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Property Rights**

Master thesis

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**TRIPs and Agricultural  
Biotechnology: Implications for  
the Right to Food in Africa**

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# ABBREVIATIONS

ARIPO	African Regional Intellectual Property Office
CGIAR	Consultative Group of International Agricultural Research
DNA	Deoxyribonucleic acid
FAO	Food and Agriculture Organization
GATT	General Agreement on Tariffs and Trade
ICESCR	International Covenant on Economic, Social and Cultural Rights
IP	Intellectual Property
IPRs	Intellectual Property Rights
IU	International Undertaking on Plant Genetic Resources for Food And Agriculture
MNCs	Multinational Companies
OAPI	Organisation Africaine de la Propriété Intellectuelle
OAU	Organization of African Unity
OECD	Organization for Economic Cooperation and Development
PGRs	Plant Genetic Resources
R&D	Research and Development
TK	Traditional Knowledge
TRIPs	Agreement on Trade-Related Aspects of Intellectual Property Rights
WIPO	World Intellectual Property Organization
WTO	World Trade Organization



# PREFACE

TRIPs provides minimum worldwide standards for IP protection. Its article 27(3)(b) is revolutionary in that it provides, for the first time in an international treaty, for the patenting of life forms. Traditionally, patents have been available for industrial/mechanical inventions only.

Article 27(3)(b) of TRIPs nevertheless offers some flexibility in that member states *may* exclude from patentability certain life forms e.g. plants and animals. Certain inventions *may* also be excluded from patentability in order to protect morality, protect human, animal or plant health or protect the environment as per article 27(2) of TRIPs. However, there *must* be IP protection for plant varieties i.e. either by patents or an effective *sui generis* system.

What does this portend for Africa? Traditionally, African rural farmers have saved, exchanged and reused seeds for generations. The free exchange of seed among farmers has been the basis of maintaining biodiversity as well as food security. This exchange is based on cooperation and reciprocity and also involves exchange of ideas or knowledge of how to work the seed. It is a culture of free access to agro-biodiversity for food and agriculture. Biological resources are seen as a “common heritage of mankind” and indeed not a preserve of private rights.

Powerful MNCs, in the life-sciences industry (mainly pharmaceuticals, chemicals, agro-chemical and seed corporations), based in developed countries, particularly USA have driven this expansion of patentable subject matter to now include life forms.

The thesis will show that modern biotechnology R&D is in the hands of these commercial interests. In the industrialized countries, biotechnology R&D is stimulated by IPRs, particularly patents which assures the MNCs of return of research costs and profits. The thesis will show some of the main issues that arise as a result of IPRs in agricultural biotechnology, which have implications on the right to food in Africa.

In addition, one of the major challenges in assessing the relevance or appropriateness of modern agricultural biotechnology in solving food insecurity in Africa is the role of IPRs and its impact on the acquisition, development and diffusion of biotechnology.

The thesis will highlight the implications of TRIPs on the right to food in Africa. It shows that with a strengthened IPRs regime under TRIPs, the individual right to food (and food security) is threatened with violation worsening an already desperate situation.



## **RESEARCH METHODOLOGY**

This thesis is mainly based on research work carried out at the library of the Raoul Wallenberg Institute. It is also based on relevant and useful information found on the Internet.

In addition, I made study visits, conducted interviews and collected data at the following institutions, all based in Nairobi, Kenya:

African Biotechnology Stakeholders Forum (ABSF); African Centre for Technology Studies (ACTS); Biotechnology Trust Africa (BTA); International Livestock Research Institute (ILRI); Kenya Agricultural Research Institute (KARI) – National Biotechnology Centre; Kenya Industrial Property Institute (KIPI); Kenya Plant Health Inspectorate Service (KEPHIS); National Council for Science and Technology; The Rockefeller Foundation, Africa Regional Office; the library of the United Nations Environment Programme (UNEP); and World Vision International.

## **THESIS OUTLINE**

Chapter one studies the historical roots of the human rights and IPRs regimes and analyses the interaction between these two systems. It highlights the similarities and differences and the potential tensions or conflicts and considers the balance of rights attempted under both rubrics.

Chapter two looks at TRIPs with a human rights eye. In this light a human rights approach and analysis of TRIPs is made. It particularly focuses on the right to food (and food security) analysing what this right means in international law. It also looks at the state obligations that the right imposes and also identifies what constitutes a violation of the right to food.

Chapter three looks at the origins of TRIPs and the role of Africa in its adoption. It also highlights its relevant IP provisions for food and agriculture.

Chapter four looks at the implications of TRIPs on the right to food. In this light, a study of other relevant international and regional agreements is made to assess the impact of TRIPs.

Chapter five tries to reconcile the implications and issues raised in the previous chapter. It provides a brief status of food security in Africa. As TRIPs is a binding treaty, it also looks at strategies and the flexibility options African countries can employ under it so as to remain TRIPs compliant but yet not compromise human rights, among other interests.

# 1 HUMAN RIGHTS AND INTELLECTUAL PROPERTY RIGHTS

## 1.1 History of Intellectual Property<sup>1</sup>

At inception, IPRs were intended to foster the technological and industrial progress of the state granting the patent. The major function of IPRs especially the patent regime, was economic self-sufficiency. The rights of inventors were only the corollary of the monopoly conditions deemed appropriate for such exploitation, while the rights of foreign inventors were completely disregarded. The law thus did not protect the property right of the original inventor as such, but permitted the importer of the invention to exercise rights similar to those of the original inventor. Under these conditions, the objective of the patent law was not to promote the position of the inventor.

The different subject areas of IPRs originate in different places and at different times.<sup>2</sup> Some state that the origins of IP date back to Aristotle in 4<sup>th</sup> century B.C. while others to 9<sup>th</sup> century China.<sup>3</sup> However, the Venetians are credited with the first properly developed patent law in 1474 and their model spread to other European states.<sup>4</sup> In England, the Statute of Monopolies of 1623 swept away all monopolies except those made by the “true and first inventor” of a “method of

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<sup>1</sup> IP refers to the creations of the human mind, the human “intellect.” It is a generic term that refers to intangible objects and probably came into regular use during the 20<sup>th</sup> century. This is because it was customary to refer to industrial and IPRs. The term “industrial” was used to cover technology-based subject areas like patents, designs and trademarks. “IP” was used to refer to copyright. The modern convention is to use “IP” to refer to both industrial and IP. See Peter Drahos. *Intellectual Property and Human Rights*. 1999. IPQ. No. 3. Sweet & Maxwell. p. 350

<sup>2</sup> IPRs are those rights derived from human intellectual creativity. These rights protect the interests of the inventors by giving them property rights over their creativity/inventions. IP law is today divided into two branches: Industrial Property Law and Copyrights Law. There are different forms of industrial property rights e.g. plant breeder’s rights, patents, petty patents/utility models, geographical indications, trademarks, undisclosed information/trade secrets, industrial designs. Each industrial property right has different requirements and grants different rights.

<sup>3</sup> Chapman Audrey. *Approaching Intellectual Property as a Human Right: Obligations Related to Article 15(1)(C) of the International Covenant on Economic, Social and Cultural Rights*. Committee of Economic, Social and Cultural Rights. 24<sup>th</sup> Session. Nov-Dec 2000. E/C.12/2000/12. p. 4

<sup>4</sup> Peter Drahos, *op cit.*, p. 350

manufacture.’<sup>5</sup> Modern copyright law began in England with the 1709 Statute of Anne.<sup>6</sup>

In 1791, France recognized the rights of inventors because in the context of the 1791 law it provided a right of representation to authors, it was argued that “the property of the work which is born of the writer’s thought is the most sacred, the most legitimate, the most unassailable and the most personal of all properties.”<sup>7</sup>

The US Constitution of 1787 justifies the legislative authority granted to the Congress in IP matters on grounds of public interest by stating that “The Congress shall have power...to promote the progress of science and useful arts, by securing for *limited times* to authors and inventors the exclusive right to their respective writings and discoveries.”<sup>8</sup> In 1790 the US enacted a patent law.<sup>9</sup>

It is notable that during the first half of the 19<sup>th</sup> century when some states in Europe were adopting patent laws, there arose an anti-patent movement in other quarters. Britain, Germany, the Netherlands and Switzerland saw the patent system experience its greatest challenge.<sup>10</sup> In Switzerland, its legislature rejected proposals in 1849, 1851, and 1854 and twice in 1863 to adopt patent laws on the ground that the “economists of greatest competence” had declared the principle of patent protection to be “pernicious and indefensible.”<sup>11</sup> Anti-patent movement saw patents as unfair and giving rise to anti-competitive behaviour in the marketplace.

Nevertheless, the anti-patent movement did not stifle the march by patent advocates. The second part of the 19<sup>th</sup> century therefore saw the proliferation in Europe of national IP systems. IP was developed on a national basis, with considerable diversity in the nature of protection. Outside Europe, IP grew along colonial paths, for instance the British colonies in Africa, Asia and the self-governing colonies of Australia and Canada, enacted copyright and patent laws, which were identical to those in England.<sup>12</sup>

This period is dominated by the principle of territoriality, the principle that IPRs do not extend beyond the territory of the sovereign, which has granted the rights

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<sup>5</sup> *ibid*

<sup>6</sup> Audrey Chapman, *op cit.*, p. 4. This statute was to encourage its citizens to bring in foreign technology for the benefit of the national economy.

<sup>7</sup> See paper by the Secretariat of the WTO. ***Protection of Intellectual Property under the TRIPS Agreement.*** Committee on Economic, Social and Cultural Rights. 24<sup>th</sup> session. November 2000. United Nations. Geneva. p. 1

<sup>8</sup> *ibid*

<sup>9</sup> *ibid*

<sup>10</sup> Frederick Abbot, Thomas Cottier and Francis Gurry. ***International Intellectual Property Systems: Commentary and Materials.*** Part One. 1999. Kluwer Law International. Hague. p.7

<sup>11</sup> *ibid*. Then Geigy Chemical Company of Basel Switzerland likened patent monopoly to robbery; today the same company (Ciba-Geigy) is a major crusader for patents for the corporate sector. How times change!

<sup>12</sup> Peter Drahos, *op cit.*, p. 352

in the first place.<sup>13</sup> This meant that an IP law passed by country A did not apply in country B. This principle showed the interrelationship between state sovereignty, property rights and territory. As a result IPRs owners faced a problem, due to the free copying of their creations in other countries. This inevitably led to the expansion of IP protection to the international sphere.

### 1.1.1 The international period

During the 19<sup>th</sup> century, states began to take a greater interest in the possibility of international co-operation in IP. The development of national IP systems and international trade raised awareness of the need for international protection.

The UK in response to the free riding problem passed the 1838 and 1844 Acts that protected works first published outside the UK.<sup>14</sup> These Acts introduced the principle of reciprocity, which meant that foreign works would only gain protection in the UK if the relevant state agreed to protect UK works. The 1844 Act saw a considerable number of bilateral agreements concluded between the UK and other European states.<sup>15</sup>

However, there were some states that remained isolationist, notably the USA. The 1790 US Copyright Act only granted copyright protection to citizens and residents of the USA. This form of national protectionism prevailed for a long time.

Nevertheless, like copyright, other branches of industrial property law also became the subject of bilateral agreements and by 1883 there were 69 international agreements mostly dealing with trademarks.<sup>16</sup> They introduced the principle of national treatment, which principle was based on the reciprocity principle developed in the UK. States realized that if they did not discriminate between nationals and foreigners in the regulation of IPRs, neither would other states. Thus in this way states could secure protection for the works of their authors in foreign jurisdictions.

The adoption of various bilateral agreements in IP in the 19<sup>th</sup> century was important in that it contributed to the recognition that an international framework was needed. These agreements also provided a framework of principles that the international regime could work with, although the level of protection was not satisfactory.

Following an international exhibition of inventions held in Vienna, Austria in 1873, developments towards international protection of inventions stepped up. This led,

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<sup>13</sup> *ibid*

<sup>14</sup> *ibid*

<sup>15</sup> *ibid*

<sup>16</sup> *ibid*

in 1883, to the adoption of the Paris Convention for the Protection of Industrial Property (Paris Convention).

Then, industrial property rights were developed as a way to reward creativity and promote innovation during the Industrial Revolution and thus were limited to industrial/mechanical inventions. These rights stimulated human intellectual creativity for the benefit of the public and promoted trade in goods and services.

Later, in 1886, the Berne Convention for the Protection of Literary and Artistic Works (Berne Convention) was also adopted. These conventions ushered in an era of international cooperation in international IP property regimes.

These conventions were the first international agreements on IP, mainly drawing membership from European states. Later, after the Second World War and the emergence of states from the colonial period, their membership increased, largely drawn from the developing countries. Over the years, the conventions have also gone through a series of amendments to keep up with technological advancements.

As more international IP agreements were adopted, in 1967, an international agreement established WIPO to administer them.<sup>17</sup> Member states agreed on basic principles, the most important being, the principle of national treatment<sup>18</sup> but states still retained a lot of discretion on the standards of IP within their jurisdiction. There was thus no harmonisation of IP standards across states.

### **1.1.2 The global period**

With the increasing interdependence of national economies, a need for an effective international legal system to regulate IP matters was identified, particularly one that ensured a harmonisation of IP standards among states.

Up to this time, despite the existence of international IP agreements administered by WIPO, there was still a lot of free riding or copying of works and inventions that was tolerated. The only enforcement mechanism under the various international IP treaties was an appeal to the ICJ and most states entered reservations on such clauses.<sup>19</sup>

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<sup>17</sup> International secretariats were established for both the Paris and Berne Conventions. These then merged to form a “United International Bureau for the Protection of Intellectual Property”. WIPO superseded this institution and is now responsible for the promotion of IP worldwide. It administers several IP treaties and also acts as a secretariat for the negotiation of treaties that establish new norms in IP. It also conducts extensive training and technical assistance programs for developing countries.

<sup>18</sup> This principle effectively means that the IP protection offered by a state to its nationals is equally offered to a foreigner within that state’s jurisdiction.

<sup>19</sup> Peter Drahos, *op cit.*, p. 355

For the USA however, the lack of effective enforcement machinery for IPRs under WIPO was detrimental to key industries of the national economy, such as film and pharmaceuticals.<sup>20</sup> For US pharmaceutical companies for instance, IP was an investment issue. They wanted to locate their production anywhere in the world safe in the knowledge that their IP would be protected. With intensive lobbying these industries succeeded in linking IP to trade. The immediate advantages of such an approach were firstly, if IP standards were made part of an international trade agreement, it would give those standards a truly global coverage. Secondly, IP would now fall under the enforcement mechanism that states had developed for settling trade disputes.

Beginning in 1984, the US amended its 1974 Trade Act several times providing for a bilateral enforcement mechanism against countries that did not have adequate and effective levels of IP enforcement.<sup>21</sup> It included IP in the “section 301” trade process, such that if countries failed to act on IP they would face trade sanctions from the USA.<sup>22</sup>

In addition, under the initiative of the USA (particularly its business community), IP was included as a negotiating issue at the Ministerial Meeting at Punta del Este during the launch of the Uruguay Round of Multilateral Trade Negotiations held under GATT.<sup>23</sup>

In April 15, 1994 the Uruguay Round concluded with the signing in Marrakesh, Morocco of the Final Act Embodying the Results of the Multilateral Trade Negotiations. This Final Act contains the Agreement Establishing the WTO and several annexed agreements. TRIPs is found in Annex 1C of the WTO Agreement.<sup>24</sup> TRIPs came into force on 1 January 1995, although it gives its members transitional periods to bring themselves into compliance with its rules, which differ according to their stage of development.<sup>25</sup>

After TRIPs was adopted, other international IP treaties have since been concluded under the aegis of WIPO. In 1996, the WIPO Performances and Phonograms Treaty and the WIPO Copyright Treaty were concluded to deal with the new technological developments in the digital area.

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<sup>20</sup> *ibid*

<sup>21</sup> *ibid*

<sup>22</sup> *ibid*

<sup>23</sup> *ibid*

<sup>24</sup> TRIPs is the most comprehensive multilateral agreement that sets out detailed minimum standards for the protection and enforcement of IP. It is known either as a Paris-plus or Berne-plus agreement because its standards incorporate those of the Paris and Berne Conventions in their most recent form and also includes standards on certain matters where the pre-existing conventions are silent or are seen as being adequate. However, Article 6*bis* of the Berne Convention on author’s moral rights was not incorporated into TRIPs.

<sup>25</sup> Developed countries had until 1 January 1996 to comply with TRIPs, developing countries had until 1 January 2000 while least developed countries have until 1 January 2006.

Current international IP law is modelled on western IP tradition rooted in the idea that IPRs are positive rights created by the state for the benefit of its citizens.<sup>26</sup>

Although WIPO identifies that IP legal regimes firstly, give statutory expression to the moral and economic rights of creators in their creations and define the rights of the public to access to such creations and secondly, that they provide incentives and rewards to inventors and creators and thereby stimulate economic and social development;<sup>27</sup> states have used IP laws as a means to improve their country's competitive economic advantage.<sup>28</sup> This has become increasingly dominant in this globalisation era. As this thesis will show, TRIPs favours major economic interests, particularly the large MNCs, to the detriment of protecting public access and benefits in the home country and promoting development in developing countries,<sup>29</sup> Africa included.

The economic importance of IP has grown with the increasing role of information and knowledge-based industries. A causal link has been created between IP and investment.<sup>30</sup> There is a progressive re-conceptualisation of IP as an investor's right rather than a creator's right. A historical analysis on the emergence of IP reveals that they have always been used by states to secure market place objectives, both domestic and international. IPRs are still viewed as an economic tool facilitating trade and investment. The linkage between IP and trade is made even clearer by the adoption of TRIPs.

## 1.2 History of Human Rights

Some basic ideas critical to the development of what we define as human rights today can be traced to various world religions and philosophies. In the holy books of Christianity, Islam, Judaism, Hinduism, Buddhism, Confucianism, there is a call for the more humane treatment of fellow human beings. In the Middle Ages in Europe various social contracts bore the same ideas.<sup>31</sup> The concept of Human Rights was also further developed during the time of the Enlightenment

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<sup>26</sup> *ibid*

<sup>27</sup> World Intellectual Property Organization. *Intellectual Property Reading Material*. WIPO Publication. No. 476 (E). Geneva. 1995. p. 5

<sup>28</sup> Audrey Chapman, *op cit.*, p.5

<sup>29</sup> *ibid*

<sup>30</sup> Under the OECD, the Multilateral Agreement on Investment (MAI) Negotiating text defines investment to include every kind of asset including IPRs. See Peter Drahos, *op cit.*, p. 357.

<sup>31</sup> For example, the Ceasar Hadrians basic laws for Roman law, the 1215 Magna Carta Libertatum in England, the 1282 Erik Klippings Håndfaestning in Denmark, the 1356 Joyeuse Entrée in Brussels, the 1579 Union of Utrecht in the Netherlands, 1689 Bill of Rights in England. See Gudmundur Alfredsson et al. *International Human Rights Monitoring Mechanisms*. 2001. Kluwer Law International. Hague. p. 19

setting down the basis of rights derived from Natural Law, *iura naturalia*, and the recognition of the right of all humans to freedom and dignity.<sup>32</sup>

From the 16<sup>th</sup> century onwards, prominent philosophers and jurists later developed the notion of natural rights, as another source of law i.e. the Law of Nature. Hugo Grotius (regarded as the father of modern international law), Samuel von Pufendorf, John Locke, Jean Jacques Rousseau, and Charles de Montesquieu, all based their work on the notion that above positive law existed another source of law, the Law of Nature.<sup>33</sup> This natural law had roots in human reason and could be discovered without any knowledge of the positive law. Rousseau observed that the sovereigns derived their powers from this source and were thus also to obey and respect it while Montesquieu developed the concept of separation of powers.

A cornerstone in human rights law is the principle of the equal dignity and worth of every human being.<sup>34</sup> It is a principle primarily derived from religion.<sup>35</sup> These religious, moral or ethical basic notions of human value from natural law were later transformed into positive law, at the national and international levels.

The 1776 American Declaration of Independence, the 1781 Bill of Rights of the American Constitution, the 1789 French *Declaration des Droits de l'Homme et du Citoyen* (Declaration of the Rights of Man and of the Citizen) and the 1793 *Declaration* are all based on the notion that all human beings have equal status and have certain inalienable rights.

Human rights during the 18<sup>th</sup> and 19<sup>th</sup> centuries were related to the freedom of the individual and the need for citizens to be protected from infringements on these freedoms by state power. The principle of equality pressed for the need of the government to strive to improve the living conditions for the wider population. Therefore, many constitutions drafted at this time, contained provisions in the areas of “social and economic” and not just the “classic” freedoms.<sup>36</sup> The general right of property was recognized by the liberal traditions of France and the USA. The French Revolution (which resulted in the 1789 Declaration) is

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<sup>32</sup> *ibid*

<sup>33</sup> *ibid*, p. 20

<sup>34</sup> The Preamble of the UDHR recognizes the “inherent dignity and equal and inalienable rights of all members of the human family” and “in the dignity and worth of the human person and in the equal rights of men and women.”

<sup>35</sup> This is derived from e.g. Christianity or Judaism where it is recorded in Genesis 1: 26 & 27 (NIV) that “Then God said, Let us make man in our own image, in our likeness... So God created man in his own image, in the image of God he created him; male and female he created them.” Thus, God created man in his **own** image. If man is then created in the image of God he has dignity and worth. Therefore every man (and woman) has equal dignity and worth.

<sup>36</sup> Alfredsson, G. *et al. op cit.*, p. 22. For example, the Norwegian Constitution of 1814, the Mexican Constitution of 1917, the Constitution of the Soviet Union of 1918.



said to have explicitly manifested the idea of IPRs as natural rights<sup>37</sup> – as opposed to positive rights (granted by the state), hence providing a human rights approach to IPRs.<sup>38</sup>

The 1789 Declaration included “property” among the “natural and imprescriptible rights of man.”<sup>39</sup> The freedom of communication and the press that the 1789 Declaration proclaimed was made concrete once printers no longer had to obtain the privilege of printing from the King.<sup>40</sup> However, it is observed that in actual fact the French Revolution was much more about the liberation of information than the creation of property rights in information.<sup>41</sup>

In the 19<sup>th</sup> century, as international law began to develop elements of human rights also began to emerge. Notable were such areas as the protection of the rights of minorities,<sup>42</sup> the prohibition of slave trade<sup>43</sup>, protection of persons in armed conflict<sup>44</sup> and in labour standards.<sup>45</sup>

## 1.2.1 The United Nations

A Conference of International Organisations saw the birth of the United Nations in June 26<sup>th</sup> 1945 in San Francisco, USA. The signing of the Charter of the UN was a significant step in bringing human rights more firmly within the sphere of international law. The UN Charter establishes the promotion and protection of human rights as one of the main objectives of the organization.<sup>46</sup>

The atrocities committed during the Second World War – where the Nazi regime in Germany founded a power base based on terror and gross violations of the rights of persons residing within its jurisdiction – spurred the creation of the UN, an organization that would work to “save succeeding generations from the

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<sup>37</sup> In the modern context, the notion of a “natural right” might often be replaced by an appeal to a sense of equity and fairness. It is seen as fair that, for example, an inventor would draw some benefit from others using the fruits of his or her creative efforts for economic gain.

<sup>38</sup> See paper prepared by the Secretariat of the WTO. *Protection of Intellectual Property under the TRIPS Agreement*. Committee on Economic, Social and Cultural Rights. 24<sup>th</sup> session. November 2000. United Nations. Geneva. p. 1

<sup>39</sup> *ibid*

<sup>40</sup> *ibid*

<sup>41</sup> Peter Drahos, *op cit.*, p. 351

<sup>42</sup> e.g. 1648 Treaties of Munster and Osnabruck, 1878 Treaty of Berlin. From 1919, the League of Nations also wanted to include in its general peace settlement and machinery obligations in regard to the protection of minorities.

<sup>43</sup> e.g. 1926 Slavery Convention

<sup>44</sup> e.g. 1899 and 1907 Hague Conventions

<sup>45</sup> e.g. 1906 Berne Convention aimed at protecting women from being subjected to night time work. In 1919, the International Labour Organization (ILO) was founded with a constitutional document that puts an emphasis on human rights and social justice.

<sup>46</sup> See Article 1 and also articles 55 and 56 of the Charter. Human rights are also mentioned in the preamble, articles 8, 13, 62, 67, 68, 73 and 76 of the Charter.

scourge of war”, “reaffirm faith in fundamental human rights,” “establish conditions under which justice...can be maintained,” and “promote social progress and better standards of life in larger freedom.”<sup>47</sup>

The atrocities committed during the Second World War also emphasized the need for international protection of human rights. There was a need for violations of human rights by persons representing state power (e.g. Hitler in Nazi Germany) to be seen as a breach of international law, a breach of a duty towards the international community. Only then would the international community step into the state’s sphere (or what is now known as the domestic jurisdiction of a state) and suggest measures to ensure conformity with international law obligations, of which human rights now formed a part.

In 1948, under the aegis of the UN, the General Assembly adopted the Universal Declaration of Human Rights (UDHR).<sup>48</sup> The UDHR formed the basis for the development of international human rights treaties containing a wide spectrum of rights, from the right to life, liberty, food to the right to be protected from various forms of discrimination, and the right have a say and share in a country’s economic, social and cultural development.<sup>49</sup>

The concept of human rights is broad, covering most aspects of human existence.<sup>50</sup> Therefore, for ease of reference several schemes have been used to classify the rights, either as basic human rights; or four freedoms; or 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> generation rights; or individual or collective rights; or civil and political versus economic, social and cultural rights.

Human rights could also be classified according to the various treaties dealing with a specific issue, either as subjects in need of protection i.e. minorities, indigenous

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<sup>47</sup> Preamble of the UN Charter. The formation of the UN in 1945 was a collaborated effort of the Allies of the second world war namely USA, UK, France, USSR and China who became the five permanent members of the Security Council. During the war, the Allies in the Atlantic Charter of 1.1.42 stated, that “complete victory over their enemies is essential to defend life, liberty, independence and religious freedom, and to preserve human rights and justice in their own lands as well as in other lands...” See Åshild Samnøy, *The Origins of the Universal Declaration of Human Rights* in G. Alfredsson and A. Eide (eds). *The Universal Declaration of Human Rights*. 1999. Kluwer Law International. Hague. p. 3

<sup>48</sup> Adopted by the General Assembly of the UN by Resolution 217 (III) of 10<sup>th</sup> December 1948

<sup>49</sup> UDHR together with the 1966 International Covenant on Civil and Political Rights (ICCPR) and the 1966 International Covenant on Economic, Social and Cultural Rights (ICESCR) comprise the International Bill of Human Rights. Examples of other international human rights treaties are the 1948 Convention on the Prohibition and Punishment of the Crime of Genocide, the 1965 Convention on the Elimination of Racial Discrimination, 1979 Convention on the Elimination on Discrimination Against Women, 1989 Convention on the Rights of the Child etc.

<sup>50</sup> One of the main sources of inspiration and broad approach to human rights was the “four freedoms” address in 1941 by US President Franklin Delano Roosevelt, where in his State of the Union address he stated that everyone is entitled to freedom of speech, freedom of faith, freedom from want and freedom from fear.

peoples, refugees, women, children, migrant workers etc, or according to the elimination of specific forms of discrimination e.g. race, religion etc, or according to an elaboration on certain rights e.g. genocide, torture, treatment of prisoners, or on a regional or geographical view point e.g. African, American or European etc.

Whatever the classification “all human rights are universal, indivisible and interdependent and interrelated. The international community must treat human rights globally in a fair and equal manner, on the same footing, and with the same emphasis.”<sup>51</sup>

Human rights norms differ from other rights in international law in several key respects. Human rights originated from a perceived need to protect the individual against the abuse of power by the state and therefore the primary purpose of human rights is to govern the relationship between the individual and the state, whereas other areas of international law govern the relationship between states.

