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Rights Law**

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By

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**International Legal Framework for Protection of  
Intellectual Property under the TRIPs Agreement/the  
WTO & Related Human Rights Issues of Dissemination  
& Transfer of Environmentally Sound Technology  
-A critique of conflicting rights-**

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## Abbreviations

CFCs	Chlorofluorocarbons
CTE	The (WTO's) Committee on Trade and Environment
CBD	Convention on Biological Diversity
CDM	Clean Development Mechanism
ESTs	Environmentally Sound Technologies
FAO	Food and Agricultural Organizations
GATS	General Agreement on Trade and Services
GATT	General Agreement on Trade and Tariff
GHG	Greenhouse gases
GMOs	Genetically Modified Organisms/Living Modified Organisms
ICESCR	International Covenant on Economic, Social and Cultural Rights
IGOs	Intergovernmental Organisations
IP	Intellectual Property
LDCs	Least Developing Countries
MEAs	Multilateral Environmental Agreements
SPS	Agreement on the Application of Sanitary & Phytosanitary Measures
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
TK	Traditional Knowledge
TNCs	Transnational Corporations
UNGA	United Nations General Assembly
UNCED	United Nations Conference on Environment and Development
UDHR	Universal Declaration of Human Rights
PVP	Plant Variety Protection
UPOV	The Union for the Protection of New Varieties of Plants
CSD	(UN) Commission on Sustainable Development
UNFCCC	United Nations Framework Convention on Climate Change
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

# 1 Introduction

Recent history of contemporary world has substantiated the fact that the secret of enjoying technological and economic leadership, lies in placing a high premium on the system and content of intellectual property (IP) rights. Nations that do so are reaping the fruit of their timely decision and are seen as role models for economic growth. The reason is obvious: the dream of scientific and technological development cannot be realized unless there is a galaxy of fertile intellect and human resources at work, with full zeal and zest, trained in scientific knowledge and technical skill. Human experience has shown, however, that the determining factor in creating and upholding such a cadre is an environment, conducive to creativity and innovation. The intellectual property protection regime responds to the challenge by advancing this rationale.

Another big challenge of the contemporary world is the escalating environmental degradation, which is swiftly making the habitat and making the climate unsafe for human survival. The underlying reason for such degradation is industrial processes and polluted technologies employed for enhanced productivity to raise the standard of living. This presents challenges for technologists and innovators to come up with such innovative technologies (products and processes), which could realize the dream of economic growth without compromising the environment. In other words, the question remains: how does one crystallize the myth of sustainable development? The solution lies in the creation and invention of products and processes that are environment friendly. This answer could guarantee a resolution to the serious threat to biological life and health. Such efforts have already gained momentum on an international level. Many multilateral environmental treaties (MEAs) have come into effect, which have vehemently called for access to and transfer of environment friendly technologies (ESTs), for the protection of environment.

Apparently conflicting obligations under two parallel protection regimes, present a dilemma. Most states are parties to the TRIPs Agreement/the WTO agreements as well as MEAs. The moot question is how to reconcile and harmonize the conflicting rights and interests?

This paper examines the conflicting rights critically and attempts to harmonize them in accordance with the principles of interpretation under international law. It is an attempt to evaluate the ways in which patent law under the TRIPs Agreement might assist in the attempts that are being made to minimize and reduce the scope of harm that is presently being inflicted upon the environment and human health by industrial processes. The paper will also attempt to evaluate the high profile issue/objection raised as to “whether the TRIPs Agreement impedes the transfer and dissemination of technology?”

