. 1(2) of TRIPS.[214]

This interpretation is viewed as unwarranted that would nullify the very basis of *sui generis* protection of plant variety[215]. The counter argument in defense of *sui generis* as a form of IPR holds that should *sui generis* protection system fall out of the ambit of IPRs, the two core provisions of TRIPS i.e. national treatment (Art. 3(1) and the most-favored nation treatment (Art. 4) principles are not required by national *sui generis* system.[216] While the very purpose of TRIPS Agreement is to ensure availability of property rights covered by it to all nationals of Members, it is inconceivable to adopt any

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[211] Leskien and Flitner, above note 204, p.32.
[212] Ibid., p.28.
[213] Leskien & Flitner, above note 204, p.28
[214] Ibid.
[215] Mosoti and Gobena, above note 48, p.136.
[216] Ibid, p.142.

construction nullifying its very purpose.[217] Further supports asserting *sui generis* system as IPR system could be drawn from other provisions of TRIPS including Art. 68 and Art. 63(2).[218]

Indeed, the interpretation that *sui generis* system forms part of IPR system is confirmed by WTO Appellate Body in the United States Section 211 Omnibus Appropriations Act of 1998.[219] In that case, the Appellate Body reversed the WTO's panel holding that trade names were not a category of intellectual property protected by TRIPS. The bases for such panel's holding were that trade names were not expressly referred in Art 1(2)- an omission that also applies to plant varieties. The Appellate Body reversed this finding, citing the *sui generis* option on plant variety protection as an example of intellectual property protected by the TRIPS Agreement even though not mentioned by name.

Leskien and Flitner further clarified, the seemingly obvious but important note, that *sui generis* system must be an additional IPR "which WTO Members do not have to make available in relation to plant varieties according to other obligations imposed by the TRIPS Agreement."[220] The theme of such assertion is elaborated as follows.[221] For instance, a WTO member could not be held to have complied with its obligation under Art. 27.3(b) by providing variety denominations to be registered as trademarks since this obligation is already imposed by Art. 15 of TRIPS. Likewise, a member may not claim to be in compliance with Art. 27.3 (b) by merely providing interested parties the right to prevent others from using misleading or false geographical indications for their plant varieties as such obligations can be validly implied from Art. 22 of TRIPS. To add one more, providing trade secret protection for plant breeders would not satisfy the expected obligation in Art 27.3 (b) as such obligation is already depicted in Art. 39(1).

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[217] Ibid.
[218] Leskien & Flitner, above note 204, pp. 28-29.
[219] Helfer, above note 17, p.57 (AB-2001-7, WT/DS 176/ABIR (2 January 2002).
[220] Leskien & Flitner, above note 204, p.29.
[221] Ibid., pp. 29-30

Overall, the *sui generis* system in Art. 27.3(b) of TRIPS demands WTO Members to put in place an additional IPR regime other than those already depicted under other provisions of TRIPS.

The TRIPS Agreement by itself does not provide the details of the term "intellectual property". Most often the term IPR is used as collective name for rights such as those covered by the TRIPS agreement but the rights markedly differ in the substantive as well as procedural requirements for obtaining protection, the subject matter protected, and the scope of protection, among others. However, IPRs, as covered by TRIPS, are similar in that they provide the right holder legally enforceable rights to exclude others from certain acts in relation to the specified subject matter and/or to obtain a remuneration in respect of certain uses of that subject matter. Therefore, it follows that the *sui generis* system under TRIPS has to be an IPR regime "conferring on the right holders a legally enforceable right either to exclude others from certain acts in relation to the protected plant variety, or to obtain remuneration in respect of at least certain uses of the variety."[222]

But still the details of possible elements of *sui generis* system depicted in TRIPS that in self constitute a coherent and independent IPR regime remain obscured. Instruments of IP protection, not withstanding that they belong to the different forms of IPRs have some widely recognized features as minimum requirements.[223] These common features are defining the protectable subject matter; defining the requirements that makes the subject matter eligible; defining the scope and duration of the exclusive rights; provide for exceptions and limitations to strike balance between the private benefits accruable from IPR and the public good flowing from the working of the IPR; a framework for effective enforcement provisions; and where the IPR regime is designed in international context provisions for national treatment and most-favored nation treatment.[224]

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[222] Ibid. p.30.
[223] See S Bala Ravi, above note 199, p. 537; see also Helfer, above note 17, pp. 4-5; Leskien & Flitner, above note 204, p.47.
[224] Helfter, above note 17, pp. 4-5; Leskien & Flitner, above note 204, p.47.

The details of possible elements of *sui generis* IPR regime depicted in TRIPS shall be analyzed and explained in chapter three. Here it is essential to note implication of *sui generis* being subset of IPR regime is that it shares the principal features of IPR regimes.

2.5.3.3. National Treatment (NT) and Most-Favored Nation (MFN) Treatment are Applicable to Rights Granted.

As an IPR any *sui generis* system ought to comply with the basic principles of national treatment and most-favored nation treatment. As provided in Art. 3 and Art. 4, of TRIPS respectively, the principles apply to" all categories of intellectual property that are the subject of sections 1 through 7 of part II" of TRIPS agreement, and as discussed already, *sui generis* system of plant variety protection forms part of that category.[225]

Some resistances have been witnessed in relation to applicability of national treatment to *sui generis* system.[226] However, the appellate body of WTO stressed, in the United States section 211 Omnibus Appropriations Act of 1998, the critical importance of national treatment and most-favored nation treatment and concluded by confirming the applicability of such treatment to all subjects of intellectual property protected by TRIPS[227] of which the *sui generis* system of plant variety is a part. Therefore, in the plant variety protection context, each member must grant "no less favorable treatment to the nationals of all other WTO members than it grants to its own nationals" to comply with the national treatment obligation. Again the most favored nation treatment obliges each member to accord any advantage, favour, privilege or immunity granted by a member to nationals of any other country, with regard to the protection of plant varieties, immediately and unconditionally to the nationals of all other member states.[228]

2.3.4. Effective Enforcement Mechanism for Right Holders

The only qualification attached to *sui generis* system of plant variety protection is that they all be “effective”. The link the term ‘effective’ has with enforcement is possibly the

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[225] For further clarification see Leskien & Flitner, above note 204, pp.30-31
[226] Leskien & Flitner, above note 204, p.31, at foot note 13; Helfer, above note 17, p.58.
[227] Helfer, above note 17, p.58.
[228] Arts.3 and 4 of TRIPS Agreement.

single most obvious result of attempts made to construct the contents it was designed to have.[229] The term “effective” is used in the preamble and in part III of TRIPS dealing with enforcement of IPRs against acts of infringement by third parties.[230] Accordingly, it is suggested effectiveness is linked to issues of enforcement and that a *sui generis* system that does not provide a meaningful opportunity for private parties to enforce their rights in protected varieties is unlikely to be held "effective"[231] Nevertheless, this obligation does not entail duty to allocate a particular level of resources for enforcement measures.[232] In this line of argument, it suffice that civil and administrative procedures have to be prescribed and enforcement options under existing institutional framework be open to right holders.

2.3.5. Additional Requirements of an "effective" Sui Generis System?

It remained uncertain whether a WTO Dispute Settlement panel and/ or WTO Dispute Settlement Body-the competent authority to interpret the TRIPS Agreement[233]-would find additional requirements for a *sui generis* system to qualify as "effective". In particular, uncertainties emanate from the issue as to whether the term "effective" has to be understood only within the confines of enforcement or whether it also has something to say in relation to the level of protection of the *sui generis* system and therefore requires WTO Members to provide certain substantive minimum rights to be conferred by the system.[234]

According to Dutfield there is no need to delve into a labored interpretation of the word "effective" and he equates effectiveness with enforceability.[235] In contrast, Mosoti and Gobena maintain that "enforceable" “connotes a procedural emphasis, while ‘effective’ is

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[229] Mosoti and Gobena, above note 48, p.133.
[230] See Preamble (c), Arts.41 (1), 50(1) of TRIPS.
[231] Leskien & Flitner, above note 204, P.32; see also Art 5.14(4), Art. 70(4) of TRIPS.
[232] Art.41(5)of TRIPS.
[233] Art. 64(1) of TRIPS Agreement.
[234] Mosoti and Gobena, above note 48, p.133.
[235]G. Dutfield, Intellectual Property Rights and The Life Science Industry: A Twentieth Century History (Ashgate, 2003), p.65 as cited in Mosoti and Gobena, above note 48, p.133..

broader and has both a substantive and procedural element requiring a more wholesome examination of both those aspects."[236]

Leskein and Flitner support the first view. They believe that effectiveness should be confined to enforcement mechanisms and reject the interpretation of the term "effective" so as to demand minimum substantive rights to be provided by a *sui generis* system.[237] They argue that the TRIPS context by itself does restrict "effective" to enforcement. TRIPS employs the term 'effective' in the particular context of enforcement of rights and the procedures for dispute settlement "while the rights to be conferred are either defined in detail or as 'equitable remuneration."[238] They also contend that to attach effectiveness to substantive requirements would invite numerous problems including the difficulty of evaluating effectiveness at global level. In their own words "…it might be difficult to define effectiveness on global scale. The same protection system may be of different effectiveness in different countries whatever specific criteria are being used for evaluating the effectiveness."[239]

Nevertheless, the interpretation of these commentators tends to be too narrow to be acceptable. The fact that evaluation of effectiveness at global level would be difficult could not justify restricting effectiveness to enforcement. Rather it is shying away from the problem than solving same. Again the two commentators have placed undue emphasis on the use of the term "effective" in relation to enforcement. Similar terms are found in relation to substantive rights as well. For instance the preamble of TRIPS Agreement reads as "recognizing…the need for new rules and disciplines concerning …the provision of *adequate* standards and principles *concerning the availability, scope and the use of* trade related intellectual property rights…"(emphasis added).

Moreover, the drafters could not be held to have been interested simply on enforcement of nominal rights that amounts to their absence. The fact that interpretations in dispute

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[236] Mosoti and Gobena, above note 48, p.133.
[237] Leskien&Flitner, above note 204, p.32. For instances of provision providing equitable remuneration where the rights not otherwise defined see Art.14 (4) in relation to protection of performers and producers of phonograms.
[238] Ibid.
[239] Ibid.

settlement in WTO shall follow "customary rules of interpretation of public international law"[240] is mentioned by Leskien and Flitner themselves .And they have elaborated that the accepted customary rules of interpretation are three: the textual approach-that focus on ordinary meaning of the words of a treaty; the second approach that looks into the intention of the parties to the treaty; and finally the approach that looks into the aims and objectives of the treaty.[241]

Given this background, it is not clear why the commentators stick to the above interpretation. The expression "…Members may exclude from patentability… plants and animals. *However, members shall provide protection for plant varieties* …" in 27.3(b) shows the emphasis drafters placed on level of protection as is vivid from their preference to patent and if not by an "effective" *sui generis* system.

Others hold that effectiveness of a *sui generis* system in TRIPS Agreement and flexibilities thereof should be judged from diverse perspective in particular taking into account the objectives and principles of TRIPS that in effect subscribe to the broader understanding of effectiveness by Mosoti and Gobena. They emphasize that particular domestic context and national policy and development objectives of the member concerned should be given full consideration.[242] And that not the same standard of *sui generis* system fits all Members for the purpose of satisfying TRIPS imposed obligation on plant variety protection, according to this approach of interpretation.[243] Still more important is that the Doha declaration,[244] and the experience of WTO panels and

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[240] Art. 3(2) of Dispute Settlement Understanding (DSU), Annex 2 of the Marrakesh Agreement Establishing the World Trade Organization.
[241] Leskien & Flitner, above note 204, p.6.
[242] See generally Francis Mangeni, Trade Related Agenda, Development and Equity: Technical Issues on Protecting Plant Varieties by an Effective *Sui Genesis* Systems (South center, Occasional papers, December 2000).
[243] Ibid.,P.7
[244] WTO, Doha Ministerial Declaration, WTO Doc. WT/MIN(01)/DEC1(Nov.14,2001).Paragraph 19 of Doha declaration instructs the TRIPS Council to be guided by the objectives and principles set out in Articles 7 and 8 of the TRIPS Agreement and taking fully into account the development dimension in pursuing its work programme including the review of Article 27.3(b), the review of the implementation of the TRIPS Agreement under Article 71.1 and others.

Appellate Body in other areas of IP suggests that effectiveness of a national PVP system is likely to be assessed in such line of direction- taking into account the objectives and principles of TRIPS.[245]

Against this background, now it appears obvious that in interpreting an effective *sui generis* system and determining the appropriate level of protection and exceptions thereof in *sui generis* system of plant variety protection, where ambiguities are more prominent, WTO panel will resort to Articles 7 and 8. The question would be how much they offer an advantage and to whom. The drafting history of the TRIPS agreement informs us that such provisions are compromises out the hard bargain between the developed and less developed countries.[246] In line with the normative contents of the provisions, the WTO panel also took cautious approach in the *Canada-patent protection of pharmaceutical products case*[247] in that it figures out the need to consider both the goals and limitations embodied in the provisions.

Article 7-Objectives

The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer of and dissemination of technology to the mutual advantage of producers and users of technology and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.

The five objectives in Article 7 provide a promising guidance for less developed countries in implementing TRIPS with considerable flexibility. The first three objectives technological innovation, the transfer and dissemination of technology, and the production and use of technological knowledge are meant to reaffirm the obligations of developed countries promote technology transfer, technical cooperation and legal assistance as depicted in Art. 66 of TRIPS.[248]

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[245] See Panel Report, *Canada patent protection of pharmaceutical products*, WT/DS 114/R (Mar. 17,2000). In this case Canada as a respondent and EC as a complainant, both relied on Art. 7and 8 of TRIPS but taking divergent interpretation to support their own position. The panel acknowledged the importance of Art. 7 and 8 in clarifying ambiguities in TRIPS. Peter K. Yu., The Objectives and Principles of the TRIPS Agreement (2009), p.34, available at: http://ssrn.com/abstract=1398746 , accessed on 12/9/2009.

[246] Yu, above note 245, p.16.

[247] *Canada patent protection of pharmaceutical products*, WT/DS 114/R (Mar. 17, 2000).

[248] Yu, above note 245, p.20.

The last two objectives i.e. social and economic welfare and balance of rights and obligations are of particular interest to less developed countries. The reference to social and economic welfare signifies that IPRs as instruments of public policy, their recognition and enforcement is subject to higher social values.[249] Commentators have capitalized the importance of the phrase "balance of rights and obligations" for less developed countries to accommodate their specific national context. None the less, neither the TRIPS agreement nor academic or panel decisions yet provide proper guidance on how to achieve the balance. But it is commented that balance of rights and obligations should be considered not only within the context of TRIPS but also from diverse aspects outside TRIPS. As professor peter K. Yu stressed "the spillover effects of intellectual property protection and the increased fragmentation of the international treaty system have necessitated the development of not only endogenous limits to intellectual property protection, but also exogenous limits that can be found in related regimes, such as those concerning public health, human rights, biological diversity, food and agriculture, and information and communication." [250] Article 8 as well takes credit as adding further strength on Article 7.

Article 8-Principles

1. *Members may, in formulating or amending their laws and regulations, adopt measures necessary to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their socio-economic and technological development, provided that such measures are consistent with the provisions of this Agreement.*
2. *Appropriate measures, provided that they are consistent with the provisions of this agreement, may be needed to prevent the abuse of intellectual property rights by right holders or the resort to practices which unreasonably restrain trade or adversely affect he international transfer of technology.*

According to Professor Correa, Article 8 together with Article 7, "confirms the broad and unfettered discretion that Members have to pursue public policy objectives." [251] The reference to "laws and regulations" includes, according to him, not only to laws and

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[249] Carlos M. Correa, Trade Related Aspects of Intellectual Property Rights: A Commentary on the TRIPS Agreement (Oxford University Press, 2007) p.99; Yu, above note 245, p.19.
[250] Yu, above note 245, p.21; see also Correa (2007), above note 249, p.100-101.
[251] Ibid., p.108.

regulations on IPRS but also to measures adopted in other fields having implications on the protection of IPRS.[252] Moreover, the measures necessary to protect public health and nutrition encompasses "whole range of measures specifically allowed by the TRIPS Agreement, such as exceptions to exclusive rights (Article 30), compulsory licenses (Article 31) …"[253]

In addition, the phrase 'promote the public interest in sectors of vital importance to their socio-economic and technological development' in Article 8.1 allows Members considerable room for interpretation.[254] The use of the term "to promote" signifies that Members need not prove that such measures actually achieve their intended objective as long as they sound as possible options in a particular context.