From the preamble of the UDHR, it can be deciphered that human rights form the foundation of freedom, justice and peace in the world. Human rights promote social progress and better standards of living. They also foster friendly relations between states. However, as part of international law, human rights are to be implemented in a national context; human rights gives rise to duties, the responsibility of which falls on states. By agreeing to be bound by human rights norms, states have agreed to govern in a manner consistent with those norms. States are the ones to be held accountable in case of failure or non-performance of those duties resulting in human rights violations. Human rights norms therefore serve as a guide for national legislation and policies.

Other characteristics of human rights are that they are inherent in all human beings by virtue of their humanity alone; are inalienable within qualified legal boundaries; are equally applicable to all; and are fundamental to life, dignity and other important human values.

### 1.3 The link between Human Rights and Intellectual Property Rights

The historical link between human rights and IPRs is thin. Nevertheless, the relevant provisions are article 27 of UDHR<sup>52</sup> and article 15 of ICESCR<sup>53</sup>. An

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<sup>51</sup> Paragraph 5 of the Vienna Declaration and Programme of Action adopted at the 1993 World Conference on Human Rights held in Vienna, Austria. A/CONF.157/24

<sup>52</sup> It states: “1. Everyone has the right freely to participate in the life of the community, to enjoy the arts and to share in scientific advancement and its benefits. 2. ***Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.***” (emphasis mine)

analysis of article 27(2) UDHR and article 15(1)(c) ICESCR reveals an individual human right in IP, although not explicitly worded as such.<sup>54</sup> To this extent therefore one can say that the drafters recognized IPRs as human rights.<sup>55</sup>

Also, IPRs affect other human rights either positively or negatively. In particular, TRIPs has created tensions with human rights. This tension principally revolves around balancing the IPRs of inventors/creators with that of the public.

## 1.4 Balance of rights under Human Rights Law

Article 27 UDHR and Article 15 ICESCR reflect a balance of rights and identify a need to strike a balance between the protection of the rights of authors and creators and that of the public. Four components are identified: the right to culture, the right to benefit from scientific advancement, IP and freedom of scientific and creative activity.<sup>56</sup>

There is a link between the right of everyone to benefit from the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author (private interest) **with** the right to participate in cultural life and to enjoy the benefits of scientific progress and its applications (public interest). The right of the author or creator (private interest) and the rights of the wider society (public interest) are seen as complimentary.

These provisions recognize that the rights of authors and creators are not just good in themselves but are understood as essential preconditions for cultural freedom and participation and scientific progress. As material progress is often the result of scientific progress, it thus implies that everyone must have access to

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<sup>53</sup> It builds on and closely resembles article 27 of UDHR. It states: “1. The State Parties to the present Covenant recognize the right of everyone: (a) To take part in cultural life; (b) To enjoy the benefits of scientific progress and its applications; (c) **To benefit from the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author...**”(emphasis mine)

<sup>54</sup>It was felt by the drafters that there was no need to include a specific reference to property in Article 27 UDHR due to the existence of the right to property in Article 17 UDHR. However, the right to property was omitted in ICESCR. See Audrey Chapman, *op cit.*, p. 8-9 and Peter Drahos, *op cit.*, p. 358-371

<sup>55</sup> Very little attention has been paid to analyse IP as a human right. A notable exception is indigenous peoples who have called for the recognition of their knowledge as a human right (See Article 29 UN Draft Declaration on the Rights of Indigenous Peoples, E/CN.4/Sub.2/1993/29). More effort has been made to adopt a human rights approach to IP than to recognize IP as a human right. Whether, IPRs are viewed as human rights today is also problematic because of the fact that firstly, they are granted by the state rather than recognized by the state. Secondly, IPRs exist for a limited period of time and are territorial as opposed to human rights that are perpetual, inalienable and universal. Thirdly, IPRs have differing characteristics and hence not all fit into the category of protecting the human dignity and worth of its creators. See Audrey Chapman, *op cit.*, p. 9 and Peter Drahos, *op cit.*, p. 365-367

<sup>56</sup> Ragnar Adalsteinsson and Pall Thorhallson in G. Alfredsson and A. Eide (eds.). *The Universal Declaration of Human Rights*. 1999. Kluwer Law International. Hague. p. 591-595

these scientific results and must not be restricted to a few. In order to avoid conflicts between the human rights guaranteed by these provisions e.g. IPRs and cultural rights, there is a need to strike the right balance in their promotion and protection.<sup>57</sup>

## 1.5 Balance of rights under Intellectual Property Law

The balance between private and public interests identified by Articles 27 UDHR and 15 ICESCR is familiar to IP law.

Under IP law, states grant limited rights over creations or inventions as a means of providing incentive for innovation eventually ensuring that the public has access to those creations or inventions. Thus, for example, under patent law, a state grants an inventor a patent for a limited period of time in return for the inventor's disclosure of the invention in his patent application.

During the period of protection, the inventor (now patent holder) has classic property rights e.g. he can exclude others from making, using or selling his patented product. He can also use this time to recoup research and investment costs incurred in the development of his invention and/or otherwise commercially exploit his invention. After the time of protection expires, the invention falls into the public domain and is now freely accessible by all.

Therefore, in the long term there is no conflict but a mutually supportive relationship between the interests of promoting creativity and innovation (private interest) and maximising access of the new invention to the wider society (public interest). However, during the period of protection, there is potential for conflict between the rights of the patent holder and the public because patents are exclusive rights. The public would not have access to the protected works or inventions, except with the authorization of the patent holder.

The challenge therefore is for national and international IP laws to strike the right balance between the human rights of authors, creators and inventors (private

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<sup>57</sup> *ibid*, p. 593. When judging a states' fulfilment of these rights, it is relevant to consider the following (a) measures taken to ensure the application of scientific progress for the benefit of everyone; (b) measures taken to promote the diffusion of information on scientific progress; and (c) measures taken to prevent the use of scientific and technical progress for purposes which are contrary to the enjoyment of all human rights. It is observed that the 1993 World Conference on Human Rights held in Vienna, Austria reaffirmed the right of everyone to enjoy the benefits of scientific progress and its applications but noted that certain advances, notably in the biomedical and life sciences as well as information technology, may have potentially adverse consequences on human rights and called for international cooperation to ensure that human rights are fully respected in light of these scientific advances. See the Vienna Declaration and Programme of Action adopted on 25.06.93 at A/Conf.157/23.

interest) and the promotion of access to protected works or inventions for the public good (public interest). An emphasis of either one of the interests would tilt the optimal balance that is to be achieved. In the TRIPs regime, the required balance between the private and public interests is proving difficult to attain.

It is my view that IPRs are instrumental rights in the sense that their grant and exercise should promote and protect all human rights. Human rights should guide the development of IPRs and thus IPRs would be of service to all humanity. Determining whether the standards set in TRIPs promote and protect human rights is the focus of the next chapter.

## 2 TRIPs AND HUMAN RIGHTS

### 2.1 Introduction

There are potential links between TRIPs and human rights.

The overall objectives of WTO as reflected in the preamble of the WTO Agreement (of which TRIPs is part) are that member countries' trade and economic relations "should be conducted with a view to raising standards of living, ensuring full employment...while allowing for the optimal use of the world's resources in accordance with the objective of sustainable development, seeking both to protect and preserve the environment and to enhance the means for doing so in a manner consistent with their respective needs and concerns at different levels of economic development."<sup>58</sup>

It also recognizes the "need for positive efforts designed to ensure that developing countries, and especially the least developed among them, secure a share in the growth in international trade commensurate with the needs of their economic development."<sup>59</sup>

Article 7 of TRIPs spells out the objectives of the agreement by stating that "the protection and enforcement of IPRs should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations."

These objectives thus recognize a need for a balance between "mutual advantage of producers and users of technological knowledge" and "a balance of rights and obligations." This also corresponds to the attempted balance of rights and tensions inherent between articles 15(1)(a) and 15(1)(b) of ICESCR, which recognize "the right of everyone to take part in cultural life" and "to enjoy the benefits of scientific progress and its applications" and article 15(1)© of ICESCR "the right of everyone to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author."

The above stated objectives lay an emphasis in promoting social and economic welfare. TRIPs can also be seen to give effect to IPRs, *as a human right*, at the international level as indicated in its preamble that IPRs are private rights.

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<sup>58</sup> See document of the Secretariat of the WTO to the Committee on Economic, Social and Cultural Rights. Day of General Discussion, *op cit.*, p. 2

<sup>59</sup> *ibid*

TRIPs also seems to promote values deemed essential for the realization of human rights such as the prohibition of discrimination on the basis of nationality in IPRs which values are resonant in international human rights law.<sup>60</sup>

TRIPs could also be seen to promote the rule of law at the national and international levels by the observance of due process and the peaceful settlement of disputes through its dispute resolution mechanism.<sup>61</sup>

TRIPs also encourages international cooperation by requiring member-developed countries to facilitate technology transfer to member least developed countries and to provide, on request, technical and financial cooperation to both member developing and least developing countries.<sup>62</sup> International cooperation is also encouraged in international human rights law especially as pertaining to the implementation of economic, social and cultural rights.<sup>63</sup>

## 2.2 Seeking the right balance

An objective of IP protection is to promote long-term public interest by means of providing exclusive rights to right holders for a limited period of time. After the expiration of the term of protection, protected works and inventions fall into the public domain and anyone is free to use them without the prior authorization of the right holder. In the long term therefore, there is no conflict but rather a mutually supportive relation between the interests of rights holders and those of the public by promoting creativity and innovation and maximising access.

However, during the term of protection there is potential for conflict between those two interests, which can also mirror the marked differences between the interests of right holders and users. The challenge is therefore to find the optimal balance between the competing interests with a view to maximizing the public good while meeting the human rights of authors and inventors.

TRIPs has attempted to achieve this balance in a number of ways: by determining the definition of protectable subject matter, the scope of rights, permissible limitations and the term of protection.<sup>64</sup> As TRIPs is a minimum rights agreement it leaves a fair amount of leeway to member states to implement its provisions within

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<sup>60</sup> See Article 3-5 of TRIPs on “National Treatment” and “Most-Favoured-Nation Treatment” clauses.

<sup>61</sup> See Part III of TRIPs

<sup>62</sup> See Article 66(2), 67, 69 of TRIPs.

<sup>63</sup> See Article 2 of ICESCR

<sup>64</sup> See Report of the Secretary General. *Intellectual Property Rights and Human Rights. Economic and Social Council*. UN Doc. E/CN.4/Sub.2/2001/12. p. 7-9 and also Report of the Secretariat of WTO, *op cit.*, p. 4-7



their own legal system and practise and fine-tune the balance in light of domestic public policy considerations.<sup>65</sup>

Finding a link between the standards of TRIPs and human rights is not the same as saying that TRIPs takes a human rights approach to IP protection; the primary question is whether TRIPs strikes a balance that is consistent with a human rights approach.<sup>66</sup>

There are actual or potential conflicts inherent in the implementation of TRIPs that have been identified.

On 17 August, 2000, the UN Sub-Commission for the Protection and Promotion of Human Rights, adopted a resolution unanimously on “Intellectual Property Rights and Human Rights” noting, *inter alia*, that:

**“There are actual or potential conflicts that exist between the implementation of TRIPS and the realization of economic, social and cultural rights** in relation to, *inter alia*, impediments to the transfer of technology to developing countries, the consequences for the enjoyment of the right to food of plant variety rights and the patenting of genetically modified organisms, “biopiracy” and the reduction of communities’ (especially indigenous communities’) control over their own genetic and natural resources and cultural values, and restrictions on access to patented pharmaceuticals and the implications for the enjoyment of the right to health.”<sup>67</sup>(emphasis mine)

The resolution “affirms that the right to protection of the moral and material interests resulting from any scientific, literary or artistic production of which one is author is, in accordance with article 27(2) of UDHR and article 15(1)© of ICESCR, **a human right, subject to limitations in the public interest.**”<sup>68</sup>(emphasis mine)

It further “declares, however, that since ***the implementation of the TRIPS Agreement does not adequately reflect the fundamental nature and indivisibility of all human rights***, including the right of everyone to enjoy the benefits of scientific progress and its applications, the right to health, the right to food and the right to self-determination, ***there are apparent conflicts between the intellectual property rights regime embodied in the TRIPS Agreement, on the one hand, and international human rights law***, on the other.”<sup>69</sup> (emphasis mine)

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<sup>65</sup> See Article 1(1) and Article 8 of TRIPs

<sup>66</sup> See Report of the High Commissioner for Human Rights, *op cit.*, p. 7-11

<sup>67</sup> Economic and Social Council. Intellectual Property Rights and Human Rights. Sub-Commission on Human Rights Resolution 2000/7. E/CN.4/SUB.2/RES/2000/7

<sup>68</sup> *ibid*, paragraph 1

<sup>69</sup> *ibid*, paragraph 2

There exists a conflict between the “private” interests of IPRs holders, championed by TRIPs, and the “social” or “public” concerns found in international human rights law. TRIPs is seen to tilt the balance inherent in IP law away from the public interest and in favour of IPRs holders.

The resolution further “reminds all governments of the primacy of human rights obligations over economic policies and agreements; and requests them to take international human rights obligations and principles fully into account in national, regional and international economic policy formulation and also further requests governments and intergovernmental organizations to integrate in their national laws and policies provisions that are in accordance with international human rights obligations and principles that protect the social function of intellectual property.”<sup>70</sup>

The resolution is said to mark the beginning of what promises to be a closer monitoring of WTO by the UN human rights system.<sup>71</sup> It is historic, in that it has reaffirmed the primacy of human rights over other state obligations that states may have.

It is against this backdrop that this thesis will look at the implications of TRIPs on the right to food in Africa.

## 2.3 The Right to Food in International law<sup>72</sup>

Article 25 of UDHR<sup>73</sup> and article 11 of ICESCR<sup>74</sup> are the more authoritative international human rights provisions on the right to food.<sup>75</sup> The right to food is a

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<sup>70</sup> *ibid*, paragraph 4, 5, 6

<sup>71</sup> See Someshwar Singh. *TRIPS regime at odds with human rights law, says UN body* at <http://www.twinside.org.sg/title/odds.htm>

<sup>72</sup> Historically (and purely on ideological reasons) human rights have been split into, civil and political rights on the one hand and economic, social and cultural rights on the other. These rights have also been treated differently, with civil and political rights being emphasised more than the others. In this dichotomy, the right to food is a core *social* right. Nevertheless, whatever the classification “***all human rights are universal, indivisible and interdependent and interrelated. The international community must treat human rights globally in a fair and equal manner, on the same footing, and with the same emphasis.***” See Paragraph 5 of the Vienna Declaration and Programme of Action adopted at the 1993 World Conference on Human Rights. A/CONF.157/24.

<sup>73</sup> It states in part “Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing and medical care and necessary social services...”

<sup>74</sup> It states in part “The State Parties...recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food... The State Parties will take appropriate steps to ensure the realization of this right, recognizing to this effect the essential importance of international cooperation based on free consent...”

<sup>75</sup> The right to food is also found in: Article 12 of Convention on the Elimination of Discrimination Against Women, Article 24 of Convention on the Rights of the Child, Article

basic human right as well as a basic human need. It is a component of the right to an adequate standard of living. It is also closely linked to the right to life.<sup>76</sup> The **right to adequate food**<sup>77</sup> is “realized when every man, woman and child, alone or in community with others, have physical and economic access at all times to adequate food or means for its procurement. States have a core obligation to take the necessary action to mitigate and alleviate hunger.”<sup>78</sup>

It is noted that the concept of “adequacy” is particularly significant because the notion of sustainability is intrinsically linked to the notion of adequate food or food security, implying food being accessible for both present and future generations; however the precise meaning of “adequacy” is to a large extent determined by prevailing social, economic, cultural, climatic, ecological and other conditions while “sustainability” incorporates the notion of long-term availability and accessibility.”<sup>79</sup>

The right to adequate food is “indivisibly linked to the inherent dignity of the human person and is indispensable for the fulfilment of other human rights enshrined in the International Bill of Human Rights... it is inseparable from social justice, requiring the adoption of appropriate economic, environmental and social policies, at both the national and international levels, oriented to the eradication of poverty and the fulfilment of all human rights for all.”<sup>80</sup>

The core content of the right to adequate food “implies the availability of food in a quantity and quality sufficient to satisfy the dietary needs of individuals, free from adverse substances, and acceptable within a given culture; (and also) the accessibility of such food in such ways that are sustainable and that do not interfere with the enjoyment of other human rights.”<sup>81</sup>

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2 of Convention on the Prohibition and Punishment of the Crime of Genocide; Article 21 of African Charter on Human and Peoples Rights, Article 12 of San Salvador Protocol to American Convention on Human Rights including in the 1948 Geneva Conventions I, III, IV and the 1977 Additional Protocols and the Statute of the International Criminal Court Part 2, Art. 6-8.

<sup>76</sup> The Human Rights Committee, a treaty body established under the ICCPR, in its General Comment No. 6 (1982) on the Right to Life has stated that “the expression “inherent right to life” cannot properly be understood in a restrictive manner, and the protection of this right requires that States adopt positive measures...to reduce infant mortality, increase life expectancy, especially in adopting measures to eliminate malnutrition and epidemics.”

<sup>77</sup> General Comment No. 12 (1999). Right to adequate food. Report of the Committee on Economic, Social and Cultural Rights. UN Doc. E/2000/22. Paragraph 6, p. 102-110.

<sup>78</sup> Freedom from hunger is fundamental. States have an obligation to ensure as a minimum that people do not starve.

<sup>79</sup> General Comment No. 12, *op cit.*, paragraph 6

<sup>80</sup> *ibid*, paragraph 4

<sup>81</sup> The term “dietary needs” refers to those needs which are necessary for physical and mental growth and physical activity; “free from adverse substances” requires certain measures such as food safety, hygiene and environmental protection, “cultural or consumer acceptability” requires the need to take into account values attached to food and food consumption e.g. religious beliefs etc; “availability” implies either a possibility to feed oneself from productive land or the existence of a well-functioning food distribution system.

### 2.3.1 Food Security

All the 189 members states of the UN attending the World Millennium Summit held at the UN headquarters in New York, USA in September 2000 adopted the UN Millennium Declaration.<sup>82</sup> One of the UN Millennium goals is the eradication of extreme poverty and hunger, a goal that is to be achieved by reducing by half the number of people who live on less than a dollar a day and those that suffer hunger by 2015.<sup>83</sup>

More specifically, the World Food Summit held in Rome, Italy in 1996 laid the foundations for diverse paths to achieve food security, at the individual, household, national, regional and international levels.<sup>84</sup> This summit reaffirmed “the right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger.”<sup>85</sup>

Food security exists when “all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.”<sup>86</sup>

The summit noted that while food supplies have increased substantially, constraints on access to food and continuing inadequacy of household and national incomes to purchase food, instability of supply and demand, as well as natural and man-made disasters, have prevented basic food needs from being fulfilled.

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“Accessibility” consists of both economic and physical accessibility with vulnerable groups such as indigenous peoples (who may not have access to their ancestral lands) needing special attention or programmes. See General Comment No. 12, paragraph 8.

<sup>82</sup> See the text at <http://www.un.org/millennium/declaration/ares552e.htm>

<sup>83</sup> See the text at <http://www.un.org/millenniumgoals/index.html>

<sup>84</sup> The representatives of 185 nations and the EC pledged their political will and commitment to achieve food security for all and eradicate hunger in all countries, with an immediate view to reduce the number of undernourished people by half no later than 2015. The summit adopted the “Rome Declaration on World Food Security” which comprises a set of observations about food security and also an Action Plan i.e. “World Food Summit Plan of Action”. The Action Plan is a set of 7 commitments made by countries attending the Summit to ensure food security. The Rome Declaration is **not** a legally binding document. See <http://www.fao.org/worldfoodsummit> and text at

<http://www.fao.org/docrep/003/w3613e/w3613e00.htm>

<sup>85</sup> Rome Declaration on World Food Security, FAO 1996.

<sup>86</sup> Paragraph 1 World Food Summit Plan of Action. It should be noted that “food security” and the “right to food” are conceptually different. The right to food is an individual human right while food security is the condition through which this right can be realized. Food security is not, in itself, the right to food, but rather a state, which if attained, permits the individual to enjoy that right. See Asbjorn Eide and Wenche Barth Eide in G. Alfredsson and A. Eide (eds). *The Universal Declaration of Human Rights*. 1999. Kluwer Law International. Hague. p. 540-541

The summit also noted that the problems of hunger and food insecurity have global dimensions and are likely to persist, and even increase dramatically in some regions, unless urgent, determined and concerted action is taken, given the anticipated increase in the world's population and the stress on natural resources.

According to FAO's latest estimates, "there were 840 million undernourished people in the world in 1998-2000; 799 million in developing countries, 30 million in countries in transition and 11 million in developed market economies. More than half of the undernourished (508 million people; 60 percent of the total) live in Asia and the Pacific, while Sub-Saharan Africa accounts for almost a quarter (196 million people; 23 percent of the total). Sub-Saharan Africa has the highest prevalence of undernourishment, at 33 percent of the population."<sup>87</sup>

In June 2002, FAO organized a follow up to the 1996 summit dubbed "World Food Summit: Five Years Later."<sup>88</sup> This summit acknowledged that the problem of food insecurity had increased particularly in developing countries. It unanimously adopted a declaration reaffirming the call to the international community to reduce the number of undernourished people by half by 2015, a goal made in the 1996 summit.<sup>89</sup>

The 2002 summit reaffirmed the right of everyone to have access to safe and nutritious food and reaffirmed the commitments made in the 1996 Rome Declaration and Plan of Action. It was also acknowledged that success would require political will, resources, technology and fairer trade practices. An urgent need to reinforce efforts of all concerned parties was recognized whereby a call for an international alliance to accelerate action to reduce world hunger was made so as to meet the 1996 food security objectives.

Notably, the 2002 summit noted the importance of the International Treaty on Plant Genetic Resources for Food and Agriculture in achieving food security.

Hunger is a cause and an effect of extreme poverty. Accelerated progress in poverty eradication is critical to improve access to food. At the 1996 and 2002 summits, states made a commitment to implement policies aimed at eradicating poverty and inequality and improving physical and economic access by all, at all times, to sufficient, nutritionally adequate and safe food.

Trade, *inter alia*, was seen as a key element in achieving food security. States made a commitment to strive to ensure that food, agricultural trade and overall

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<sup>87</sup> FAO's "The State of Food and Agriculture, 2002". See text at <http://www.fao.org/DOCREP/MEETING/005/Y7462e/Y7462e00.HTM>.

<sup>88</sup> 179 countries and the EU attended the summit. See <http://www.fao.org/worldfoodsummit/english/index.html>.

<sup>89</sup> See text of Declaration at <http://www.fao.org/DOCREP/MEETING/005/Y7106E/Y7106E09/Y7106E09.htm#TopOfPage>

trade policies are conducive to fostering food security for all through a fair and market-oriented world trade system. In this light, the 2002 Summit noted the outcomes of the 4<sup>th</sup> Ministerial Conference of the WTO held in November 2001 in Doha, Qatar.

It was also noted, *inter alia*, that food should not be used as a tool for political and economic pressure. The importance of international cooperation and solidarity as well as the necessity to refrain from unilateral measures not in accordance with international law and the Charter of the UN that endangers food security, was also recognized.

The fundamental role of farmers, fishers, foresters, indigenous peoples and their communities, and all other people involved in the food sector, and of their organisations was acknowledged in attaining food security, supported by effective research and extension.

It was observed that 70% of the world's poor people live in rural areas and depend almost entirely on agriculture and rural development. Measures were called to increase agricultural productivity, food production and distribution, within the framework of sustainable management of natural resources, with the need to revitalize rural agricultural productivity.

FAO together with CGIAR and other international research institutes were called upon to advance agricultural research and research in new technologies, including biotechnology; such research to be conducted in a safe manner and adapted to local conditions so as to help improve agricultural productivity. A commitment was made to study, share and facilitate the responsible use of biotechnology so as to address development needs.

The 2002 summit also recognized that developing countries were facing challenges in making better use of benefits in research and technology and also in responding to the challenges and opportunities of globalisation in the field of agriculture and food security. In a spirit of cooperation and solidarity, a pledge was made to strengthen FAO's work, within its mandate, to enable developing countries cope with the challenges and reap the benefits of globalisation and also have access to the necessary scientific and technical knowledge related to the new technologies that address poverty and hunger reduction.

### **2.3.2 State Obligations**

Under international law, human rights obligations are primarily held by states. Article 2 of ICESCR is the key provision, according to which a state shall *take*

*steps* “to the maximum of its available resources, with a view to achieving **progressively**” the full realization of the right to food.<sup>90</sup>

States are thus obliged, regardless of the level of economic development, to ensure for everyone under its jurisdiction access to the minimum essential food which is sufficient, nutritionally adequate and safe, to ensure their freedom from hunger.<sup>91</sup> The concept of progressive realization constitutes a recognition that full realization of the right to food will generally not be able to be achieved in a short period of time but it imposes an obligation to move as expeditiously as possible towards the realization of this right.

However, it should be noted that state obligations are intended to supplement personal efforts whenever needed.<sup>92</sup> The individual is expected whenever possible through his or her own efforts and by use of his own resources, to find ways to ensure the satisfaction of his or her own needs, individually or in association with others.<sup>93</sup>

The right to adequate food, like any other human right, imposes three types of state obligations: the obligation to **respect**, to **protect**, and to **fulfil**. In turn, the obligation to **fulfil** incorporates both an obligation to **facilitate** and an obligation to **provide**<sup>94</sup>.

### 2.3.2.1 Obligation to respect

At the primary level, the state must respect existing access to adequate food and must not take measures that result in preventing such access.<sup>95</sup> The state must respect the individual’s freedom and space to be able by their own means to produce their own food or to use their own resources to obtain food on the market.

In this regard, collective or group rights are particularly important. The resources belonging to indigenous peoples such as claims to lands must be respected if such

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<sup>90</sup> See General Comment No. 3 (1990). Nature of State Obligations under Article 2(1). Report of the Committee on Economic, Social and Cultural Rights. UN Doc. E/1991/23. p. 83-87. Also, state obligations for economic, social and cultural rights have been elaborated by a group of experts, convened by the International Commission of Jurists, in Limburg, Netherlands in June 1986. The outcome of the meeting, the so-called Limburg Principles offer a guide on state obligations under ICESCR. See The Limburg Principles on the Implementation of the ICESCR at UN Doc E/CN.4/1987/17

<sup>91</sup> See General Comment No. 12, *op cit.*, paragraph 14

<sup>92</sup> See Asbjorn Eide. The Right to an Adequate Standard of Living Including the Right to Food. A. Eide *et al.* (eds.). **Economic, Social and Cultural Rights**. 2<sup>nd</sup> ed. 2001. Kluwer Law International. Hague. p. 138-140

<sup>93</sup> Furthermore, the realization of individual economic, social and cultural rights will usually take place within the context of a household as the smallest economic unit.

<sup>94</sup> See General Comment No. 12, *op cit.*, p. 23-25

<sup>95</sup> *ibid*, paragraph 15

peoples are to meet their basic needs.<sup>96</sup> Similarly, respect of the rights of peoples to exercise permanent sovereignty over their natural resources may be essential for them to be able, through their own collective efforts, to satisfy their needs. Hence, the state should take steps to recognize and register the land rights of indigenous peoples and land tenure of small-scale farmers whose title is uncertain.

### 2.3.2.2 Obligation to protect

At the secondary level, measures are required by the state to ensure that corporations or individuals do not deprive individuals of their access to adequate food.<sup>97</sup> The state should protect its citizens, against third parties, by the preservation of existing rights or resources.