This paper is structured in the following way. It is divided into five chapters. After this introduction in chapter one, the second chapter presents a general survey of the protection of intellectual property rights regime under the TRIPs Agreement and important provisions relating to IP protection and transfer of technology and its dissemination in more simple terms. Thereafter, the third chapter explains the significance of ESTs from the angle of sustainable development. An attempt is made to show how the denial of access to and transfer of such technology could have negative repercussions for the environment, sustainable development as well as fundamental human rights. To achieve this end, the chapter is split into three sub-divisions. In the first section, ESTs are defined and a general survey is presented regarding the repercussions of contaminated technological and industrial processes. Secondly, a review of the multilateral environmental agreements (MEAs) is made to highlight the significance of transfer of ESTs and to examine states obligations hereunder. In the third section, the correlation of sustainable development and international human rights is evaluated. This is relevant because the purpose of ESTs is to assist, support and advance sustainable development. The paper thereafter proceeds to look at the extent to which the transfer and dissemination of ESTs is itself a human rights issue.

The third chapter comprises an analysis of the issue and evaluates conflicting rights and interests arising out of the international obligations under the TRIPs Agreement vis-à-vis those arising under MEAs and international human rights law. In addition, the South-North confrontation over the IP- protection regime established under the TRIPs and the WTO is examined. In particular, this paper scrutinizes the legitimacy of the concern raised by developing countries that the protection of the IP regime under the TRIPs was too enhanced to impede the transfer of EST from North to South. In this chapter their genuine concerns in the context of their obligations under international human rights law as well as under international environmental standards are highlighted. Then the flexibility of the TRIPs Agreement in this regard is analysed to rebut the unreasonable criticism made of the whole IP protection rationale and regime in the pretext of other obligations and rights. Finally in the final chapter named “Epilogue” a sort of conclusion is added, to fill the loopholes and left over-deductions.

# 2 A general survey of the protection of intellectual property rights and the transfer and dissemination of technology under the TRIPs Agreement

## 2.1 Provisions pertaining to IP protection and technology transfer under the TRIPs framework: A general Overview

### 2.1.1 In general

The preamble of the TRIPs agreement recognizes that intellectual property rights are private rights. At the same time it identifies the fundamental public policy objectives of national systems for the protection of intellectual property, including developmental and technological objectives. It also acknowledges the special needs of the least developed member states in respect of maximum flexibility in the domestic implementation of laws and regulations in order to enable them to create a sound and viable technological base. However, the provisions of particular importance are Articles 7 and 8 relating to objectives and principles of the Agreement.

The **objectives** of the TRIPs Agreement have been set out in the following words:

the protection and enforcement of intellectual property rights 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.<sup>1</sup>

The **principles** laid down in the agreement, allows the members, while formulating or amending their laws and regulations, to adopt:

the measures necessary to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their

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<sup>1</sup> Article 7.

socioeconomic and technological development, provided that such measures are consistent with the provisions of this Agreement.<sup>2</sup>

Member-countries may also take appropriate measures, provided that they are consistent with the provisions of this Agreement, to prevent the abuse of intellectual property rights by right holders or the resort to practices, which unreasonably restrain trade or adversely affect the international transfer of technology.<sup>3</sup>

These provisions are of particular importance from an interpretive point of view as these provisions set a general construction and interpretation framework for all succeeding provisions, which imply that in the case of any dispute or ambiguity relating to the meaning and interpretation of any provision, these provisions will serve as guidance. It also affords the legal basis for domestic power over IP policy. Its significance is reinforced when seen from the angle of customary rules of interpretation in public international law.

Furthermore, while members are obliged to give effect to the provisions of this agreement, they have been left with certain leeway. Firstly, that in their domestic legislation, they are not obliged to implement more extensive protection than is required by this agreement, provided that such protection does not contravene the provisions of this agreement. Secondly, they are free to determine the appropriate method of implementing the provisions of this agreement within their own legal system and practice.