Again the determination of what amounts to "public interest", which is broader than the term *ordre public* in article 27(2), rests with the particular member and others cannot challenge specification by that member. Third, once again determination of which sectors amounts to sectors of vital importance remains a matter for the particular member. And as Professor Correa explained, "sectors" may refer to "economic activities at different levels of aggregation (e.g. agriculture, maize production), as well as to certain groups of economic agents (e.g. small and medium enterprise)."[255]

Finally, according to commentators, the concept of socio-economic and technological development is "broad enough to encompass any sector, socially, economically, or technologically relevant. Thus, the importance of a sector may be measured by its contribution to GNP; but it may be also socially important, despite a low contribution thereto."[256]

Article 8.2 as well aids in framing national laws so as to respond to public interests. It clarifies that measures may be adopted to prevent or remedy abuses of IPRs,[257] practices

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[252] Ibid.p.104.
[253] Ibid.
[254] Yu, above note 245, pp.23, 24; Correa (2007), above note 249, p.105.
[255] Correa(2007),above note 249, p.166.
[256] Ibid., p.106; Yu, above note 245, p.24.
[257] For possible interpretation of this clause see Correa (2007), above note 249, pp.110-111.

that unreasonably restrain trade[258] or practices that adversely affect international transfer of technology.[259]

However, the possibility for the alleged unfettered flexibility drawn from Article 7 and part of Article 8 is constrained by two aspects of article 8: that the measures to be employed must be 'necessary'(in Art.8.1); and 'consistent'(both in Art.8.1 and 8.2) with the provisions of the TRIPS agreement. The reference to 'necessary' might be taken to depict the stringency it has as echoed in the chapeau of Article xx of GATT.[260] Correa suggested that the concept should not be taken so strictly as Members have significant room to define the content and scope of measures they adopt.[261]

Second, the measures must be consistent with the provisions of the agreement. The interpretation and implication of the consistency clause is found to be difficult and uncertain. To take the meaning at face value would lead to the conclusion that any government action necessary to protect the interest specified in Article 8.1 itself would be outlawed if found TRIPS inconsistent, implying that " IPRs would assume an overriding preponderance in national policies, far beyond what is actually possible under GATT, which allows for the derogation of Members' obligations."[262] To avoid such likely absurd interpretation commentators hold that the consistency requirement rather finds its implication as a means of limiting the potential range of non-violation nullification or impairment causes.[263]

The commentators stressed the need to shy away from the likely absurd literal interpretation by pointing out that "consistency with the TRIPS agreement should be assessed in the light of Article 7 and of the preamble, that is taking the balance of rights

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[258] Ibid. Correa noted that due to the absence of framework to address such issues in WTO rules, designing rules at national level is essential and the provision gives due recognition for that.
[259] Ibid., p.112. It is an important clause for those seeking transfer of technology but its implementation is difficult.
[260] Ibid., p.106.
[261] Ibid., P 107.
[262] Ibid., p.108.
[263] Yu, above note 245, p.36; Correa(2007), above note 249, p. 108.

and obligations and the social and economic welfare into account."[264] In general, despite the indisputable logic in their interpretation in favor of flexibility in these provisions, the phrases "necessary" and 'consistent' in article 8 are alarming to the WTO panel at least to keep flexibilities within a certain limit in accordance with its appreciation. Indeed, instances have been witnessed where the WTO panels and Appellate Body are alleged to have taken "views that focus narrowly on the right holders economic interest" [265] In relation to *Canada-patent protection of pharmaceutical products*, Professor Correa expressed his reservation stating that "the panels' view, while emphasizing stimulation to innovations, fails to consider other equally essential objectives of the patent grants..."[266]

In similar Vein, one author expressed her disappointment over the decisions of the WTO panels and the Appellate Body as:

> *A particularly revealing aspects of these disputes is the way each of the panels and the Appellate Body have ducked the thorny question of how to apply the preampular statements and the broad themes of Article 7 and 8 to evaluate the substantive obligations of the TRIPS Agreement. While tribunals can use strict construction to constrict or expand the requirements of TRIPS, the vagueness of these general qualifications in Article 7 and 8 will likely lead to a one-way ratchet of rights. In each of these cases, the dispute panels have invariably emphasized the market preserve of intellectual property owners as a dominant factor in determining whether TRIPS violation had occurred. Further, the cases suggest that the panels, in focusing on the purpose and objective of the TRIPS agreement, and the context of the negotiations, have interpreted the provisions almost solely in light of the economic expectations of the private right holders.*[267]

Peter K. Yu concluded interpretative value of the objectives and principles of TRIPS Agreement stating that "in sum, Articles 7 and 8 provide important tools to ensure that the WTO panels focus on the compromise struck between developed and less developed countries during the TRIPS negotiations. Even if they were to ignore such a bargain, the

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[264] Yu, above note 245, p.26; Correa (2007), above note249, p 104.
[265] Yu, above note 245, p.33.
[266] Correa(2007), above note 249, p.94.
[267] See Yu, above note 245, p.33.

two provisions provide the needed textual evidence for the Appellate Body to correct such misinterpretations."[268]

In general terms, according to commentators TRIPS provisions on protection of plant varieties are very lax on the obligation they entail on Members. It is suggested that "Members that implement the core TRIPS requirements in good faith-that is states that grant breeders intellectual property rights and enforcement measures applicable to varieties of all species and botanical genera and that provide those same rights and measures to breeders from other WTO Members are unlikely to have their laws challenged successfully."[269]

Due to the absence of panel rulings relevant to plant varieties, ambiguities in relation to effective *sui generis*" provision of TRIPS has resulted in continued misgivings. To date, there had not been dispute settlement proceeding directly concerning plant variety protection.[270] While the difference in view over the scope of legal protection on plant variety opens a fertile ground for future disputes, the absence of dispute settlement to date might be explained partly due to the short lived nature of the protection regime that itself allows phased-in implementation and probably mainly due to strategic approach of developed countries not to go to dispute while the very revision of the provision is being contested.

In conclusion, the emphasis should be that regulatory and policy space should not be stifled by an overly restrictive interpretive approach of the open-ended issues that arise from the TRIPS Agreement on the one hand, and on the other hand this should not lead Members to arbitrary manipulations of the flexibilities without limits. Indeed, we have to be cognizant of that in its overall intent, TRIPS is a minimum standard setting agreement committed to harmonization of laws of different Countries. The absence of clear and specific criteria should not pave the way for absolute freedom of Members and

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[268] Ibid.
[269] Helfer, above note 17, p.60.
[270] WTO dispute settlement: the disputes, at http://www.wto.org/english/tratop_e/dispu_e/dispu_status_e.htm, accessed on 25/11/2009.

completely disharmonized laws. Had that been the case, TRIPS need not have incorporated plant variety protection in its minimum standard setting regime. Indeed, driving force for conclusion of the agreement was adequate protection of IPR holders. In the specific case of plant variety protection it is evident from the preference of drafters for patent and from the use of the term effective. All these militate against flexibility but the phrase *sui generis* put a counterbalance affirming the need for flexibility.

Therefore the degree of permissible flexibility should not be arbitrary rather one that could be justifiable on grounds under articles 7 and 8 that could differ from country to country and added flexibilities may be derived from other treaties such as CBD and ITPGR.

2.5. Competition among the Instruments.

The foregoing discussion highlighted that the existing international legal instruments on plant variety protection show divergent tendency. TRIPS is the international agreement with wide range of members but says few points only about plant variety protection. The UPOV system of plant variety protection shows an increasing propensity to strengthen PBRS. On the other had the CBD, ITPGR and OAU model law try to put a counterbalance on such growing emphasis on exclusive rights on plant varieties.

There has shown to be a potential for conflict among these international instruments. In particular, the exclusion of IPR claims on genetic resources accessed through the multilateral system in Art 1.2.3 (d) of ITPGR and its benefit sharing emphasis, requirements of prior informed consent for accessing genetic resources, proposed origin disclosure requirements and benefit sharing requirements being developed within the context of CBD are likely to invite dispute as being in contravention with TRIPS as that might constitute additional requirement for grant of PBRs and other IPRs.

Therefore, a question has risen as to whether WTO Members may invoke objectives and provisions contained in these instruments to justify any measure that could possibly be held contrary to TRIPS Agreement. Theoretically there is no hierarchy among treaties in

different areas of international law. But it has been stated that in practice WTO-related instruments carry more weight than environmental treaties.[271] The Vienna Convention[272] on law of treaties urges a treaty itself to define its relation with other treaties. In this regard none of the treaties provide helpful guidance. TRIPS says nothing explicit about plant genetic resources nor about conservation of resources let alone regulating its relation with CBD. Though Art. 22 of CBD provides compatibility clause its scope is limited to pre-existing treaties. And the vaguely worded treaty relationship clause in the preamble of ITPGR that "affirming that nothing in this treaty shall be interpreted as implying in any way a change in the rights and obligations of the contracting parties under other international agreements" offers no meaning full solution. Failing that Vienna convention provides that when treaties on same subject matter come into conflict the later shall prevail.[273] Hence there is a possibility that WTO panel would rule that TRIPS prevails since it is the later in time than CBD.

On the other hand, it has been argued that since matters of access and benefit sharing on biological resources in CBD and ITPGR are more specific treaties on biological resources, they should prevail over TRIPS that generally calls for IPRS.[274] Moreover, certain provisions of TRIPS such as Art.8 on prevention of the abuse of IPR, Art.30 on exceptions to rights conferred, Art.7 on mutual advantage and balancing rights and obligations and so on may possibly help to limit the detrimental effects of IPR systems on objectives of CBD and ITPGR,[275] and hence a possibility for harmonization ruling by WTO panel. It is mainly based on this line of argument that we are going to entertain in the next chapter the possible elements of TRIPS compatible *sui generis* system.

Currently, the state of play is that UPOV system is being advocated by developed countries while developing countries are pressing for harmonization of IPRs with CBD and ITPGR. Despite the ongoing intense debate, the practical reality suggest that the *sui*

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[271] Cullet (2001), above note 96, p.98.
[272] United Nations Convention on the Law of Treaties, Signed at Vienna 23 May 1969, www.jus.uio.no/lm/un.law.of.treaties.convention.1969/toc.html, accessed on 7/8/2009, Art.30 (2). The Convention entered into force on 27 January 1980.
[273] Art.30 (1) of Vienna Convention.
[274] Leskien&Flitner, above note 204, p.45.
[275] Ibid.

generis option under TRIPS might gradually be reduced to UPOV type legislations mainly due to pressure from developed countries in bilateral and regional trade and investment agreements.[276] The number of states acceding or adopting PVP legislations modeled on UPOV system is suggested to exceed 110 in the near future.[277]

The former General Director of GATT, Peter Sutherland, was quoted in 1993 for saying that, in explaining to India as to what it takes to comply with TRIPS, "while the TRIPS provision on plant variety protection do not refer to any international convention, it is clear that, if the standards of UPOV 1978 were to be followed, it would be reasonable that an effective *sui generis* protection had been provided."[278] However, it is good to note that adopting UPOV is neither required by TRIPS nor it fully satisfies obligation of members. But only those UPOV members can make their law TRIPS compatible with minor adjustment such as by amending provisions on national treatment and reciprocity. It seems that more flexible and at the same time TRIPS compatible *sui generis* system is possible.

[276] Singh, above note 120, p.4.
[277] Ibid.
[278] Leskien & Flitner, above note 204, p.27.

CHAPTER THREE

THE ETHIOPIAN LEGAL REGIME ON PLANT VARIETY PROTECTION SEEN IN LIGHT OF THE TRIPS AGREEMENT.

3.1. Introductory Remarks

At the current state of play, Ethiopia has followed the footprint at the international level by introducing laws virtually for all forms of intellectual property rights. The recognition and protection of literary and artistic property rights dates back to the 1960s where some provisions were dedicated to literary and artistic property in the 1960 Civil Code of the Empire of Ethiopia.[279] Such provisions are later refined and consolidated by the 2004 Copyrights and Neighboring rights legislation.[280]

In relation to trademark, though it was not a formalized IPR recognition, some sort of recognition and protection were accorded in the 1960 commercial code,[281] and a new law has come in to place in 2006.[282] The legal regime on patents and industrial designs was introduced in 1995.[283] Again at the latest in 2006, the country has brought into place IP protection for plant breeders under the legislation named 'Plant Breeders' Right proclamation No. 481/2006.[284] This legislation has six parts and 35 articles. As shall be exposed in due course, survey of the structure and content of the legislation shows that it

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[279] Arts.1647-1674 of the Civil Code of the Empire of Ethiopia Proclamation No.165 of 1960,Neg.Gaz, Year 19, no.2.

[280] See Copyrights and Neighboring Rights Proclamation No. 410/2004, Fed. Neg. Gaz., Year10, No.55.

[281] The Commercial Code of the Empire of Ethiopia Proclamation No. 166 of 1960, Neg. Gaz., year 19, No.3. See Arts.140&141; also arts.135-139 on trade names.

[282] Trademark Registration and Protection Proclamation No. 501/2006, Fed. Neg. Gaz., Year12, No.37.

[283] The Inventions, Minor Inventions and Industrial Designs Proclamation No. 123/1995, Neg. Gaz., year 54, No. 25 (hereinafter, Proc 123/1996)

[284] Plant Breeders Right Proclamation No. 481/2006_Fed. Neg. Gaz, Year 12, No. 12, Proc. 481/ 2006. The first part is about general provisions mainly devoted to definition of terms, and part two embodies the core issue of plant breeders' right including the exemptions and restrictions thereof. Transfer and revocation of plant breeders right takes the third part followed by part four devoted to provisions on acts constituting infringement, possible course of actions for the right holder, and possible defenses available to the defendant. Farmers' right constituted part five which is succinctly addressed in two articles. The last part deals with miscellaneous provisions.

is modeled on the "OAU model law for the protection of the rights of local communities, farmers and breeders, and the regulation of access to biological resources."

The premises for the introduction of plant breeders' right are outlined in the preamble. Among others, the legislature were convinced that new plant varieties developed through research would have significant role for improving agricultural production and productivity; and development of new plant varieties requires considerable effort and investment, and then the legislature concluded that recognition and economic reward for those involved in the sector should be accorded IP protection and did that by way of plant breeders' right enacting this legislation to that effect. In the course of that the legislature has claimed to have taken account of the need to protect the interest of the farming and pastoral communities of Ethiopia, whose interest often goes in tension with plant breeders' right. The validity or other wise of the premises and the extent to which expectations could be met will be briefly assessed at the end of this chapter.

Before that PBRs being IPRs in agriculture, it is worth considering the socio-economic importance of agriculture as well as the legal context which existed when this new legislation came in to effect. Agriculture in Ethiopia is the mainstay of the national economy and equally socially important: accounting for 46.3% of the GDP, 83.9% of exports, and 80% of the labour force.[285] Despite its elevated socio-economic importance, agriculture in Ethiopia is generally characterized by subsistence farming and small landholdings. The national average landholding is estimated be about 1.16 hectares in general and specifically for crops it is about o.97 hectare[286] but in general those small land holders contributes about 95% of agricultural output while the contribution of commercial farming is limited to the rest.[287] Of course, the country has high potential for

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[285] Wikipedia, the free encyclopedia, Agriculture in Ethiopia, March 2008, http://en.wikipedia.org/wiki/Agriculture_in_Ethiopia, accessed on 22/12/2009.

[286] Federal Democratic Republic of Ethiopia Central Statistical Agency (Statistical Bulletin), Agricultural Sample Survey: Report on Land Utilization, Volume Iv(2008/2009), P.11.

[287] Federal Democratic Republic of Ethiopia Central Statistical Agency (Statistical Bulletin), Large And Medium Scale Commercial Farms Sample Survey, Statistical Report on Area and Production of Crops, and Farm Management Practices(2008/2009), P. 2.

agricultural development with a total area of 112 million hectare 65% of which being arable.[288]

What is more, the development policy of the country referred to as Agricultural Development-Led-Industrialization (ADLI) magnifies the trust placed on agriculture as a fulcrum for overall development.[289] ADLI envisages a deliberate reliance of industry on domestic inputs including agriculture, and the role assigned for agriculture as an increasingly important market for domestically manufactured goods thereby strengthening the link between industry and agriculture.[290] It focuses on improvement of productivity of smallholder agriculture and at the same time encouraging the growth of both extensive mechanized farming and intensive commercial agriculture.[291] It is within this framework that the 2006 Ethiopian PVP found its way as part of an input to the general reform.