As a protector, the state should prevent the encroachment on the land of indigenous peoples or other vulnerable groups by more aggressive third parties such as more powerful economic interests like MNCs.<sup>98</sup> The state should also protect its citizens against fraud, against unethical behaviour in trade and contractual relations and, against the marketing and dumping of hazardous or dangerous products that threatens the individual's right to food.

The state should also protect rural farmers from the corporate patenting of genetic material of seeds and the subsequent attempts to prevent farmers to sell or reuse seeds with the same genetic structure (seeds that may have been developed as hybrids and used for long periods of time by these very communities) if they have not been purchased from, or royalties paid to, the corporate holder of the patent.

It has been said that perhaps, the protective function of the state is the most important aspect of state obligations.<sup>99</sup> There is a need for the state to establish a buffer, which makes it possible for those on the borderline of poverty to overcome a crisis and be able to ensure an adequate standard of living through their own means. The obligation to protect would also require the state to ensure that food on the market is safe and healthy and also to ensure food availability and regulation of food prices and subsidies.

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<sup>96</sup> The lack of recognition of the collective land rights of indigenous peoples has been a major cause of their impoverization in many parts of the world. It is becoming increasingly recognized both at the national and international level that their land rights must be respected and protected.

<sup>97</sup> General Comment No. 12, paragraph 15

<sup>98</sup> The state in carrying out this obligation could also by law require the protection of land for groups of people who have a close connexion to the land e.g. indigenous peoples or require by law that land can be owned only by the tiller of the land especially when agriculture is the major basis of income. This may be even more important in the realization of the right to food for these people. Asbjorn Eide, *op cit.*, p. 143

<sup>99</sup> See Asbjorn Eide, Economic, Social and Cultural Rights as Human Rights in, A. Eide *et al.* (eds). *Economic, Social and Cultural Rights*. 2<sup>nd</sup> ed. 2001. Kluwer Law International. Hague. p. 24



### 2.3.2.3 Obligation to fulfil

At the tertiary level, the state has the obligation to fulfil the right to adequate food. This could be by facilitating the same or by direct provision.

Facilitation would mean that the state must pro-actively engage in activities intended to strengthen people's access to and use of resources and means to ensure their livelihood, including food security. It could require the state to take measures to improve methods of production, conservation and distribution of food by making full use of technical and scientific knowledge, by disseminating knowledge of the principles of nutrition and by developing or reforming agrarian systems in such a way as to achieve the most efficient development and utilization of natural resources.<sup>100</sup>

Whenever an individual or group is unable, for reasons beyond their control, to enjoy the right to adequate food by the means at their disposal, the state has an obligation to fulfil that right directly. This could consist of the direct provision of food or resources, which can be used for food e.g. direct food aid or social security when no other possibility exists.

However, in practice, the ability of developing countries to directly provide food aid or other resources for food to their citizens is severely curtailed or is made increasingly difficult or impossible due to a variety of factors such as the lack of domestic financial resources due to the servicing of international debts, economic policies imposed by international financial institutions i.e. the IMF and World Bank e.g. structural adjustment programmes etc.

### 2.3.3 What constitutes a violation of the right to food?

Violations of the minimum core obligation of the right to food occur when a state fails to ensure the satisfaction, at the very least, the minimum essential level required to be free from hunger.<sup>101</sup> This is irrespective of the availability of resources in the country concerned or other factors.

In order to determine which state acts or omissions amount to a violation of the right to food, it is important to distinguish the *inability* from the *unwillingness* of a state party to comply.<sup>102</sup>

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<sup>100</sup> Article 11(2) of ICESCR

<sup>101</sup> See General Comment 12, *op cit.*, paragraph 17. In addition, The Maastricht Guidelines on Violations of Economic, Social and Cultural Rights, though not legally binding, are relevant in determining violations of economic, social and cultural rights at the national, regional and international levels. See Asbjorn Eide and Wenche Barth Eide, *op cit.*, p. 537-539

<sup>102</sup> A state cannot use the "progressive realization" provision in article 2 of ICESCR as a pretext for non-compliance nor can a state use its own differences in social, religious and/or

In addition, discrimination in access to food, as well as to means and entitlements for its procurement, on the grounds of race, colour, sex, language, age, religion, political or other opinion, national or social origin, property, birth or other status with the purpose or effect of nullifying or impairing the equal enjoyment or exercise of the right to food also constitutes a violation.<sup>103</sup>

Violations of the right to food can occur through the direct action of states or other entities insufficiently regulated by states. This can be done either through: the repeal of laws necessary for the continued enjoyment of the right to food; denial of access to food to particular individuals or groups; adoption of laws that are manifestly incompatible with pre-existing legal obligations relating to the right to food; failure to regulate the activities of individuals or groups so as to prevent them from violating the right to food of others; failure of the state to take into account its international legal obligations regarding the right to food when entering into agreements with other states or with international organizations.<sup>104</sup>

It is observed that gross violations of the right to food of individuals and groups in Africa have occurred and/or are threatened with violation through the direct action of African states or other entities such as MNCs insufficiently regulated by African states. In this thesis, I will show that, the adoption of TRIPs, with many African countries being party to it, is to a large extent in direct conflict with the right to food.

## 2.4 A Human rights approach to TRIPs

A human rights approach to TRIPs would require that the private/public balance be struck with the primary purpose of promoting and protecting all human rights. A human rights approach is centrally based on protecting and nurturing human dignity and the common good. The rights of creators and inventors are therefore not absolute but conditional on contributing to the common good and welfare of the society. Therefore, vesting creators, authors and inventors with full and unrestricted monopoly IP rights is not in consonant with a human rights approach.

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cultural background. If a state argues resource constraints that make it impossible to provide access to food for those who are unable by themselves to secure such access, the state has to show that every effort has been made to use all resources at its disposal in an effort to satisfy, as a matter of priority, those minimum obligations. If a state claims that it is unable to carry out its obligations for reasons beyond its control, it has to prove that this is the case and that it unsuccessfully sought to obtain international support to ensure the availability and accessibility of the necessary food. In addition, the choices made by a state would need to be assessed in order to determine a violation e.g. what part of its resources are allocated to the realization of the right to food vis-à-vis other purposes? See General Comment 12, paragraph 17 and Asbjorn Eide, *op cit.*, p. 25-28

<sup>103</sup> General Comment No. 12, paragraph 18

<sup>104</sup> *ibid.*, paragraph 19.

TRIPs although identifying the need to balance rights with obligations does not give guidance as to how that is to be done. However, the comparable provisions under human rights law i.e. rights under article 27 UDHR and article 15 ICESCR (provide some way of achieving the balance) and together with other human rights will be best served, taking into account their indivisible, interdependent and interrelated nature.<sup>105</sup> Thus, whatever balance is struck it should not work to the detriment of other rights guaranteed in the ICESCR.<sup>106</sup> This is also consistent with the Vienna Declaration and Programme of Action adopted by the UN Conference on Human Rights held in Vienna, Austria, which declares, “human rights are the first responsibility of Governments.”<sup>107</sup> In TRIPs, the various links with human rights e.g. the promotion of health, nutrition, environment and development are generally expressed in terms of exceptions to the rule rather than the guiding principles themselves, and are also made subject to the provisions of the agreement. A human rights approach would place the promotion and protection of all human rights at the heart of the aims of IP protection rather than as only exceptions.<sup>108</sup>

A human rights approach would establish a different standard for the evaluation or grant of IP by including human rights safeguards. IP should be consistent with the realization of other human rights, particularly those guaranteed in ICESCR. For instance, such an IP regime would facilitate and promote cultural participation and scientific progress and also do so in a manner that will broadly benefit members of society both on an individual and collective level.

TRIPs only recognizes individual rights by stating in its preamble that IPRs are private rights. By emphasizing IPRs as private rights, TRIPs ignores the creativity and innovation of groups and communities. A human rights approach would recognize that, although not in all cases, an author, artist, inventor or creator could be a group or a community as well as an individual.

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<sup>105</sup> For instance, Article 15 ICESCR should be read together with Article 5 ICESCR, which states, “nothing in the present covenant may be interpreted as implying for any state, group or person any right to engage in any activity or to perform any act aimed at the destruction of any of the rights or freedoms recognized herein, or at their limitation to a greater extent than is provided for in the present covenant.” See also the Report of the Secretary General, *op cit.*, p. 8

<sup>106</sup> It is observed that TRIPs, like any international treaty does take away a degree of autonomy from states. But it has a significant departure, in that it requires member states to provide patent protection to cover all forms of technology. This could have an impact on a states ability to decide on development strategies.

<sup>107</sup> Article I Vienna Declaration and Programme of Action. Document: A/CONF.157/23

<sup>108</sup> See Report of the High Commissioner for Human Rights, *op cit.*, p. 8. Human rights are promoted by commercial aims e.g. the right to development. On the other hand, IPRs are an incentive for creativity and innovation and are human rights. Thus, the balance is struck when IPRs are not overemphasized, as TRIPs does, at the expense of other guaranteed human rights. As observed earlier, *all* human rights are “**universal, indivisible and interdependent and interrelated. The international community must treat human rights globally in a fair and equal manner, on the same footing, and with the same emphasis.**” Human rights are also promoted by commercial aims e.g. the right to development.

Strengthened IPRs under TRIPs particularly patents could impede or block the creativity and innovation of other individuals or groups to the extent that they would not have access to products or processes under IP protection or such access would be under restrictive terms and conditions set by the patent holder. As a result, TRIPs is seen as impeding scientific and cultural progress. A human rights approach would recognize that IP products or processes with an intrinsic value are an expression of human dignity, creativity and cultural values and not just an economic commodity and therefore ultimately the public good would outweigh private rights.

TRIPs also focuses on forms and levels of protection that have developed in industrialized countries. For instance, patents on modern biotechnological inventions are most relevant to inventors in these countries. A human rights approach would recognize the need to protect TK and technology of local communities and indigenous peoples. The emphasis on modern technology or the “formal” sector and not other forms of technology or the “informal” sector suggests an imbalance within TRIPs that would have an impact on the enjoyment of human rights.

# 3 THE TRIPs REGIME

## 3.1 Introduction

IP protection, till recently viewed as a subject of a few specialists, has gained a prominent place on the current international economic agenda.<sup>109</sup> The factors that have contributed to this change and which also explain the new and vigorous attitude of innovating firms and industrialized countries towards the availability and enforcement of IPRs worldwide are: a substantial increase in R&D costs, problems of appropriating the results of innovative activities (particularly new technologies), and the globalisation of the economy.<sup>110</sup> The renewed interest in IP issues has triggered unilateral actions<sup>111</sup> as well as multilateral negotiations.<sup>112</sup>

It is observed that today's technological advances are intertwined with another phenomenon, globalisation, together creating the network age.<sup>113</sup> In the Industrial Age, raw materials and labour were key resources but today intellectual "commodities" like knowledge, scientific discoveries, and creative works are the central asset in this information or knowledge-based economy; IPRs have become one of the most important assets of knowledge-based economies.<sup>114</sup> For instance, it is estimated that today more than a quarter of the exports of the USA, the world's largest producer of IP, rely on IP.<sup>115</sup>

It must be stated that technological advances and globalisation (and its new rules) are mutually reinforcing.<sup>116</sup> The world has witnessed in the later part of the 20<sup>th</sup> century, the integration of world markets driven by trade liberalization and privatisation and the strengthening of IPRs. These changes have set off a race to lay claim to knowledge, changing technology's path. New advances in information and communication technology have also reinforced and accelerated the process.

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<sup>109</sup> Transnational Corporations and Management Division. Department of Economic and Social Development. *Intellectual Property Rights and Foreign Direct Investment*. United Nations. New York. 1993. p.1

<sup>110</sup> *ibid*

<sup>111</sup> For example under the US Trade and Tariffs Act

<sup>112</sup> Either within WIPO or the Uruguay Round of Multilateral Trade Negotiations

<sup>113</sup> The network age is characterised by the global information society and is a major historical shift i.e. from the Industrial Age, which is rapidly unifying world markets. *UNDP Human Development Report 2001*. 2001. Oxford University Press. New York. p. 27

<sup>114</sup> *ibid*

<sup>115</sup> Audrey Chapman, *op cit.*, p. 1. This is in direct contrast with the past: in 1947, IP comprised just under 10% of all US exports, in 1986, 37% and in 1994, it was over 50%. See Vandana Shiva. *Protect or Plunder? Understanding Intellectual Property Rights*. 2001. Zed Books. London and New York. p. 19

<sup>116</sup> *UNDP Human Development Report 2001*. p. 30-31

Globalisation propels technological progress with the competition and incentives of the global marketplace and the world's financial and scientific resources while on the other hand, the global marketplace is technology based with technology being a major factor in market competition.<sup>117</sup> This new age is giving rise to global networks in many fields, an important new force in shaping the path and spread of technology. Hence, technology may be globalising communities, but globalisation is also shaping the path of new technologies. It is observed that the high-tech manufacturing sector has been the fastest-growing area of world trade and accounts for one-fifth of the total.<sup>118</sup>

### 3.2 Origins of TRIPs

In the eighth Round of the Multilateral Trade Negotiations under GATT, which began in 1986 at Punta del Este, Uruguay, developed countries pressed and succeeded in incorporating IPRs, *inter alia*, in the package of new rules and procedures to conduct international trade.<sup>119</sup>

The conclusion of these negotiations introduced the most comprehensive multilateral agreement that sets out minimum worldwide standards for the protection and enforcement of IPRs i.e. TRIPs. TRIPs is one of the agreements annexed to the Final Act embodying the results of the Uruguay Round of Multilateral Trade Negotiations under GATT; it is contained in Annex 1C of the Agreement establishing the WTO. It was adopted in April 1994 and came into force on 1 January 1995.

The introduction of IP issues in the agenda of the Uruguay Round of Multilateral Trade Negotiations was principally an initiative of the USA. The USA first raised IP protection under GATT to clamp down on trade in counterfeit goods and parallel imports.<sup>120</sup> The need to discuss IPRs in these negotiations arose so as to reduce distortions in international trade and the increase in trade in counterfeit goods.<sup>121</sup>

This issue first emerged in the 1970's and early 1980's when the world went into a severe recession and the USA experienced a dramatic shift in its balance of

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<sup>117</sup> *ibid*

<sup>118</sup> *UNDP Human Development Report 2001*, p. 31

<sup>119</sup> GATT was created in 1947 and provided the basic rules of the multilateral trading system from 1.1.48 until WTO Agreement entered into force on 1.1.95. Its contracting parties met in sessions known as Rounds. The main aim of the Rounds was to reduce tariffs and other barriers or obstacles to trade so as to enable free international trade. The Uruguay Round included new topics on the agenda for negotiation: such as *inter alia*, TRIPs.

<sup>120</sup> Rohini Acharya. *Intellectual Property, Biotechnology and Trade: The Impact of the Uruguay Round on Biodiversity*. African Centre for Technology Studies (ACTS). ACTS Press. Biopolicy International Series No. 4. Nairobi, Kenya. p. 7

<sup>121</sup> *ibid*, p. 7-8

trade.<sup>122</sup> A worsening balance of trade led the USA to examine structural changes to boost its competitiveness in world trade and the examination revealed that the USA was losing its technological lead over other industrialized countries, notably Japan and also newly industrializing countries (NICs), notably east Asian countries, mostly due to liberal technology transfer and generally lax import policies.<sup>123</sup>

At this time, US industries mainly in the computer software and microelectronics, entertainment, pharmaceuticals, chemicals, and agro-chemical sectors claimed they were suffering heavy losses from the absence of adequate protection of their IPRs abroad.<sup>124</sup> They were concerned about the loss of commercial opportunities abroad – brought about by the failure of foreign countries to recognize their IPRs based on US IP law which was different from or non-existent in those countries – and thus a loss to the US economy.<sup>125</sup> In 1987, a survey by the US International Trade Commission (ITC) confirmed, on the basis of public hearings held and questionnaires administered, that firms in the US were losing some US\$ 43-61 billion annually, owing to lack of IP protection abroad.<sup>126</sup>

The non-recognition of IPRs granted in the USA meant that NICs would be in a position to imitate new technologies.<sup>127</sup> The result was the production and export of “counterfeit” goods from NICs, which are cheaper than the IP protected counterparts from the industrialized countries.<sup>128</sup> The NICs while closing their markets to exports from the US would gain access to the US market as a result of the liberal trade practices in the US.<sup>129</sup> The increasing competitiveness of the NICs threatened the supremacy of US business as a result of increasing imitation

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<sup>122</sup> *ibid.* It is estimated that in the 1980's, the trade deficit of the US was \$150 billion. See Vandana Shiva, *op cit.*, p. 19

<sup>123</sup> *ibid*

<sup>124</sup> Adede, A. O. *The Political Economy of the TRIPS Agreement: Origins and History of Negotiations*. 2001. African Centre for Technology Studies (ACTS). Biopolicy International Series No. 24. Nairobi, Kenya. p. 2

<sup>125</sup> Vandana Shiva, *op cit.*, p. 19 and Rohini Acharya, *op cit.*, p. 8

<sup>126</sup> Adede, *op cit.*, p. 2 and Vandana Shiva, *op cit.*, p. 19

<sup>127</sup> In the 1980s, counterfeiting (and copyrights piracy) increased in the developing countries because of the desire of these countries to catch up in the industrialization process and also to have access to printed educational material, which they needed. The situation was accelerated by various factors, namely: the advent of copy-prone electronic-based technologies and products; the growing competitiveness of NICs in the manufacturing sector; the increasing globalisation of the marketplace; and the growing perception of IP by the enterprises of the developed countries as a strategic asset. There was thus a tension between the quest for tighter protection of IPRs for the promotion of creativity being pursued by the industrialized owners of the property and the policy of maximization of social welfare arising from an impeded diffusion of that creativity, being pursued by developing countries, through more relaxed IPRs protection. See Adede, *op cit.*, p. 4

<sup>128</sup> Rohini Acharya, *op cit.*, p. 8

<sup>129</sup> *ibid*

of IP protected goods.<sup>130</sup> Thus, to reverse this trend, a need to counter such unfair trade practices of NICs was identified.<sup>131</sup>

At the multilateral level, the enforcement of IP protection under WIPO was very weak or non-existent. During the Uruguay Multilateral Trade Negotiations, the USA pointed out the failure of conferences in 1980-1984 to revise the Paris Convention to address these issues, and therefore preferred the GATT forum for negotiating effective enforcement of IPRs at the international level.<sup>132</sup> The USA stated that the GATT forum provided for effective enforcement of agreements and for dispute settlement mechanisms, which were practically lacking in the WIPO administered conventions. The USA continued with its efforts to introduce, in the GATT forum the protection of IPRs to address the problem of counterfeit products and later of copyrights piracy, which had been increasing in the developing countries in the 1980s.<sup>133</sup>

At the Uruguay Negotiations, the debate on inclusion of IPRs under GATT pitted developed and developing countries against each other mainly due to different priorities faced by these two groups of countries.<sup>134</sup> Developed countries favoured the IPRs debate under GATT so as to clamp down on trade in counterfeit goods which was undermining their own industrial production while developing countries were concerned about the implications of this for technology transfer and technological development of their countries.<sup>135</sup>

Developing countries saw the concern being raised by the developed countries, particularly the USA as being expressed on behalf of US industries. They saw all efforts towards the establishment of an effective regime for the protection of IPRs as aimed at furthering the interests of western-based industries and not those of

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<sup>130</sup> *ibid* and also Vandana Shiva, *op cit.*, p. 19

<sup>131</sup> Rohini Acharya, *op cit.*, p. 9. The US began to use its domestic law i.e. US **Trade Act - section 301** unilaterally to enforce trade sanctions against states that deny adequate and effective protection of IPRs. Under this law, the US Trade Representative is authorized to identify foreign countries that deny adequate and effective protection of IPRs. "A priority watch list" of specific countries whose action exhibited this unfair trade practice, mostly developing countries, was made for further investigation.

<sup>132</sup> See Adede, *op cit.*, p. 3 and Rohini Acharya, *op cit.*, p. 10

<sup>133</sup> It is observed that US business was the main driving force behind the insistence by the US government to include IPRs in the GATT forum, notably through the Intellectual Property Committee (IPC) of USA, and also industry associations of Japan (Keidanren) and Europe (UNICE). IPC is a coalition of 13 major US corporations i.e. Bristol Myers, Dupont, General Electric, General Motors, Hewlett Packard, IBM, Johnson and Johnson, Merck, Monsanto, Pfizer, Rockwell and Warner. See Vandana Shiva, *op cit.*, p. 94-98.

<sup>134</sup> Rohini Acharya, *op cit.*, p. 10

<sup>135</sup> *ibid*. Developing countries saw the establishment of an international IPRs system under GATT as likely to be detrimental to their economic growth and development. Developed countries are largely the ones who develop new technologies and therefore, developing countries saw the introduction of IPRs under a trade forum such as GATT, as a barrier for them to gain access to these new technologies or be able to develop imitations of their own. See Rohini Acharya, *op cit.*, p. 10



developing countries. Indeed, the US pharmaceutical industry, was already leading in the effort to link the protection of IPRs to trade.<sup>136</sup>

Developing countries thus resisted the idea of making the issue of IPRs protection a subject for discussion under the Multilateral Trade Negotiations because of such strong industry influence and specific agenda. They considered IP an issue exclusively within the competence of WIPO. The EC also did not, at least at the beginning, endorse the link between IP to the negotiations under the GATT forum. However, later together with the USA, they attempted to introduce an Anti-Counterfeit Code (ACC) at the Tokyo Round of Negotiations but the code was never adopted.<sup>137</sup>

The USA did succeed in including the protection of IPRs in the agenda of the Multilateral Trade Negotiations, even beyond the question of counterfeiting and piracy, to include substantive minimum IP protection standards to be adopted by all negotiating countries.<sup>138</sup> However, the inclusion of IPRs in the negotiations did not mean that developing countries had abandoned their reluctance to IPRs issues being discussed under the GATT forum.<sup>139</sup>

### 3.2.1 Towards a clarification on TRIPs

One of the arguments advanced towards the inclusion of IPRs within the GATT forum, and not WIPO was that: “Under the GATT forum developing countries may have the opportunity to use a bargaining power and secure trade-offs in negotiating favourable terms on issues such as textiles and clothing, agriculture, tropical products and safeguards, as part of the package that included IPRs. The consideration of such trade issues clearly went beyond the limited discussion on whether or not to establish high standards for the protection of IPRs, as would be in the case of negotiations within the framework of WIPO.”<sup>140</sup> Thus, the Uruguay

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<sup>136</sup> In 1984, Edmund T. Pratt, Chairman of the Pfizer Corporation initiated the process by saying: “We must also work to get more broadly based economic organizations, such as the OECD and the GATT, to develop intellectual property rules, because intellectual property protection is essential for the continued development of international trade and investment.” See Adede, *op cit.*, p. 3

<sup>137</sup> *ibid*, p. 4

<sup>138</sup> Rohini Acharya, *op cit.*, p. 10-11 and Adede, *op cit.*, p. 4. It is observed that TRIPs “featured almost as a footnote on a crowded agenda and it was uncertain whether that contentious item would survive the end of the Round.” But the Trade Ministers at the negotiations, borrowing from the language used in another item on the proposed agenda (Trade-related Economic Measures) and coined the expression “Trade-related Aspects of Intellectual Property Rights” and included it on the agenda of the Uruguay Round of Multilateral Trade Negotiations.

<sup>139</sup> Adede, *op cit.*, p. 4 and Rohini Acharya, *op cit.*, p. 10. It should be noted that developing countries were willing to examine the issue of trade in counterfeit goods and negotiate a multilateral framework to regulate it. Some developing countries had laws to control the production of counterfeit goods, what they were against is to discuss IPRs under GATT instead of WIPO.

<sup>140</sup> Adede, *op cit.*, p. 5

Round of Multilateral Negotiations was seen as providing a unique opportunity for developing countries to achieve tangible gains by expanding the scope of issues for discussion.

This argument on possible useful trade-offs in the results of the negotiations encouraged developing countries to assess more closely the positive and negative elements associated with their continued rejection of the inclusion of IPRs in the Uruguay Round. A further consideration of the possible package-deal helped some developing countries warm up to the idea of inclusion of TRIPs on the Uruguay Round agenda. But they still adopted a restrictive approach because firstly, they wanted WIPO to remain as the only organisation with the competence over substantive standard setting for IPRs; secondly, they wanted to limit the negotiations under the mandate to counterfeit and strictly trade related issues; thirdly, they stressed the importance of transfer of technology and development policies as a *quid pro quo* for IP protection.<sup>141</sup>

With intensive lobbying and discussions, the actual agreement to take TRIPs up for discussion began in 1989 by the Trade Negotiating Committee (TNC).<sup>142</sup> It thus took three years between the decision to include TRIPs in the Uruguay Round in 1986 and the actual agreement to take it up for discussion in 1989.

The discussion on TRIPs began with a number of legal texts prepared, first in March 1990 by members of the EC.<sup>143</sup> The submission of a complete text by the EC was an important phase of the negotiations, bearing in mind the earlier doubts. The USA, Switzerland and Japan, also submitted drafts all of which borrowed substantially from the EC text.<sup>144</sup>

Later, in addition to the above drafts, a group of twelve developing countries agreed to participate in the actual negotiations on TRIPs by producing their own detailed proposal.<sup>145</sup> By presenting their proposal, the developing countries wanted to signal first, their determination to emphasize the part dealing with trade in counterfeit goods while minimizing the part relating to substantive standards on IPRs; second, they wanted to highlight the importance of the public policy objectives underlying national IPR systems, the necessity of recognizing those objectives at the international level and the need to specify some basic principles

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<sup>141</sup> *ibid*

<sup>142</sup> In 1988, during the Ministerial Meeting held in Montreal, Canada the trade ministers failed to agree on the commencement of negotiations of, *inter alia*, TRIPs. They then decided that the TNC should meet in Geneva in April 1999 to continue discussions and agree upon the remaining areas and review the entire package. The pressure was to be applied upon the so-called “big” developing countries to abandon their resistance. See *ibid*, p. 6-7.

<sup>143</sup> Adede, *op cit.*, p. 8.

<sup>144</sup> *ibid*

<sup>145</sup> *ibid*. These countries were: Argentina, Brazil, Chile, China, Colombia, Cuba, Egypt, India, Nigeria, Peru, Tanzania and Uruguay and later joined by Pakistan and Zimbabwe.

e.g. national treatment, which could subsequently elucidate the application of any standards established in TRIPs; third, they insisted on the need to respect and safeguard national legal systems and traditions on IPRs in view of the diverse needs and levels of development of states participating in the IPR negotiations.<sup>146</sup>

Successive revisions of the composite text occurred as a result of further negotiations.<sup>147</sup> The Ministerial Meeting held in Brussels in December 1990, produced tangible results leading to the tabling of the Draft Final Act in December 1991.<sup>148</sup> This Final Act contained close to the complete TRIPs agreement.

### **3.2.2 Africa's participation towards TRIPs**

As noted above, developing countries generally considered the management and control of IPRs as a key element in development policy. They saw strengthened IPRs under GATT as an obstacle to the transfer of technology, which they needed for their industrialization process as the engine for their development. As latecomers to the industrialization process, developing countries in order to catch up showed an unwillingness to strengthen the protection of IPRs because their technological capacities were still weak; their budding enterprises could not take full advantage of the incentive provided by stronger IP protection. Hence, the benefits gained from such protection would be outweighed by the disadvantages of not being able to access or acquire and adapt foreign technology without reference to the inventor or creator.

In contrast, developed countries saw the existence of an effective IPRs protection system as the best tool against imitation and piracy which had resulted in their industries loss of royalties, but also as a necessary prerequisite to establish a competitive edge in foreign markets as well as an engine for driving investment in R&D and technology transfer.

These opposing views should be kept in mind as we look at three major factors that influenced Africa (and other developing countries) undertake negotiations towards TRIPs.