Regarding control of anti-competitive practices in contractual licenses, the Agreement allows a certain leeway to members. As a matter of principle, it looks at some licensing practices or conditions pertaining to intellectual property rights, which restrain competition that effects trade adversely and which impedes the transfer and dissemination of technology.<sup>4</sup> However practically the agreement does not prevent members from specifying in their legislation licensing practices or conditions that may in particular cases constitute an abuse of intellectual property rights having an adverse effect on competition in the relevant market. So they are at their discretion to adopt, consistently with the other provisions of this agreement, appropriate measures to prevent or control such practices, which may include for example exclusive grant back conditions, conditions preventing challenges to validity and coercive package licensing, in the light of the relevant laws and regulations of that member.

The member (developing countries) availing itself of a transitional period under paragraphs 1, 2, 3 or 4 shall ensure that any changes in its laws, regulations and practice made during that period do not result in a lesser degree of consistency with the provisions of this Agreement.<sup>5</sup>

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<sup>2</sup> Art. 8(1).

<sup>3</sup> Article 8(2).

<sup>4</sup> Art. 40 (Section 8)(1).

<sup>5</sup> Art. 65.

The agreement stipulates certain obligations for developed countries regarding least developing (LDCs) and developing countries. In order to enable least-developed country members to create a sound and viable technological base and for the purpose of promoting and encouraging technology transfer to them by enterprises and institutions, developed country members are obliged to provide incentives to enterprises and institutions in their territories.<sup>6</sup>

Furthermore, to facilitate the implementation of this agreement, they are bound to provide, on request and on mutually agreed terms and conditions, technical and financial cooperation in favor of developing and least-developed country members, including assistance in the preparation of laws and regulations on the protection and enforcement of intellectual property rights as well as on the prevention of their abuse, and support regarding the establishment or strengthening of domestic offices and agencies relevant to these matters, including the training of personnel.<sup>7</sup>

In the Doha Declaration<sup>8</sup> it was suggested that the integration of the LDCs into the multilateral trading system requires meaningful market access, support for the diversification of their production and export base, and trade-related technical assistance and capacity building. It also urged development partners to significantly increase contributions to the IF Trust Fund and WTO extra-budgetary trust funds in the favor of LDCs.

### **2.1.2 Main Substantive Provisions**

In **Copyright and related rights** the parties are required to comply with the substantive provisions of the Berne Convention for the protection of literary and artistic works, in its latest version (Paris 1971), excluding moral rights (as stipulated in Article 6bis of that Convention). This protection is with respect to the expression and not the ideas, procedures, methods of operation or mathematical concepts. Such protection is extendable to the computer programs as literary works and to compilations of data under the Bern Convention. The rental rights, at least for phonograms, computer programs, and for cinematographic works has been recognised (except if rental has not led to widespread copying that impairs the reproduction right). Exceptions to the exclusive rights are required to be limited to special cases, which are not inconsistent with a normal exploitation of the work and do not unreasonably prejudice the legitimate interests of the rights-holder. The rights of performers, producers of phonograms and broadcasting

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<sup>6</sup> Article 66.

<sup>7</sup> Article 67.

<sup>8</sup> Doha WTO Ministerial Declaration, 2001: WT/MIN(01)/DEC/1, 20 November 2001, para 42, 43 (LDCs), <[http://www.wto.org/english/thewto\\_e/minist\\_e/min01\\_e/mindecl\\_e.htm](http://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm)>.

organizations, have also been recognised.<sup>9</sup> The minimum term for the protected works (other than photographic or applied artworks) owned by juridical persons, and for performers and phonogram producers, is recognised for 50 years. The broadcasting organizations would have a right for at least 20 years.<sup>10</sup>

With regard to **Trademarks** and service marks, the TRIPs Agreement defines eligibility as ‘protectable signs’, which should be capable of distinguishing the goods or services of one undertaking from those of other undertakings. Service marks shall receive a protection equivalent to marks for goods. Marks that have become well known in a particular country shall enjoy additional protection. In addition, the agreement lays down a number of obligations with regard to the use of trademarks and service marks, their term of protection, and their licensing or assignment. For example, requirements that foreign marks be used in conjunction with local marks would, as a general rule, be prohibited. So far as exceptions to the exclusive rights are concerned, these must be limited and must take into account the legitimate interest of the trademark owner and of third parties. The minimum term of protection is seven years, indefinitely renewable. A trademark can be assigned without the transfer of the business to which it belongs. The agreement requires that measures to combat trade in counterfeiting goods should be available at the border.