The other policy consideration in PVP design goes to the setting in plant breeding. PVP originated as a means to provide incentive for private sector research and breeding. Agricultural research in Ethiopia has relatively long history that dates back to the 1950s when agricultural colleges opened followed by the formal establishment of Institute of Agricultural Research (IAR) in 1966 now Ethiopian Agricultural Research Organization (EARO).[292]

The share of the private sector in the seed industry has been insignificant. No private sector exists in agricultural research and variety development and only few exist that engaged in seed production/ multiplication and distribution.[293] The Ethiopian Pioneer Hi-bred Seeds Inc., a subsidiary of pioneer International, being the only foreign private actor

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[288] Thijssen et al (eds.), Farmers, Seeds and Varieties: Supporting Informal Seed Supply in Ethiopia (Wageningen International, 2008), p.21.
[289] Federal Democratic Republic of Ethiopia Industrial Development Strategy (Unpublished, August 2000), p.13.
[290] Ibid., pp.13-16; Federal Democratic Republic of Ethiopia Rural Development Policies, Strategies, and (siltoch/Techniques)(Unpublished, November 2001), pp.8-11.
[291] Ibid., p.204.
[292] Getinet Gebeyehu, Harmonization Seed Policy and Regulations in Eastern and Central Africa: The Ethiopian Seed Industry study, Final Report (October 19, 2001), p.13.
[293] Interview with Dr. Eshetu Bekele, Office Manager of the Ethiopian Seed Growers and Processors Association, held on Dec. 14, 2009.

engaged in production and supply mainly hybrid maize seed,[294] and few other domestic entities,[295] dominated by the Ethiopian Seed Enterprise (public) accounting about 80-90%,[296] take part in the multiplication and supply of varieties developed by EARO and other public institutions or by importing from abroad. Out of the total annual seed requirement in Ethiopia, about 90 % is met from the informal seed saving, sell and exchange system that has been the long-established and deep entrenched tradition of Ethiopian farmers.[297] Of this about 60-70% comes from saving from farm, and the remaining 20-30% is borrowed or purchased locally.[298] Only about 10%[299] is supplied by the formal sector that multiplies and supplies certified seed.

Seen from the legal perspective, Ethiopia is a party to the principal international agreement that do have impact in shaping the content of its plant variety protection laws. In the first place, Ethiopia has ratified[300] the CBD. While focusing on conservation and sustainable use of biological resources, the convention affirmed the sovereign rights of countries over their biological resources and arranges access and benefit sharing mechanism frameworks. In addition, Ethiopia has also ratified[301] the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGR). As discussed in the preceding chapter, this treaty is notable in avowedly demanding recognition of farmers' rights in the national frameworks for IPRs on plant genetic resources for food and agriculture.

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294 Interview with Ato Melaku Admasu, Manager of Ethiopian Pioneer Hi-bred Seeds Inc., held on Dec. 14, 2009. There are about 25 persons that officially participate in production and distribution of seeds, and among them about 12 are members of the Ethiopian Seed Growers and Processors Association. Ibid.

295 Interview with Dr. Eshetu Bekele.

296 Thijssen *et al*, above note 288, p.9.

297 Ibid., p.33.

298 Ibid.

299 Ibid.

300 Biodiversity Convention Ratification Proclamation No. 98/2004, Neg. Gaz, year 53, No. 89

301 The International Treaty on plant Genetic Resources for Food and Agriculture Ratification Proclamation No. 330/2003, Fed. Neg. Gaz., year 9, No. 50.

While circumscribed by such international commitments, now the country is in the process of acceding to the WTO.[302] In fact, the impacts of CBD and ITPGR on plant variety protection are only tangential while the TRIPS Agreement in WTO mandatory and directly requires protection of plant varieties. As noted earlier the scope of protection required has been less certain. In spite of the prevailing uncertainties, the plant variety protection regime of Ethiopia shall be subject to scrutiny in the accession process. In the next sections, we will evaluate the effectiveness of the existing Ethiopian plant breeders' right legislation in the context of TRIPS, the implications of the existing regime and possible future adjustments required.

3.2. The Ethiopian Legal Regime on Protection of Plant Varieties as an "Effective" System of Plant Variety Protection.

The principal legislation on plant variety protection is the 2006 plant breeders' right proclamation (hereinafter Ethiopian PVP). In assessing effectiveness of Ethiopian legal regime on plant variety protection, however, not only this legislation but also other relevant legislations will be taken in to account, when found relevant.

We have also noted that the *sui genesis* system depicted by TRIPS is a form of IPRs regime. Instruments of IP protection, not withstanding that they belong to the different forms of IPRs have some widely recognized features as minimum requirements.[303] Now we are going to evaluate the effectiveness of Ethiopia *sui generis* system within such parameters.

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[302] Ethiopia has submitted an application for accession on 13January 2003, Working Party Established, on 10 February 2003Memorandum25 January 2007Meetings of the Working Party16 May 2008, see WTO accessions at www.wto.org, accessed on 15/1/2010.

[303] The common features are defining the protectable subject matter; defining the requirements that makes the subject matter eligible; defining the scope and duration of the exclusive rights; provide for exceptions and limitations to strike balance between he private benefits accruable from IPR and the public good flowing from the working of the IPR; a framework for effective enforcement provisions; and where the IPR regime is designed in international context; provisions for national treatment and most-favoured nation treatment. See Ravi, above note 199, p. 537; see also Helfer, above note 17, pp. 4-5; Leskien & Flitner, above note 204, p.47.

3.2.1. Protectable Subject Matter.

Defining the protectable subject matter is one of the typical features of IPR regimes. Generally speaking, the protectable subject matter for PVP legislation is plant variety. Two points merit discourse in this sub-section: what exactly constitutes plant variety and what scope? While it is customary to generally refer to plant varieties both in PVP legislations and academic discourse, the precise definition of plant varieties has been proved to be difficult.[304] Indeed, the archetype of *sui generis* protection of plant varieties system i.e. UPOV itself came up with definition of a variety only in its 1991 version, silent in its prior versions.

Unfortunately, situations made precise definition of plant variety a necessity. In particular, the need to demarcate subject matters protected by patent system and those under PBRs has been a compelling factor. This concern equally applies to the Ethiopian scenario. The relevant part of Ethiopian patent law reads as "the following shall not be patentable… (b) plant or animal varieties or essentially biological processes for the production of plants or animals."[305]

On the other hand, the Ethiopian PVP has defined plant variety for purpose of protection under its PBRs. The definition, which is almost a verbatim copy of the definition given in the 1991 UPOV, reads as "variety" means a plant grouping within a single botanical taxon of the lowest known rank, which can be:

(a) defined by the expression of the characteristics resulting from a given genotype or combination of genotypes;
(b) distinguished from any other plant grouping by the expression of at least one of the said characteristics; and
(c) considered as a unit for being propagated unchanged.[306]

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[304] For exposition of problems related to definition of variety see Leskien & Flitner, above note 204, pp.48-89.
[305] Proc.No. 123/1995, Art. 4(1) (b).
[306] Proc. 481/2006, Art. 2(8). Compare this definition with Art.1(vi) of 1991 UPOV.UPOV uses the phrase "a plant grouping within a single botanical taxon of the lowest known

The definition in Ethiopia follows the usual course of practice where almost all national PVP legislations are modeled on the 1991 UPOV definition.[307] However, through aiding, this definition has been held to be unsatisfactory.[308]

It does not seem to be useful to delve into the notoriously controversial definition beyond this. What is important to note here is that the combination of Ethiopian patent law and PVP legislation would lead to a striking but perhaps unintended and undesirable conclusion. By using the phraseology "plant or animal varieties", instead of using the simple words "plants or animals", the patent law has paved the way for broad IPR claims on life forms. All plants and plant groupings beyond plant varieties, leaving aside the issue of animals, shall be patentable in so far as inventions upon them met the requirements of patentability.[309] The narrow scope of plant varieties as compared to the reference to plants in general is made explicit in the definition given to the two terms in the Ethiopian PVP itself.[310]The PVP complemented the patent law by providing IPRs for those excluded from patentability. The broadness or narrowness of the definition of plant variety will determine what scope is left for patents on plants. The combination gave rise to a full-fledged recognition of IPRs for all life forms in Ethiopia.[311]

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rank, which grouping, *irrespective of whether the conditions for the grant of breeders right are fully met*…"which is absent in Ethiopian PVP.(emphasis added)

[307] See Indian PVP, sec. 2(Za); Chile Law no. 19.342 on the Rights Of Breeders of New Varieties of Plants (hereinafter Chile PVP), www.**grain**.org/brl/?docid=591&**law**id=1755 , accessed on 27/10/2009, Art. 2; Philippine Plant Variety Protection Act of 2002, Republic Act No. 9168, Art.3(m), www.chanrobles.com/republicactno9168.html , accessed on 12/1/2009. www.**grain**.org/brl/?docid=591&**law**id=1755 , accessed on 27/10/2009.

[308] Leskien & Flitner, above note 204, pp.48-49.

[309] For requirements of patentability see Art. 3(1) of proc. 123/1995; it envisages the usual requirements of novelty, inventive step and industrial applicability.

[310] Compare Arts.2(6)&(8) of Proc.481/2009. According to Art.2(6), plant means "a living organism which is not an animal and which can reproduce itself naturally."

[311] Similar trend and similar interpretation prevailed in European Union. See Peter G. Groves, Source Book on Intellectual Property Law (Cavendish Publishing Limitted,1997), p.196-202. Art. 53(b) of the European Patent Convention provides that "a patent shall not be granted…"

"(b) for any variety of animal or plant or essentially biological processes for the production of animals or plants, not being a microbiological process or the products

Beyond the definition of plant variety, the coverage of number of variety is critical in an IPR regime. In this regard, Ethiopian law explicitly holds that only plant varieties of specified genera or species shall be the subject matters of PBR.[312] Ministry of Agriculture and Rural Development (MoARD) is vested with discretion to determine and revise from time to time the list of plant genera/species of varieties eligible for protection.[313]

So much about the protectable subject matter under Ethiopian PVP, would Ethiopian law cohere with TRIPS or not? The following conclusions can be drawn. With regard to the number of genera or species to be protected, TRIPS provisions do not seem, as discussed already, to open a space for negotiation. Plant varieties of all genera or species should be protected. And Ethiopian PVP to comply with TRIPS requirement should extend protection to all genera or species of plant variety. As to what constitutes plant variety, TRIPS itself does not define what counts to plant variety. Neither does it assert the need for innovative definition nor does it require Members to stick to the definition of plant varieties developed by UPOV. In a prevalence of ambiguities and uncertainties', according to Leskien and Flitner,[314] to which view the writer as well subscribes, TRIPS' reference to plant varieties could be satisfied by adopting UPOV definition that envisages the common understanding of plant varieties[315] while in fact Members still retain the discretion to adopt a more flexible definition. Definition of plant variety would be an issue only if a member defines plant varieties too narrowly.[316] Therefore, definition wise Ethiopian PVP satisfies what TRIPS could reasonably expect since it is similar to UPOV system in this regard which is conventionally accepted as satisfactory for the purpose of TRIPS in many respects.

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of such a process." As such plant varieties are protected by a PVP. In this circumstance the effect has been held to be that plants other than plant varieties are patentable. Ibid.

312 Proc. 481/2006, Art. 3.

313 Proc. 481/2006, Art. 3.

314 Leskien & Flitner, above note 204, p.49.

315 Article 23(4)(b) of the European Patent Convention has similar definition to that of UPOV. Mosoti& Gobena, above note 48, pp.124-125.

316 Ibid.,p.126.

3.2.2. Requirements for Protection

The other element of an IPR regime is that it has to determine the eligibility requirements that make the subject matter protectable (see footnote 19). In the protection of plant varieties, the four eligibility requirements of UPOV i.e. newness, distinctness, uniformity (homogeneity), and stability have been adopted in various national legislations.[317] The relevant provision of the Ethiopian PVP determines eligibility criteria not as such by providing them as requirements but as part of definition of protectable variety. It states that "new plant variety" means a variety that:

(a) by reason of one or more identifiable characteristics, is clearly distinguishable from all other varieties the existence of which is a matter of common knowledge at the date of application for plant breeders' right;
(b) is stable in its essential characteristics in that after repeated reproduction or multiplication, at the end of each cycle, remains true to its description;
(c) having regard to its particular features of sexual reproduction or vegetative propagation is sufficiently homogenous or is a well defined multi-line; and
(d) Its material has not been sold or otherwise disposed of to others by the breeder for purposes of commercial exploitation of the variety.

i) in the territory of Ethiopia, earlier than one year before the date of filling of application for plant breeders' right with the ministry (Ministry of Agriculture and Rural Development) or

ii) in the territory of any other state, earlier than six years in the case of varieties of tree, fruit tree or grape vines, or in the case of other species, earlier than four years before the date of the application.

These requirements, being more or less the same requirement to that of UPOV but in different wordings, share the criticism against UPOV.[318] There have been discourses pointing out the defects in the UPOV criteria and in proposing alternative eligibility

[317] See for instance Sec 15. (1) of Indian PVP; Chile PVP, Art. 8; Philippine PVP Sec.4.
[318] Among others, the criticisms include that they are unnecessarily rigid, contribute to genetic erosion, preclude IPR claims by traditional farmers while favoring protection for breeders who make breeding their business. See Helfer, above note17, p.71.

requirements with a view to mitigate the alleged adverse effects of UPOV requirements[319] but little steps have been taken in national PVP laws.

Novelty requirement of UPOV, adopted in different national PVP legislations including Ethiopia, has taken the blame for serving as a ground to exclude protection of farmers'/traditional varieties.[320] In response to that, longer period of grace period is depicted to accommodate such varieties, if after all protection of such varieties by IPR system is viewed to be beneficial.[321] The Indian PVP and Thai PVP incorporated IPR protection for traditional varieties without sticking to the criteria of novelty for variety protection[322] but Ethiopian PVP does not have equivalent provisions and rather follows access and benefit sharing approach (see section 3.3.1).

The criticism against requirement of distinctness holds that there is inherent tendency towards what is called 'cosmetic breeding' i.e. minor changes in character without any practical relevance but of decisive in qualifying a variety for protection.[323] In this regard, it is the 1991 UPOV and national PVPs adhering to it, not the 1978 one, that should take the blame since the later requires not mere distinction but distinction in *one or more important* characteristics.[324]

National laws may require truly "important characteristics of agronomic or other practical relevance such as nutritional value.[325] Indian law uses the term "at least one essential characteristic."[326] Similarly, the Czech law requires distinctness by "at least one major trait or property."[327] Also, Thailand PVP holds that a new plant variety shall be capable

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319 IPGRI, above note 16, p.15; Leskien & Flitner, above note 204, pp.50-52.
320 Correa et al, above note 27, p.61.
321 IPGRI, above note 16.
322 Sec 14&15(2) of Indian PVP, and Secs.11 (3), 43 and 47 of Thailand PVP.
323 Leskien & Flitner, above note 204, p.50. This would be the case if distinctness is taken roughly to imply external and visible characteristics such as leaf shape, stem length, color of decorticated grain.
324 Art 6(1)(a) of the 1978 UPOV specifies that a variety must be clearly distinguishable by one or more important characteristics from any other variety…" The phrase one or more important characteristics is omitted in the 1991 version. (compare Art 6(1) (a) of 1978 and Art. 7 of 1991 UPOV).
325 Leskien & Flitner, above note 204, p.51.
326 Section 15 subsection 3(b) of Indian PVP.
327 Leskien & Flitner, above note 204, p.51.

of registration provided that its distinctness is related to the feature beneficial to the cultivation, consumption, pharmacy, production or transformation.[328] Ethiopian PVP uses the phrase distinguishable "by one or more identifiable characteristics." Hence the simple criterion of identifiable characteristics would enable those who made cosmetic modifications to claim protection.