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<sup>146</sup> Adede, *op cit.*, p. 8-9

<sup>147</sup> It must be said that the negotiating system under GATT (and now WTO) has been criticized by developing countries in that it tends to place on the negotiating table, proposals and agreements that have been largely negotiated by the major players such as USA, EU and Japan for the endorsement by the rest of the member countries. As a result, all other countries are excluded from the actual negotiations on the issues. WTO uses the "green rooms" negotiating system, which has been contrasted with the "Vienna setting" that has reportedly been used more acceptably under other forums. See Adede, *op cit.*, p. 9-10

<sup>148</sup> Adede, *op cit.*, p. 9

Firstly, as noted earlier, was the expectation of gains in other trade areas as trade-offs to TRIPs.<sup>149</sup> Once the package was presented to include possibilities for improved market access and gains in agriculture, textile and clothing, tropical products, and safeguards as trade-offs (to which they had a competitive advantage over the developed countries) the success of the Uruguay Round was more or less assured. It does appear that compromises were reached to achieve progress towards a desired goal.

Secondly, the African negotiators recognized the benefits of a multilateral system for the resolution of disputes in IP based on credible procedures and mechanisms that would have reasonable prospects and hence sought protection against unilateralism.<sup>150</sup> A multilateral framework was seen as a lesser evil than a bilateral one because, firstly, it discouraged the unilateral use of trade sanctions by developed states for extracting concessions on IP areas; secondly, it ensured that trade conflicts relating to IP issues would be handled objectively and effectively; thirdly, due to political and economic reasons, such as the fear that a failure of negotiations could lead to unilateralism on the part of the EU and Japan.<sup>151</sup>

Thirdly, the African negotiators saw the possibilities for benefits from improved market access in general and from market-based policies for attracting foreign direct investments (FDI).<sup>152</sup> It was also viewed that TRIPs should also not only reflect the interests of IPRs owners but also users and of net importing countries and thus it was important to agree on conditions on access of technologies from their IPR owners.<sup>153</sup> Thus, issues such as compulsory licensing, parallel importing, exhaustion, control of anti-competitive practices, transitional arrangements and test data protection were seen important so as to achieve a balanced protection of interests. All of this was set to establish market-based economic policies so as to attract FDI.

### 3.2.3 TRIPs as adopted

For notable reasons, TRIPs has revolutionised the IP protection system.

First, it imposes a minimum IPRs standard for all WTO members.<sup>154</sup> This standard is derived from the laws of industrialized countries, applying the form and level of protection of the industrialized world to all WTO members. Although TRIPs has attempted to harmonise national IP standards, these standards are far

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<sup>149</sup> Adede, *op cit.*, p. 11-12

<sup>150</sup> For example, under the US Trade Act – Section 301 procedure. Adede, *op cit.*, p. 12-13

<sup>151</sup> *ibid*

<sup>152</sup> Adede, *op cit.*, p. 13-14. It is observed that the relationship between IPRs and FDI is widely disputed. For a comprehensive analysis on the subject, see *Intellectual Property Rights and Foreign Direct Investment* at Note 103, *Supra*.

<sup>153</sup> Adede, *op cit.*, p. 14

<sup>154</sup> See Article 1 of TRIPs

too high for many developing countries, including those in Africa.<sup>155</sup> WTO members *must* ensure that their laws meet the minimum standards laid down but they can introduce stringer laws if they so wish.<sup>156</sup> However, not all members comply with the provisions of the agreement at the same time.<sup>157</sup>

Second, TRIPs provides for an effective IP protection enforcement mechanism through the integrated dispute settlement system.<sup>158</sup> A serious threat in this system is that if a country does not fulfil its IPRs obligations under it, trade sanctions can be imposed against it. TRIPs also includes for the first time in any area of international law “rules on domestic enforcement procedures and remedies.”<sup>159</sup>

Third, TRIPs has expanded the scope of IP by extending the scope of protectable subject matter.<sup>160</sup> Also, TRIPs allows for the first time, the patenting of life forms and processes e.g. microorganisms, microbiological processes and plant varieties under article 27(3)(b).

Fourthly, TRIPs has also strengthened the level of IP protection and thereby strengthened the legal position of IPRs holders. The strengthening of IPRs under TRIPs raises the price of technology transfer or access to new technologies and further increases the risk of blocking developing countries, including Africa out of the technology sector. This is because as a property right, IPRs holders can dictate the terms on which third parties can access their technologies e.g. through

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<sup>155</sup> The IP standard laid down in TRIPs is very high than existing laws in most developing countries, including those in Africa. Although developing and least-developed countries have flexible schedules to implement TRIPs at the national level, the IP standard TRIPs imposes often conflicts with these countries national interests and needs.

<sup>156</sup> See Article 1 of TRIPs

<sup>157</sup> See Article 65 of TRIPs. TRIPs came into force on 1 January 1995. Developed countries had upto 1 January 1996, developing countries upto 1 January 2000, economies-in-transition (from centrally-planned to market economies) had upto 1 January 2000 and least-developed countries have upto 1 January 2006 to implement TRIPs. New WTO members do not benefit from the transitional arrangements and thus have to comply with TRIPs immediately upon joining WTO.

<sup>158</sup> See Part V of TRIPs and Article 68 of TRIPs. The Council for TRIPs is required to monitor members' compliance with their obligations under TRIPs. IPRs disputes are subject to WTO's dispute settlement procedures. In the case of a dispute, a panel of specially appointed trade experts hears the dispute. The decision of the panel may be subject to appeal to the WTO's Appellate Body. If a party to a dispute fails to abide by such a decision, the other party can impose trade sanctions on the member in breach upon authorization by the Dispute Settlement Body. See Audrey Chapman, *op cit.*, p. 6 and Report of the United Nations High Commissioner for Human Rights. ***The Impact of the Agreement on Trade-Related Aspects of Intellectual Property Rights on Human Rights.*** Sub-Commission on the Promotion and Protection of Human Rights. 52<sup>nd</sup> session. E/CN.4/Sub.2/2001/13. p. 3-4

<sup>159</sup> Tansey, Geoff. ***Trade, Intellectual Property, Food and Biodiversity: Key issues and options for the 1999 review of Article 27.3(b) of the TRIPS Agreement.*** A Discussion Paper. 1999. Quaker Peace & Service. London. p. 6

<sup>160</sup> Article 27(1) of TRIPs provides, *inter alia*, that patents shall be available for any inventions, whether products or processes, in all fields of technology.

the payment of royalties, and therefore the highest bidder gets the license to the technology. This is particularly true with respect to modern technologies that have been developed by MNCs where heavy investments have been put into their R&D and therefore by obtaining IPRs, such MNCs would like to get a return for their investment plus a profit.

### 3.3 TRIPs and Food & Agriculture

It is evident that TRIPs as adopted is as a result of intense negotiations and comprise between different sets of interests. TRIPs covers, copyright and related rights; trademarks; geographical indications; industrial designs; patents; plant variety protection (PVP); layout-designs (topographies) of integrated circuits; protection of undisclosed information/trade secrets and control of anti-competitive practices in contractual licences.<sup>161</sup> Of these, patents, PVP and trade secrets are particularly relevant to food and agriculture and are studied herein below.

#### 3.3.1 Patents

Section 5 of Part II of TRIPs on patents was the most politically and economically controversial in the entire TRIPs negotiations.<sup>162</sup>

It is observed that articles 27(2) and 27(3)(b) of TRIPs draw from article 52 and 53 of the 1973 European Patent Convention (EPC).<sup>163</sup> The latter entrenches a morality criterion as part of the restrictions on patentability and the former stipulates that European patents shall not be granted in respect of plant or animal

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<sup>161</sup> See Part II of TRIPs that deals with “Standards concerning the Availability, Scope and Use of IPRs”.

<sup>162</sup> During the negotiations, the USA and Japan pushed for patent law provisions that recognized very few restrictions on the scope of patentability while in contradistinction, the EU had another point of view, which prevailed at the end. In this respect, the USA was following a long tradition of patent expansionism in biotechnology that had been part of its domestic law since 19<sup>th</sup> century. For example, in 1873 the US Patent and Trademark Office (USPTO) granted a patent to Louis Pasteur for yeast. IN 1930, the US passed the Plant Patent Act that provides for the patenting of asexually propagated varieties. In 1970, the US passed the Plant Variety Protection Act that provides for the protection of sexually propagated plants. In *ex parte Hibberd 227 USPQ 443 (1985)*, the PTO Boards of Appeal reversed a decision of the USPTO that had precluded patent protection for plant-related inventions that were covered, at least in theory, by the Plant Patent Act. Therefore, under US IP law plants are patentable. In the landmark case of **Diamond, Commissioner of Patents and Trademarks vs. Chakrabarty, 447 US 303 (1980)**, the US Supreme Court was of the view that it was the task of the courts to continue to adapt and expand the patent system unless otherwise directed by US Congress and hence declared that inventions are patentable in principle even if comprised of living matter. See paper presented by Peter Drahos on *The TRIPs Review* found at [www.acts.or.ke/drahos.doc](http://www.acts.or.ke/drahos.doc) and Li Westerlund. *Biotech Patents: Equivalency and Exclusions under European and US Patent Law*. 2002. Kluwer Law International. Hague. p. 1-2

<sup>163</sup> The EPC is founded on the provisions of the 1963 Strasbourg Convention and also UPOV. See Li Westerlund, *op cit.*, p. 4-5

varieties or essentially biological processes for the production of plants or animals (with the exception of microbiological processes and the products thereof).<sup>164</sup>

The key element is the *mandatory* requirement for WTO members to make patents available for any inventions, whether products or processes, in all fields of technology without discrimination.<sup>165</sup> It is said that one reason for the greater interest in patents is the rapid development of biotechnology, especially in the developed countries, and its application in agriculture.<sup>166</sup>

However, WTO members are allowed certain exceptions to the basic rule on patentability:

Article 27(2) of TRIPs provides that members *may*, exclude from patentability inventions, when they want to prevent the commercial exploitation of the invention to protect *ordre public*<sup>167</sup> or morality; including to protect human, animal or plant life or health or to avoid serious prejudice to the environment. (emphasis mine)

Article 27(3)(a) of TRIPs provides that members *may* exclude from patentability diagnostic, therapeutic and surgical methods for the treatment of humans or animals (emphasis mine).

Article 30 of TRIPs provides members with limited exceptions to the exclusive rights conferred by a patent, *provided that such exceptions do not unreasonably conflict with a normal exploitation of the patent and do not*

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<sup>164</sup> Although the EPC provisions indicate restrictions to patentability, European Patent Office (EPO) case law has been progressively narrowing the restrictions e.g. the patentability of the Harvard “oncomouse” was initially rejected by the EPO on morality grounds. The EPO Technical Board later reversed this decision. See paper presented by Peter Drahos on *The TRIPs Review*, supra. Further, in light of recent developments in biotechnology the protection of biotechnological inventions in the EU has expanded to now include biological material and processes, isolated from their natural environment or produced by means of a technical process as the subject of an invention even if it previously occurred in nature, by the coming into force of the EC Directive on the Legal Protection of Biotechnological Inventions. See the EC Directive 98/44/EC of the European Parliament and Council of the EU of 6.7.98 at <http://www.wipo.int/WIPO/GRTKF/IC/1/8>

<sup>165</sup> Article 27 (1) of TRIPs. As a political matter in the negotiations, this was especially meant to cover pharmaceuticals, which had been excluded from product patent coverage in many developing countries. See Barton, J. *Biotechnology and Trips: Issues and Options for Developing Countries. 2000*. Graduate Institute of International Studies. PSIO Occasional Paper. WTO Series Number 03. Geneva. p. 12

<sup>166</sup> Biotechnology is not a new science. For example, methods of making bread, beer, wine or cheese using yeast have been known and used since time immemorial. Article 2 of the CBD defines “biotechnology” as “any technological application that uses biological systems, living organisms, or derivative thereof, to make or modify products or processes for specific use.”

<sup>167</sup> *Ordre public* concerns the fundamentals from which one cannot derogate without endangering the institutions of a given society. Morality is a *different* concept. See Geoff Tansey, *op cit.*, p. 25

*unreasonably prejudice the legitimate interests of the patent owner, taking account of the legitimate interests of third parties.* (emphasis mine)

Article 27(3)(b) of TRIPs is of special interest. It states:

“Members *may* also exclude from patentability:

(b) plants and animals *other than micro-organisms*, and essentially biological processes<sup>168</sup> 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*. The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement.”(emphasis mine)

The key terms used in article 27(3)(b) are not defined in TRIPs i.e. plants, animals, microorganisms, essentially biological processes, non-biological, microbiological, plant varieties<sup>169</sup>, effective and *sui generis*<sup>170</sup> system. It is noted that these words are defined differently in different national and international laws. This would mean that there is considerable scope for individual national interpretations to be put onto them and protracted legal wrangles are likely to determine which interpretation prevails.<sup>171</sup>

It is stated that in order to comply with article 27(3)(b) of TRIPs, four options are available:

1. To allow patents on everything, and therefore not take up the option to exclude plants, animals and essentially biological processes.
2. To exclude plants, animals and essentially biological processes from patenting but not to exclude plant varieties from patentability.
3. To exclude plants, animals and essentially biological processes from patenting and to introduce a *sui generis* system for the protection of plant varieties.

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<sup>168</sup> In plant biotechnology, these can include multi-step processes consisting of the genetic modification of plant cells, the subsequent regeneration of plants and the propagation of these plants. The EU takes a more restrictive approach “any process which, taken as a whole, exist in nature or is not more than a natural breeding process.” See Geoff Tansey, *op cit.*, p. 25

<sup>169</sup> The question arises how a “plant variety” can be distinguished from a “plant” and whether a transgenic/genetic engineered plant is a plant or a plant variety.

<sup>170</sup> *Sui generis* is a Latin term meaning “one of its kind.” In this context, it could mean a system of rights providing an alternative unique form of IP protection designed to fit a country’s particular context and needs. It can have a wider meaning to cover IP not covered under TRIPs or a system protecting community, farmers’ and indigenous peoples’ rights. See Geoff Tansey, *op cit.*, p. 25

<sup>171</sup> Geoff Tansey, *op cit.*, p. 7. It has also been said that this provision provides sufficient flexibility for countries to design a system that best fits their circumstances and meet their goals and objectives. See International Plant Genetic Resources Institute. *Key Questions for Decision-Makers: Protection of Plant Varieties under the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights*. October 1999 at <http://www.ipgri.org>.



4. To exclude plants, animals and essentially biological processes from patenting but not plant varieties and to provide, in addition, for a *sui generis* system (“combination thereof”).<sup>172</sup>

The bottom line is that plant varieties, at the very least, **have** to be protected. Options 1 and 2 would not require members to establish a *sui generis* system to protect plant varieties.

Our analysis will be limited to patents and PBRs on plant varieties because of the requirement to provide some form of IPRs for plant varieties if WTO members exempt plants and animals non-biological processes for their production from patentability. It should be noted however, that there is biotech animal research going on with many patents being taken out in this area e.g. Harvard “onco mouse” or “Dolly” the sheep, which could have implications in animal research and breeding.<sup>173</sup>

To be eligible for a patent an invention must be new, involve an inventive step (non-obvious) and be capable of industrial application (useful).<sup>174</sup>

Traditionally, patent law has distinguished between “inventions”, which are patentable, and “discoveries”, which are not. Life forms as products of nature, laws of nature or scientific principles are not patentable as they are discoveries. Before TRIPs, most countries in their domestic laws had excluded the patenting of life forms, such as plants or plant varieties because as products of nature they are not new but actually discoveries. Article 27(3)(b) of TRIPs has changed all this as the distinction between “discovery” and “invention” has been blurred.

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<sup>172</sup> Geoff Tansey, *op cit.*, p. 7-8

<sup>173</sup> In 1984 research scientists at Harvard University, USA inserted a human cancer gene in a mouse and obtained a US patent on the genetically engineered mouse “onco mouse” which is said to be susceptible to cancers. The patent is for the biotech process used to “create” the “onco mouse” or when used in other mammals and the mouse itself. Also, in 1995 research scientists at the Roslin Institute in Edinburgh, Scotland “created” “Dolly” a sheep, by a genetically engineered process known as cloning.

<sup>174</sup> Article 27(1) of TRIPs. The concept of “invention” as used in patent law means a technical solution to a problem. Novelty is “the state of the art comprising everything made available anywhere to the public by means of written or oral description, by use, or in any other way, before the date of filing of the patent application”, Inventive step is “not obvious, having regard to the state of the art, to a person skilled in the art.” See Geoff Tansey, *op cit.*, p. 25

### 3.3.1.1 Modern agricultural biotechnology<sup>175</sup>

Agricultural biotechnology has been known and used for centuries. Over the years, the improvements made in crops e.g. productivity, pest and disease resistance have been achieved either through conventional plant breeding or local/farmers selection using their traditional agricultural knowledge geared towards maintaining agro-biodiversity in their ecosystems. In the 1960's the "green revolution" increased agricultural productivity in Asia and Latin America through the introduction of high yielding rice and maize varieties (hybrids).

The work of Louis Pasteur on yeast fermentation and Gregor Mendel on genetics, in the late 19<sup>th</sup> to early 20<sup>th</sup> century ushered in the current era of modern biotechnology. Modern biotechnology is characterised by a range of cutting-edge techniques or applications that use living organisms or substances from those organisms to make or modify a product, to change the characteristics of plants or animals or to develop microorganisms for specific purposes. It includes cell fusion, tissue culture, in-vitro fertilization, selection markers, gene transfer, cloning, and promoter technology.<sup>176</sup> It also includes genetic engineering - the process of recombining/altering DNA.<sup>177</sup> Genetic engineering involves the use of molecular techniques both to identify and move genes from one cell to another (even across species) - as opposed to reproductive/sexual means - to produce genetically modified organisms (GMOs).

There have been substantial improvements in molecular science and reproductive biology ushering in a new understanding of genetics. Modern science is now unravelling the structure of genomes and discovering the characteristics and functions of individual genes. Modern agricultural biotechnology is characterised by the ability to manipulate genes and has brought to the fore the importance of genetic resources. These new technologies have made a link between genes and new plant varieties while sparking many debates about the limits of science and the ethics of tampering with the essence of life.

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<sup>175</sup> Traditionally, biology was considered outside the scope of technology, as man could not control it in a predictable way. Technology, strictly speaking, involves human control. Thus, processes that may be entirely controlled by man in a scientific way, or products which are made by man according to scientific principles, involve the use of technology. Recently, as a result of scientific discoveries it has become possible to develop biological processes, which manipulate living organisms. These processes may be entirely controlled by man e.g. genetic engineering - the artificial modification of genes which changes the material determining the hereditary characteristics of living organisms (DNA) and thus it is possible to create modified organisms that have certain desirable features. See, *New Developments in Intellectual Property in Background Reading Material on Intellectual Property*. 1988. WIPO Publication. p. 375-376

<sup>176</sup> *ibid*, p. 2-8

<sup>177</sup> DNA is the molecule in chromosomes that is the repository of genetic information in all living organisms, with the exception of a small number of viruses, in which the hereditary material is ribonucleic acid, RNA. As its coded information determines the structure and function of an organism, directly or indirectly the DNA controls the production and reproduction of the cell, organ and plant or animal. See Li Westerlund, *op cit.*, p. 7-8

Life forms or products of nature are now patentable subject matter, when some human intervention has been necessary to make them available or where man has given that life form something it did not have naturally.<sup>178</sup> Thus, if it is possible to control a biotechnological product or process and to describe it in a way that experts in the field can carry it out on the basis of the description made, then a biotechnological invention has been made and can be the subject of a patent.

The advent of modern biotechnology, particularly genetic engineering is a major driving force in the expansion of protectable subject matter, to now include life forms. Big and powerful corporate interests are behind this expansion of protectable subject matter to cover life forms.<sup>179</sup>

It is observed that plant biotechnology patents represent about 1% of the total number of patents granted annually worldwide.<sup>180</sup> In 1990-1995, the USA, EU and Japan (combined) accounted for 93% of biotechnology patents while the “rest of the world” where all developing countries fall only accounted for less than 7% of the total.<sup>181</sup> Patents relating to agriculture represented only 11% of the total for 1992-1995 while those specifically covering modified plants represented 6% of the total.<sup>182</sup> At least five US MNCs accounted for 44% of the total plant patents during this period.<sup>183</sup>

In plants, patents may apply to various biological materials and processes, including:

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<sup>178</sup> The eligibility of life forms as patentable subject matter (as a point of law) is now settled in light of the EC Directive, EPO case law and US case law. The US Supreme Court Decision in **Diamond, Commissioner of Patents and Trademarks vs. Chakrabarty, 447 US 303 (1980)** addresses the scope of patentable subject matter by stating that “anything under the sun that is made by man” is patentable. The respondent filed a patent application relating to his invention of a human-made, genetically engineered bacterium capable of breaking down crude oil (absorbs oil from oceans and rivers), a property not possessed by no naturally occurring bacterium. Initially, the application was rejected because living things are not patentable subject matter. On appeal, the Supreme Court stated that an artificially created life form – the new form of bacterium obtained by genetic engineering – is patentable subject matter. By virtue of this decision, the USPTO began to issue different types of patents protecting biotechnological methods of breeding and biotechnologically produced plants. In addition, USPTO has also interpreted this decision to mean that any plant can be patented, provided it satisfies the conditions on patentability. However, the patenting of life forms is still contested on ethical, cultural and religious grounds. See Frederick Abbott et al, *op cit.*, p. 28-42

<sup>179</sup> One of the economic reasons for patenting life is that living organisms can reproduce themselves after they have been sold. This limits the potential profitability of “biological inventions” but patents on these inventions are an option for MNCs seeking to protect the profits that these inventions promise.

<sup>180</sup> Correa, Carlos M. ***Intellectual Property Rights, the WTO and Developing Countries: The TRIPS Agreement and Policy Options***. 2000. Zed Books Ltd. London & New York. p. 173

<sup>181</sup> *ibid*, p. 173-174

<sup>182</sup> *ibid*

<sup>183</sup> *ibid*. In the order of those most active, they were Pioneer Hi-Bred International, Monsanto, Calgene, Holden’s Foundation Seeds and Dupont de Nemours.

- DNA sequences that code for a certain protein;
- Isolated or purified proteins;
- Seeds;
- Plant cells and plants;
- Plant varieties, including parent lines;
- Hybrids;
- Processes to genetically modify plants; and,
- Processes to obtain hybrids.<sup>184</sup>

Patents on plant genes are often claimed together with a purified protein, plasmids & transforming vectors, plants or seeds.<sup>185</sup> It has been said that patenting of genes at the cell level extends the scope of protection to all plants, which include a cell with the patented gene.<sup>186</sup> However, patenting principles and practices on biotechnological inventions are still in a state of flux, including in those countries that have experience in the patenting of genes.<sup>187</sup> It is not clear the extent to which a patent on an isolated gene may extend to the same gene(s) existing in nature.

What is relatively clear is that biotech patents are being aggressively enforced and are being used to establish a competitive advantage in the market place. The threat of enforcement/litigation of biotech patents may deter production, reproduction or research and breeding activities using patented plant material or processes.

### 3.3.2 Plant breeders' rights (PBRs)

As noted above, article 27(3)(b) of TRIPs states that plant varieties may be protected under a *sui generis* system.<sup>188</sup> A *sui generis* system likely to be recognized (particularly by developed countries) as effective is the UPOV system of PBRs.<sup>189</sup> UPOV aims to encourage the development of plant varieties with the promotion of an effective system of plant variety protection. This is a powerful tool in an effort to enhance food production in a sustainable way.

The UPOV Convention, known after its French acronym, *Union internationale pour la protection des obtentions végétales*<sup>190</sup> was initially developed in

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<sup>184</sup> Geoff Tansey, *op cit.*, p. 8. For a more comprehensive analysis see Carlos Correa, *op cit.*, p. 173-183

<sup>185</sup> Carlos Correa, *op cit.*, p. 179-180

<sup>186</sup> Carlos Correa, *op cit.*, p. 180

<sup>187</sup> Carlos Correa, *op cit.*, p. 182

<sup>188</sup> TRIPs does not offer any definition as to what this system is. It is left to individual countries to determine what an "effective *sui generis* system is to protect new plant varieties with some form of IPRs.

<sup>189</sup> Although not even mentioned in TRIPs, African countries are being pressurized or being forced to join UPOV so as to meet their obligations. The lack of definitions in TRIPs is thus leading to the manipulation of sovereign states. See Adede, *op cit.*, p.17-18

<sup>190</sup> UPOV establishes the International Union for the Protection of New Varieties of Plants, an intergovernmental organisation with its headquarters in Geneva, Switzerland. UPOV was

Europe and has now been adopted by industrialised countries and an increasing number of developing countries. It ensures that its member states acknowledge the achievements of breeders of new plant varieties, by making available to them an exclusive property right on the basis of a set of uniform and clearly defined standards. Most of UPOV contracting states account for the largest part of the global seed trade.

PBRs were developed as an alternative to patents to grant plant varieties protection because plant breeders found it impossible to meet the conditions for patentability i.e. inventiveness (non-obvious) and the disclosure requirement of how to make and use the invention. This was largely attributable to the fact that life forms were excluded in their purely natural state from patent protection.

PBRs are exclusive property rights for a limited period of time at the end of which the varieties protected by them pass to the public domain. The rights are also subject to controls, in the public interest, against any possible abuse.<sup>191</sup>

PBRs are given by a state as an incentive to its breeders' for continued or increased investment to pursue innovation for the creation of new plant varieties. This is because breeding is long term and expensive and once plant varieties are released they are easily copied. PBRs also safeguard the interests of breeders' by recognizing their moral rights in innovation and their economic right to remuneration.

To be eligible for protection, a plant variety has to be:<sup>192</sup>

1. Distinct (clearly distinguishable from existing commonly known varieties);
2. Uniform (sufficiently uniform in its essential characteristics with variation as limited as necessary to permit accurate description and assessment of distinctness and to ensure stability);
3. Stable (in its essential characteristics over time which remain unchanged after repeated propagation) and;
4. New (it must not have been offered for sale or marketed prior to certain dates established by reference to the date of the application for protection).

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adopted in 1961, entered into force in 1968, and has subsequently been revised in 1972, 1978 and 1991. See <http://www.upov.int> for the role and functions of UPOV and other particulars.

<sup>191</sup> Article 30 (1978 UPOV Act), Article 30 (1991 UPOV Act) allow for the restriction on the free exercise of the exclusive rights "for reasons of public interest" and subject to ensuring that the breeder receives equitable remuneration.

<sup>192</sup> Article 6 (1978 UPOV Act), Article 5 (1991 UPOV Act). The 1991 Act also states that a plant variety must have a denomination (i.e. scientific one) to enable it to be identified specifically.

The 1978 and 1991 UPOV Acts set out a minimum scope of protection and offer member states the possibility of taking national circumstances into account. Under the 1978 Act, the minimum scope of protection of PBRs requires that the right holder's prior authorization is necessary for production for purposes of commercial marketing, the offering for sale and the marketing of propagating material (e.g. seeds) of the protected variety. The 1991 Act contains more detailed (and stronger) provisions as explained below.

The 1991 Act tilts PBRs more towards patents and is geared to institutional breeding that may not suit all countries.<sup>193</sup> This Act sought to maintain the effectiveness of breeders' rights in the face of new biotechnologies such as genetic engineering. This led to the introduction of stronger terms, which are the only terms under which new members may join.

A key addition in the 1991 Act was designed to prevent genetic engineers from adding single genes to existing varieties and exploiting the modified variety with no recognition of the contribution of the breeder of the existing variety. Such modified varieties are now seen as "essentially derived" varieties and may not be exploited without the consent of the original breeder.