Concerning **geographical indications**, the agreement lays down that all parties must provide means to prevent the use of any indication which misleads the consumer as to the origin of goods, and any use which would constitute an act of unfair competition. Geographical indications are indications that identify goods as originating in the territory of a member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the goods is essentially attributable to their geographical origin. An exceptional level of protection is provided for geographical indications for wines and spirits, which are protected even where there is no danger of the public to be misled as to the true origin. Exceptions are allowed for names that have already become generic terms, but any country using such an exception must be willing to negotiate with a view to protecting the geographical indications in question. Furthermore, provision is made for further negotiations to establish a multilateral system of notification and registration of geographical indications for wines. However these obligations only relate to geographical indications that are protected in their country of origin.

With respect to **Industrial Designs**, the protection is to be conferred on designs, which are new or original. Such protection is for a minimum period of 10 years. Owners of protected designs would be able to prevent the manufacture, sale or importation of articles bearing or embodying a design, which is a copy of the protected design.

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<sup>9</sup> Article 14.

<sup>10</sup> Part II of the TRIPs Agreement.

**Layout designs of integrated circuits** are required to be protected by the parties, on the basis of the Washington Treaty on Intellectual Property in respect of Integrated Circuits which was opened for signature in May 1989, but with a number of additions: protection must be available for a minimum period of 10 years; the rights must extend to articles incorporating infringing layout designs; innocent infringer must be allowed to use or sell stock in hand or ordered before learning of the infringement against a suitable royalty; and compulsory licensing and government use is only allowed under a number of strict conditions.

**Trade secrets and undisclosed information**, having commercial value must be protected against breach of confidence and other acts contrary to honest commercial practices. Secret data submitted for the approval of new chemical entities as pharmaceutical and agrochemical products should be protected against unfair commercial use and disclosure by governments.

As regards **patents**, there is a general obligation to comply with the substantive provisions of the Paris Convention (1967). The agreement requires that 20-year patent protection be available for all inventions (from date of application), whether of products or processes, in almost all fields of technology. Patents shall be granted in all fields of technology. No discrimination is allowed with respect to the place of the invention, or based on whether the products are locally produced or imported. Moreover limited exceptions to the exclusive rights are left to national laws to define (article 30). For an invention to be patented, it is required to disclose it in a manner, which is sufficiently clear and complete for a skilled person in the art to carry out the invention. The indication of the best mode of carrying out the invention, as well as information concerning corresponding patent applications and grants, may be required. Compulsory licenses is allowed in certain cases and conditions for granting other uses without the authorization of the patent-holder (compulsory licenses) are set forth. Member countries can determine the grounds to allow such uses. Rights conferred in respect of patents for processes must extend to the products directly obtained by the process. Under certain conditions, an alleged infringer may be ordered by a court to prove that they have not used the patented process.

Regarding exclusive rights, a patent holder shall have the following rights: In case of a **product patent**, to prevent third parties not having the owner's consent from the acts of: making, using, offering for sale, selling, or importing for these purposes that product.<sup>11</sup> Similarly in case of a **process patent**, to prevent third parties not having the owner's consent from the act of using the process, and from the acts of: using, offering for sale, selling, or importing for these purposes at least the product obtained directly by that process,<sup>12</sup> Also to confer right to assignment, or transfer by succession, the patent and for conclusion of licensing contracts.<sup>13</sup>

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<sup>11</sup> Article 28(1)(a).

<sup>12</sup> Article 28(1)(b).

<sup>13</sup> Article 28(2).