In relation to uniformity /homogeneity, in UPOV 1978 a variety has to be "sufficiently homogeneous" [329] and in 1991 UPOV "sufficiently uniform" [330] in its relevant characteristics, subject to the variation that may be expected from the particular features of its propagation. As such UPOV standard of uniformity permits certain level of flexibility such as the number of off-types or the degree of genetic identity in a given plant grouping.[331] But still it is held that it does not allow protection of plant grouping with a higher degree of diversity while there are plant groupings which can be defined by their characteristics, are distinct and more or less stable, but do not comply with the requirement of uniformity as defined in UPOV convention.[332] The vast majority of landraces, local or traditional varieties that display higher degree of diversity than breeders' varieties are excluded from the property rights system.[333]

Stability in itself shares the blame targeted against uniformity. In the ever changing climatic and general environmental condition strict adherence to stability are not advisable, rather flexibility in such area would encourage development of less vulnerable varieties.[334] Shifting the focus on criteria of stability to economically important traits such as yield or pest resistance and testing their stability through generations has been proposed.[335] In other words, stability can be judged by testing its continued uniformity in relevant traits such as yield or pest resistance.[336] Plasticity in this respect enables

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328 Sec.12(2) of Thailand PVP.
329 Art. 5 of 1978 UPOV.
330 Art. 8 of 1991 UPOV.
331 Leskien & Flitner, above note 204, p.52.
332 Ibid., p.51.
333 Correa *et al,* above note 27,p.61.
334 Leskien & Flitner, above note 204. p.52.
335 Ibid.
336 Ibid.

accommodation of landraces to the IPR system, for nations desiring to do so, because rather than laboratory born varieties, landraces often display genetic drift in time[337]. Proposals for national governments focus on the shift from requirement of uniformity and stability to identifiability.[338] Identifiability is asserted to be focused on the legal need to identify the protected subject matter rather than focusing on physical properties of plant variety.[339]

Of course, the criticisms against UPOV in relation to uniformity and stability arise less from its legal text than it is from practice. In particular UPOV 1991 requires only sufficient uniformity and stability so as to enable distinction and only in relevant characteristics.[340] As defended by some authors,[341] the requirements are variable and limited, beyond which a protectable variety can be as heterogeneous as is feasible from the perspective of UPOV. They added Commerce may necessitate broader uniformity but this is not relevant to UPOV. Leskien and Flitner also pointed out that the stringency in UPOV is not due to the wordings in the Convention itself but the test guidelines set up for implementation of UPOV and practices of competent authorities.[342]

Ethiopian PVP as well confines stability only to essential characteristics though without defining what amounts to essential characteristics. In case of uniformity it simply mentions sufficiently homogeneous or a well defined multi-line without qualifying same with essential characteristics which makes close to the criticism even more than UPOV system. Whether these requirements would satisfy TRIPS requirements or not has not been much of an issue. It is held that the silence in TRIPS could be freely manipulated.[343] TRIPS Agreement does not require adherence to the customary requirements in UPOV. Hence it is up to national governments to adopt suitable criteria for determining eligibility. At any rate, those advocating and adopting unfettered and extended flexibility in the requirement of uniformity and stability should be aware that very lax criteria would

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337 Correa *et al,* above note 27, p.61.
338 IPGRI, above note 16, p.15.
339 Ibid.
340 See Arts. 8&9 of UPOV 1991 and Art.6(1)(d) of UPOV 1978.
341 Lesser & Lynch, above note 13, p 384.
342 Leskien & Flitner, above note 204, p.52.
343 Ibid., p.49

result in broader property claims that may lead to 'anticommons tragedy'[344]-too many parties independently possess the right to exclude others from utilizing the resource-and other practical problems(see section 3.3.2).

3.2.2.1. Additional Requirement: declaration of origin of genetic material/prior informed consent/.

Apart from modifying the customary eligibility requirements discussed above, it has been held that WTO Members could possibly introduce additional conditions up on the grant of protection[345]. The declaration of origin of the genetic material is one requirement being prominently advocated in relation to patent application.[346] The Ethiopian PVP holds that plant breeders' right shall be granted if "the breeder has a proof that he has obtained the genetic resource used to develop the variety in accordance with the relevant laws on access to genetic resources."[347]

The reference to relevant law seems to signify access legislation of any country from which the genetic material is obtained as there is no qualification to limit it to Ethiopian law. But this would be a rather unprecedented tendency of unilateral commitment to protect the rights of another state,[348]it should be interpreted to imply the law of Ethiopia. According to Ethiopian access legislation,[349] ownership of genetic resources resides with the state and the Ethiopian people. Any person demanding access to genetic resource must obtain prior informed consent of the Institute of Biodiversity Conservation[350] and

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344 Daniel Robinson, Exploring Components and Elements of *sui generis* Systems for Plant Variety Protection and Traditional Knowledge in Asia (A Study Commissioned by the International Centre for Trade and Sustainable Development (ICTSD) ,March 2007), p.24.
345 Helfer, above note 17, p.74.
346 Correa *et al,* above note 27, pp.85-87; Submission from Brazil *et al*, above note188.
347 Art.14(3), Proc.481/2009.
348 Helfer, above note 17, p.86.
349 Access to Genetic Resource, and community knowledge, and community Rights proclamation No. 482/2006, Fed. Neg. Gaz, year 13, No. 13, (hereinafter proc. 482/2006), Art.5(1).
350 The Institute Of Biodiversity Conservation was established with a view to ensure appropriate conservation, research, development and sustainable utilization of the country's biodiversity. Institute Of Biodiversity Conservation and Research Establishment Proclamation, Proclamation No. 120/1998, Fed. Neg. Gaz., Year4, No.49.

thereby enter in to a fair and equitable benefit sharing arrangement from utilization of the genetic resource.[351] Indian PVP also made it mandatory that for acquisition of PBR the genetic material for development of the variety be declared to have been lawfully acquired.[352] Thailand PVP as well requires that an application for registration of a new plant variety should be accompanied by a "profit-sharing agreement in the case where a general domestic plant variety or a wild plant variety or any part thereof has been used in the breeding of the variety for a commercial purpose."[353] Indian law confines the obligation to mere declaration so that would provide information for countries desiring to claim and negotiate benefit sharing without guaranteeing that there shall be benefit sharing. Ethiopian PVP and Thailand PVP deny breeders legal protection unless they have actually negotiated with their respective government if the genetic material is obtained from domestic resources.

This access requirement contributes to implementation of commitments under CBD and primarily for countering "biopiracy"[354]. Nevertheless, incorporation of this requirement in IPR regimes may entail practical difficulties[355] and possibly legal incompatibility with obligations imposed by other instruments such as TRIPS Agreement.[356] Art. 16 (5) explicitly requires contracting parties to ensure that IPRs are supportive of and do not run counter to the objectives of the Convention.

On the other hand, Article 27.1 of TRIPS maintains that "patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application." Furthermore, Article 29 provides Members shall require that an applicant for a patent

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351 Art. 12(1) & (3) of Proc. 482/2006).
352 Sec.18(1)(h) of Indian PVP.
353 Thailand PVP, Art. 19(5).
354 Helfer, above note 17, p.74.
355 Ibid.
356 Correa *et al*, above note 27, chap.4. Concerns have been forwarded that such requirements might be held incompatible with TRIPS obligation in that since TRIPS allows patenting based on the use of genetic resources subject to meeting patentability criteria. Particularly members of UPOV countries are bound not to impose additional conditions other than the customary eligibility requirements. Art. 6(2) of 1978 UPOV, Art. 5(2) of 1991 UPOV.

shall disclose the invention and optionally they may require an applicant for a patent to provide information concerning the applicant's corresponding foreign applications and grants. Particularly Article 29 captioned as "conditions of patent application" suggests that these are the only conditions Members might impose on patent applicant. Thus it seems access and benefit sharing requirements may amount to additional requirements in violation of these TRIPS provisions. From the other side of the issue, free utilization of genetic resources of a country by an IPR holder tends to contravene the sovereign right of states over their biological resources and the fair and equitable sharing of benefits arising out of utilization of genetic resources as stipulated in CBD.[357]

However, there appears to be a growing consensus for legitimizing disclosure of origin albeit with divergence as to its effect.[358] As part of their effort to fight biopiracy developing countries demanded disclosure of origin to form part of patentability requirements.[359] Developed countries also particularly the EU looked at the requirement positively but differ in its effect. EU in its submission to TRIPS council indicated its willingness to consider disclosure of origin but insisted that it should not constitute, de facto or de jure, patentability criterion.[360]Rather EU demanded legal consequence of failure to disclose, insufficient disclosure or wrong disclosure should lie outside of patent law.[361]

This trend will have important ramification to PBRs as well. The Ethiopian PVP made declaration of origin a de facto requirement for acquisition of PBR. Though disclosure requirement and accompanying benefit sharing mainly pertain to matters of CBD, the objective of TRIPS to maintain the balance of rights and obligations is interpreted by some commentators so as to allow that such balance could be sought even outside IPR

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[357] Arts. 1 and 3 of CBD.
[358] TRIPS: Reviews, Article 27.3(B) and Related Issues: Background and the Current Situation, available at http://www.wto.org/english/tratop_e/trips_e/art27_3b_background_e.htm ,accessed on 9/1/2010.
[359] Submission from Brazil *et al*, above note188.
[360] WTO Council for Trade-Related Aspects of Intellectual Property Rights, Communication from the European Communities and Their Member States, WTO, IP/C/W/383, 17 October 2002(hereinafter communication from EC).
[361] Ibid.

regimes (see section 2.1.3.5.) Given TRIPS silence on requirements of *sui generis* option, coupled with the growing emphasis on harmonization of TRIPS and CBD[362], it is unlikely that making access requirement precondition in PBR, which is weaker than patent, would be held incompatible with TRIPS. All in all requirements wise Ethiopian PVP appears to be in compliance with TRIPS.

3.2.3. The Scope of Protection (Breeders' Right) and Duration of the Right.

The fundamental feature of an IPR regime lies in that it has to clearly specify what is exclusively reserved for the right holder and in what respect others could legitimately act in relation to a certain IP product. With respect to plant variety protection, the scope of protection accorded to a breeder may be viewed and analyzed in three dimensions: the material protected; acts that require right holders' authorization in relation to the protected material; and varieties covered.

Ethiopian PVP provides the following: "subject to the exemptions and restrictions provided for in this proclamation, a plant breeders' right entitles the holder an exclusive right to:

(a) sell, including plants or propagating material of the protected variety; and
(b) produce, including the right to license other persons to produce propagating material of the protected variety for sale"

In Ethiopian law, both the exclusive acts and protected materials are indicated in the above stated provision, through it lacks clarity. For the sake of analysis, let us consider materials protected; acts exclusively reserved to the breeder; and protected variety.

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[362] The Doha declaration, paragraph 19 mandated TRIPS Vs CBD relationship investigation. Resolution 37 the Nairobi conference for the Adoption of the Agreed text of the Convention on Biological Diversity as well stressed the need for harmonization of IPRS and CBD.

3.2.3.1. Protected material

The protected material of the variety encompasses "plants or propagating" material of the protected variety. Propagating material[363] of a variety includes seeds or other parts of a plant variety where it is vegetatively propagating one. The reference to 'plants' entails some difficulty as to what exactly that refers to. Obviously a PBR on plant variety should not vest a breeder absolute monopoly on each and every parts of a plant such as genes contained in such plant variety while it might be the case in relation to patent. The common trend is that, even in systems that give the strongest PBR such as US[364] and 1991 UPOV[365], the breeders' right, if it goes beyond the propagating material, limits itself to harvested material obtained through unauthorized use of propagating material on condition that the breeder had no reasonable opportunity to exercise his right on the propagation material, and rarely and optionally to products derived from the harvested material.

Therefore, in Ethiopian context, a PVP modeled on OAU model law, the most that PBR holder could have a right, in addition to on the propagating material, is over the harvested material.[366] It could not be interpreted so as to extend to products made from the harvested material. In relation to harvested material, the right extends so only if the breeder has had no reasonable opportunity to exercise his right on unauthorized use of propagating material. Despite the silence in Ethiopian law, the extension of the right to harvested material should be interpreted as being circumscribed by such precondition.

3.2.3.2. Acts requiring right holder's prior authorization

The other parameter for scope of protection of breeders' right pertains to scope of activities that require prior authorization in relation to the protected variety. The acts stipulated in Ethiopian PVP, which is direct replica of section 30(1) of OAU model law,

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363 Proc. 481/2009, Art.2(11). See the Amharic version since the English version talks about something unrelated.
364 Sec.111(c)(4) of 7U.S.C.2321.
365 1991 UPOV, Art.14(2)&(3).
366 There are indicative clauses in other PVP regimes in which ' harvested material' is taken as a reference inclusive of 'entire plants and part of plants.' See 1991 UPOV, Art.14(2)& Sec.111(c)(4) of 7U.S.C.2321.

comprises: (1) act of selling the protected materials i.e. propagating and harvested material obtained via unauthorized use of propagating material, and (2) the act of producing the propagating material.

In many PVP regimes such as in U.S,[367] Zambia,[368] and UPOV 1991,[369] as is common in a patent regime, the set of acts exclusively reserved to the right holder includes: production, conditioning for the purpose of propagation, offering for sale, selling or other marketing, exporting, importing, and stocking for any of these purposes. On the other hand, there are instances of PVP regimes such as the 1978 UPOV that recognizes only production, offering for sale and marketing as exclusive right of the right holder.[370] The scope of exclusive acts reserved to the right holder as envisaged in Ethiopian law again invites ambiguity. The acts mentioned are selling and production, which are not given specific meaning in the law.

In board terms sell may encompass offering for sell or other forms of marketing such as distributing; and even more to importing for sale or exporting as well.[371] The term produce as well may be interpreted as to include conditioning for propagation; reproduction or any other act that involves generation of the protected variety. Moreover, the legislation taken as a whole suggests broader interpretation. For instance, Art.6(1)(a) on exemptions mentions acts of propagation, growing and use and Art.28(1)(c) lists acts of saving, use, multiplying, processing farm-saved seeds of protected variety as farmers' right. These acts meant as an exception signify that those acts are exclusively reserved for the right holder. Despite these indications for broader interpretation, how broad it should be remains unclear but possibly as broad as 1978 UPOV.[372]

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[367] Sec.111(a) of 7U.S.C.2321.
[368] Zambian PVP), Sec. 7(1).
[369] Art. 14(1)(a) of 1991 UPOV.
[370] See Art. 15(1) of 1978 UPOV.
[371] The dictionary meaning of the term suggests such broad interpretation. See for instance, Oxford Advanced Learners Dictionary of current English(5th ed. 1995). Also, Zambian PVP, for instance, Sec.2 on interpretation defines 'sell' as to include "exchange, barter, offer, hire, advertise, keep, expose, transmit, convey, or deliver for or in pursuance of commercial purpose." See sec.2 of Zambian PVP on interpretation.
[372]Term 'use' is broad in that even one who imports and exports the variety is actually using the variety in so far as he drives economic benefit from that, and the term

3.2.3.3. The Scope of Varieties Protected

Still more, the varieties that come within the scope of exclusive rights of breeder constitutes one parameter in comparison of scope of breeders' right. In systems that have strong PBRs as evident in US and 1991 UPOV, protection of the breeders' right covers not only to the protected variety *per se*. It extends to other varieties having strong correlation, one way or another, to his own variety.

The common categories of such related varieties are:[373] (1) essentially derived variety; (2) any variety that is not clearly distinguishable from the protected variety; (3) and any variety whose production requires the repeated use of a protected variety. In Ethiopian PVP, among the three, the right of a breeder extends only to varieties that require repeated use of protected variety (see the discussion in section 3.3.3).[374]

3.2.3.4. Duration of the Right.

IPR systems determine the period during which the monopoly of the right holder subsists. It as well manifests the strength of the right accorded. In this respect Ethiopian PVP[375] tends to be more generous by providing 20 years period of protection for annual crops and 25 years in case of others which is equivalent to the minimum required in the 1991 UPOV[376] and by far exceeds what is provided in UPOV 1978[377] that takes 15 and 18 years respectively as satisfactory.