Other notable changes are:<sup>194</sup>

1. It extends the subject matter of protection from plant varieties of nationally defined species to all plant genera and species;
2. It has extended the scope of the breeders' right by expanding the acts subject to the breeder's consent in respect to the propagating material of the protected variety. This not only includes production, marketing and final sale but also reproduction (multiplication), conditioning for the purpose of propagation, exporting, importing and stocking for those purposes;<sup>195</sup>
3. The "farmers' privilege" in the 1978 Act is further limited in the 1991 Act. It leaves member states to determine on an *optional* basis whether or not to exempt from the breeders' right any traditional form of saving seed, for use as seed in subsequent planting seasons;

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<sup>193</sup> See Geoff Tansey, *op cit.*, p. 8-11 e.g. the concept of "national treatment"; the provision of appropriate legal remedies for the enforcement of rights.

<sup>194</sup> See Girsberger, M.A. *The Protection of Traditional Plant Genetic Resources for Food and Agriculture and the Related Know-How by Intellectual Property Rights in International Law – The Current Legal Environment*. The Journal of WORLD INTELLECTUAL PROPERTY. Vol. 1 No. 6. November 1998. Werner Publishing Co. Ltd. Geneva. p. 1029-1032. See also *Intellectual Property Rights and Foreign Direct Investment, op cit.*, p. 18-19

<sup>195</sup> Article 5 (1978 UPOV Act) lists down the acts that require the authorization of the breeder. (1) the act of production for the purposes of commercial marketing; (2) the act of offering for sale; and (3) the act of marketing. In addition to these acts, Article 14 (1991 UPOV Act), introduces (1) the act of reproduction or multiplication; (2) the act of conditioning for the purpose of propagation; (3) the act of exporting; (4) the act of importing; (5) the act of stocking for any of these purposes.

4. Fourth, it provides that PBRs *may* be extended to the products made directly from harvested materials in cases where the breeder did not have reasonable opportunity to exercise his right on the propagating material of the variety;
5. Fifth, the 1978 Act provides for the breeders' exemption allowing breeders' to use a protected variety as an initial source to create their own variety and then market them. The 1991 Act also includes this exemption but adds that "essentially derived" varieties can only be marketed with the consent of the original breeder;
6. Six, it removes the restriction of the 1978 Act, which prohibited the accumulation of patents and PBRs;<sup>196</sup>
7. Seven, it extends the minimum period of protection from fifteen years to twenty years and to twenty-five years for trees and vines.

### 3.3.3 The Combination Option

A mixed system of patents and a *sui generis* system is also envisaged under TRIPs, which would provide the strongest IPRs regime as this allows both types of IPRs to be used. It is also of the most advantage to developed countries with modern biotechnological industries. It is unclear whether this provides for double protection i.e. whether patents and a *sui generis* system can protect an object or that every object must be covered by either system.

### 3.3.4 Undisclosed Information/Trade Secrets

TRIPs requires trade secrets to benefit from IP protection. Trade secrets are protected against dishonest commercial practices e.g. unfair competition.

Article 39 of TRIPs provides that the protection applies to information that is:

1. Within the control of the holder;
2. The control must have been lawfully obtained;
3. The acts of disclosure, acquirement, and use of the information by others, must take place without the consent of the holder of the information;
4. These acts must take place in a manner contrary to honest business practices;
5. The information must be secret;
6. The information has commercial value because it is secret;
7. The person lawfully in control of the information must have taken the steps reasonable under the circumstances to keep the information secret.

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<sup>196</sup> Under the 1978 UPOV Act, a member state whose national law allows protection under both these forms may provide only one of them (and not both) for one and the same species. It thus restricts the state to protect breeder's rights either by patents or PBRs and not both.

TRIPs does not require trade secrets to be treated as a form of property but it does require that a person lawfully in control of such information must have the possibility of preventing it from being disclosed to, acquired by, or used by others without his consent in a manner contrary to honest commercial practices. “Manner contrary to honest commercial practices” includes breach of contract, breach of confidence, as well as the acquisition of trade secrets by third parties who knew, or were grossly negligent in failing to know, that such practices were involved in the acquisition.

Thus, to benefit from trade secret protection, information (which can include genetic material), must derive independent economic value from not being generally known and must be the subject of efforts that are reasonable under the circumstances to maintain its secrecy. The effective term of protection is as long as the secret is valuable and secret and thus is not subject to a fixed term.

Trade secrets have been used to control inbred lines used as parents of a hybrid.<sup>197</sup> As the inbred lines are kept secret this does not affect the marketing of the hybrid. The lines can be protected through a combination of efforts such as: the physical protection of the materials themselves and of the contracts with employees and those involved in producing seeds.

However, this may not prevent a third party from attempting to reconstruct the parental lines from the marketed hybrid, so called “reverse engineering.” Seed companies (in order to supplement PBRs and patent protection) are also using contractual provisions to prohibit reverse engineering of the material they sell to farmers.<sup>198</sup>

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<sup>197</sup> Barton. J. Acquiring Protection for Improved Germplasm and Inbred Lines. CAB INTERNATIONAL 1998. *Intellectual Property Rights in Agricultural Biotechnology* (eds F.H. Erbisich and K.M. Maredia). p. 27. In the seed trade, the term hybrid refers to the first generation of a cross between inbred lines. See also Pistorius, Robin and van Wijk, Jeroen. *The Exploitation of Plant Genetic Information – Political Strategies in Crop Development*. 1999. CAB International. New York.

<sup>198</sup> Barton. J. *op cit.*, p. 27-28



# 4 TRIPs AND THE RIGHT TO FOOD

## 4.1 Intellectual property rights in agricultural biotechnology

Biotechnology is just one solution or a set of tools (and indeed not a panacea or silver bullet) to solve food insecurity in Africa. No technology by itself can make a country food secure but the appropriate use of biotechnology offers considerable potential to boost food productivity. Most of the modern biotech benefits can be packaged in seeds or other propagating material meaning that it is user friendly than other methods that would require machines or other elaborate techniques.

Some of the biotech opportunities include possibilities to increase crop yields and reduce production costs, provision of clean planting materials e.g. sweet potato, potato, banana etc, increasing soil fertility, genetically engineered crops tolerant to soil acidity/salinity and drought, genetically engineered crops resistant to pests and diseases e.g. Bt maize,<sup>199</sup> biotech research to increase nutritional value in food e.g. “golden rice” fortified with Vitamin A & Iron,<sup>200</sup> biotech can also find use in solving post-harvest losses due to pests.

It is observed that the modern biotech products are a result of substantial research and inventive effort and heavy investment in sophisticated laboratories of universities or MNCs in industrialized countries.<sup>201</sup> MNCs involved in biotechnological inventions have allocated huge funds for research in genomics and this has also resulted in the change of the structure of the global seed industry

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<sup>199</sup> Insect resistant maize (inserted with the gene *Bacillus thuringiensis*), also herbicide resistant soybean (inserted with the gene *Streptomyces spp.*)

<sup>200</sup> The gene *Erwinia* from the Daffodil is being inserted into rice to make it produce beta-carotene, which the body converts into vitamin A. This experimental transgenic “golden rice”, has the potential to reduce vitamin A deficiency, a leading cause of blindness and child deaths in many developing countries. For full biotechnology information see, <http://www.fao.org/biotech/gloss.htm>

<sup>201</sup> Developments in the seed industry in the USA give an indication of the recent interest in biotech patents. As a result of the energy crisis in 1973 and the increased price of petroleum products, US chemical companies were flush with funds and therefore looked for new investment opportunities promising high returns. Developments in modern biotechnology particularly genetic engineering were seen as a major opportunity for big business. Consequently chemical, oil and pharmaceutical companies such as Ciba-Geigy, Monsanto, ITT, Shell, Sandoz, Rhone-Poulenc, Pfizer, ICI, Upjohn and others entered the seed business and over time various mergers and acquisitions have taken place creating a “life-sciences” industry. See Mishra, Jai Prakash. *Intellectual Property Rights and Food Security – The Efficacy of International Initiatives*. The Journal of World Intellectual Property. Vol. 4. No. 1. January 2000. p. 12-14, and Geoff Tansey, *op cit.*, p. 6

resulting in mergers and acquisitions. For example, Monsanto Inc., a traditional chemical company, reinvented itself as a life-sciences company and has invested US \$ 6.6 billion in biotech and genomics.<sup>202</sup>

The primary function of business like MNCs is to ensure maximum profits on investments for their shareholders. Typically, businesses would only make investments in R&D if legal protection were available for the results of research so that in the final analysis they would recoup investment costs and also make a profit. Thus, when MNCs are to make heavy investments in R&D the question of legal protection of the results of their research plays an important role. As in all other fields of technology, there is a need for the legal protection of biotechnological inventions. MNCs have thus sought the protection of their biotechnological inventions through IPRs, particularly patents.<sup>203</sup>

Patents as exclusive property rights provide MNCs with the requisite incentive to innovate and invest because of the economic power of an exclusive right, even though only for a limited period of time.<sup>204</sup> The modern biotechnology industry invests considerable time and money in order to come up with a biotech product. Due to the complexity of biological phenomenon, a biotech product may present risks not known until the later stages in R&D or until the product has been launched into the market. Therefore, because of the considerable investment risk in biotech R&D, the possibility of an economic reward for biotech inventions is seen as vital.

Patents have served the biotechnology industry with the effective incentive to promote innovation.<sup>205</sup> Patents also provide the incentive for marketing new biotech inventions in which the inventor holds the patent rights and have thus promoted industrial competitiveness and continue to do so.<sup>206</sup> Thus, MNCs view patents as a tool to encourage or stimulate investment (also FDI) and innovation. It is argued that if patent protection were not available, MNCs would invest less

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<sup>202</sup> *ibid*, p. 13

<sup>203</sup> However, inventors of biotechnological inventions are faced with several obstacles in seeking patents for their inventions e.g. whether their invention is not just a discovery and the fact that few national IP laws recognize or allow biotechnological inventions. But for inventions on microorganisms (either the process for obtaining a microorganism or the microorganism itself or the particular use of a microorganism), they are governed by the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purpose of Patent Procedure. As it is difficult, if not impossible, to sufficiently describe a new microorganism, the Treaty provides a system for depositing microorganisms. Therefore, applicants for those patents do not have to describe a new microorganism but only have to refer to a deposit made with a recognized depositary authority.

<sup>204</sup> See Li Westerlund, *op cit.*, p. 9-13

<sup>205</sup> *ibid*, p. 10

<sup>206</sup> *ibid*

in R&D or there would be a serious disincentive to publicise the results of research.<sup>207</sup>

As a technology, the biotech products are not risk free.<sup>208</sup> Concerns have been raised due to inadequate controls, transfer of allergens, unpredictability, undesired gene movement or other environmental consequences. The genes could escape in pollen and create highly resilient weeds that could be resistant to herbicides or that displace other wild plants and change the balance of the ecosystem. Similarly, over time powerful new strains of insects resistant to insecticides could develop. New toxins could have damaging effects in the food chain, and viruses could escape from virus-containing crops.<sup>209</sup>

As a priority, modern agricultural biotechnology should be directed towards human development such as food security and not just to establish a competitive edge or maximise profits. Therefore all social, financial, ethical, environmental and other concerns need to be taken into account while assessing the relevance or appropriateness of these new biotechnologies, particularly GMOs whose social and environmental implications are still largely unknown.

For Africa, which is at the centre of biodiversity the impact of these new biotechnologies could be particularly serious. Conducting a risk assessment is basic and essential for sustainable agriculture. Such an assessment would need to identify who gains and who loses, and what are the benefits and what are the costs of these new biotechnologies.<sup>210</sup>

Nevertheless, IPRs in agricultural biotechnology raise very heated debates at the international, regional and national levels. The main legal and policy issues that arise on the right to food relate to:

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<sup>207</sup> *ibid*, p. 11. The only remaining option would be for MNCs to keep the results of their research secret. Biotechnological products or processes can be kept secret but as MNCs would have to commercialise them (without revealing the invention), once a product reaches the market, it is possible to work out how to copy it through e.g. by “reverse engineering.”

<sup>208</sup> Agricultural biotechnology, particularly GMOs have been said to be risky for human health and the environment and therefore the precautionary principle is applied in introducing them. The opponents of biotechnology and GMOs mainly found in Europe, have called for a total ban of planting GMOs and stringent regulations on biotechnology. In Africa, the Governments of Zambia and Zimbabwe recently banned the import of genetically modified maize offered as food aid by the US Government to alleviate the current famine in those countries. However, the Government of Malawi accepted the import but on condition that the same is only used as food and not for planting.

<sup>209</sup> The growing of transgenic/genetically modified crops raises issues concerning the safety of transferring organisms into new environments, questions of liability for damage that are not covered under international law and the need for transparency in information.

<sup>210</sup> The adoption of the Cartagena Protocol on Biosafety (CPB) in 2000 under the CBD is a landmark in this regard as it introduces the *precautionary approach (PA)* as a guiding principle for the import of GMOs. CPB subjects the import of GMOs to an *Advanced Informed Agreement (AIA)* requiring the exports of GMOs to be approved in advance by the importing country. Hartmut Meyer. *The Cartagena Protocol on Biosafety*. Biotechnology and Development Monitor. No. 43, September 2000.

- **Ownership:** Who has patent rights, for example, in instances where a different person(s) than the one who has come up with the invention nurtured the raw material?
- **Access:** The grant of IPRs has implications on access as the right holder usually has exclusive property rights.
- **Benefit sharing:** How can the benefits arising from innovations be equitably shared?

Fundamental to the IPR system is the benefit to society. The purpose of the patent system is to reward a contribution made to society. It is a contract or bargain the public has with an inventor in the sense that the inventor gives the public something new and useful, that it would not otherwise have had and in return, the inventor is rewarded for a limited period of time by economically exploiting these rights. Thus, the incentive to innovate that patents provide MNCs should return to the society by either increasing the general knowledge base or the creation of useful products for the benefit of the public.

It is fundamentally important that patents do not stop or block people from doing what they have been doing before the patents were granted.<sup>211</sup> During the term of protection there is the possibility of conflict between the interests of the MNCs (as right holders) and the public in a given invention. It is important to know as exactly as possible the extent of the exclusive right for which an invention is granted a patent; a broad patent can have sweeping claims that risk to block third parties in various ways.

The actual scope of patent protection is thus a central issue for biotechnological inventions. A perfect balance should be achieved so that as MNCs are given exclusivity for their inventions as a sufficient financial reward to stimulate innovation, the same should not deprive the public of what it already possesses or stop/block people from doing what they have always done.

## 4.2 Issue One: Ownership

One major issue coming up as a result of IPRs in agricultural biotechnology and creating new risks of marginalization, vulnerability and impoverishment of rural farmers is the issue of ownership.

The immediate impact of patenting life forms is the appropriation of common resources in the public domain into the private domain. The rise of MNCs in the life-sciences industry wielding enormous power and control in the food and

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<sup>211</sup> Li Westerlund, *op cit.*, p. 13. That is why patents cannot be granted for inventions that have been in widespread use as they are considered part of the public domain. Patents should therefore not prevent the continuous use of genetic resources as found in nature.

agricultural sector is worrying. Another worrying phenomenon is the biopiracy<sup>212</sup> of the traditional knowledge (TK)<sup>213</sup> of local and indigenous communities in developing countries, including Africa.

#### **4.2.1 Privatisation of Research and the Rise of Oligopolies**

In the previous chapter, we saw that TRIPs was conceived by major MNCs based in developed countries and particularly, the USA.<sup>214</sup> These MNCs claimed they were losing profits in foreign countries because of the non-recognition of their IPRs or inadequacy of foreign IP laws. Thus, they wanted an international system for the effective enforcement of their IPRs. They also strengthened IP protection by including new substantive IP standards in TRIPs. As a result, TRIPs is more about the protection of IPRs for businesses in developed countries to ensure their global trade than free trade.<sup>215</sup>

There is an increase in privatisation of research as the rising costs of innovation go up.<sup>216</sup> The 1990's have seen a significant rise and trend in the number and value

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<sup>212</sup> Biopiracy refers to the process by which the rights of local and indigenous peoples in TK and biodiversity is erased and replaced by IPRs by those who have exploited that local/indigenous knowledge and biodiversity.

<sup>213</sup> In this context, TK means knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of agro-biodiversity. WIPO uses the term to refer to tradition-based literary, artistic or scientific works; performances; inventions; scientific discoveries; designs; marks, names and symbols; undisclosed information; and all other tradition-based innovations and creations resulting from intellectual activity in the industrial, scientific, literary or artistic fields. There are many categories of traditional knowledge such as e.g. agricultural knowledge, ecological knowledge, technical knowledge, scientific knowledge or biodiversity-related knowledge. For a more comprehensive analysis see [http://www.wipo.int/eng/meetings/2002/igc/pdf/grtkfic3\\_9.pdf](http://www.wipo.int/eng/meetings/2002/igc/pdf/grtkfic3_9.pdf)

<sup>214</sup> See note 131, *Supra*.

<sup>215</sup> As part of the WTO Agreement, TRIPs is essentially meant to ensure a multilateral system to conduct free trade i.e. without any obstacles or barriers. The elimination of all obstacles to international trade or trade liberalization, according to liberal economic theories, is said to guarantee equal opportunity for all and would ensure the development of all countries involved. However, in reality the international trade rules have favoured MNCs. In this system, industrialized countries are at a distinct advantage over other countries because of the level of their technological development. Where developing countries have a competitive advantage, the industrialized countries have created barriers for market access e.g. government subsidies on their agricultural products. Therefore, the notion of "free" trade is a misnomer.

<sup>216</sup> Many governments are facing a squeeze on budgets and thus the proportion of public funding for R&D in science and technology has fallen around the world, to be replaced by the private industry. There has also been a shift of R&D away from developing countries. Their share in the global total dropped from 6% in the mid-1980's to 4% in the mid-1990's. In the US, in the 1980's crop and seed development was under public research, patents were rarely sought and rarely enforced, saving and trading of seed was commonplace. The passing of the Bayh-Dole Act in 1980 changed this as it allows universities and other public funded institutes to license their technologies from research projects that are directly

of MNCs, triggered by mergers and acquisitions of MNCs in the seed, chemicals, agro-chemicals and pharmaceuticals industries.<sup>217</sup> The concept of IPRs on life forms must be seen in this light. As a result of these mergers, a small number of MNCs dominate and control the so-called life-sciences industry.<sup>218</sup>

MNCs from developed countries own most of the IPRs in agricultural biotechnology.<sup>219</sup> For example, in 1996, there were more than 400 patents granted or pending worldwide, related to the gene of the soil bacterium, *bacillus thuringiensis* (*Bt*), with 60% of these patents originating from just 10 companies based in developed countries.<sup>220</sup> Also, another MNC Agracetus was awarded a very broad patent on transgenic soybeans covering all transgenic soybeans; Monsanto later acquired Agracetus and thus, the ownership of the patent.<sup>221</sup>

The extension of very broad patents for specific plant varieties has meant that a few MNCs in the life-sciences industry have virtual monopolies on the genome of important global crops.

IPRs, particularly patents, are increasingly being used by MNCs to expand their market share, to prevent competitors from becoming active, or as a bargaining tool to negotiate favourable local agreements. The fundamental issue is control

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funded from federal sources. It provides the legal platform for universities to commercialise the technologies they generate enabling private companies to profit from products developed largely with public funds. The IP of public and university research has increasingly passed over to private industry through licensing or other agreements. The portion of public sector patents in biotechnology sold under exclusive licence to the private sector rose from just 6% in 1981 to more than 40% by 1990. See *UNDP Human Development Report 1999*. 1999. Oxford University Press. New York. p. 68

<sup>217</sup> For example, Syngenta is a merger between AstraZeneca and Novartis to become the world's biggest agribusiness MNCs; Dupont de Nemours spent over US\$ 9.4 billion to acquire Pioneer Hi-Bred, the world's largest seed company.

<sup>218</sup> In biotechnology, genetic engineering underlies the new direction of pharmaceuticals, food, chemicals, cosmetics, energy and seeds. This is blurring the distinctions among the sectors, creating a large and powerful "life-sciences" industry.

<sup>219</sup> "Developed countries hold 97% of all patents worldwide. In 1995 more than half of global royalties and licensing fees were paid to USA, mostly from Japan, UK, France, Germany and the Netherlands... by contrast, more than 80% of the patents that have been granted in developing countries belong to residents of developed countries." See *UNDP Human Development Report 1999*. p. 68

<sup>220</sup> Bt gene is a soil bacterium that has pesticidal properties. It has been known by farmers since the 1940s. When inserted in maize (Bt-maize) it produces corn resistant to the corn stem borer. It has also been inserted in cotton (Bt-cotton) and potato (Bt-potato). Few companies possess the technology in these specific or other crops. See Cecilia Oh. *IPRs and Biological Resources: Implications for Developing Countries*.

<http://www.twinside.org.sg/title/iprharare.htm> p. 9

See also, Electronic Forum on Biotechnology in Food and Agriculture. Conference 6. The impact of IPRs on food and agriculture in developing countries. p. 6

<http://www.fao.org/biotech/C6doc.htm>

<sup>221</sup> Such broad species patents are also being applied to cotton and rice so as to secure the market for the patent holder and to prevent competition with the effect of stifling research. See Cecilia Oh, *op cit.*, p. 9

and IPRs are being used as legal instruments to wield power and control. This IPRs regime has enabled a select group of companies to gain control over ever-growing shares of the global market.

In 1998, the top 10 corporations in the commercial seed industry; controlled 32% of a \$ 23 billion industry; in pharmaceuticals, 35% of the US\$ 297 billion industry; in veterinary medicine, 60% of the US\$ 17 billion industry; and in pesticides 85% of the US\$ 31 billion industry.<sup>222</sup> It is also observed that the top five biotechnology firms in the world are based in the United States and Europe and control more than 95% of gene transfer patents.<sup>223</sup> 80% of patents on genetically modified foods are owned by just 13 MNCs and the top five agro-chemical corporations control “almost the entire global seed market.”<sup>224</sup>

Seed is the first link in the food chain. The control of seeds through patents largely determines who controls the food system. Whoever controls the seed controls the food supply. Such monopoly power means that the MNCs are able to control the supply of seeds. By controlling the supply, they also have the means of controlling the prices of seeds. To increase their profits, they can increase the prices.

More than just a pricing issue, patents are stifling rather than stimulating research. MNCs now own multiple or overlapping patents required to develop a biotech product. Patents have been obtained for enabling technologies – those technologies that are essential for the practical implementation of a wide range of biotech processes and products – which complicate the management of the research agenda.<sup>225</sup> This has a direct impact on access to technologies by developing countries and the agricultural research system both in developed and developing countries.

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<sup>222</sup> *UNDP Human Development Report 1999*. p. 68

<sup>223</sup> *ibid.* Namely: Syngenta (AstraZeneca – UK/Sweden and Novartis (Sandoz and Ciba-Geigy- Switzerland), E.I Dupont de Nemours (Pioneer Hi-Bred international -USA), Monsanto (a component of Pharmacia and Upjohn, it acquired Agracetus, Asgrow Seed, Cargill, Calgene, DeKalb Genetics, Holden’s Foundation Seeds - USA), Aventis (Hoechst Schering AgrEvo, Plant Genetic Systems, Rhone-Poulenc - Germany/France), Dow Chemical (Mycogen Seeds). See Barton, J.H. *The Impact of Contemporary Patent Law on Plant Biotechnology Research* in Intellectual Property Rights III Global Genetic Resources: Access and Property Rights. 1998. Crop Science Society of America. American Society of Agronomy. p. 94

<sup>224</sup> van Dillen, Bob and Leen, Maura (eds.). *Biopatenting and the Threat to Food Security: A Christian and Development Perspective*. CIDSE. February 2000.

<http://www.cidse.org/pubs/tg1ppcon.htm>

<sup>225</sup> Modern biotechnology requires the use of several products and processes, which are usually patented. For example, to produce a genetically modified food crop could entail the use of individual genes that are patented, DNA sequences that control the expression of the gene that are patented and the two methods used to transfer foreign DNA and identify plant cells that are patented. MNCs have overcome this hurdle of access to patented products and processes to conduct R&D by cross-licensing their patents among each other. In the event that a competitor fails to license a technology, litigation usually ensues. This results in acquisitions and mergers among MNCs as an out-of-court settlement.

Due to patents, MNCs now have limited incentives to conduct research as the industry leaders are in an oligopolistic (and potentially monopolistic) situation. Smaller businesses are generally the source of innovation and are finding it impossible to enter the biotech industry due to the many patents MNCs own.

With the advent of genetic engineering, seeds become the “operating system” that MNCs use to deliver new technologies. MNCs are using genetically modified, patented seeds to dictate how farmers will farm, and under what conditions, with farmers, indigenous peoples and public sector researchers losing the right to use and develop agro-biodiversity.<sup>226</sup> This has potentially devastating consequences for farmers, food security and the environment.

MNCs to maximise profits are also preventing the use of second-generation seed produced from transgenic crops by using legal contracts or other mechanisms.<sup>227</sup> This essentially constitutes a regulatory system that bypasses IPRs and government authority. Hence, for example, farmers who purchase transgenic plant seeds are often required to sign contracts that specifically prohibit the saving and replanting of second-generation seed. These contracts also give the MNCs, or their authorized agents, the right to inspect and test the farmer’s field and monitor whether the farmer is reusing the patented seed or is otherwise complying with the contract.<sup>228</sup>

Traditionally, farmers have had the right to save or replant seed from a harvest and/or sell the seed. 1.4 billion rural people, primarily rural poor farmers in developing countries rely on farm-saved seed as their primary seed source. By subjecting farmers to sign contracts every time they buy seed is reducing farmers to renters of seeds. This arrangement has also been described as a new kind of “biosefdom,” where the MNCs are the new feudal lords, wielding power and wealth owning the information contained within the new seed varieties, rather than the land.<sup>229</sup>

MNCs would go at any lengths to ensure profits. The latest development is the creation of biotechnologies known as Genetic Use Restriction Technologies (GURTs) (and obtaining patents on them) as a means of exerting control and ownership rights over agro-biodiversity.<sup>230</sup> GURTS are of two kinds; one is

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<sup>226</sup> MNCs such as Monsanto have sued farmers e.g. in Canada and USA for saving and reusing genetically engineered seed patented by them. See other examples in Vandana Shiva, *op cit.*, p. 73-76

<sup>227</sup> **Intellectual Property.** Transgenic Plants and World Agriculture. July 2000. National Academy Press. Washington, D.C USA. p. 32. The validity of these contracts is an issue because TRIPs controls anti-competitive practices in contractual licenses – See Part 8 TRIPs.

<sup>228</sup> Audrey Chapman, *op cit.*, p. 23

<sup>229</sup> *ibid*

<sup>230</sup> Monsanto has developed these technologies. Both AstraZeneca and Novartis have been researching GURTs also.



“terminator technology” which is a set of new genetic engineering techniques used to create sterile plants with infertile seeds that cannot be replanted.<sup>231</sup> The second one is “traitor technology” which control other plant characteristics or traits. These traits can be switched on or off by the application of inputs only available from the MNCs.

These technologies are able to protect the interests of MNCs by killing the seed after one generation. Farmers will then be forced to purchase seed every planting season. Further, the seeds will only germinate and bear fruit only when used with the MNCs inputs e.g. chemicals and thus increasing sales/profits through increasing farmers’ dependency on inputs. In this case, patents are no longer needed to protect MNCs interest, the technologies have in-built protection.

In the above scenario, farmers’ risk being caught up in a web of IPRs, biological and licensing controls instigated by powerful MNCs.<sup>232</sup> Their main source of livelihood is jeopardized. The already poor rural farmers are further impoverished as they are driven into cycles of debt from trying to adopt farming inputs, paying royalties to the seed companies and buying seed each year. The cost of food production just goes up threatening the livelihoods of millions of people in developing countries.