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processing farm saved seed may imply conditioning for propagation. However, given that Ethiopian PVP is modeled on OAU model law designed to put a check on expansive PBR, it should not be interpreted as broad as what is in US that makes intermediaries such as those participated in delivery, shipping, consigning, etc as infringing the right. Sec. 111(1) of 7 U.S.C.2321 note. It could be the intention of the law to limit the number of defendants by excluding intermediaries that lend incidental aid to infringing acts. Cf. Zambian PVP provides the same exemption to that of Ethiopian PVP, both of them being direct copy of section 31 of OAU model law. Compare Sec. 8 of Zambian PVP, Sec. 31 of OAU model law & Art. 6 of proc.481/2009. With respect to exclusive acts Ethiopia PVP directly uses the terms in the model law while Zambian PVP adopts the specifications in the 1991 UPOV. Compare Sec.7 (1) of Zambian PVP, Sec.30 of OAU model law & Art.5 of proc.481/2009.

[373] See 7U.S.C. 2321,sect.111(C) 1-3, Indian PVP Sec. 23 (6); UPOV 1991 Art. 14(5)].

[374] Proc. 481/2009,Art. 6(1)(d).

[375] Proc. 481/2009,Art.9.

[376] 1991 UPOV, Art.19.

This being the scope of breeders right defined in positive terms, as to compliance with TRIPS, Ethiopian PVP accords the right holders no less rights than that is provided in UPOV 1978, which is generally taken to satisfy what TRIPS possible could require in so far as it is supplemented by provisions on national treatment, most-favored nation treatment, protection of all plant varieties and effective enforcement.[378] It appears that in relation to the scope of protection the issue of compliance will not arise. However, the actual scope of protection depends much not only on such positive listing but also the degree of exemptions and limitations as well.[379]

3.2 .4. Exemptions.

Exemptions[380] specifically denote, at least as depicted in Ethiopian law, the situation where third parties are permitted to engage in specified uses of IP products without the permission of the right holder and without the payment of remuneration. They are a means of balancing privileges to IPR holders and achieving other competing societal objectives. The following exemptions, which are duplication from OAU model law,[381] are provided in Ethiopian PVP.

3.2.4.1. Acts for non-commercial purposes.

Even in patent non commercial use of the protected subject matter constitutes the traditional exemption [382] . The relevant provision in Ethiopian law reads as "notwithstanding the existence of a plant breeder's right, any person or farmers' community may propagate, grow and use a protected variety for purposes other than

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[377] 1978 UPOV, Art.8.
[378] Helfer, p.54-55&67. Commentators stress that if after all the drafters of TRIPS a PVP regime in mind, it was only the 1978 UPOV that was in force at the time TRIPS was negotiated. Indeed, Leskien and Flitner argued that effectiveness a *sui generis* system does not have anything to do with the scope of protection /substantive right but only in relation to enforcement. See Leskien and Flitner, p. 32.
[379] Helfer, p. 59.
[380] See Art.6 of proc.481/2009.
[381] Compare Art. 6 of Proc.481/2009 and Sec.31 of OAU model law.
[382] Christopher Garrison, Exceptions to Patent Rights in Developing Countries (UNCTAD – ICTSD/ International Center for Trade and Sustainable Development/, Project on IPRs and Sustainable Development ,Issue Paper No. 17, August 2006),p.3-4, available at www.**unctad**.org/TEMPLATES/Download.asp?docid=7236, accessed on 26/7/2009.

commerce."[383] This exemption differs in its design from similar exception in UPOV system and in most patent regimes that use the phrase "acts done privately and for non-commercial purposes". In the later case the exception only covers activities which are both private and non-commercial. Under such an exception neither private commercial activities nor public non-commercial activities would be exempted. Activities carried out by non-profit organizations such as public utilities and charities (e.g. schools, hospitals, churches) or state organs may be held non-commercial but not private, and as such do not fall within the purview of the exemption.[384]

Ethiopian PVP did not qualify non-commercial activities to be private. In fact, the Ethiopian law uses the phrase 'any person or farmers community" which implies activities need not be private so as to be exempted in so far as they are non-commercial. One more point on this exemption. In relation to the exemption based on non-commercial purposes the law lists acts of propagation, growing and using which gives the impression that there is no exemption in relation to other acts irrespective of their being private and non-commercial, which is a bit odd. It could have been better if the law simply refers generally to 'acts.'

3.2.4.2. Production and Sale for non-propagating/non- growing purposes: exhaustion?

Art. 6(1)(b),(c)&(e) of proc.481/2009 provide that any person or farmers' community may:

b) sell plants or the propagating material of the protected variety for use as food or for any other use that does not involve growing the plant or the propagating material of the protected variety;

c) sell of plants or propagating material of a protected variety as they are within a farm or any other place where the plants of the variety are grown;

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[383] Art. 6(1)(a) of Proc.481/2009.
[384] Garrison, above note 382, p.3.

e) sprout a protected variety for use as food for home consumption or for the market.

The discussion in the scope of breeder's right clarified that the acts of production and sell (of the plant or its propagating material) is exclusive act of the right holder. The purpose of this provision appears to be to clarity that persons who obtained the plant or propagating material on due authorization, particularly farmers in exercising the right to freely produce and sell their farm produce irrespective of quantity are presumed to be within the scope of permitted acts. A provision in US plant variety law has the following to say in related matter.

> *A bona fide sale for other than reproductive purposes, made in channels usual for such other purposes, of seed produced on a farm either from seed obtained by authority of the owner for seeding purposes or from seed produced by descent on such farm from seed obtained by authority of the owner for seeding purposes shall not constitute an infringement. A purchaser who diverts seed from such channels to seeding purposes shall be deemed to have notice….*[385]

The above provisions should be interpreted in this way. Otherwise the seller cannot prove the motive for which the purchaser buys. Indeed, the limitation on farmers that prohibited them from selling their harvest produced through authorization as certified propagating material leads to the same conclusion.[386]

However, since the scope of this clause covers any person, not only farmers, it also generally incorporates the notion of exhaustion[387] which is indispensable provision in IPR regimes. No other specific provision deals with exhaustion. The provisions signify that once the propagating material is obtained with due authorization for propagation purposes, the person so authorized can sprout or propagate and dispose the harvested

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385 *Sec.*113 of 7U.S.C.2321.

386 See Art. 6(2) & 28(2) of proc.481/2009.

387 A right on IP product will be exhausted once the subject matter is disposed by the authorization of the right holder. Garrison, above note 182, p.15. PBR being an IPR in living matter that can easily propagate which amounts to producing or making in patent sense, limiting exhaustion to acts that do not amount to further propagation is crucial in safeguarding the interest of the right holder. Ethiopian PVP does not have such explicitly captioned clauses but implied in some provisions. Art. 6(1) (b) tends to be about harvested material and Art. 6(1)(c) supplements it by acknowledging sell before harvest. See also Sec.31(1)of OAU model law.

material or before harvest and others who acquired from him can do all acts absent propagation.[388] It is further propagation or disposing for propagation/growing that infringes the right subject to farmers' exemption.

These provisions do not indicate as to whether international exhaustion[389] or national exhaustion[390] is depicted in Ethiopian PVP. In the absence of qualification it appears logical to hold that the right over the IP product will be exhausted wherever the product is disposed with the consent of the right holder.

3.2.4.3. Breeders' exemption, research and teaching exemption.

Research and teaching exemptions, common even in case of patent provided that the research should be non-commercial in motive,[391] are recognized in Ethiopian PVP as well.[392] A PVP as an IPR system takes credit for being flexible in allowing breeders' exemption. The exemption figures twice in Ethiopian PVP. Art 6(1) (d) states that any person or farmers' community may "…*use plants or propagating material of a protected variety as an initial source of variation…" and Art. 6(1) (g) holds that that any person or farmers' community may "use a protected variety in further breeding*." These provisions simply capitalized the uncompromised freedom to use a protected variety for further breeding.

3.2.4.4. Farmers' Exemption

The principal challenge in the design of an IPR system in agriculture has been how to strike the balance between plant breeders' interest and that of farmers. The policy

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[388] While Art.6(1) (b) (of proc. 481/2009) tends to be about harvested material, Art. 6(1)(c) supplements it by acknowledging sell before harvest. Art. 6(1) (e) encloses propagation as lawful act in so far as the propagating material is obtained with due with authorization to that effect.

[389] International exhaustion signifies that once the subject matter had been disposed by the right holder in *any* country, the right holder would be rendered powerless to be able to prevent third parties from dealing subsequently whichever way they deal with. Garrison, above note 182, P.16.

[390] In case of national exhaustion, the right holder would be rendered powerless to prevent third parties from dealing subsequently in relation to IP products he disposed in that jurisdiction. Ibid.

[391] Garrison, above note 182, p.4.

[392] Art.6(1)(f) of proc.481/2009.

considerations have been that broader exemptions may not provide adequate incentive for breeding[393] and limited exemptions might adversely affect interest of poor farmers.[394]

Currently, all international and national PVP regimes maintain farmers' exemption but with wide difference in scope and commitment.[395] The 1991 UPOV makes the exemption optional, limited to the act of saving and replanting on one's own holdings and subject to the safeguarding of the legitimate interest of the breeder which is interpreted by some to require payment of royalty. National legislations of some countries such as US[396] and China[397] limit the exemption to saving and replanting propagating material on their own holdings of farmers without attaching conditions. Brazilian PVP [398] provides free saving and planting of seeds and limited exchange to small rural farmers while some others extend the exemption to freely saving and exchange excluding sell.[399] Indian law represents the scenario where farmers exemption is acknowledge in broader scope. Farmers' shall be entitled to save, use, sow, resow, exchange, share or sell his farm produce including seed of a variety protected provided that it remains in the same manner as a farmer was entitled before the coming into force of this Act and in particular

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[393] Srinivasan, above note 85, p.182-220.

[394] Particularly in less developed countries farmers traditionally save, sell and exchange seed and this age-old practice has been the critical element in food security and livelihood that enables hundreds of millions of resource poor farmers and farming communities to subsist as seed saving lowers seed price. Restricting such practices of farmers and vesting strong IPRs such as patents or UPOV 1991 like PVP standards on plant varieties is feared to endanger the food security of the less developed countries, rather than ensuring it. See Abebe, above note 158, pp.42-48.

[395] Compare Art.15(2) UPOV 1991, Sec. 113 of 7 U.S.C. 2321 Vs sec. 39(1)(vi) of Indian PVP.

[396] Sec. 113 of 7 U.S.C. 2321.

[397] Art.10 (ii) of Regulations of the People's Republic of China on the Protection of New Varieties of Plants (As published in PVP Gazette, Issue No. 85, October 1999).

[398] LAW No. 9,456 OF APRIL 28, 1997(of Brazil) Establishing the Plant Variety Protection Law. Article 10 of this law provides that the breeder's right in the plant variety shall not be deemed infringed by a person who:
(i) stores and plants seeds for his own use on his premises or on the premises of third parties of which he has possession;
(iv) being a small rural producer, multiplies seed, for donation or exchange in dealings exclusively with other small rural producers….

[399] See for instance sec. 8(2)of Zambian PVP.

prohibited selling branded seeds-packed and labeled with indications as being seed of a protected variety.[400]

Art. 28(1)(c) of Ethiopian PVP explicitly recognized the right of farmers to save, use, multiply, process and sell farm saved seed or propagating material of protected variety. [401] Two overlapping provisions attempt to put a limit on the scope of such exemptions. Art 6(2) holds that "notwithstanding the provisions of sub-article (1) of this article-the provision on exemptions-farmers cannot sell farm-saved seed or propagating material of a protected variety in the seed industry on commercial scale."[402] Likewise, Art. 28(2) requires farmers to refrain from selling farm saved seed or propagating material of a protected variety in the seed industry as a certified seed.[403] The only limitation being that farmers should refrain from selling farm saved seeds or propagating material on commercial scale, farmers' exemption in Ethiopia, in a country where about 90 % annual seed requirement is met from the informal seed saving and exchange, is broad in scope.[404]

In sum, with the foregoing scope of exemptions, would the four categories of exemptions in Ethiopian PVP be TRIPS compatible? The exemption for non-commercial purposes tends to be broader than a parallel provision in UPOV 1991 but in similar situation when

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[400] Sec. 39(1)(vi) of Indian PVP.
[401] Art. 28(1)(c)& Art 6(2) of proc.481/2009. It is directly reproduced from OAU model law. See Sec. 26(1)(g) of OAU model law.
[402] This provision does not contain explicit assertion on farmers' exemption to save, use, multiply, process and sell farm saved seed of protected variety. This limitation gives rise to the interpretation that either all the exemptions apply only to farmers, which could be rebutted by the use of any person or farmers are not entitled to sell the propagating material while others can do which is too absurd, or assumes farmers have special status in such exemptions though without specifying that, which is possibly the correct interpretation. Note also that the Amharic version prohibits selling as certified seed while the English version says on commercial scale.
[403] Note that while the English version talks of sell as certified seed, the Amharic version reads as on commercial scale which is the commanding version as well as in conformity with OAU model law from which the provision is adapted. Whichever term applies in delimiting the scope is likely to make a difference. It is possible to exploit a variety on commercial scale without the need to market it as certified seed. See sec. 26(2) of OAU model law.
[404] Thijssen et al, above note 288, p.9.

compared to UPOV 1978.[405] Moreover, even in a patent system such broader exemptions still prevail in patent laws of several countries.[406] Hence it is unlikely that in silence of TRIPS and in the presence of such precedent that the Ethiopian PVP would be challenged as being TRIPS incompatible in relation to this exemption.

With respect to exhaustion, Art. 6 of TRIPS Agreement, the only provision that explicitly address the issue of exhaustion lacks clarity as to the required exhaustion of rights regime in TRIPS Agreement-national or international exhaustion-but Paragraph 5(d) of the Doha Declaration on TRIPS and Public Health affirmed that each Member could make their own choice of exhaustion regime.[407] This being the case in patent, whatever exhaustion regime Ethiopian PVP upholds would not be questioned. Again the breeders' exemption, research and teaching exemptions incorporated in Ethiopian PVP are universally acknowledged in PVP regimes.

The scope of farmers' exemption permissible under TRIPS has remained too controversial and sensitive one. As discussed already, the scope of farmers' exemption in the various national PVP regimes widely differ. In theory, the absence of particulars of the *sui generis* system in TRIPS has been interpreted by some as allowing any sort and scope of exemptions. According to this view, [408] the qualification term "effective" in TRIPS *sui generis* option system applies only to matters of enforcement and has nothing to do with the standards/level of protection. The flexibility of TRIPS from the standing point of this view has been expanded to the extent of proposing that even plant variety

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[405]Compare Art.6(1)(a) of Proc. 481/2009, Art.5 of UPOV1978,and Art.15(1)(i) of UPOV 1991.
[406] Garison, above note 382, p.53.
[407] WTO, Declaration on the TRIPS Agreement and Public Health, WT/MIN(01)/DEC/2,41 I.L.M.755 (2002)(hereinafter Doha Declaration on Public Health). See Paragraph 5(d) of the Declaration.
[408] Leskien & Flitner, above note 204, p.32.

protection seal (PVP seal)[409] as sufficient modality of IPR protection to satisfy obligation under Art. 23.3(b) of TRIPS Agreement on plant variety protection.[410]

Others subscribe to the view that "effectiveness" is not confined to enforcement only but also stretches to level of protection awarded in substantive laws and in particular scope of exemptions to exclusive rights. Helfer[411] suggested that plant variety protection laws of Members that provide very limited and weak rights to breeders together with broad and extensive exemptions in favor of farmers or other users of plant germplasm" may not survive WTO scrutiny. At other end of the extreme, the International Association of plant Breeders for the protection of plant varieties /ASSINSEL/, that urged and succeed for inception and adoption of IPR in plant varieties leading to UPOV, claimed that "farmers' privilege" should be within reasonable limits in terms of acreage, quantity of seed and species concerned and subject to the safeguarding of the legitimate interest of breeders in terms of payment of remuneration and information"[412] ASSINSEL argued that otherwise national legislations "would not be an effective *sui generis* system in the meaning of article 27.3(b) of the TRIPS Agreement."[413]

Analysis of whether the farmers' exemption in Ethiopian PVP would be held TRIPS compatible or otherwise challenged as being unduly broad must be considered in light of our earlier discussion on evaluation of effective *sui generis* system from diverse perspective.

Evaluating the farmers' exemption in light of that, would not agriculture in Ethiopia, contributing about 46.3% of the GDP, 83.9% of exports, and 80% of employment, and the very development policy of the country being Agricultural Development-Led-Industrialization (ADLI), constitute sector of vital importance of socio-economic and technological development? Would not protection of the interest of small farmers that

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[409]PVP Seal protection vests breeders the exclusive right to advertize or market a variety using a seal or certificate issued by state authorities. It permits free use of the protected variety by any person and only use of the variety (the material) together with the seal requires right holders' authorization. Ibid., p.62.

[410] Ibid., p.62; see also Helfer, above note 17, p.77.

[411]Helfer, above note 17, p.59.

[412] Ibid.

[413] Dhar, above note 8, p.13.

covers about 95% agricultural output with an average landholding of as small as about one hectare, resource poor and subsistence level who lack the capacity to purchase seed every year who in fact used to rely almost entirely (about 90%) on saving, exchange and sell of seed among themselves, constitute a measure designed to adapt protection and enforcement of IPRs in a manner conducive to social and economic welfare within the meaning of article 7 or promotion of public interest in sector of vital importance to socio-economic and technological development within the meaning of article 8.1? Would not a measure in sector that provides the livelihood of about 85%[414] of the nations' about 74 million[415] population and that employs about 85% the labor force constitute a measure to maintain socio-economic welfare?

The writer holds the response should be in the affirmative. Moreover, in Ethiopian context nearly 66% of farmers (excluding commercial farmers) harvest of cereal crops is used for household consumption; about 16% for sale and14% is for seed while the remaining 4% goes to other purposes testifying how subsistence level is farming.[416]

The limitation clause in Ethiopian PVP that farmers may not deal at commercial scale tends ensures the preserve of commerce to remain to the PBR holder. Moreover, even in the 1978 UPOV that was the only international *sui generis* option enforce at the time of TRIPS negotiation, it was production and commercial marketing of protected material[417] that was reserved for the PBR holder. If this was the scope of flexibility for a treaty among developed members, could TRIPS demand more than this? Unlikely.

3.2.5. Restrictions on Rights of Breeders

Restrictions like exemption reduce benefits to the IPR holder but differs in that while exemption allow third parties to engage in specified use of IP product without permission

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[414] Thijssen *et al*, above note 288, p.21.

[415] Federal Democratic Republic of Ethiopia Population Census Commission, Summary and Statistical Report of the 2007 Population And Housing Census (December 2008).

[416] Federal Democratic Republic Of Ethiopia Central Statistical Agency (Statistical Bulletin), Agricultural Sample Survey: Report on crop and livestock product utilization, Volume VII (June,2009), P.11.

[417]The Convention does not specifically mention farmers' exemption let alone its scope. It simply indicates that the authorization of the breeder is not required for the production and non-commercial marketing of protected material, from which farmers' exemption is inferred. Art. 5(1) of 1978 UPOV.

and without paying remuneration, restrictions allow third parties to use IP products without permission of rights holder but against payment of remuneration[418]. They both are exceptional designs to achieve social or policy objectives. The application of restrictions takes place via what is known as "compulsory license" or use by the government (known as crown use in England).[419]

3.2.5.1. Compulsory License.

Compulsory licensing is viewed as an essential mechanism for reducing some of the adverse costs of monopoly rights in IPRs.[420] Particularly, it is a common feature of legal regimes on patent. It is also incorporated in UPOV system and some national PVPs. Art. 8 (1) of Ethiopian PVP declares that "…the Ministry (MoARD), may, to safeguard public interest, grant a compulsory license upon application by any interested person."

While compulsory license remained an essential instrument in the hands of national government, its application is not automatic. As a restriction on exclusive right of the IPR holder, its application demands special grounds of intervention, and it exercise is circumscribed by observance of certain conditions. Ethiopian PVP generally states that compulsory license may be employed to safeguard public interest. What amounts to public interest is likely to be determined on case by case method. In fact this general reference is a common approach.[421] Correa maintained that despite the reference to some specific grounds (national emergency, anti-competitive practices, public non-commercial use,…), Article 31 of TRIPS does not limit the Members' right to establish such a remedy for various situations.[422] Of course paragraph 5 (b) of the Doha declaration on

[418]Compare Art.6 Vs Arts. 7&8 of Proc. 481/2009; Helfer, above note, p.8.
[419] Correa(2007), above note 249, p.316.
[420] Correa(2007), above note 249, P. 313.
[421] See for instance, Art.9(1)of 1978 UPOV,Art. 17of 1991 UPOV.
[422] Correa(2007), above note 249, pp 313-314. Art. 31 of TRIPS covers both compulsory license and government use system though TRIPS does not expressly refer to the commonly accepted notion of non voluntary or compulsory licenses but Doha declaration explicitly refers to it.

public health confirmed that each member has the right to grant compulsory licenses and the freedom to determine the grounds up on which such license are to be granted.[423]

After generally stating that compulsory license can be granted on account of public interest, Ethiopian PVP limited the ground by stating that "the ministry (MoARD) may grant compulsory license only if…the holder is not producing and selling the propagating material of the protected variety in sufficient amount to meet the needs of the general public…"[424]as if this is the only way that the public interest would be affected. Rather the law provided more grounds of intervention for governmental use (see below).It is difficult to conceive the rational for such restrictive stipulation. Strictly speaking compulsory license cannot be availed to address abuse of market power in case the PBR holder fixes exorbitant charge in so far as there is no shortage in supply.

Apart from the grounds for granting compulsory license, often the emphasis has been on the observance of certain conditions. Before authorizing compulsory license the ministry must ensure the fulfillment of the following preconditions third parties requesting the grant must, unless it is apparent that there exists no condition under which the holder can be expected to give a permit to use his protected variety, have negotiated with the right holder to obtain license and the right holder must have refused to license other persons or imposed unreasonable terms.[425] Also the duration should be limited to the purpose for which it was granted provided that it shall not be less than three years.[426] The authorization should be non-exclusive and the right holder should be paid adequate compensation.[427] These are in line with what TRIPS requires.[428] One important omission of Ethiopian PVP being absence of clear provision on the issue of review but in as far there is no explicit prohibition every administrative decision is subject to review.

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[423] WTO, Doha Declaration on the TRIPS Agreement and Public Health, WT/MIN (01)/DEC/2,41 I.L.M.755(2002).
[424] Proc. 481/2006, Art.8(2)(a).
[425]Art. 8 (2) of proc. 481/2009.
[426] Art. 8 (3) of proc. 481/2009.
[427] Art. 8 (3)&(4) of proc. 481/2009.
[428] See Art. 31 of TRIPS.

3.2.5.2. Government Use.

Governmental use may be the simplest way to address public interest. There is no need to await request of third party and there is no need of prior negotiation with the right holder. The Ethiopian PVP declares that the Ministry (MoARD) may, when public interest so requires, put restrictions on the exercise of a plant breeders' right and the grounds for doing so are comprised of:[429]

(a) problems arise due to competitive practices of holders

(b) food security, nutritional or health needs or biological diversity are adversely affected;

(c) a high proportion of a protected variety offered for sale is being imported;[430]

(d) the requirements of the farming community or propagating material of a particular protected variety are not met;

(e) It is considered important to promote public interest for socio-economic reasons and for developing indigenous and other technologies.

These grounds for addressing public interest matters are more or less similar to the avenues opened in the objectives and principles of TRIPS. Governmental use to tackle problems due to competitive practices is in line with Art. 8.2 of TRIPS that allows measures to prevent the abuse of intellectual property rights by right holders or the resort to practices which unreasonably restrain trade.

Governmental use to address food security, nutritional or health needs or biological diversity concerns as well can be justified by Art. 8.1 that reads "members may, in formulating or amending their laws and regulations, adopt measures necessary to protect public health and nutrition…." Nutrition and health needs are directly justified by this provision. Intervention for biological diversity reason could be justified as there are international instruments demanding that IPRs should advance environmentally sound

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[429] Art. 7 of proc. 481/2009.
[430] Correa(2007), above note 249, p.286.

technologies and technologies available for environmental protection.[431] Again concern over food security could find its way to Art. 7 that the protection and enforcement of IRs should be "…in a manner conducive to social and economic welfare..."

The other ground for governmental intervention is when a high proportion of a protected variety offered for sale is being imported. This is similar to the issue of granting compulsory license or governmental use for lack of or insufficient local working of patented invention. The obligation to work a patented invention was one of the contentious issues in TRIPS negotiations.[432] The phrase in art.27.1 that "…patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and *whether products are imported or locally produced*" was understood to have prohibited imposition of any obligation based on place of working.[433] (emphasis added) And complaints have been lodged to WTO as to whether Members can avail the ground of lack of insufficient local working for compulsory license. For instance, in May 2000 US had initiated a complaint against Argentina in relation to the availability of certain safeguards for granting compulsory license granted on the basis of inadequate working.[434] Again in January 2001 US complained against Brazil in relation to compulsory license contemplated by Brazilian law for lack of local working.[435] In both cases the issues are resolved by consultation and no inconsistency was found.

"The wording in Art 27.1," Correa asserted, "only bans discrimination. It does not prevent Members from adopting other measures that may impose differential conditions justified by other reasons."[436] Indeed, transfer of technology objective of TRIPS purpose could be enhanced by adopting such measure.

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[431] Correa(2007), above note 249, P. 319.
[432] Ibid., P. 318.
[433] Ibid., P. 284.
[434] Ibid., P. 319.
[435] Ibid., P. 286.
[436] Ibid., P. 285. Indeed, Art. 5 (A) (2) of the Paris convention mentions failure to work as a ground for compulsory license to prevent abuses.

This ground of governmental use is essential in PVP as well. In fact, it is a mechanism to ensure agronomic suitability. And it seems compatible with TRIPS.

IPRs represent the bargain between the IPR holder and the state so that the subject matter of IPR would be available to the public in return for the monopoly right. In case the IPR holder slept over the subject matter of IPR or are not adequately supplied to the public, the state can avail compulsory license.[437] The government found a legitimate reason to intervene when the requirements of the farming community-the very target PVP intends to help- for propagating material of a particular protected variety are one not met.[438] This ground for compulsory license is common in patent laws.[439] As such TRIPS could not rule out the possibility to use it as ground for government use.

Also grounds to promote public interest for socio-economic reasons and for developing indigenous and other technologies cohere with the principles of TRIPS as stipulated in Art. 8.1 that Members may in formulating their laws adopt measures necessary to promote the public interest in sectors of vital importance to their socio-economic and technological development. Procedural safeguards of due notice and option for review as well as compensation are guaranteed to the right holder.[440]

Back to the issue of TRIPS compatibility, it appears that Ethiopian PVP does not contravene TRIPS by the provisions on restrictions. Restrictions on for public interest, implemented by governmental use and/or compulsory license mechanisms, are invariably adopted, implicitly or explicitly, in national and international IPR regimes including TRIPS.[441] It is the conditions necessitating restriction and conditions to be observed after the restrictions that could be subject of scrutiny.

As discussed earlier, WTO Members have sufficient flexibility to determine what amounts to public interest and the ground upon which compulsory license or use by

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[437] Groves, above note 311, pp.252-253.
[438] As noted above, when the requirements for the general public is not met compulsory license could be applied. Ibid., pp250-252.
[439] Ibid.
[440] Art.7 (2)&(3) of proc.481/2009.
[441] See Arts .31, 7and 8 of TRIPS, Art. 9 1978 UPOV, and Art. 17 of UPOV 1991.

government could be allowed.[442] Apart from that Ethiopian law tends to be explicit about grounds constituting public interest while other legal regimes[443] simply rely on the vague term public interest. The grounds specified are in line with what TRIPS directly or indirectly acknowledges and other national IPR laws as well.[444]

The provision on compulsory license endorses the basic requirements of Article 31 of TRIPS that the grant be non-exclusive, termination in due course, adequate remuneration, and option for judicial review.[445] In conclusion, it is unlikely that the restrictions grounds stated would be held inconsistent with demands in TRIPS.

3.2.6. National and Most favored Nation treatment

No specific provision explicitly addresses such matters in Ethiopian PVP. But it envisions prima facie willingness to adhere to such principles. Art. 10(1) affirms a breeder's entitlement to a plant breeders' right in respect of his new plant variety, whether or not the breeder is an Ethiopian national or a foreigner, or is an Ethiopian resident or not, and whether the variety was breed locally or abroad. While Ethiopian law pledges to extend protection to all, whether equal treatment in all respect will be given or differential treatment in some respects will be applicable remains open to government's discretion.

TRIPS inescapably requires this and Ethiopian PVP should provide explicit commitment to that effect.

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[442] See Correa(2007), above note 249,, p.314-315.

[443] See for instance Arts. 9 of 1978 UPOV and Art. 17 of UPOV 1991, Section 31 of plant Breeders' Rights Act No. 15 of 1976 (as amended)(of the Republic of South Africa).

[444] Compare for instance Art. 7(1) of proc. 481/2009 with Articles 7,8 and 31(b) of TRIPS; see also Ethiopian patent proclamation No. 123/1995, Art.25(2); See (the grounds for crown use exception in English patent law) Groves, above note 311, pp. 250-253.

[445] Art. 8 of proc. 481/2009. This provision is silent about judicial review but in as far there is no explicit prohibition every administrative decision is subject to review.

3.2.7. Acquisition and Effective Enforcement.

TRIPS conclusion has been motivated both by the need to provide adequate and effective protection as well as enforcement.[446] The discourse among WTO Members has pointed out that, as part of an effective *sui generis* system, the procedures to be followed by potential right holders to obtain rights and any fees involved should be provided for in a comprehensive and transparent way, besides the substantive laws determining the scope the rights.[447] The issues of who can apply,[448] to which government department[449] and with what preconditions[450] are clearly specified in Ethiopian PVP.

To be effective, a *sui generis* system must include adequate mechanisms for enforcement. [451] The TRIPS Agreement generally requires civil and administrative procedures and remedies be prescribed so as to enable taking expeditious remedies to prevent infringements and remedies which constitute a deterrent without, however, the need to put in place a distinct judicial system or allocation of special resources for IPRs enforcement. [452]

The civil procedure code of Ethiopia contains effective procedures and remedies including inspection of suspected parties,[453] and temporary injunctions.[454] As effective deterrence mechanism, the PVP supplemented the procedure code by incorporating injunction[455] though superfluous with the code, confiscation of proceeds of infringement

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[446] See TRIPS preamble.
[447] TRIPS Council, above note 181, p.19.
[448] Art. 10(1) of proc.481/2009.Any breeder-one who bred and developed a new plant variety- can apply for the right regardless of his nationality, country of residence or whether the new variety is bred locally or abroad.
[449] Art. 14 of proc.481/2009.The Ministry of Agriculture and Rural Development is vested with the power to administer plant breeders right and application should be made to it.
[450]Art. 14 &31 of proc.481/2009.
[451] Indeed, as noted earlier, effective *sui generis* system has been attached to effectiveness of enforcement rather than the scope of rights granted, through such emphasis appears less convincing. Leskien & Flitner, above note 204, p.32.
[452] Art 41 of TRIPS.
[453] The Civil Procedure Code of Empire of Ethiopia Decree No. 3/1965, Neg.Gaz.(extraordinary issue), Year 25, no.3(hereinafter Civil Procedure Code), Art.161(b).
[454] Art.155 of Civil Procedure Code.
[455] Art. 25(2) of proc.481/2009.

and criminal liability extending up to 3 years imprisonment or a fine up to five thousand birr or with both. [456] With this legal framework Ethiopian PVP regime has endorsed effective enforcement mechanism so as to satisfy TRIPS demands.

However, establishment of effective PVP transcends beyond drafting and passing PVP legislation.[457] A PVP system requires the creation of an administrative office and variety testing facilities, which entail considerable investments of financial and human resources. It may be difficult for less developed countries to find staff with sufficient scientific and legal skills for such tasks, and the opportunity cost of redeploying trained personnel. Almost three years elapsed since Ethiopian PVP takes effect. The ministry of agriculture and rural development being the organ responsible to handle the various issues pertaining to the PVP, to date no steps are taken to implement the legislation including failure to specify plant genera/species eligible for protection neither were interested parties for securing registration. There had been registration of varieties prior to the PVP without any entitlement to the breeder. Registration serves only for documentary purpose and publicity to users.[458]The same trend has continued to date. As of June 2008, there has been released a total of 574 varieties of which 36 varieties are released in 2008: 228 cereal crops, 128 pulse crops, 51 oil crops, 79 Tubers, roots and vegetable crops, 13 condiments and medicinal plants, 26 fruit crops, 9 forages and pasture, 15 fiber crops and 25 stimulant crops.[459] All of them were varieties developed by public institutions and

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[456] Art. 29 of proc.481/2009.