It has been said that “the Third World farmer has a three-fold relationship with the corporations that demand a monopoly of life forms and life processes: firstly, the farmer is a supplier of germplasm to MNCs, secondly, the farmer is a competitor in terms of innovation and rights to genetic resources, thirdly, the farmer is a consumer of the technological and industrial products of MNCs. Patent protection displaces farmers as competitors, transforms them into suppliers of free raw materials, and makes them totally dependent on industrial suppliers for vital inputs such as seeds.”<sup>233</sup>

The tighter control of research in the hands of private interests in developed countries also ignores research needs of millions in the developing countries.<sup>234</sup>

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<sup>231</sup> Terminator technology involves the use of chemical treatments on seeds or plants that either inhibits or activates specific genes involved in germination. It would involve a complex three-gene system whereby one gene produces a protein that interferes with proper plant embryo development preventing seed germination. The US Department of Agriculture has recently announced its intention to commercialise this technology. See Audrey Chapman, *op cit.*, p. 24 and also Vandana Shiva, *op cit.*, p. 80-85

<sup>232</sup> Patents are also being used, not only against the farmers, but also against rival MNCs to ensure corporate dominance in the market.

<sup>233</sup> Carlos Correa, *op cit.*, p. 171

<sup>234</sup> Science and technology gives power to those who possess it, whatever the field involved and such power tends to be wielded in the interests of those who command it. It takes a lot of time and money (an estimate has been given of 10 years and US \$300 million) to create a new commercial product. MNCs have the money to protect their innovations and thus to ensure profits and recoup investment costs they have been increasingly applying

The best of the new biotechnologies are designed and priced for those who can pay; they show a tendency of serving the needs of the rich industrialized countries.<sup>235</sup> The rest of the world is only a recipient of biotechnologies developed in these countries. As a result, in general the developing world is the largest eventual consumer of the new biotechnologies. This leads to an increased dependency of developing countries on developed countries, as the newest technologies are owned by MNCs based in developed countries.

The developed countries as generators of biotechnologies only produce that which suits their own requirements or purposes rather than those of the poorer nations or developing world. The conditions and needs of the developing world are so different from the developed world, but the biotechnologies developed by the industrialized world are often the only ones available irrespective of how unsuitable they may be.<sup>236</sup> There is thus a need of particularly considering the needs of the developing world and the impediments to technological development so as to derive the maximum benefit from biotechnology.<sup>237</sup>

With increasing control and homogenisation of the market by MNCs – with the emphasis on the isolation of specific genes with beneficial characteristics - the competitiveness of alternative plant varieties and the scope for producing alternative crops will likely decline. Also, the commercialisation and farming of monocultures/uniform plant varieties e.g. hybrids – which emphasize on productivity and therefore are high yielding - leads to the loss of traditional plant varieties/land races as the latter are pushed out of farming and the market as farmers increasingly cultivate monocultures to increase farm productivity and become more dependent on farm inputs e.g. fertilizers, herbicides and pesticides.<sup>238</sup>

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for patent protection. Thus, in defining research agendas, money talks louder than need. This approach focuses on the high-income markets only.

<sup>235</sup> For example, research into tomatoes with longer shelf lives, yellow maize to be used mainly for poultry feed or seed varieties that are engineered to be suitable for mechanized mass production with labour-saving techniques are designed for industrial and intensive farming conditions. However, over the last several years MNCs have also become interested in developing world markets e.g. R&D in soybeans, maize, rice and wheat, which have large markets in developing countries and where there is also major export potential.

<sup>236</sup> Far less time and money is spent on research on the needs of farmers in developing countries e.g. the development of drought-resistant crops for marginal lands or water-saving plant varieties for small-scale farmers, development of disease-resistance and robustness of crops, development of herbicide-resistant crops or increasing the nutritional value of crops. For the rural farmers in Africa, the technological progress remains far out of reach.

<sup>237</sup> The challenge is for developing countries and its scientists and researchers to gain access to these biotechnologies on favourable terms and adapt them to suit the needs of their rural farmers. Most of the agricultural research in developing countries is carried out by the public sector. There is thus a need to foster public/private partnerships to effect transfer of biotechnology to developing countries. In this way, biotechnology can be developed in accordance with the needs and requirements of all humanity.

<sup>238</sup> It is said local communities maintain a higher degree of genetic variety in the crops they cultivate than does commercial agriculture, which relies on a very narrow genetic base using only a few modern varieties. See Rohini Acharya, *op cit.*, p. 6-7

The tendency towards monocultures ignores locally adapted plant varieties (which are more susceptible to certain diseases or ecological stresses) and ignores the advantages of local planting techniques/traditional agricultural, ecological knowledge geared towards maintaining agro-biodiversity and therefore leads to the reduction or erosion of biological diversity.<sup>239</sup> As developing countries are rich in biodiversity, these trends threaten the depletion of their agro-biodiversity, as local plant breeding is essential for adapting seeds to the ecosystem and maintaining biodiversity.

Although supposed to increase farm productivity, monocultures do not ensure food security because the varieties have similar characteristics, which are more vulnerable to the same pressures, climatic, pests or disease and there are several instances where an entire harvest has been lost as a result of either planting monocultures or using a monoculture planting technique. This undermines small-scale mixed subsistence and local market-based production systems and is a huge threat to small-scale agriculture with its multiple roles as it could dramatically reduce the food security of millions of people in developing countries.

#### 4.2.2 Biopiracy

It is observed that over 90% of the earth's remaining biodiversity is in the tropical and sub-tropical regions of the developing world i.e. Africa, Asia and South America.<sup>240</sup> As science and technology advance while biodiversity dwindles, there is an increased interest in appropriating TK for scientific and commercial purposes. Institutions and MNCs in the life sciences industry based in developed countries engage in "bioprospecting" and "biopiracy" activities.<sup>241</sup>

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<sup>239</sup> Article 2 of CBD defines biological diversity as, "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part, this includes diversity within species, between species and of ecosystems." Agriculture and biodiversity are inextricably linked. Biological resources constitute a primary input for agricultural production; the erosion of biological diversity directly affects agricultural production. Agro-biodiversity refers to that part of biodiversity that is used for food and agriculture. Agro-biodiversity exists because of the wide range of varying climates, habitats and farming practices found within the centres of diversity and the natural selection caused by the presence of different pest and diseases. See Patricia Kameri-Mbote and Philippe Cullet. *Agro-biodiversity and International Law*. African Centre for Technology Studies (ACTS). ACTS Press. Biopolicy International Series No. 22. Nairobi, Kenya. p. 3

<sup>240</sup> *UNDP Civil Society Organizations and Participation Programme: Conserving Indigenous Knowledge*  
<http://www.undp.org/csopp/CSO/NewFiles/dociknowledge.html>

<sup>241</sup> There are numerous examples. For e.g. University of Wisconsin has obtained a patent on a plant that grows in Cameroon that produces Brazzein, a natural sweetener. The university has also engineered a bacterium to produce brazzein. This means that Cameroon rural folk who have nurtured the sweetener for generations will be excluded from commercialising it if they so wished. See Vandana Shiva, *op cit.*, p.49-57

Bioprospecting is the exploration, extraction and screening of biodiversity and indigenous knowledge for commercially viable genetic and biochemical resources. Biopiracy involves the grant of patents to commercial interests such as MNCs based in developed countries over biodiversity and indigenous knowledge used to develop that biodiversity such as traditional methods of breeding or domestication of local and indigenous peoples found in developing countries. Local or indigenous peoples do not give their consent for the appropriation of these genetic resources or their knowledge. The biodiversity and indigenous knowledge appropriated is usually reduced to or isolated to specific genes, and this isolation is treated as an “invention” warranting legal protection i.e. IPRs. Once a product(s) is released to the market and becomes profitable, no benefit accrues to the local or indigenous peoples where the product originated.

Bioprospecting and biopiracy usually go hand in hand.<sup>242</sup> As a result, one finds a growing number of MNCs in the life sciences industry (and their intermediaries, usually universities and other research institutions) in the developing world in search of biodiversity and TK.

Though bioprospecting does not always involve the use of TK, it is clear that valuable genetic resources derived from plants, animals and microorganisms are more easily identified and of greatest commercial value when collected with this knowledge and/or found in territories traditionally inhabited by indigenous peoples.<sup>243</sup>

The immediate impact of bioprospecting and biopiracy activities is that it reduces the ability of local and indigenous peoples to meet, *inter alia*, their food and health needs. Without their consent, it transfers their rights on their biodiversity and indigenous knowledge to IPRs holders. The local communities then end up paying high prices or royalties for products developed as a result of their own resources and knowledge. This leads to the impoverishment of rural communities.

The patenting of life forms found in indigenous peoples lands or ecosystems raises ethical, moral, religious and other concerns because for indigenous peoples they have a spiritual and cultural connexion to their ecosystems. They are intimately linked to a particular socio-ecological context by various economic, cultural and

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<sup>242</sup> RAFI, **Bioprospecting/Biopiracy and Indigenous peoples**. 2001.

<http://www.latinsynergy.org/bioprospecting.htm> p. 1

<sup>243</sup> Article 1(b) of the ILO Convention 169 Concerning Indigenous and Tribal Peoples in Independent Countries states that indigenous peoples are: “Peoples in independent countries who are regarded as indigenous on account of their descent from populations, which inhabited the country, or a geographical region to which the country belongs, at the time of conquest or colonization or the establishment of present state boundaries and who irrespective of their legal status, retain some or all of their own social, economic, cultural and political institutions.”

religious activities. TK is therefore deeply entrenched in the lives of indigenous peoples. It is often difficult to isolate or distinguish TK from indigenous peoples. Article 27(3)(b) of TRIPs allows for the exclusion from patentability only traditional breeding methods, but not modern breeding methods (**biological not non-biological processes**) such as genetic engineering. The contributions of indigenous peoples to, *inter alia*, plant breeding, genetic enhancement, biodiversity conservation, is not recognised or protected. Indigenous peoples have been the cultivators, breeders, researchers and protectors of biological resources found in their lands. Indeed, it is their long acquired knowledge of their biodiversity that is valuable to the biotech companies today.

RAFI estimates that “...possibly two thirds of the world’s people could not survive without the foods provided through TK of plants, animals, insects, microbes and farming systems.”<sup>244</sup> Yet, indigenous peoples would not have access to IPRs to protect their traditional breeding methods and as a result these methods would remain in the public domain at the jeopardy of being freely used and exploited by all, particularly by MNCs. If anything, the IP system is predatory on the rights, knowledge and resources of indigenous peoples.

The use and improvement of farmers’ varieties has been a major source of food security and vital to ensure food production for local and indigenous peoples. It is estimated that nearly 2.5 billion people rely on wild and traditionally cultivated plant species to meet their daily food needs.<sup>245</sup> Seed supply relies on this “informal” system. TK, combined with continued access to and the availability of agro-biodiversity, is essential for the survival of many local and indigenous peoples. Biopiracy threatens the very survival of many of these people.

As a result of bioprospecting and biopiracy activities, there has been increasing recognition of the need to protect TK of local and indigenous peoples. TRIPs does not provide any and/or adequate protection for TK. It does not specifically protect TK. This knowledge is not treated as IP worth protection.

TRIPs ignores cultural diversity in creating and sharing innovations – and diversity in views on what can and should be owned.<sup>246</sup> As we have seen, the nature of TRIPs is established on developed countries/western concepts of, *inter alia*, individual ownership of rights and property and does not recognise the communal ownership of rights and property, including TK of local and indigenous peoples. Also, to the extent that patents are obtained on TK shows a weakness in the system as such patents do not meet the criteria for patentability, particularly novelty. To this extent therefore, TRIPs is discriminatory. It is an absurd imposition of the western culture’s systems on other cultures and traditions.

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<sup>244</sup> RAFI, *Bioprospecting/Biopiracy and Indigenous peoples*, *op cit.*, and also UNDP/CSOPP Document, *op cit.*, p. 2

<sup>245</sup> Patricia Kameri-Mbote, Philippe Cullet, *op cit.*, p. 4

<sup>246</sup> *UNDP Human Development Report 1999*. p. 68

The very nature of the current IPRs system discriminates against developing countries as it unfairly places a greater value on biotechnology outputs, generally produced in developed countries, than on genetic resources (often used to create the biotechnology products) and contributions from local/indigenous communities, found in developing countries.

Further, what is also most disturbing today is the effort to bring germplasm held by the International Agricultural Research Centres (IARCs) of the CGIAR.<sup>247</sup> In the 1950's and 1960's, indigenous and other rural people gave germplasm now held by CGIAR for research use. CGIAR research efforts produced hybrid varieties of especially maize and rice, which maximised and increased food production, introducing the "green revolution". The "green revolution" managed to achieve food security and greatly reduced hunger for many countries in Asia and Latin America. This was possible because the hybrid seeds were freely available, CGIAR did not have IPRs over them and the developing countries were able to buy the seeds at very low prices.

### 4.3. Issue Two: Access

The sustainable development of agriculture is strongly dependent on access to plant genetic resources (PGRs).<sup>248</sup> No country or region of the world is self-sufficient in biological diversity. PGRs are unevenly distributed around the world. Even the most biologically diverse countries look to other regions of the world for a crucial share of their genetic stock.<sup>249</sup> Humanity shares a common bowl containing only 20 cultivated crops that sustain 90% of our calorie

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<sup>247</sup> For e.g. two agencies, Agriculture Western Australia and the Grains Research and Development Corporation, had apparently applied for PBRs in relation to two species of chicken pea, which had been bred from material provided by ICRISAT. See Michael Blakeney. *Intellectual Property Rights in the Genetic Resources of International Agricultural Research Institutes-Some Recent Problems*. 1 BioScience Law Review. 1998. p. 2-3

<sup>248</sup> PGR is a term generally used to refer to landraces, advanced cultivars, wild relatives of domesticated plants and wild (non-domesticated) species used by man but which have scientific and economic value. Conversely, the term "genetic resources" is said to be "genetic material of actual or potential value while the term "genetic material" includes "any material of plant, animal, microbial or other origin containing functional units of heredity. Thus genetic resources are genetic material of actual or potential value of plant, animal, microbial, or other origin. A South/North argument is used as to whether to use the term "plant genetic resources" or "genetic resources". See Robin Pistorius and Jeroen van Wijk, *op cit*, and also Girsberger, *op cit.*, p. 1020

<sup>249</sup> For example, bananas and plantains are important cash crops in Central and South America and the highest per capita consumption as a staple food is in East Africa; however "home" for bananas and plantains is Southeast Asia. See The Crucible Group. *People, Plants and Patents: The impact of intellectual property on Biodiversity, Conservation, Trade, and Rural Society*. 1994. International Development Research Centre. Ottawa. p.4-7

requirements.<sup>250</sup> As far as the major crops are concerned, most regions of the world mainly depend on resources originating from elsewhere. We need each other.

In view of our interdependence, access to PGRs and processes is extremely important as it directly affects food security. Access to, control over and ownership of PGRs and processes has increasingly become a major issue internationally especially as biological resources dwindle. This has led to increased competition for these resources and an emphasis on their economic value. Concern is also raised when equal partners have an unequal opportunity to benefit from these resources or where it appears that IPRs are only available to a select few like MNCs at the expense of farmers or other rural communities.

### 4.3.1 Do patents restrict access?

It is essential to establish the extent to which patents may affect access to agrobiodiversity and processes because access is necessary for the continuous adaptation and improvement of plants for food and agriculture.

A new plant variety cannot be “created” from scratch. The improvement of crops can only take place on the basis of the use and modification of what nature has created. Therefore, innovation in plant breeding activities is essentially of an “incremental” nature, in the sense that it progresses on the basis of successive changes on available varieties. However, the need for strong patent protection so as to protect biotech inventions against copying is particularly important because as biological material, they naturally (re)-produce themselves.

The minimum term of protection for patents is 20 years, after which the invention falls into the public domain.<sup>251</sup> During the term of protection a patentee has exclusive property rights. The granting of a patent entails a prohibition, *ius excluendi*, of use of the patented material in the countries where the rights have been recognized.<sup>252</sup>

A product patent confers on its owner the exclusive right to prevent third parties from “making, using, offering for sale or importing for those purposes the product” without the patentee’s consent.<sup>253</sup> In the case of a process patent, the patentee may prevent the use of the process as well as the commercialisation of a product “obtained directly by that process”.<sup>254</sup> Thus, if a process (e.g. genetic

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<sup>250</sup> *ibid*, p. 4. Of these, rice, wheat and maize account for 60% of the calories and 56% of the protein that people derive from plants. See Patricia Kameri-Mbote and Philippe Cullet, *op cit.*, p. 3

<sup>251</sup> Article 33 of TRIPs

<sup>252</sup> Carlos Correa, *op cit.*, p. 176

<sup>253</sup> Article 28(1)(a) of TRIPs

<sup>254</sup> Article 28(1)(b) of TRIPs

engineering) to produce a plant (e.g. transgenic plant) were patented, exclusive rights would also extend to the plant obtained with the patented process.<sup>255</sup>

Patent rights are territorial therefore the right holder can *only* exercise his rights within the jurisdiction of where his patent is recognised or registered. However, outside the jurisdiction where his patent has been registered, the right holder can prevent the importation of products made elsewhere containing his invention.<sup>256</sup>

In principle, patents are negative rights to the extent that they exclude or prevent third parties from making, using or commercialising an invention without the authorisation of the patent holder. A patent on either a biotech product or process would exclude/prevent other parties from the production, reproduction (multiplication), research, breeding and commercialisation of such biotech product or process.

One of the negative implications of patents on agricultural biotechnology is its impact on agricultural research. Patents have broken down the traditional access and benefit-sharing system that previously existed between developed and developing countries where on the one hand developing countries provided free access to their genetic resources and developed countries freely received the benefits of research that used those resources. Today developing countries still provide access to genetic resources for free but the benefits of research that use those resources are no longer free or as accessible as before.

Patents have hindered the traditional flow of knowledge and genetic material among researchers. There is a lack of “freedom to operate” to conduct biotech R&D activities because of the existence of many patents on biotech products and processes held by MNCs. This has slowed down research partnerships and the flow of knowledge between interested research parties and has led to a negative impact on the quality of research carried out. The multiplicity of patents owned by MNCs, especially where broad patents are granted on useful biotech information and technology or fundamental research processes, have stifled research and complicated or deterred useful and desirable follow-on research.

Access to patented biotech products or processes would be subject to terms set by the patent holder such as the conclusion of licensing agreements with such terms and conditions as the patent holder might see fit e.g. the payment of royalties. This impedes and interferes with the exchange of plant materials and knowledge among researchers, countries, universities and other stakeholders. This could have dire consequences for public research in developing countries, which normally have scarce financial resources.

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<sup>255</sup> Carlos Correa, *op cit.*, p. 176. Article 34(1) of TRIPs places the burden of proof in process patents on the producer, for him to show that he did not use the patented process to produce his product.

<sup>256</sup> Carlos Correa, *op cit.*, p. 176



A patentee may also prevent farmers from traditionally saving and reusing seeds for use in subsequent planting seasons and/or commercially exploiting a harvest, if the seeds thus used are patented. In addition, a patentee may prevent farmers from breeding new varieties using patented seeds. It is evident that patents on seeds (or other propagating material) can be used to protect against farmers seed reuse (either for planting (production or reproduction) and commercialisation) and against farmers or other breeders seeking to use the material for improving on the variety. In practice, the patentee can find many ways to block access and distribution of the patented biotech product or process and limit the uses made of it while access to the patented products or processes would be subject to the patent holder's terms and conditions.

Similarly, as patents on isolated genes extend to GMOs into which the genes are inserted hence bringing the entire organism under patent protection, when such genes are inserted into plant varieties there is a failure of recognizing the contribution of breeders' of the original plant variety while this also has an implication on access to any plant variety inserted with the patented gene.

#### **4.3.2 Do PBRs restrict access?**

The criteria used to grant PBRs – plant varieties that are distinct, uniform and stable – leads to genetic erosion. As farmers opt to farm and sell such varieties instead of land races/traditional plant varieties – which are genetically diverse and do not meet the criteria for the grant of PBRs – this leads to genetic erosion. As PBRs are only granted for a variety that is genetically uniform they automatically limit both what kind of seeds can be marketed and who can market them thereby keeping genetically diverse and locally adapted seeds from the market and from the farms.

PBRs promote commercially bred varieties geared for industrialized agriculture in which local or rural farmers have to pay royalties on such seed. The seed sector thus becomes an investment opportunity for MNCs. Such varieties only breed or grow successfully when farm inputs are applied to them e.g. fertilizers, herbicides, pesticides which are available only from the MNCs, at the expense of more sustainable biologically diverse systems.

Traditionally PBRs do not restrict access to plant varieties due to the availability of the breeders' exemption and farmers' privilege. However, the stronger levels of protection introduced under the 1991 UPOV Act ensures a restriction of access.

The 1991 Act does not require countries to protect the rights of farmers to freely use their harvest as further planting material (so-called farmers' privilege). It leaves it *optional* for member states to define a farmer's privilege – as an exemption from the breeders' right – which then potentially restricts farmers'

access to propagating materials e.g. seeds in those member states that choose not to grant this privilege.<sup>257</sup>

Thus, under the 1991 Act, unless the national law provides otherwise, a farmer who produces or reproduces a protected variety from farm-saved seed is guilty of infringement. This weakens the economic position of rural farmers because they traditionally rely on farm-saved seed for use as seed in subsequent planting seasons and also to sell in their local markets.

Under article 13(2) of the 1991 Act, a breeder may have some rights in relation to a farmer's harvest. For instance, if a farmer plants in his farm seed from a protected variety on which royalty had not been paid, the breeder could sue the farmer for infringement. The breeder has no rights in relation to the harvest when a farmer resows his own seed exercising the farmers' privilege.

It would also be an infringement to produce or reproduce and perform related acts with respect to "essentially derived" varieties. This may limit the diffusion of varieties improved by farmers, though (if the farmers' privilege is recognized) it would not prevent them from using the essentially derived varieties in their own local and traditional innovations.

The 1991 Act also restricts breeding in that anyone using a protected variety in research has to make significant changes to the variety or else the "new" variety will not be considered as "new" but as an "essentially derived" variety, which as we have seen, cannot be exploited without the permission of the original breeder.

In addition, the 1991 Act is silent on the double protection of plant varieties i.e. under patents and PBRs hence leaving it free for member states to decide whether or not to provide plant varieties double protection. In the event that a member state provides double protection, this will strengthen the position of the right holder at the expense of the public, particularly researchers, breeders and farmers.

### **4.3.3 Do trade secrets restrict access?**

A trade secret held by its possessor is not accessible to third parties, unless with the possessor's consent. Trade secrets are not exclusive rights; the protection accorded is against using the secret information in dishonest commercial practices. Thus, information protected because it is secret may be used and reproduced by a third party, if such acts do not constitute unfair commercial practice. In addition, trade secrets do not protect against discovery, or accidental or wilful disclosure.

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<sup>257</sup> It is observed that the 1991 UPOV Act expressly allows countries to permit seed saving by farmers and, in practice, virtually all countries make special provision for the right to reuse seed in their national laws although this is usually restricted to small-scale or subsistence farmers. See Geoff Tansey, *op cit.*, p.10

It is observed that hybrid seeds need to be replaced for each cycle of production (planting season) because they do not breed true. They are therefore protected by their very nature against unauthorized reproduction. However, in the case of their parent/inbred lines, when used to produce hybrids, if the said lines are not commercialised or made public, the lines would be protected as a trade secret, creating a barrier for third parties against unauthorized access to and use of the said lines for research and breeding activities.

Under Article 39(2)(b) of TRIPs reverse engineering (e.g. of hybrids so as to know what constitutes the parent/inbred lines) appears to be legitimate because in order to be protected, the “undisclosed information” must be “secret in the sense that it is not...readily accessible to persons within the circles that normally deal with the kind of information in question.” Hence, to the extent that the secret can be discerned through evaluation of a product that “incorporates” it, no protection would be available.

The extent to which trade secrets may restrict access to information will depend on the rights the possessor has in respect of acts of reverse engineering when the secret information is “embodied” in and obtainable from the products and possibly, on the terms and conditions of the particular sales contract.

The use of conditions of sale, label licences on bags of seeds (“shrink wrap”) and contractual clauses by MNCs can also be restrictive on the use of seeds imposing restrictions beyond those determined by IP or other substantive laws.

#### **4.4 Issue Three: Access and Benefit Sharing**

Access and benefit sharing have often been raised together as a result of biopiracy. Benefit sharing constitutes a useful strategy to reduce the impact of patents on farmers and local communities and to eliminate biopiracy, which fails to acknowledge or compensate local or indigenous communities for appropriating their knowledge.

MNCs engaged in biopiracy activities have made enormous profits as a result of using TK and PGRs developed and bred by local and indigenous peoples. It is estimated, for example, that the economy of the USA alone has annual sales of at least US\$ 50 million from genes of 15 major crops that were first cultivated and enhanced by indigenous peoples.<sup>258</sup>

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<sup>258</sup> Mugabe, John. *Intellectual Property Protection and Traditional Knowledge: An Exploration in International Policy Discourse*. 1999. African Centre for Technology Studies (ACTS). ACTS Press. Biopolicy International Series no. 21. Nairobi, Kenya. p. 5

The IP system has contributed to the biopiracy of TK posing issues of compensation and benefit sharing to the local and indigenous peoples where the knowledge originated from and the need for protection against future such-like activities.

Though the definition of benefit sharing is often broad, in practice it is often limited to monetary compensation. In effect, this kind of benefit sharing legalizes and legitimises the dispossession of local and indigenous peoples rights over PGRs and TK and to avoid biopiracy, it sacrifices their rights.<sup>259</sup>

In this light therefore, there have been efforts both at the international and regional level to address access and benefit sharing issues. These are presented herein below so as to analyse the efficacy of the TRIPs regime.

#### 4.4.1 The Convention on Biological Diversity (CBD)

The CBD was adopted at the 1992 United Nations Conference on the Environment and Development (UNCED) dubbed “Earth Summit” and came into force in December 1993.<sup>260</sup>

The negotiations leading to the conclusion of the CBD were characterised by major ideological differences between developing and developed countries (particularly the USA).<sup>261</sup> The issue of IPRs was very prominent in the negotiations. The main issues of concern pertained to the ownership of biological resources both within (*in situ*) and without (*ex situ*) national boundaries and in gene banks (e.g. CGIAR) and biotechnological innovations ensuing from those resources.<sup>262</sup>

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<sup>259</sup> Cullet, Philippe. *Plant Variety Protection in Africa: Towards Compliance with the TRIPS Agreement*. 2001. African Centre for Technology Studies (ACTS). ACTS Press. Biopolicy International Series No. 3. Nairobi, Kenya. p. 22

<sup>260</sup> See Johnson, Stanley P. *The Earth Summit: The United Nations Conference on Environment and Development (UNCED)*. 1993. International Environmental Law and Policy Series. Graham & Trotman/Martinus Nijhoff. London. p. 81-102. See text at <http://www.biodiv.org/default.asp>

<sup>261</sup> The USA was the most prominent objector to the CBD and is still not a party to the CBD. Her main reasons were: firstly, the fact that the CBD dealt with biotechnology and provided that developing countries should have access to biotechnology on preferential terms; secondly, the provisions allowing for countries to patent genetic material and charge royalties for its use, thus presumably reducing the profits of MNCs that develop such material to marketable products; thirdly, the financial provisions requiring developed countries to provide financial resources to developing countries so that they can implement the CBD which provisions were seen to provide a wide leeway with the developed countries being legally bound to provide whatever the developing countries decide. See Stanley Johnson, *op cit.*, p. 81-82 and Malanczuk, P. *Akehurst's Modern Introduction to International Law*. 1997. 7<sup>th</sup> revised edition. Routledge. London & New York. p. 249

<sup>262</sup> The CBD does not apply to *ex situ* collections such as those held by gene banks like CGIAR centres collected prior to the date when the CBD came into force. These *ex situ* collections are dealt with in the FAO Treaty (mentioned below).