[457] World Bank, Intellectual Property Rights: Designing Regimes to Support Plant Breeding in Developing Countries (The International Bank for Reconstruction and Development/The World Bank, Washington, D.C., 2006), p.47, available at www-wds.**worldbank**.org/servlet/main?menuPK=64187510..., accessed on 1/12/2009.

[458] Interview with Ato Daniel Mekonnen, MoARD Animal & Plant Health Regulatory Directorate Variety registration expert, held on 24/8/2009; Getnet, above note 392, p.57. It was the National Seed Industry Agency (NSIA) till its dissolution that used to register varieties and now Animal & Plant Health Regulatory Directorate under MoARD takes up the function of NSIA.

[459] MoARD Animal & Plant Health Regulatory Directorate, Crop Variety Register Issue No. 11(July 2008). The directorate annually publishes varieties registered and released. Note should be taken in that the registration and release of such varieties is not based on the 2006 PVP legislation criteria based on evaluation of superiority of newly developed varieties over existing varieties.

these institutions did not claim PBR even for their varieties released after the law came in to force.

3.3. More on Ethiopian PVP.

3.3.1. Farmers' Rights.

In the advent of IPRs in the field of agriculture, the free riding and misappropriation nature of commercial breeders utilizing traditional varieties that have been conserved and preserved by farmers and other indigenous communities have aroused equity concerns and perhaps might have discouraging effect on future preservation efforts of these communities. In defense of that there appears to be general consensus that the farmers have to be compensated for such varieties and it is being progressively advocated as " farmers' right'[460] but its precise scope and content as well as the right course of achieving that is still a puzzling problem.

The OAU model law[461] and some national PVPs(see below) took a wider view of content of farmer's right that ranges from IPR mechanism on traditional varieties and knowledge related to that up to control of access(prior informed consent) and benefit sharing in addition to the exemptions to freely save, exchange and sell propagating material of IPR protected varieties.

A related issue is whether it should be addressed by incorporating in PVP or other legislation or in its own. The Ethiopian PVP has devoted a part on farmers' rights among the 6 parts but only two provisions and content wise that only recite the farmers' exemption.[462] While the Ethiopian PVP purports to be modeled on OAU model law, content wise it falls far short of following that footprint. However, further scope to the farmers' right is provided in the access and benefit sharing legislation of Ethiopia. Unlike OAU model law, that recognizes IPR on farmers' varieties, Ethiopian law opts for recognition of the right to regulate access and derive benefit from that where farmers

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[460] See Leskien& Flitner, above note 204, p.40&44. While there seems to be consensus in that farmers' right should encompass a package of measures to support farmers in their ongoing contributions to the conservation and preservation of genetic resources, its precise scope and content has remained ill digested. Ibid.
[461] See Part V of OAU model law.
[462] See Arts. 27 and 28 of Proc.481/2009.

qualify as “local community” defined as "a human population living in a distinct geographical area in Ethiopia as a custodian of a given genetic resource….” [463] Ownership of all genetic resources is vested in the state and the Ethiopian people.[464] Accordingly, the concerned local communities (farmers’ community or others) shall be entitled to 50% of the benefits that accrue to the state from utilization of the genetic resource. [465] The benefit sharing arrangement with the users of the genetic resource includes joint ownership of intellectual property.[466]

At this juncture it is noteworthy to assess whether IPRs should have been recognized for farmers’ varieties or other traditional varieties[467] in Ethiopia or whether the current option is preferable and to inquire into what options others follow. This leads as to the glaring issue of protection of traditional varieties in the design of a PVP.

3.3.2. Protection of Traditional Varieties?

The main proposals to compensate farmers and other indigenous communities for their varieties as pointed above include PBR protection by modifying the customary eligibility requirements of UPOV and benefit sharing via access legislation[468] but none of these options are found to be satisfactory. There are few states that recognized IPR for traditional varieties. India PVP is notable in this respect that it has come up with IPR regime (PBR) [469] for extant varieties-include farmers’ varieties-that meet certain requirements and non-IPR protection for others. Somehow similar tendency is witnessed in the Thai plant varieties protection Act of 1999. In Thailand PVP Act of 1999, new

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[463] See part two of Proc. 482/2006 specifically Arts. 2(9) & (14).
[464] Art. 5(1)of Proc.482/2009.
[465] Art. 9(2) of Proc.482/2009.
[466], Art. 19(6) of Proc.482/2009.
[467] Traditional varieties is broader in scope and includes farmers’ varieties that signifies varieties cultivated and/or developed and conserved by farmers. See for instance the sec 2(j) of Indian PVP.
[468] Daniel Robinson, *sui generis* Plant Variety Protection System: Liability Rules and non-UPOV Systems of Protection, Journal of Intellectual Property Law and Practice (Oxford University Press, 2008), p.24 available at jiplp.oxfordjournals.**org**/cgi/content/full/jpn145v1, accessed on 11/12/2009.
[469]See Secs. 2(j)&15(2) of Indian PVP. The requirements of eligibility for extant varieties do not include novelty.

varieties and local varieties[470] (location specific as opposed to general domestic traditional varieties) are protected with exclusive rights-PBR-while general domestic and wild varieties are subject to access and benefit sharing rules[471] without allocating exclusive IPR.

IPR in such varieties invites several complexities. Inherent problem is that it is less individualistic, more difficult to delimit claims related to traditional varieties as they are more heterogeneous. They also demand screening out source of origin and scope of geographical/societal boundary, that all might lead to antagonism and mistrust among communities rather than maintaining the customary practice of information sharing and initiation for further development.[472] Authors contended that this could "ironically cause an 'anticommons tragedy'-too many parties independently possess the right to exclude others from utilizing the resource."[473]

For that matter, the common trend has been to protect genetic resources and compensate societies via access and benefit-sharing arrangements.[474] But still access legislations restrict free flow of germ plasma, and thereby impede free exchange of information for further improvement. Moreover, the impact of both option on conservation or stimulation of breeding, or even advancement of benefit to the society is questioned.

A sort of hybrid alternative is suggested by Philippe Cullet. He stressed that a *sui generis* system should be guided on the bases of inclusion of all participants. Access legislations and benefit sharing amounts to little consolation and susceptible to practical fragility. And even concurrent recognition of rights (IPRs) to various actors may be short of satisfactory. Instead, he suggested, since in most of the cases commercial breeders use material or knowledge developed by other actors allocation of rights jointly could be advisable option so that rights would not be exclusionary.[475]

Living aside the issue of in how many of the instances this option would work, all the proposed alternatives face a common criticism that such ideological frameworks are

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[470] See Thailand PVP, Chapter IV.
[471] Thailand PVP, Chapter V; Robinson, above note 468, P.4.
[472] IPGRI, above note 16, p.16.
[473] Robinson(2007), above note 344, p.24.
[474] See Robinson(2008), above note 468, pp.5-6.
[475] Cullet(2001), above note 96, pp.119-121.

Euro-American that may not fit with the varied traditional laws, customary protocols, and social norms of the diverse local communities that innovate and develop plant variety. It could be viewed as an offence on tradition of most societies to arrive at such over all monopolization and commoditization of living entities such as plants.[476]

In an attempt to escape from this trend others suggested what they called "recognition of origin" for collective protection of farmers- a right similar to indication of geographical origin but the major difference being that "by applying the concept of farmers' varieties it would further strengthen the cultural component (at the ability to create new and typical diversity), in addition to a physical component (the place of origin)."[477] This option does not address the very issue of misappropriation and free riding nor does it seek to maximize economic benefit.

All that transpires is how complex the subject matter is and requires informed decision. In view of these circumstances, the option adopted in Ethiopia is commendable. It has incorporated what Cullet suggested as joint ownership of IP so as to reduce exclusionary tendency as far as possible and attempts to counter free riding and misappropriation by means of other modes of benefit sharing. The problems related to restriction on free transboundary movement of germplasm and overall commoditization of living matters are not issues to be solved at national level but require international effort.

3.3.3. Should Essentially Derived Varieties be Excluded?

The progressive strengthening of PBRs in UPOV system has extended right of breeders to essentially derived varieties in 1991 version. Protection of EDVs avoids cosmetic breeding and unfair competition. Recognition of EDVs in countries with strong classical breeding ensures that traditional breeders continue to be rewarded from utilization of a variety essentially based on that classically bred variety.[478] On the other hand it may

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[476] Robinson (2008), above note 468, p.5.
[477] Rene Salazar *et al*, On Protecting Farmer's New Varieties: New Approach to Rights on Collective Innovation in Plant Genetic Resources (International Food policy Research Institute (IFPRI), CAPRI working paper 45 January 2005, available at www.ifpri.org.) p.28.
[478] IPGRI, above note 16, p.19.

entail undue monopoly. Also practical implementation requires technical knowledge and investment.[479]

Ethiopia PVP does not extend protection to EDVs. There are no private classical or modern breeders other than the public institutions. Moreover, the system as envisaged in UPOV 19991 rewards only IPR protected variety owners[480] advocating free utilization of farmers' varieties in countries where traditional varies are not protected by IPR systems which is the case in Ethiopia. Taking these factors in to consideration, the exclusion of EDVs appears to be justified.

3.4. Possible Implications of the Existing Ethiopian PVP.

3.5.1. The Impact of the Ethiopian PVP to Stimulate Investment.

The preampular statement vividly express the expectation of legislature that the PVP would encourage investment in the development of new plant varieties which in turn is expected to improve agricultural production and productivity. The analysis and explanation of impact of PVP introduction has remained a complicated matter, which in fact holds true for other IPR regimes as well.

The effect of PVP on investment, research and development in the sector by and large depends on the strength of the IPR regime and the size of the market for seeds.[481] The Ethiopian PVP regime generally vests rights commonly available in such IPR regimes including fairly broad exclusive acts on the entire plants and the propagating material. However, the farmers' exemption and access legislation that demand benefit sharing tend to considerably take away what has been granted. While the country's high potential for seed market which accounts to 74 million hectare arable land promises huge potential for seed market, its very structure i.e. characterized by 96% being cultivated by small farmers who will continue unrestrained in their practice of seed saving, exchange and sell that amounts to about 90% of the seed market, is a constraint on the appropriability of PBR.

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[479] Ibid.
[480] Ibid.
[481] Srinivasan, above note 85, pp. 182-220.

This situation might further augment the natural tendency of the actors to confine their investments and efforts to development of varieties that are self-protective such as hybrids or others less subject to appropriation by others. A study conducted on PVP grants in UPOV members found that horticultural crops (including ornamentals, fruits and vegetables) account for 70% of grants, and of which about 51.5% went to ornamentals alone.[482] While agricultural crops account only for 30% of grants, even within that only the top ten crops took about 63-94% in different countries.[483]

Perhaps, even the resort to non-agricultural crops may not provide market incentive in Ethiopia since more than 85% of the cultivated land is occupied by main food cross: cereals, legumes and oil seeds.[484] On the other hand, caution be taken in that even the strongest PVP may not necessarily lead to increased investment in research and development. A study conducted in USA showed that even the patent system introduced in 1930 on vegitatively propagated plant varieties did neither increase the total research and development nor the yield and economic returns from new varieties.[485] But only that the number of varieties in certain crops and the overall seed sale by private companies witnessed increment and a recent study on wheat breeding as well testified similar result.[486]

In sum the situation Ethiopia would be, as Ravi summarized, "when such (reckoning the patent case in USA as evidence) is the long term impact of patent on plant varieties on the private investment in plant breeding and crop productivity in the haven of free economy. There is little reason behind high expectations of all round progress in crop productivity driven by private investment under a regime of *sui generis* system of plant variety protection in developing countries where agriculture largely is a low resource livelihood occupation for majority of the people." [487] This holds true for Ethiopia, in

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[482] Ibid.
[483] Ibid.
[484] Getnet, above note 392, p.7.
[485] Ravi, above note 199, p. 547. A recent World Bank report as well echoes similar conclusion. See World Bank, above note 457, pp.27-30.
[486] Ibid.
[487] Ravi, above note 199, p.548.

country where no single private breeder exists yet, perhaps more than many other countries.

3.5.2. The possible Impact of the PVP on Public Agricultural Research & Development (Plant breeding).

Public plant breeding has remained a key component of agricultural research system in less developed countries. Indeed, the sole when it comes to the case of Ethiopia. In the era of IPRs, and increasing participation of private sector, and deepening resource crunch, however, some readjustments may be quite necessary.

The Ethiopian PVP confirms the equal eligibility of public institutions (including academic and research and development institutions) to apply for PBRs.[488] This might offer public institutions the possibility to generate revenue. The lingering resource constraints and government budgetary burden could be somehow alleviated. This does not mean that IPR grants for public institutions are all in all full of opportunities. Rather some consequent challenges will inevitably arise. The pursuit of royalties may lead to a shift in focus from their mandate for agricultural development and poverty reduction to certain crops with potentially commercial interest[489] in much the same way as the private sector. Moreover, there could be conflict between the revenue generation objective and their mandate for wide and extensive dissemination of new varieties and new technologies.[490]

Public institutes will face competition to maintain researchers hence compelled to provide appropriate incentives. That in itself invites significant management challenge in deciding how to divide royalties between and among institutions and researchers.[491]

The responsibility of the Ethiopian public sector research shall continue by and large unaffected should agricultural productivity improved and food security be achieved. The empirically tested tendency of the private sector, if at all it takes footing at least in the short run, focus on non agricultural crops (discussed in the preceding section) attests to

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[488] Art, 10(3) of Proc. 481/2009.
[489] World Bank, above note 457, p.40.
[490] Srinivasan, above note 85, pp. 182-220.
[491] World Bank, above note 457, p.38.

that. Indeed, the success of "Green Revolution" varieties were the outcomes of fruitful partnership between National Agricultural Research Institutions (NARIs) and International Agricultural Research Centers (IARCs) within consultative Group on International Agricultural Research (CGIAR), based on the principle of free exchange of germplasm with a view to fostering food security.[492]

Whether NARIs in less developed countries could in the future embark up on similar achievements has been put into question. The ever expanding IPR regimes coupled with access legislation by developing countries leads to more restrictive international regime on exchange of genetic resource. Moreover, the ability of the public sector to innovate may be constrained by the lack of access or transaction costs and time of negotiating access to biotechnology research tools and processes as well as genomic information that are by and large in private hands in the developed countries.[493]

These constraints could be more severe for least developed countries like Ethiopia that rely on conventional breeding.[494] The treat on constrained access to germplasm at international level will continue in so far as no change in regime at international level. Access constraint at national level is somehow alleviated by the privileged facilitated access given to Ethiopian national public research and higher institutions and intergovernmental institutions based in the country.[495] With these and other paramount challenges public sector research is expected to strive to "generate, develop and adopt agricultural technologies that focus on the needs of the overall agricultural development and its beneficiaries."[496]

In sum, while the confluence of IPR and non-IPR regimes at international level may continue to plague the public sector research in Ethiopia, the impact of Ethiopian PVP introduction could be negligible at least in the short run. Two reasons lie behind this conclusion. The private sector is unlikely to proliferate in the short run which is one factor in reshaping public research institution. Second, as the Ethiopian PVP provides

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[492] Srinivasan, above note 85, pp.182-220; Cullet(2001), above note 96, p.108.
[493] Srinivasan, above note 85, pp.182-220.
[494] Getnet, above note 392, pp.17,23.
[495] Art. 15(1) of Proc. 482/2006.
[496]The Ethiopian Agricultural Research Organization Establishment (amendment) proclamation No. 382/2004, Fed. Neg. Gaz. year 10,No. 17, Art. 5(1).

only a modest promise of PBR revenue, public sector research objective drift is likely to be minimal. In the long run, when private sector emerges, the public sector shoulders the responsibility to emerge as competent competitor since the monopoly and its adverse effect are likely to be at climax.

CHAPTER FOUR

CONCLUSION AND THE WAY FORWARD

Despite the continued controversy on IPRs on plant varieties and other life forms and processes, legally speaking TRIPS has come to universalize IPRs in all fields including life forms and processes and established minimum uniform standards that deprives WTO Members their autonomy in national policy decisions.