In its preamble, the CBD recognizes that conservation and sustainable use of biodiversity is of crucial importance for meeting the food, health and other needs of a growing world population, for which purpose access to and sharing of both genetic resources and technologies are essential. It also recognizes the vital role that women play in the conservation and sustainable use of biological diversity and affirms the need to include women in all decision-making processes for biodiversity conservation.

The main aims of the CBD are “the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of benefits arising out of the use of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.”<sup>263</sup>

The preamble of the CBD recognises that the conservation of biodiversity is now a “common concern of humankind”. In spite of the international trend towards the conservation of biodiversity as a common concern, states generally are responsible for the sustainable conservation of the biodiversity within their boundaries. Therefore, the CBD recognises the sovereign rights of states over their biological and genetic resources.<sup>264</sup>

State sovereignty remains an important basis for regulating access to biological resources. The CBD states that the authority to determine access rests with national governments and is subject to national legislation.<sup>265</sup> States are to endeavour to facilitate access by other state parties for environmentally sound use.<sup>266</sup> Further, access to these resources can only occur on mutually agreed terms and with the “prior and informed consent” of states, unless states have otherwise determined.<sup>267</sup>

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<sup>263</sup> Article 1 of CBD

<sup>264</sup> Article 3, 15(1) of CBD. State sovereignty over natural resources is reaffirmed in many international conventions. Permanent sovereignty over natural resources is a facet of state sovereignty and refers to the right to exploit and develop natural resources, including agrobiodiversity, according to a state’s own policies. This right is also found in both article 1 of the ICCPR and ICESCR, and is a component of the right to self-determination. It states “***All peoples may, for their own ends, freely dispose of their natural wealth and resources without prejudice to any obligations arising out of international economic co-operation, based upon the principle of mutual benefit, and international law. In no case may a people be deprived of its own means of subsistence.***”

<sup>265</sup> Article 15(1) of CBD

<sup>266</sup> Article 15(2) of CBD

<sup>267</sup> Article 15 (4), 15(5) of CBD “Prior Informed Consent” from states and/or local communities means that agreement has been obtained by those taking genetic resources from the providers of the resources about the destination of those resources, what they may be used for and, usually, a commitment to share any benefits derived from the enhanced use of those resources. See Geoff Tansey, *op cit.*, p. 25

Further, the CBD requires the equitable sharing of benefits – on mutually agreed terms - arising from the results of R&D and commercial use of genetic resources with the state providing the resources.<sup>268</sup> It particularly states that countries are to provide for the effective participation in biotech R&D and particularly in developing countries who provide the genetic resources and also countries are to promote and advance priority access to developing countries - on mutually agreed, fair and equitable terms - results and benefits from biotechnologies based on genetic resources provided.<sup>269</sup>

Biotechnology has enormous potential to meet food and other needs, but biotech R&D is dependent on genetic resources. There is thus a need to conserve biodiversity and its components. Paradoxically, while new biotech R&D poses a threat to biodiversity e.g. GMOs, it is the conservation of biodiversity that will enable advances in biotech R&D.

The CBD recognizes IPRs to biotechnological inventions and asserts that IPRs must be supportive of and not run counter to the objectives of the CBD.<sup>270</sup> The CBD recognizes that access to and transfer of technology, including biotechnology is essential for the attainment of its aims. It requires the transfer of technologies to developing countries who provide genetic resources (including those technologies protected by patents and IPRs) to be on – mutually agreed, fair and most favourable terms and in accordance with the financial mechanism established thereby - recognising and consistent with the adequate and effective protection of IPRs.<sup>271</sup>

Due to the current trends in IPRs protection, particularly patents on PGRs e.g. biopiracy, broad bio-patents, ethical or cultural issues as regards patenting of life forms etc, concerns have been growing with regard to the extent IPRs may jeopardize the exercise of sovereign rights over PGRs and make illusory the implementation of a balanced multilateral system based on shared-access.<sup>272</sup>

The CBD does not deal specifically with the issue of PVP but is of direct relevance because it covers all biological resources, whether plant varieties or not. Thus, the introduction of PVP in the context of TRIPs cannot be separated from

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<sup>268</sup> Article 15(7) of CBD

<sup>269</sup> Article 19(1)(2) of CBD

<sup>270</sup> Article 15(6), 16, 19 of CBD

<sup>271</sup> Article 16(2), 16(3) of CBD It is said that the emphasis on acquiring new and patented biotechnologies designed for the needs of developed countries that will attract royalties denies the importance of biotechnological information that is already in the public domain and adapted to the environment and development needs of developing countries.

Developing countries are therefore urged to concentrate their efforts on informing themselves about the existence of such knowledge than on gaining access to biotechnologies found in developed countries. See Rohini Acharya, *op cit.*, p. 17-22

<sup>272</sup> Carlos Correa, *op cit.*, p. 168-169

the CBD. Indeed, the CBD provides the broad framework within which IPRs over plant varieties must fit.

The CBD recognizes the close and traditional dependence of many indigenous and local communities on biological resources and deals with TK in the context of conservation and sustainable use of biodiversity.<sup>273</sup> Although, articles 8(j) and 10 do not use the word “protect”, they create legal obligations for states to respect, preserve, promote and maintain the knowledge, innovations, practices of indigenous peoples and local communities. Article 8(j) also provides for the equitable sharing of the benefits arising from the use of TK, innovations and practices with indigenous peoples and local communities.

In the CBD, TK is limited in the context of conservation of biodiversity. It also relates to the “old” rather than “modern” or “future” manifestations of TK. The CBD is also subject to national laws for its implementation. Therefore, at the subsequent Conferences of Parties (CoP) to the CBD, concerns on IP protection of TK has occupied the agenda due to the acknowledgement of the fact that the CBD does not provide an adequate legal basis for its protection.<sup>274</sup>

#### **4.4.2 The International Treaty on Plant Genetic Resources for Food and Agriculture**

On 3rd November 2001, the FAO Conference adopted the International Treaty on Plant Genetic Resources for Food and Agriculture.<sup>275</sup> It covers all PGRs relevant to food and agriculture<sup>276</sup> and will come into force three months after it has been ratified by 40 states.<sup>277</sup>

Once in force, the Treaty will succeed the IU, a non-binding agreement adopted by the FAO Conference in 1983.<sup>278</sup> The Treaty as a legally binding instrument

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<sup>273</sup> Mugabe, J, *op cit.*, p. 21

<sup>274</sup> *ibid*

<sup>275</sup> It was adopted by Resolution 3/2001 with only two countries abstaining, notably the USA and Japan. See Mekoaur, Ali. *A Global Instrument on Agro-biodiversity: The International Treaty on Plant Genetic Resources for Food and Agriculture*. January 2002. FAO Legal Papers Online #24 at <http://www.fao.org/Legal/pub-e.htm>. For a more comprehensive analysis on its implications see Helfer, Laurence R. *Intellectual Property Rights in Plant Varieties: An Overview with Options for National Governments*. July 2002. FAO Legal Papers Online #31 at <http://www.fao.org/Legal/pub-e.htm>. See also “A Treaty on agro-biodiversity” at <http://www.fao.org/ag/magazine/0112sp3.htm>. See text at <ftp://ext-ftp.fao.org/ag/cgrfa/iu/ITPGRRe.pdf>

<sup>276</sup> Article 3 of Treaty

<sup>277</sup> Article 28 of Treaty

<sup>278</sup> The IU was adopted by Resolution 8/83 and was the first international agreement to deal with the sustainable management of PGRs for food and agriculture. It formalized the *de facto* status of PGRs as a “common heritage of mankind” that should be “available without restriction”. Subsequently, three other interpretive FAO resolutions were adopted and annexed to the IU, namely: Resolution 4/89 with recognized farmers’ rights and UPOV-based

goes much further than the IU as it represents a legally binding international commitment to the improvement of the world's key food and feed crops.

From its preamble, the Treaty recognises the “special nature of PGRs for food and agriculture, their distinctive features and problems needing distinctive solutions.” It recognises that PGRs for food and agriculture “are a common concern of all countries, in that all countries depend very largely on PGRs for food and agriculture that originated elsewhere.” This notion of “common concern of all countries” is also found in the CBD although, as in the CBD, the Treaty affirms the sovereign rights of states over their PGRs for food and agriculture.<sup>279</sup>

The preamble further states that “the conservation, exploration, collection, characterization, evaluation and documentation of PGRs for food and agriculture are essential in meeting the goals of the Rome Declaration on World Food Security and the World Food Summit Plan of Action and for sustainable agricultural development for this and future generations...”

It also states that PGRs for food and agriculture “are the raw material indispensable for crop genetic improvement, whether by means of farmers’ selection, classical plant breeding or modern biotechnologies, and are essential in adapting to unpredictable environmental changes and future human needs...”

The Treaty also acknowledges that PGRs for food and agriculture raise a synergy of issues in agriculture, commerce and the environment. It states that the Treaty and other international agreements relevant to it should be mutually supportive with a view to sustainable agriculture and food security. It also explicitly makes references to the CBD while stating that its aims “will be attained by closely linking it to the CBD.”

The aims of the Treaty are stated as “the conservation and sustainable use of PGRs for food and agriculture and the fair and equitable sharing of benefits derived from their use, in harmony with the CBD, for sustainable agriculture and food security.”<sup>280</sup> The Treaty states that PGRs should be conserved and used in a sustainable way and spells out the type of actions to be taken to achieve this end.<sup>281</sup> It calls for the participation of interested stakeholders in decisions regarding PGRs.<sup>282</sup>

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PBRs as compatible with the IU; Resolution 5/89 which conceptualised the notion of farmers’ rights; Resolution 3/91 which recognized the sovereign rights of nations over their PGRs and set out the farmers’ rights that could be implemented through a fund for PGRs. FAO’s Commission on Genetic Resources for Food and Agriculture served as the secretariat of the IU. See Ali Mekoaur, *op cit.*, p. 2

<sup>279</sup> See preamble, Article 10 of Treaty

<sup>280</sup> Article 1 of Treaty

<sup>281</sup> Article 6 of Treaty: These include: (i) encouraging farming systems that enhance the sustainable use of agro-biodiversity and other natural resources; (ii) maximizing intra and inter specific variation for the benefit of farmers, especially those who apply ecological principles in maintaining soil fertility and combating diseases, weeds and pests; (iii)



An important landmark of the Treaty is its formal recognition of Farmers' rights. Its Article 9 states "the contracting parties recognize the enormous contribution that the local and indigenous communities and farmers of all regions of the world, particularly those in the centres of origin and crop diversity, have made and will continue to make for the conservation and development of PGRs which constitute the basis of food and agriculture production throughout the world."

It further states "that the responsibility for realizing Farmers' rights...rests with national governments...and ...should take measures to protect and promote Farmers' rights, including: *protection of TK relevant to PGRs for food and agriculture; the right to equitably participate in sharing benefits arising from the use of PGRs for food and agriculture; and the right to participate in decision-making, at the national level, on matters related to the conservation and sustainable use of PGRs for food and agriculture.* It also states "*nothing in this article should be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seed/propagating material,* subject to national law and as appropriate."

This is a major step because it acknowledges and provides for the implementation of the rights of informal innovators ("traditional farmers") on equal footing with the rights already granted to formal innovators ("modern breeders") by existing treaties.

Another key element of the Treaty is the provision of a Multilateral System of Facilitated Access and Benefit-Sharing for PGRs.<sup>283</sup> The system aims to provide facilitated access to an agreed list of over 60 plant genera, including 35 crops and 29 forages, established on the basis of interdependence and their importance for food security.<sup>284</sup> Recipient countries of these PGRs agree to provide facilitated access to other countries by, *inter alia*, not claiming any IPRs or other rights that limit the facilitated access to PGRs for food and agriculture, or their genetic components.<sup>285</sup>

The Treaty also provides that the benefits accruing from the use – including commercial - of the material accessed under the Multilateral System should be

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broadening the genetic base of crops and increasing the range of genetic diversity available to farmers; and (iv) promoting increased world food production compatible with sustainable development.

<sup>282</sup> See preamble, Article 6(2)©, 9(2)© of FAO treaty

<sup>283</sup> For example, access to information related to PGRs is a principle that is found throughout the Treaty e.g. Article 13(2)(a) where non-confidential information regarding technologies, results of research etc on PGRs is to be made available to countries. This facilitates the exchange of information "on scientific, technical and environmental matters related to PGRs for food and agriculture", with a view to contributing to the sharing of benefits there from.

<sup>284</sup> Article 11, Annex I of Treaty

<sup>285</sup> Article 12(3) of Treaty

shared fairly and equitably.<sup>286</sup> Its provision on the sharing of monetary benefits arising from the commercial use is also a landmark in that someone who obtains a commercial profit from the use of PGRs administered multilaterally will be obliged - by a standard Material Transfer Agreement - to share these profits fairly and equitably, and pay a royalty to the multilateral mechanism, to be used by the Governing Body of the Treaty as part of its funding strategy for benefit-sharing.<sup>287</sup>

The monetary benefit sharing is part of a larger whole as the Treaty establishes a funding strategy that will mobilise funds for priority activities particularly in developing countries and economies in transition countries.<sup>288</sup>

The Treaty for the first time also provides an agreed international framework for the *ex situ* collections of PGRs held in trust by, among others, the IARCs of the CGIAR. Such collections will now be available within the context of the Multilateral System and under the terms and conditions set out in Article 15.

The Treaty does set out a clear and predictable framework for access to PGRs and a greater balance of the relevant interest groups. It ensures that both formal and informal plant breeders (e.g. rural farmers) have access to PGRs they need and prevents their monopolization, through IPRs, by third parties e.g. MNCs.

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<sup>286</sup> Article 13 of Treaty: Notably, the benefits do not return to the country of origin, but are to be shared in a fair and equitable manner through multilateral mechanisms e.g. partnerships and collaboration with the private and public sectors of countries in development and in transition. Such benefits should flow primarily to all farmers, especially farmers in developing countries and countries with economies in transition, who conserve and sustainably use PGRs for food and agriculture. There will be increased opportunities for developing joint strategies for the conservation and sustainable use of PGRs, the facilitation of research partnerships and the pooling of resources to exploit PGRs, and access to relevant research and technologies. See Ali Mekour, *op cit.*, p. 7

<sup>287</sup> Article 13(2)(d) of Treaty: the Treaty distinguishes between mandatory and voluntary payment. Payment is mandatory on the commercialisation of a product that is a PGRs and that incorporates material accessed from the Multilateral System, when this product is not available without restriction to others for further R&D. Payment is voluntary when this product is available. See Ali Mekour, *op cit.*, p. 7

<sup>288</sup> Article 18 of Treaty: countries are also to take into account the priorities established in the rolling Global Plan of Action for the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture. 150 countries at the Leipzig International Technical Conference on Plant Genetic Resources for Food and Agriculture adopted this plan in 1996.

#### 4.4.3 The African Model Legislation for the Protection of the Rights of Local Communities, Farmers and Breeders and for the Regulation of Access to Biological Resources<sup>289</sup>

In June 1998, at the 68<sup>th</sup> Ordinary Session of the Council of Ministers of the OAU held in Ouagadougou Burkina Faso, Ethiopia sponsored a draft Model Law that was tabled for discussion. The Council of Ministers, adopted the Model Law and expressed concern that the western patent system was laying a claim, in a massive way, to the biological diversity, knowledge and technologies of local and indigenous people of the South, including Africa and made various recommendations.<sup>290</sup> The Model Law is the only regional effort at attempting to come up with a regime on access to biological resources in Africa.

Of the two regional IP organisations, only the French-speaking OAPI has dealt with PVP directly. In 1999, OAPI member states revised the Bangui Convention, which now commits them to UPOV 1991 version. This is an unexpected choice because there is no obligation to join UPOV so as to fulfil the requirements of Article 27(3)(b) of TRIPs. The other organisation, ARIPO has not dealt with the issue specifically following the adoption of TRIPs. It appears as though ARIPO leaves its members free to reject patents granted on grounds found in domestic law but does not itself provide any framework within which patentability must fall.<sup>291</sup>

The main aim of the Model Law is stated as “to ensure the conservation, evaluation and sustainable use of biological resources, including agricultural

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<sup>289</sup> The development of the OAU Model Law is the result of initiatives from the Scientific, Technical and Research Commission (STRC) of the then OAU (which has since been preceded by the African Union), the Ethiopian Environmental Protection Authority and the Institute of Sustainable Development in Ethiopia. They found common ground in response to the mounting pressure on developing countries in general, and Africa in particular, to comply with the CBD and TRIPs. See Prof J.A Ekpere - Project Coordinator, OAU/STRC. *An Explanatory Booklet on the OAU Model Law*. p. 8. See also *The Model Law of the OAU on Community Rights and on the Control of Access to Biological Resources* at <http://www.twinside.org.sg/title/oau-cn.htm>. See text at <http://www.blauen-institut.ch/Tx?+T/ttOauModellLaw.html>

<sup>290</sup> **First**, that member states should give attention, as a matter of priority, the need to regulate access to biological resources, community knowledge and technologies and their implication for IPRs as found in TRIPs; **Second**, member states should enact the Draft Model Law into national law and involve all stakeholders in accordance with national interest; **Third**, member states should initiate a process of negotiation for an African Convention on Biological Diversity with emphasis on conditions for access to biological resources and protection of community rights; **Fourth**, member states should develop an African Common Position and forge an alliance with like-minded countries of the South in the 1999 revision of TRIPs so as to safeguard their sovereign rights and the interests of local communities. **Fifth**, that the OAU/STRC be designated as the focal point for coordination and follow up activities. See Ekpere, *op cit.*, p. 10

<sup>291</sup> Philippe Cullet, *op cit.*, p.

genetic resources, and knowledge and technologies in order to maintain and improve their diversity as a means of sustaining all life support systems.”<sup>292</sup>

It focuses on the definition of the rights of local communities, farmers and breeders over biological resources and establishes them as *a priori* rights that take precedence over rights based on private interests.

Its core principles and provisions are state sovereignty and the inalienable rights of its people over biological resources,<sup>293</sup> food sovereignty and security including the right and responsibility of all stakeholders to keep seed free from private rights.<sup>294</sup> It also provides for the full participation of all stakeholders in decisions over biological resources.<sup>295</sup>

The Model Law provides for community rights and responsibilities over biological resources.<sup>296</sup> These include: inalienable rights over biological resources and the right to collectively benefit from its use; rights to their innovations, practices, knowledge and technology; the right to collectively benefit from their use; the right to prohibit access to their biological resources and TK (but only in cases where access would be detrimental to the integrity of their natural or cultural heritage). The state is also required to ensure that at least 50% of the benefits derived from the use of their biological resources or TK are channelled back to the local communities.

It recognises the importance of TK in the conservation and sustainable use of biological resources and provides for its protection.<sup>297</sup> It recognises the vital role played by women in the conservation of biodiversity.<sup>298</sup> It also provides for farmers’ rights.<sup>299</sup> These include: the protection of their TK relevant to plant and animal genetic resources; the right to an equitable share of benefits arising from the use of plant and animal genetic resources; the right to participate in making decisions on matters related to the conservation and sustainable use of plant and animal genetic resources; the right to save, use, exchange and sell farm-saved seed or propagating material; and the right to use a commercial breeder’s variety to develop other varieties.

It provides for a mechanism to regulate access to biological resources and TK based on the prior informed consent of states and local communities, mutually

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<sup>292</sup> See Part I

<sup>293</sup> See preamble-1<sup>st</sup> paragraph, Part I (a), Part IV-Article 21(1)

<sup>294</sup> See Part I (k), Part VI – Article 26(3), Article 33(1)(b)

<sup>295</sup> See preamble-6<sup>th</sup> paragraph, Part I (e), Part V – Article 26 (1)©

<sup>296</sup> See preamble-2<sup>nd</sup>, 6<sup>th</sup> paragraph, Part I (g), Part IV-Article 16

<sup>297</sup> See preamble-3<sup>rd</sup> paragraph, Part I (e)(h), Part III-Article 5(1)(ii), Part IV-Articles 18, 22, Part V-Article 24(1), Part VII –Article 66(4)

<sup>298</sup> See preamble-4<sup>th</sup> paragraph, Part I (a), Part II-Article 1, 2(2), Part IV-Article 16, 21, 23, Part V - Article 24, 25, 26, Part VI – Article 31, Part VII – Article 60 (ii)

<sup>299</sup> See Part V

agreed terms and the fair and equitable sharing of benefits arising from their use, and establishes a community fund for this purpose.<sup>300</sup> Access by the formal sector is made subject to the conditions agreed to in the CBD while the traditional access by local communities and indigenous peoples is maintained.

The conditions of access include: R&D to be carried out in the country giving access; prior informed consent of both the state and the local communities; commitments for the conservation of biodiversity; commitment to provide information and duplicate specimens to the country giving access; commitment not to transfer to third parties without authorization; commitment not to apply any other IPRs; payment for the communal labour that has gone into creating or knowing the specific characteristics of the biodiversity, TK or technology accessed and the work done by the state in doing this; commitment to abide by certain procedures aimed at ensuring the implementation of the mutually agreed terms.

It provides for a *sui generis* system for the protection of plant varieties and clearly stipulates a no patents on life forms policy.<sup>301</sup> Generally, the PBRs rights follow those defined under UPOV.<sup>302</sup> What is noteworthy is the fact that PBRs under the OAU Model Law are subject to very broad exemptions such as breeders' exemptions to have the right to use a protected variety for purposes *other than* commerce, the right to sell plant or propagating material such as seed 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 another variety.<sup>303</sup>

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<sup>300</sup> See preamble-5<sup>th</sup>, 6<sup>th</sup> paragraph, Part I ©(d), Part II – Article 1, 2(2)(ii), Part III, Part IV – Article 18, 19, 20, 21, 22, Part V – Article 26(1)(b), Part VIII – Article 66, 67(2)(iii)(iv), 68.

<sup>301</sup> See preamble-9<sup>th</sup> paragraph, Part II –Article 2(1)(v), Part III – Article 9, Part VI

<sup>302</sup> Philippe Cullet, *op cit.*, p. 9

<sup>303</sup> *ibid*

# 5 RECONCILING THE ACCESS ISSUE

## 5.1 Status of Food Security in Africa

Agriculture in Africa is an activity of primary importance. It holds a key place in the national economies because it provides for most of the food needs of most people in Africa. The majority of African people are involved in agricultural activities as their main economic activity.<sup>304</sup> Agriculture's contribution to the GDP is also very substantial.<sup>305</sup> Agriculture is, for instance, the most important economic sector in Kenya.<sup>306</sup> The importance of this sector is reinforced by the fact that a majority of the population in sub-Saharan African countries lives in rural areas.<sup>307</sup>

Although today about 70% of Africans are farmers i.e. subsistence or small-scale farmers while the agricultural sector is the main economic activity for over 80% of Africans, the agricultural performance is persistently poor or even dismal.<sup>308</sup> The per capita food production, availability and access are steadily declining. For instance, if you compare with other regions of the world, Western Europe: 3500 Kcal/person/day, North America: 3600 Kcal/person/day while in Africa it is 2100 Kcal/person/day.<sup>309</sup> Africa is characterised by food shortages, food insecurity, chronic hunger and malnutrition. Food insecurity in Africa is directly

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<sup>304</sup> This is particularly true for sub-Saharan countries where more than two-thirds of the population is engaged in agriculture e.g. 92% in Burkina Faso, 76% in Kenya, and 74% in Senegal. See Philippe Cullet, *op cit.*, p. 11

<sup>305</sup> GDP's contribution is 26% in Kenya, 32% in Nigeria, 42% in Cameroon, and 50% in Ethiopia. See Philippe Cullet, *op cit.*, p. 11

<sup>306</sup> *ibid*

<sup>307</sup> *ibid.* Rural population accounts for 54% in Senegal, 58% in Nigeria, 74% in Tanzania, and 86% in Uganda.

<sup>308</sup> Kiome, Romano (Dr), Director, KARI. ***Potential Contribution of Biotechnology to Sustainable Development of Kenyan Agriculture.*** Biotechnology and Food Security Workshop, KARI hqs. 9.8. 2002. See also Prof. Reuben Olembo. ***Role of Biotechnology in African Development.*** BiotekAfrika. Biotechnology for Sustainable Development. Vol. 005-2001. Jan-March. See also Prof. James Ochanda. ***Agricultural Biotechnology: Policy and Institutional Implications for Africa.*** ABSF. Nairobi, Kenya.

[http://www.worldbank.org/wbi/attacking\\_poverty/rural/ochanda-presentation.ppt](http://www.worldbank.org/wbi/attacking_poverty/rural/ochanda-presentation.ppt)

<sup>309</sup> *ibid.* Profits from farming are too small because of low levels of productivity to allow farmers to reinvest in their land and maintain sustainable agricultural production. In contrast, farmers in Western Europe and North America have seen a steady increase in agricultural productivity increasingly facilitated by biotechnology and the constant payments of massive agricultural subsidies by their governments. As a result world grain prices have continued to fall rendering it increasingly difficult for the African small-scale farmer to operate profitably. See J. De Vries and G. Toenniessen. ***Securing the Harvest: Biotechnology, Breeding and Seed Systems for African Crops.*** 2001. CABI Publishing. p. 29-30

tied to the collapse of rural or small-scale/subsistence farming. It is estimated that 200 million Africans, most of them women and children, suffer chronic malnutrition, especially Vitamin A and other micronutrient deficiencies.<sup>310</sup> Agricultural development is thus critical to Africa's economic growth and improving the standard of living of its people.

It is said that one of the main reasons for rising hunger in Africa is the high rate of population growth<sup>311</sup> combined with low or negative economic growth which growth has exerted more demand for improved agricultural output and has resulted in increasing poverty.<sup>312</sup> It is observed that a high population growth rate is especially injurious in countries with low or negative economic growth, where the number of lives to support simply outstrips the rate of appearance of new opportunities for adding value within households.<sup>313</sup> Nevertheless, it is debateable to what extent this population growth rate has exerted pressure on agricultural outputs due to factors such as endemic diseases e.g. HIV/AIDS and malaria, civil wars, natural disasters & calamities e.g. floods which claim millions of lives on the continent.

Of the 48 low-income countries in the world today, 32 are in sub-Saharan Africa.<sup>314</sup> Africa experiences poverty in absolute terms. It is indisputable that Africa has the highest incidence of poverty, hunger and malnutrition globally. It is estimated that about 70% of the rural population in Africa is absolutely poor.<sup>315</sup> The poverty levels are rising because of the high levels of population growth combined with a poorly performing agricultural sector and generally bad governance.

There has been a significant decline in crop yields to match the population growth. Some of the most severe constraints to food production are poor soils, brought about by population increases, the encroachment on forests, drought and even

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<sup>310</sup> Within Africa, eastern and southern Africa account for the greatest number of undernourished people. Currently, Angola, Ethiopia, Eritrea, Mauritania, Mozambique, Lesotho, Swaziland, Zambia and Zimbabwe are experiencing massive famine. At least 15 million in Ethiopia and another 15 million in the southern African countries are in urgent need of food aid. Also, FAO estimates that Kenya has 13.2 million undernourished people (out of a total population of about 30 million). See FAO State of Food and Agriculture, 2002, *op cit.*, p. 1. WHO also estimates that 54% of child mortality in Africa is associated with malnutrition and as many as 1/3 of children in sub-Saharan Africa are said to be stunted because of poor diet. See J. De Vries and G. Toenniessen, *op cit.*, p. 29-30

<sup>311</sup> See J. De Vries and G. Toenniessen, *op cit.*, p. 29-30. It is estimated that today there are more than 650 million Africans and it is projected that in 25 years to come there will be 1.3 billion Africans (a growth rate of 3.1% annually).