However, in relation to plant variety protection TRIPS somehow deviates from this "one size fits all/a larger size fits all /" approach by allowing Members to choose among patents, effective *sui generis* system or a combination thereof. Unfortunately, the scope of flexibilities in the design of effective *sui generis* option has remained controversial in practice and in the theory. What seems clear is that every *sui generis* system should comply with the following minimum requirements. First the *sui generis* option should be a form of IPR regime. Second, the IPR regime must provide protection for all plant variety genera or species. Third the IPR regime as part of TRIPS Agreement must subscribe to the national treatment and most-favored nation clauses. Then the IPR regime should be backed by an effective enforcement mechanism.

In practice some Members opted for patent, some to 1978 UPOV and others for 1991 UPOV style PVP and few other came up with their own unique PVP laws. The UPOV system particularly the 1991 UPOV may not fit in to the context of less developed countries.

In theory views range from that advocating the 1991 UPOV as the only effective *sui generis* system to those arguing that in so far as there is effective enforcement mechanism a PVP seal by itself satisfies TRIPs requirement.

None of the extreme positions seem to be what the drafters of the TRIPS Agreement had in mind. Neither of UPOV versions were mentioned nor could it be said that the drafters were interested in mere enforcement provisions. Rather it is apparent that the drafters were cognizant of the need for flexibility in the sensitive sector of agriculture as they

provide alternatives which are not the case in relation to other fields. Attempts to equate effective *sui generis* option to UPOV or any restrictive interpretation to close a national policy space does not seem to cohere with this intention.

We have to take into account also that the drafters were interested in providing protection of IPRs so that right holders would have adequate incentives and reward. Indeed, the driving force for conclusion of the Agreement was adequate protection of IPR holders. In the specific case of plant variety protection it is evident from the preference of drafters for patent over *sui generis* option and from the use of the term effective if after all a nation resort to the *sui generis* option. Of course, as noted earlier, for some, the use of the term effective also in some way implies the need for global regime but in the absence of indication of a specific regime it is difficult to adhere to this interpretation. Nevertheless what is clear is that all of these militate against flexibility but at the same time the phrase *sui generis* has induced an element of flexibility-attesting the need for a compromised approach. In fact, the drafting history shows that it was for consolation due to insertion of *sui generis* flexibility that some of the negotiating parties conceded.[497] Considerable leeway was deliberately left to WTO Members in their formulation of domestic IPR laws and policies.

Nevertheless, the absence of clear and specific criteria should not be understood to pave the way for absolute freedom of Members and completely disharmonized laws. Indeed, we have to be cognizant of that in its overall intent, TRIPS is a minimum standard setting agreement committed to harmonization of laws of different countries. Had that been the case, TRIPS need not have incorporated plant variety protection in its minimum standard setting regime. Thus the emphasis should be that regulatory and policy space should not be stifled by an overly restrictive interpretive approach of the open-ended issues that arise from the TRIPS Agreement on the one hand, and on the other hand this should not lead Members to arbitrary manipulations of the flexibilities without limits

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[497] Mosoti and Gobena, above note 48. Some like India only agreed to the TRIPS Agreement forming part of the single undertaking at the conclusion of the Uruguay Round precisely because of the flexibilities that they saw in that particular provision. Ibid.

Therefore, the degree of permissible flexibilities should be one that could be justified on grounds under articles 7 and 8. Hence since Members are characterized by a broad range of socio-economic, agricultural, and other conditions, the effectiveness of a *sui generis* option should be evaluated taking into account these factors. The same *sui generis* option may satisfy the TRIPS requirement for one member but may not for the other. Moreover, Members that desire to avail flexibilities have the support of other international legal regimes such as the CBD and ITPGR.

The TRIPS review provision itself has opened an important avenue to vividly air out the necessity of flexibility in TRIPS to maintain them at least where they are now and the Doha declaration seem to be cognizant of this necessity. Also, developing countries are getting more and more informed and organized so as to influence that trend. Generally speaking, if the flexibilities in TRIPS are formally or informally restrained, it is not because developing countries lost the battle in law but unable to resist the political resources of developed countries.

As it stands now, the Ethiopian PVP is more or less backed by sound policy consideration in addressing socio-economic objectives. As discussed earlier, generally speaking countries with industrial agricultural base/large-scale commercial farming and strong private sector participation in plant breeding and the seed industry in general benefit from strong IPR in agriculture. In contrast, countries with more traditional agricultural base and public sector dominated plant breeding-the group to which Ethiopia seem to fit- are advised to opt for comparatively weaker rights including a PVP seal. Ethiopian PVP took a middle ground. It has provided a fairly strong PBRs regime comparable to UPOV 1978 with significant exemptions and restrictions. While the fairly strong scope of protection ensures adequate protection and incentive to breeders, the considerable exemptions and restriction enable accommodation of national socio-economic context as well as for addressing concerns that might arise from monopoly rights.

What the future will bring to the country cannot be predicated with precision and accuracy. However, it appears that there are and there shall be legal and political forces that would disturb the status quo. Ethiopia being an observer in WTO on the way to

accession, its PVP regime will be subject of scrutiny. The foregoing discussion offered the general setting of Ethiopian PVP in the diverse approach of PVP systems and highlighted that Ethiopian PVP more or less coheres with TRIPS requirements but the accession process may demand fundamental changes.

The experiences of accession of some LDCs have been a protracted one subjecting acceding LDCs to TRIPS plus conditions in many respects[498] With respect to PVP as well there had been adverse propensity to LDCs. Developed countries argue that the UPOV model is the appropriate effective *sui generis* system and are trying to impose this model on each acceding country, despite the fact that TRIPS does not mention anything about UPOV.[499] The experience of Cambodia is a case in point. Cambodia, even unable to take shelter under LDC umbrella, had finally given in to obtain the membership of UPOV and to enact legislation for the protection of plant variety as per the model prescribed by the UPOV.[500]The accession of Nepal, again an LDC, presents another interesting scenario. [501] One of the most controversial issues that came up during Nepal's accession process was that it was asked to join UPOV. It was due to pressures from the Nepalese non-governmental organizations (NGOs), mainly SAWTEE and Action Aid Nepal that finally saved Nepal and forced the USA to agree to a minimalist text. The final concession is that Nepal will have to only explore the possibility of joining various World Intellectual Property Organizations (WIPO) conventions including UPOV at a future date, taking into account its national interests.[502]

It is thus likely that Ethiopia will face similar challenges. There appear three major issues where the negotiating parties might require adjustment of existing PVP. The first is that protection should be extended to all varieties of plant genera or species. Perhaps in this respect Ethiopia might inescapably concede as the contradiction seems apparent.

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[498] Ratnakar Adhikari and Navin Dahal, LDCs' Accession to the WTO: Learning from the Cases of Nepal, Cambodia and Vanuatu(*South Asia Watch on Trade, Economics & Environment (SAWTEE), Kathmandu, Nepal)* html **http://www.un-ngls.org/orf/SAWTEE.doc**, accessed on 15/7/2009.
[499] Ibid.
[500] Ibid.
[501] Ibid.
[502] Ibid.

The second demand may be on EDVs. There is a growing tendency that recognition of EDVs has come to be a feature of almost all PVP legislations. Even those PVPs that are deviant form UPOV such as Indian PVP have protected EDVs. Ethiopian may be required to subscribe to this trend but as exposed earlier recognition of EDVs may not be in the best interest of the country.

The principal bargaining area is likely to be on the scope of farmers' exemption. It is unlikely that the negotiating parties will simply acquiesce to such provisions and Ethiopia may be compelled to make adjustments. A substantial concession in the area of farmers' exemption might worsen the situation of the resource poor farmers instead of improvement in agricultural productivity. Efforts at negotiation should try to maintain the status quo.

The EU approach in relation to farmers' exemption reflects a considerate and open approach. In its submission to TRIPS council, EU affirmed the need for contextualized scope of farmers' exemption by stating that UPOV system may not suit the case where farming is subsistence level at very small farms. EU asserted that:

> *A member may well create in its national law, a breeder farmer's exemption for the benefit of subsistence farmers, or of small farmers who customarily reuse seed because they lack access to or financial resources for new seed every growing season. This allows them to save, replant, exchange, share and sell seed (to other small farmers).... In any event, EU emphasized, the breeder must remain the only one entitled to derive commercial benefit from the new variety. However, farmers with significant commercial interest should be subject to more stringent rules.* [503]

As suggested in one study the following criteria for such demarcation may be used:[504] (1) the proportion of total yield used for personal consumption, (2) the number of acres cultivated with a protected variety, (3) the quantity of harvested tones produced with the variety or the number of harvested tones of all crops produced by the farmer. And still

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[503] Communication from EC, above note 360, p.17.

[504] Crucible Group II, 2001, Seeding Solutions. Volume 2, "Options for National laws Governing Control over Genetic Resources and Biological Inventions" (International Development Research Center, International Plant Genetic Resources Institute and Dag Hammarsk jold, Ottawa, Rome and Uppsala) as cited in Helfer, above note 17, p.77.

this is likely to ensure that virtually all farmers of Ethiopia are exempted since almost all farmers are subsistence level.

On the other hand, demands from the negotiating parties are likely to depend on the time when the process will take place. At this moment the revision of TRIPS being contended, the situation made developed countries keep calm at least temporarily. Developing countries like India, that could have been much more important market segment for the strong IPR demanders (usually US and EU), have similar farmers' exemption to that of Ethiopian PVP but yet not contested most probably not to fuel the disagreement on TRIPS review and other matters pending resolution in Doha Round.

The Doha declaration particularly in paragraph 19 has mandated TRIPS council to examine the relationship of TRIPS and CBD and other issues raised by developing countries and in particular the direction on the council to be guided by the objectives and principles set out in articles 7 and 8 of TRIPS Agreement as well as to take full account of the development dimension shows the influence from developing countries.[505] As noted earlier, in fact EU showed sympathetic approach and openness on farmers' exemption. Hence, the final outcome of the negotiation is unlikely to be better than the informal flexibility less developed countries enjoy now. Due to the absence of clear framework in TRIPS as to what exactly and legitimately be claimed perhaps the negotiating parties may not insist on substantial concession on farmers' exemption. Hence, from PVP regime perspective, it seems that the sooner the negotiation is the better.

Apart from that, adoption of adverse legislations on PVP as well as other IPR regimes often comes not from TRIPS Agreement itself rather through TRIPS plus bilateral and regional trade and investment agreements particularly from US and EU.[506] These agreements often contain provisions concerning protection and enforcement of IPRS. They are referred to as TRIPS plus because often they demand countries to accede or conform to more stringent IP standards in multilateral agreements other than TRIPS.

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[505]Helfer, above note 17, p.84.
[506] Ibid., p.41.

In the field of plant variety protection, many instances have been documented where countries in such agreements are required to adopt UPOV as standard or accede to that.[507] The U.S Central America Free Trade Agreement (applicable to Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua); the 2002 U.S Chile free trade agreement; the 2000 U.S Jordan free trade agreement and the 2000 EU Mexico free trade agreement, as well as certain Euro-Mediterranean Association agreements are some of the cases in point that mandate UPOV as standard.[508]

Moreover, there had been cases where UPOV and WIPO themselves served as agents of developed countries for pushing less developed countries to TRIPS plus PVP standards. In 1999 UPOV and WIPO convinced Members of French speaking African Intellectual Property Organization (OAPI) to revise the Bangui Agreement by adopting rules similar to the 1991 UPOV to comply with TRIPS.[509] Philippe Cullet expressed his discontent with the concession made by Members of OPAI stating that such a move is striking and unexpected in that neither TRIPS requires adoption of UPOV nor are they, as most are LDCs, to adopt any PVP legislation before 2006.[510]

No such typical TRIPS plus instances in Ethiopia has come to the knowledge of the writer but that Delivin Kuyek has expressed his skepticism with the World Bank's move for harmonization of African seed market launched in 1997 and tabled as Sub-Saharan African Seed Initiative (SSASI), to which Ethiopia is a part.[511] He noted that "the Bank uses its weight to influence governments into enacting 'legislation allowing breeders to register ownership of new cultivars only (not traditional cultivars or land race), consistent with UPOV 1978 or 1991."[512]

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[507] See GRAIN, above note 21; Helfer, above note 17, p.41.
[508] Helter, above note 17, p.41.
[509] Jeanne Zoundjihekpon, 'The Revised Bangui Agreement and Plant Variety Protection in OPAI Countries,' in Bellmann et al(eds.), TRADING IN KNOWLEDGE: DEVELOPMENT PERSPECTIVES ON TRIPS, TRADE AND SUSTAINABILITY (International Centre for Trade and Sustainable Development, Earthscan Publications Ltd, London,2003),p.111.
[510] Cullet(2001), above note 96, p.103.
[511] Getnet, above note 392, p.2.
[512] Kuyek, above note 98, p.13.

It is not clear how far the Bank's Scheme for harmonizing seed policies, laws and regulations will influence Ethiopian PVP regime. But the trend at international level is alarming that the country may face it sometime in the future. In particular, the growing interest in Ethiopian flower industry suggests potential investors might be accompanied by lobbies from their government or may avail their concerted effort. Hence it is advisable to expect in advance and prepare to respond with caution. Any future concession to adhere to UPOV system of PVP should take the risk of joining UPOV 1991 since other versions are already closed.

At last the writer summarizes the main issues and recommends the possible course of actions as follows:

1. In relation to protection of all plant varieties, the country may inescapably be bound to make commitments as WTO rule requires it. Of course, for a country that recognized patent in other living matters, extending PVP coverage to all plant varieties man not be as such a big issue, despite the difficulty of justifying that extended patent regime. At any rate it seems advisable at least to secure sufficient transition period. Transitional periods/transitional arrangements may be obtained as per the decision of the General council on accession of LDCs.[513]
2. Essentially derived verities were not part of 1978 UPOV but of the 1991 UPOV, and as such it is unlikely that it was intended to be part of TRIPS. But it is likely to be imposed as TRIPS plus condition. As far as possible negotiation should try to avoid concession in this regard. If the country concedes to recognize EDVs, keeping

[513] The General Council decided that transitional periods/transitional arrangements foreseen under specific WTO Agreements shall be granted to LDCs in accession negotiations taking into account individual development, financial and trade needs to enable them to effectively implement commitments and obligations. WTO, Accession Of Least-Developed Countries: *Decision of 10 December 2002* ,, WT/L/508, 20 January 2003. http://www.wto.org/english/thewto_e/acc_e/dda_accessions_e.htm , accessed on 17/1/2010.

balance of rights and obligations requires protection of farmers' and traditional varieties, to tackle misappropriation, though that might entail substantial administrative cost and might be subject to practical fragility.

3. In relation to farmers' exemption, though broad in scope it appears that the overall agricultural context could justify it and is likely to be TRIPS compatible. However, political pressures demanding TRIPS plus commitment may be posed as has been the case in Cambodia. The negotiating party should not concede in this area. Farmers should be allowed to continue as their age old tradition in so far as they do not venture on commercial scale exploitation. If the negotiating party fares well, the status quo is likely to be preserved. The EU is already sympathetic, who else would insist on the subsistence level Ethiopian farmers? Japan? US? Or who? Whoever they might be, the country should not make substantial concession in this regard. As a last resort, the concession may maintain the status quo in relation to main food crops and limit the scope of exemption in other cases. After all, accession is finally determined by 2/3 vote after a package of several dealings. Even if the country is likely to lose that majority, for whose sake should it accede if it compromised the interest of 85% of its population?

4. The other possible area of demand could be the prior informed consent and benefit sharing requirement-that constitutes *de facto* ground for acquisition of PBRs. In this regard it would be essential to figure out the need to realize objectives of CBD and defended accordingly.

5. Also NGOs and other stakeholders and the overall negotiation environment including political diplomacy may positively influence the outcome of the negotiation. Non-governmental organizations (NGOs) may play an active and positive role in alerting policy-makers and stakeholders so as to shape the negotiation process and out come as is witnessed in the Nepal's accession.[514]We noted that Cambodia conceded to join UPOV while Nepal agreed only to explore the possibility of joining various

[514] P. R. Rajkarnikar, Nepal: The Role of an NGO in Support of Accession http://www.ppl.nl/bibliographies/wto/files/5379.pdf ,accessed on 16/1/2010.

conventions, including UPOV at a future date, *taking into account its national interests.*[515] The different outcomes in the case of the two countries somehow echo the common saying that *in negotiation you will get what you negotiate, not what you deserve*.

Plase include specific recommendations focusing on:

1. Those areas of the Ethiopian Law which your research found inconsistent with the TRIPs Agreement, and

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[515] Adhikari and Dahal, above note 498.

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