<sup>312</sup> It is estimated that although Asia, with 70% of the developing world's total population, has far greater numbers of people who are undernourished; sub-Saharan Africa has almost double the percentage (33% compared with 17% in Asia) of hungry people. See J. De Vries and G. Toenniessen, *op cit.*, p. 30

<sup>313</sup> See J. De Vries and G. Toenniessen, *op cit.*, p.29

<sup>314</sup> See note 245

<sup>315</sup> See note 301

floods. The arable land is limited with little scope for expansion. Kenya for instance may have the capacity to produce sufficient food for her people and even for export, but about 70% of the land is arid or semi-arid. In addition, a high incidence of crop pests and diseases account for over 40% of pre and post harvest losses. Costly farm inputs e.g. fertilizers, herbicides and pesticides, which most rural farmers can barely afford and the low technology base has also contributed to this dire situation. There is also low livestock production arising from diseases and lack of vaccines to treat those diseases.

## 5.2 A further look at the implications

In Africa, farmers largely carry out seed management; indeed farm-saved seeds account for about 80% of farmers' total seed requirements.<sup>316</sup> These proportions are even higher in some countries e.g. in Ethiopia, farmers contribute about 96% of the annual seed requirements while in Tanzania, only 2% of the maize crop is planted with purchased certified seeds.<sup>317</sup> Even when farmers buy seeds for the crops they market, they usually continue to cultivate local food crops.

Traditionally, agriculture has been built around significant sharing of knowledge and resources at all levels. No specific farmer becomes a seed producer for the community. Instead, each year farmers share their seeds with each other, identifying those that perform well and conduct their own experiments with a variety of seeds.

This is also reflected in the fact that Africa, and indeed every region in the world is dependent on genetic material, which originated in another region for over 50% of its basic food production, and for several regions of the world, such dependency is close to 100%.<sup>318</sup> The global interdependency that prevails in respect of PGRs for sustainable agriculture explains why access to PGRs is key to food security, an issue that has been addressed in the CBD, the FAO Treaty and the African Model Law.

Although a few African countries, namely Kenya, Zimbabwe and South Africa, had introduced PVP regimes even before TRIPs (akin to UPOV type laws) very limited lessons can be learnt from these countries in terms of the impact of TRIPs in its introduction of IPRs on plant materials because in all these countries, PVP has not substantially fostered the development of new food crops; rather PVP has fostered the development of cash crops.<sup>319</sup>

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<sup>316</sup> Philippe Cullet, *op cit.*, p. 12

<sup>317</sup> *ibid*

<sup>318</sup> Carlos Correa, *op cit.*, p. 168

<sup>319</sup> In Kenya, out of the 136 applications filed and tested in 1997, only one was for a food crop, most were for cash crops and more than half concerned Rose Varieties. In Zimbabwe, for the same period of time, less than 40% of the applications were for food crops. In addition, the introduction of PBRs does not seem to promote the development of



Although biotechnology promises a lot for farmers in Africa, particularly with improved varieties accustomed to the ecological realities in Africa such as drought, comparisons with the “green revolution” of the 1960’s, which Africa did not benefit from, indicates that increasing yields alone through biotechnology may not address the complex issue of food insecurity and alleviation of hunger in Africa.

When assessing the relevance or appropriateness of agricultural biotechnology in addressing food security in Africa, it emerges that what is fundamentally at stake is the ownership of IPRs on biotech products and processes (and the related access problems) rather than the benefit/risk analysis of these new biotechnologies.<sup>320</sup> The introduction of IPRs in the management of biodiversity would have serious repercussions if it were not done with the aim of ensuring the realization of basic food needs.

TRIPs has extended and emphasised on private property rights over agro-biodiversity. We have seen that this could adversely impact on the individual’s right to food (and food security) directly and is bound to affect agricultural practices and the lives of rural farmers.

TRIPs favours corporate/commercial interests. IPRs as exclusive property rights are an incentive for private sector R&D in agriculture. This then tends to promote commercial breeding activities and high-technology agriculture. Businesses are not directly concerned with ensuring food security but mainly with the maximization of profits in any venture they enter into. Businesses focus on the commercial potential of agro-biodiversity and neglect its use in meeting basic subsistence needs while completely overlooking the contribution of local communities or groups e.g. farmers in the management of these resources.

In addition, MNCs based in developed countries, dominate and control the global seed industry. They hold the majority of patents relating to biotech products and processes. As we have seen, this restricts the accessibility of such knowledge or technologies.

TRIPs is also set to potentially conflict with established agricultural management practices of small-scale rural farmers. This is due to the fact that the two systems

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indigenous research capacity because most of the applications e.g. in Kenya between 1997-1999, 91% came from foreign institutions while in South Africa, 72% were also foreign in 1997. See Philippe Cullet, *op cit.*, p. 12

<sup>320</sup> Increasing food production alone will not solve food insecurity in Africa. It is appreciated that the causes of food insecurity in Africa are complex e.g. access to land, land rights and poverty. Nevertheless, access to existing and new technologies in agriculture is clearly a high priority. Africa needs to adopt and adapt appropriate technologies already developed elsewhere while at the same time she needs to develop her own capacity for designing new technologies, building on her own experience and traditional and indigenous knowledge.

rely on and promote different knowledge systems, identify innovations differently and reward inventors in different ways.

Further, under TRIPs, TK is not recognized as knowledge worth IP protection. Consequently, it is assumed that TK is in the public domain and thus freely available. It gives the impression that TK is not valuable while scientific research work carried on in laboratories is more valuable (and also adds value to TK). With the current TRIPs regime, farmers and other local innovators contribute to the research efforts of others, principally those based in developed countries, without being attributed any right to their work.

As farmers TK is not recognised and also because the majority of farmers mainly operate on the basis of sharing of knowledge, the gap between countries – developed and developing – and individuals who can compete in international agricultural trade will eventually widen.

IPRs as exclusive rights are inadequate to protect farmers' TK, which is often less individualistic and involves the collective work of local communities and farmers. IPRs as private rights marginalize, negate and completely ignore the rights and contribution of different actors involved in the improvement of agro-biodiversity. Usually more than one farmer is involved in the development of a variety (similar or close varieties could even have been developed in different areas or countries by different communities) and it is almost virtually impossible to attribute an improvement of a variety to one person.

It is clear that there is a need to recognise the immense contribution of the various actors involved in the conservation and development of biodiversity, particularly local communities, indigenous peoples and farmers. TRIPs while emphasising on private rights channels all benefits to an individual person and lacks a framework for the equitable sharing of benefits and compensation to those actors who have played a role in the management of biodiversity. There is thus a need to create alternative systems that reward farmers, indigenous peoples, local communities and other groups.

IPRs also generally foster the commercialisation of agricultural inputs. One of the most direct impacts of patents is to raise the price of patented seeds compared to other seeds. In addition, farmers become dependent on private firms for their seeds and also for farming inputs such as fertilizers and pesticides.<sup>321</sup> Further, and perhaps most crucial in Africa, farmers' will be unable to save and replant seeds of patented varieties exacerbating the food insecurity situation and worsening an already desperate situation.<sup>322</sup>

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<sup>321</sup> Especially as regards GURTs where seeds will only germinate on the application of inputs available from the same MNCs.

<sup>322</sup> In practice, I think that most small-scale farmers in Africa would be able to carry on the practice of saving seeds because litigation of millions of small farmers by seed companies is

In addition, IPRs such as PBRs encourage the breeding of new varieties which lay an emphasis on genetic uniformity and stability (thereby fostering monocultures) geared for industrialized agriculture which often have the tendency to displace local or traditional plant varieties. This leads to homogenisation and the erosion of agro-biodiversity or the genetic base on which continuous R&D activities are based as farmers stop maintaining existing local varieties and opt for high yielding varieties. This trend is not sustainable in the long run as local varieties provide the genetic base for most high yielding varieties.

Although IPRs may entail restrictions on access to biotech products and processes that could generally adversely impact on R&D activities in Africa, it is unlikely that local/domestic breeding would substantially benefit from the introduction of IPRs on plant varieties. The fact that an overwhelming majority of applications for PBRs in both Kenya and South Africa are foreign is a case in point. The correlation between R&D and IPRs has not been established in Africa as opposed to the obvious linkages the same has in developed countries.

Access to food still remains the main food security concern in Africa. Concerted efforts are needed to address access related problems such as those arising from IPRs on biotech products and processes while also addressing poverty alleviation, land rights and land redistribution.

For Africa, TRIPs, UPOV, CBD, FAO Treaty and the African Model Law are the key instruments that will govern and influence a system of access for PGRs for food and agriculture.<sup>323</sup> At least, at the international and regional level, there is a basic agreement of ensuring that for the key food and feed crops, there should exist a system that facilitates access to and exchange of PGRs for food and agriculture and the equitable sharing of benefits arising from their use. Access to PGRs for food and agriculture - either for production, reproduction, research or breeding - is essential in any system that seeks the conservation, sustainable use, exchange and equitable sharing of benefits of those resources.

Indeed IPRs are meant to serve a societal function, their grant should serve the wider public. The challenge is for national, regional and international policy makers to ensure that a balance is struck between the interests of IPRs holders

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simply not feasible, unless seed companies produce seeds for staple foods with in-built protection such as "terminator technology" or "traitor technology."

<sup>323</sup> Carlos Correa, *op cit.*, p. 171. The notion of access has shifted from a concept of "unrestricted" or "free" access to one of "shared-access". It is observed that some countries may find it difficult to agree on a system of "shared-access" if the genetic resources maintained and developed by their farmers and local communities may be appropriated under IPRs by foreign MNCs, especially if such IPRs create barriers to access to and use of the protected materials.

and those of the public so as to maximize and not block or restrict access to agro-biodiversity and biotech products or processes.

## 5.3 Towards Compliance with TRIPs

Up and above the food security implications brought about by TRIPs, it is necessary for African countries to fulfil their obligations under this legally binding treaty. African states should take advantage of the flexibility provisions under article 27(3)(b) of TRIPs to devise an IPRs system adapted to their own needs and conditions (*sui generis* system) and should avoid any system that involves private exclusionary rights such as patents or PBRs.

As we have seen, such private exclusionary rights are ill suited to provide the conditions necessary to ensure the fulfilment of basic food needs of individuals, households and nations in Africa and also the sustainable management of biological resources. An optimal balance could be achieved by determining the scope of protectable subject matter, the scope of rights, the permissible limitations or exceptions and the term of protection.

### 5.3.1 Exclusions from patentability

Nothing in TRIPs obliges members to follow an expansive approach regarding the patenting of life forms.<sup>324</sup> What article 27(1) of TRIPs does is that it specifies the requirements that an invention must meet for patentability, but does not define what an invention is. This leaves members with the freedom to determine what should be deemed an invention.

Access-related problems in relation to patents on plant varieties or processes would partly be solved if countries formulated in their domestic laws, exclusions banning the total patenting of substances existing in nature, such as genes, cells or entire plant varieties. Many developing countries in their laws do exclude the patenting of life forms as found in nature, even if purified/isolated. Patenting of life forms raises serious ethical, religious and cultural questions and therefore total exclusion of patenting life forms would be an option.

Article 27(2) and 27(3) of TRIPs also specify exclusions that a member country can establish in its domestic law e.g. based on morality, protection of human, animal or plant life or health or to protect the environment.

Article 27(3)(b) of TRIPs specifically provides for the exclusion of patentability of plants but without defining what “plants” are. Member states can thus exclude the patentability of plant species, plant varieties, including hybrids and transgenic plants, as well as their cells and seeds under this rubric. It should be borne in mind

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<sup>324</sup> Carlos Correa, *op cit.*, p. 186

that if patents are granted on “plants”, the protection might extend to plant varieties, because no definitions are afforded as to the difference between a “plant” and a “plant variety.” It is clear that TRIPs requires that plant varieties be protected by IPRs but there is no obligation to implement such protection under patents.

Another possible exclusion from patenting would relate to “essentially biological processes for the production of plants or animals.” Classic breeding methods are not patentable e.g. traditional breeding practices but biotechnological methods such as genetic engineering, where the degree of human intervention is significant, would be patentable (as a non-biological process).

TRIPs requires microorganisms and microbiological processes to be patented but the term “micro-organism” is not defined, in some countries “micro-organisms” can be classified as animals. This leaves member states with the freedom to apply a narrow scientific definition than an expansive one.

Article 30 of TRIPs provides for limited exemptions to the exclusive rights conferred by a patent. Developing countries should take advantage of this by providing research exemptions in their domestic laws to enable their public sector agricultural research to continue without the threat of infringing on patents.

### **5.3.2 If patents are granted:**

#### **5.3.2.1 Conditions for patentability**

Article 27(1) of TRIPs states that inventions shall be patentable as long as they are new, involve an inventive step (non-obvious) and are capable of industrial application (useful). There are different national interpretations on these conditions for patentability. There is some scope to tighten the criterion for patentability e.g. “novelty” would require that knowledge already in the public domain or in use for many years should not be the subject of a patent (e.g. biopiracy claims and revocation of such patents). An “inventive step” should be significant not just the mere identification of biomaterials or their function. The difference between one plant variety and another might also not be non-obvious to warrant patentability. Further, “usefulness” could include the public benefit of a biotech invention e.g. food security.

#### **5.3.2.2 Scope and Interpretation of claims**

We have seen that broad patents mainly based on functional claims vis-à-vis structural claims, widens the scope of protection to any means that performs the claimed function. Therefore, if patents on biotech products or processes are

allowed caution should be exercised to ensure that such broad claims are not accepted.

In practice, the scope of the rights can also be determined in the event of an infringement. Under patents unlike PBRs, it is sometimes difficult to establish an infringement because of problems distinguishing between a new plant variety and the patented one; one would need to prove that the “accused” plant has been derived from the patented one, that it is a copy of the patented one.<sup>325</sup>

### 5.3.2.3 Access to samples of patented materials

TRIPs requires that an invention must be disclosed.<sup>326</sup> The description of a biotechnological invention may need to be supported by the deposit of samples that contains the invention. National laws would need to determine how to deal with the conditions of access to deposited samples, particularly when and under what circumstances may third parties e.g. farmers, breeders etc obtain such samples.<sup>327</sup> Access to the samples may be an incentive for innovation based on the protected invention.

### 5.3.2.4 Compulsory Licenses

Article 31 of TRIPs explicitly allows for compulsory licenses. A compulsory license is an authorization conferred by a government or third parties authorized by the government, to use a patent without the consent of the patent owner. Access to patented biotech products or processes may be obtained by means of compulsory licenses so long as it is provided for under domestic law.

TRIPs does not limit the *grounds* for the grant of compulsory licences, but establishes the *conditions* under which the grant may take place.<sup>328</sup> Therefore, compulsory licenses may be granted on grounds related to public interest, to attain specific agricultural objectives like availability of high-tech seeds for farmers or food security, or the lack of exploitation of the invention, anti-competitive practices of the patentee (i.e. monopolistic practices), emergency, including conservation or protection of the environment.

Compulsory licenses can also be available if the patentee has not voluntarily assented to a request to grant a license on reasonable commercial terms for the

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<sup>325</sup> Carlos Correa, *op cit.*, p. 191

<sup>326</sup> Article 29 of TRIPs states “...in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art ...”

<sup>327</sup> The 1977 Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure, is an international system for the deposit of microorganisms and provides for conditions for access to samples deposited under it e.g. they will only be granted after publication of the relevant patent application.

<sup>328</sup> Carlos Correa, *op cit.*, p. 191

use of the patented biotech product or process. It should be borne in mind that Agenda 21, concluded at the UNCED, also recommended the provision of compulsory licenses to facilitate access to and use of environmentally sound technologies.

### **5.3.2.5 Revocation of patents**

TRIPs cannot be viewed in isolation from the rest of the international legal system and therefore, in this regard, it would be best to articulate its provisions in light with the CBD, the FAO Treaty etc. If this is the case, then patent applicants would be required to declare the country of origin of biological materials related to a patent application so as to identify the country of origin of given material and also to ascertain whether prior and informed consent has been obtained. This will also facilitate access and the sharing of benefits. Where these conditions have not been met a patent application or patent may be revoked. TRIPs does not indicate the grounds on which such a decision may be adopted but obliges members to ensure the availability of a judicial review of a decision to revoke a patent.<sup>329</sup>

### **5.3.3 *Sui generis* protection for plant varieties**

A *sui generis* system for the protection of plant varieties would allow African countries to develop IPRs over plant varieties, which are suited to their needs and conditions.

It is observed that very little conceptual work has gone into defining such a system, thus posing a challenge to African countries members of WTO.<sup>330</sup> This could be attributable to the fact that the pre-TRIPs era was characterised by the free sharing of biodiversity and knowledge and thus African states did not have much time to devise entirely new systems, which had not been experimented elsewhere.

African countries have been experiencing pressure from developed countries to join UPOV to fulfil their obligations under Article 27(3)(b) of TRIPs. This could also be another reason as to why they have not as yet developed a *sui generis* system.<sup>331</sup> African countries should use this opportunity to rethink their needs, instead of succumbing to pressure with regard to UPOV and adopt regimes that will actually benefit the majority in the long term.

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<sup>329</sup> Article 32 of TRIPs

<sup>330</sup> Philippe Cullet, *op cit.*, p. 24

<sup>331</sup> The deadline for compliance with TRIPs for “developing countries” was 1 January 2000, for most African countries classified as “developing” the deadline has since passed and most have not as yet adopted PVP regimes. African countries categorised as least-developing have up to 1 January 2006.

The *sui generis* PVP system envisaged should first seek to foster food security for all and not contribute to food insecurity. It should also lead to sustainable agriculture that does not lead to the erosion of biodiversity. It should also lead more generally to the development of food crops that do not harm the environment and thus biosafety provisions should be part and parcel of this regime.

A *sui generis* system should also be all encompassing taking into account other international obligations that African states could be party to, such as the CBD and FAO Treaty. In addition, such a system should provide rights to *all* relevant actors in agricultural management, focusing on broadening the range of rights holders and not excluding any specific actors.

Although TRIPs does provide that member states can protect plant varieties through an alternative *sui generis* system, it does not define what such a system is. However, it can be implied that it should allocate IPRs, an alternative to patents.<sup>332</sup>

In devising such a system, African countries can recognise concurrently and equally farmers rights, rights of local communities and indigenous peoples, rights of commercial breeders and rights of national agricultural research institutes. Such rights should be clearly spelt out and should not be exclusive; in this way none of the actors can stop others from carrying out their activities. In this regard therefore, the African Model Law appears to be in the right direction.

The *sui generis* system can also for instance, limit the number of varieties that can be protected for commercial use. Thus, to foster food security, it would be possible to prohibit the registration of commercial breeders of any food crops used to meet basic food needs or reduce the duration of commercial breeders' rights as much as possible and extend farmers' rights as far as possible.<sup>333</sup>

A *sui generis* system will remain valid even if TRIPs is not reviewed or modified in the years to come. Indeed, in the context of the CBD and the FAO Treaty all developing countries will have to consider ways to regulate the management of biological resources and associated knowledge within their countries. Further, the calls for a *sui generis* system to protect TK constitutes another part of the challenge that developing countries, including Africa have to tackle.

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<sup>332</sup> Financial compensation under benefit sharing arrangements e.g. under CBD, FAO Treaty or African Model Law *instead of* property rights cannot constitute a *sui generis* system. See Philippe Cullet, *op cit.*, p. 25-26

<sup>333</sup> Another proposal would be to provide that the burden of proof should be on the defendant. See Philippe Cullet, *op cit.*, p. 26-27



## 5.4 Issues for the TRIPs review

In 1999 the Council for TRIPs began its review of article 27(3)(b) of TRIPs while in 2000 the review of the entire TRIPs agreement began. As yet both reviews have not been concluded. It appears that there is no consensus about what the scope of the review of article 27(3)(b) of TRIPs should be. Developed countries insist that the review is about the extent to which the provision has been implemented while developing countries see it as a review of the substantive provisions themselves that could lead to the revision of the text.<sup>334</sup>

African countries have raised various issues in the review of article 27(3)(b) of TRIPs.<sup>335</sup> The African Group has called for the link between article 27(3)(b) and development. They have asserted that they are yet to enjoy the benefits from globalisation or benefits in their joining WTO or benefits arising from the biotechnology revolution or the mutuality of benefits under TRIPs. They have called for the extension of the review with an additional five-year transition thereafter. This would save African countries from being rushed into accepting UPOV as a *sui generis* system.

The African Group (and SADC) have also stated that the review should clarify that plants, animals, micro-organisms, their parts and natural processes cannot be patented as the distinction made in article 27(3)(b) of TRIPs is artificial and violates the basic principles of IP law that products of nature such as life forms are discoveries and therefore not patentable. African countries have maintained that the patenting of life forms raises serious ethical, religious, and cultural questions and therefore reject *in toto* their patentability. They have also stated that the co-modification and marketing of life forms violates the cultural practices of most societies.

The African Group (and SADC) have stated that the *sui generis* system envisaged, although not defined, should be retained and allow for protection of community rights, continuation of farmers' practices and prevention of anti-competitive practices, which threaten food sovereignty. They have also called for

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<sup>334</sup> The USA basically favours extending patent protection and in the long term, the removal of all exemptions from patenting. This is also the position favoured by the MNCs in the life sciences industry. Other OECD countries would prefer that UPOV 1991 be the sole *sui generis* option available. In the review and ensuing negotiations, developing countries have a wide range of interests to consider, such as whether they are net food importers or exporters, the nature of farming etc. See Geoff Tansey, *op cit.*, p. 14 and Peter Drahos on the TRIPs review, *op cit.*, p. 8-13

<sup>335</sup> See WTO, The TRIPs Agreement: Communication from Kenya on behalf of the African Group, WTO Doc. WT/GC/W/302 dated 6.08.99; Southern Africa Development Cooperation (SADC) – WTO Doc. WT/L/317 of I.10.99. See also Adede, *op cit.*, p. 16-20; Correa, M. *Options for the Implementation of Farmers' Rights at the National Level*. Trade-Related Agenda, Development and Equity (T.R.A.D.E.) Working Papers. December 2000. South Centre. p. 17-19

the harmonisation of TRIPs with CBD and the IU. They have called for the relationship of TRIPs to the concepts of TK and farmers' rights and have observed that TRIPs is based on "formal" and western concepts of knowledge and property rights and does not recognize "informal" knowledge and the communal ownership of rights such as TK and farmers' rights.

Kenya, on her own behalf, has cited the need for a five-year extension as a transition period.<sup>336</sup> She has also called for the harmonisation of TRIPs with CBD and an increase of the scope of protection to include the protection of indigenous knowledge and farmers' rights. Tanzania, Uganda and Zambia have also called for a "no patenting of plants" policy without the prior informed consent of government and communities in the country of origin.<sup>337</sup>

It is evident that African negotiators are not in the same position of influence in the WTO as their counterparts from USA, Europe and Japan. If the latter three unite and adopt a common position on both reviews, they will likely determine the outcome of the process. The challenge therefore is for African countries to present alternative frameworks that will address their interests. There is a need for *sui generis* legislation to protect farmers' rights and TK. These issues should be looked into so as to guarantee a multilateral system of access to PGRs for food and agriculture as provided for, *inter alia*, in the CBD, FAO Treaty and the African Model Law.

In the just concluded UN Conference on Sustainable Development held in Johannesburg, South Africa calls were made for, *inter alia*, the sustainable use of our natural resources.<sup>338</sup> The persistent call for sustainability is based on the recognition that, *inter alia*, our natural resources be they arable land, water resources, wildlife or even the atmosphere, are finite resources that are fast diminishing in quantity and quality. It is thus imperative that the relationship of TRIPs, to the extent that it relates to life forms, should be linked to the conservation and sustainable use of natural resources as detailed out in the CBD, the FAO Treaty and the OAU Model Law.

The need to establish the relationship between TRIPs and CBD has also been realized by WTO itself.<sup>339</sup> In November 2001, at the WTO's 4th Ministerial Conference in Doha, Qatar, which ushered a new trade Round dubbed "the Development Round", the Council for TRIPs was instructed in pursuing its work programme including under the review of article 27(3)(b) and the review of the implementation of TRIPs under article 71(1), to examine, *inter alia*, the

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<sup>336</sup> WTO Doc. WT/GC/W/23 of 5.07.99

<sup>337</sup> <http://www.foe.org/international/wto/govt.html>. Of 2.09.1999

<sup>338</sup> Sustainable Development is development, which meets the needs of the present generation while not compromising the ability of future generations to meet their needs.

<sup>339</sup> It has been discussed in the WTO Committee on Trade and Development; see "Environment and TRIPs" Doc. WT/CTE/W/8

relationship between TRIPs and CBD; the protection of TK and folklore; and other relevant developments raised by member states pursuant to article 71(1). It was stated that the TRIPs Council's work on these issues is to be guided by the TRIPs agreement's objectives (article 7) and its principles (article 8) and must take development fully into account.<sup>340</sup> The debate and political appeal of the primacy of CBD over TRIPs on biodiversity issues is ongoing and also needs to be looked into.

In addition, as the UN Special Rapporteur on the right to food has noted, the new trade Round must address the impact on human rights and the right to food.<sup>341</sup> Other wider issues such as the moral and ethical concerns of IPRs over life forms or equity in international negotiations, economic issues e.g. technology transfer or priorities in R&D, environmental effects of GMOs should be addressed so as to create a global system that serves everyone.

## 5.5 Conclusion

Generally, there is a need to build human rights safeguards into TRIPs and its implementation so as to forestall the potential negative implications on human rights, such as the right to food as shown in this thesis. At a time of such dramatic breakthroughs in new technologies, it is indefensible that hunger, malnutrition and poverty still persist and yet the same technologies can have a huge impact on poverty eradication and generally improve the standard of living of many poor people in developing countries, including Africa.

As we have seen, the current technology path will lead to greater marginalization, vulnerability and impoverishment of Africans. The gap between the poorest and richest countries will widen. TRIPs strengthens IPRs and favours those who develop and market modern forms of technology than the majority of the end users of such technology, who are usually informal innovators.

There is a need to strengthen global ethics and responsibility, which values are enshrined in, *inter alia*, international human rights treaties. Article 28 of UDHR states that everyone is entitled to a social order in which all the rights guaranteed therein can be realized. As MNCs are now very dominant in the global scene shaping the path of globalization, there is a need to develop a legally binding global code of conduct to regulate them and a global forum to monitor their activities to ensure compliance with human rights.<sup>342</sup>

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<sup>340</sup> See paragraph 19 of the Doha Ministerial Declaration and also WTO Annual Report 2002. p. 79 at <http://www.wto.org>

<sup>341</sup> See his report to the UN Commission for Human Rights. UN Doc. E/CN.4/2002/58

<sup>342</sup> A notable effort is the *UN Global Compact* that now brings companies from (all over the world) together with UN agencies (particularly UNEP, UNDP, OHCHR, ILO), Governments, NGOs and civil society to foster action and partnerships in the pursuit of good corporate citizenship. The Global Compact is a voluntary initiative and not intended to be regulatory

There is a need to put human concerns and rights at the centre of global governance of technology, which must respect and include diverse needs and cultures. The MNCs need to put precaution before profits and reshape technologies path to benefit *all* humanity.

In addition, developments in “terminator and traitor technologies” are running far ahead of ethical, legal, regulatory and policy limits needed to govern their use. The technology path needs to be reshaped and redirected so that it benefits rural farmers and so that it promotes innovation and sharing of knowledge, respects diverse systems of property ownership, restores social balance, brings its benefits to the majority, empowers people, and makes it accessible to those who need it.

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and is based on nine internationally accepted principles in human rights (i.e. UDHR), labour and the environment. Principle 1 states “*Businesses should support and respect the protection of internationally proclaimed human rights within their sphere of influence*”; Principle 2 states “*Businesses should make sure that they are not complicit in human rights abuses.*” See <http://www.unglobalcompact.org/Portal/>

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