So far as **patentable subject matter** is concerned it is laid down that subject to the provisions under some conditions, patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application.<sup>14</sup> Further subject to certain articles, patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.<sup>15</sup>

However the members may exclude from patentability inventions, the prevention within their territory of commercial exploitation which is necessary to protect order, public or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law.<sup>16</sup> They *may* also exclude from patentability: (a) diagnostic, therapeutic and surgical methods for the treatment of humans or animals; (b) plants and animals other than microorganisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, members shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof. The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO agreement.<sup>17</sup>

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<sup>14</sup> Article 27(1).

<sup>15</sup> Supra.

<sup>16</sup> Article 27(2).

<sup>17</sup> Article 27 (3).

# 3 Significance of dissemination and Transfer of Environmentally Sound Technology (EST) in International Law

This Chapter will first define ESTs and address its significance in general and thereafter it will look more particularly at its significance in promoting sustainable development. It will also examine the repercussions of pollution caused by industrial processes or technologies for the ecosystem and sustainable development, in order to understand why dissemination and transfer of ESTs is indispensable. Secondly it will briefly survey international environmental law (MEAs) with respect to its significance concerning obligations of states regarding the transfer and dissemination of environmentally sound technologies (ESTs). Finally, it will examine international human rights law relating to sustainable development and ESTs in order to determine the overall significance of ESTs.

## 3.1 Definition and Significance of ESTs for sustainable development

### 3.1.1 Defining of Environmentally Sound Technologies (ESTs)

Environmentally sound technologies (ESTs) have been defined in Agenda 21<sup>18</sup> as substitutes to polluting technologies. Hence the following concepts: ‘protect the environment, are less polluting, use all resources in a more sustainable manner, recycle more of their wastes and products, and handle residual wastes in a more acceptable manner’. (34.1)

ESTs in the context of pollution are “process and product technologies” that generate low or no waste, for the prevention of pollution, covering “end of the pipe” technologies for the treatment of pollution after it has been generated (34.2). Further it has been highlighted that ESTs are not just individual technologies, but total systems, which include know-how, procedures, goods and services, and equipment as well as organizational and managerial procedures.

Consequently, when discussing **transfer of technologies**, the human resource development and local capacity-building aspects of technology choices, including gender-relevant aspects, should also be addressed.

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<sup>18</sup> Agenda 21, Chapter 34

<[http://www.un.org/jsummit/html/basic\\_info/a21\\_final\\_summary.doc](http://www.un.org/jsummit/html/basic_info/a21_final_summary.doc)>

Environmentally sound technologies should be compatible with nationally determined socio-economic, cultural and environmental priorities.

The term “environmentally sound” means “environmentally safe and sound”. In the contemporary world, there is a shift in paradigms in the development of technology from end-of-pipe technologies to the use of cleaner technologies.<sup>19</sup>

### **3.1.2 Significance of ESTs for sustainable development in general**

The contemporary world is confronted with some big challenges like extreme poverty, hunger, malnutrition, diseases, illiteracy, ignorance, and the continuing deterioration of the ecosystem.<sup>20</sup> These challenges have been viewed in Agenda 21 as a symptom of an unsustainable pattern of development. Such challenges of poverty, hunger and malnutrition are not chronic and incurable ills. Society possesses sufficient resources, organizational ability and technology and hence the competence to eradicate hunger, poverty, illiteracy, diseases etc.

In order to meet such challenges increased productivity and self-sufficiency seems to be the appropriate goal. This can be achieved through access to technologies and techniques for higher productivity and through rapid economic or industrial development. It implies the increased access to production and consumption of energy.

However the problem inherent in such ambitious efforts is that food growing techniques and patterns of energy consumption contribute a serious threat to environmental and biological diversity. This further aggravates the existing challenges, leaving our future at stake. The big challenge of the contemporary world is how to combat poverty, hunger, and disease without compromising the environment.

The answer lies in the implementation of **sustainable development**. The concept of sustainable development has come to be widely accepted as development that does not compromise the future for the sake of the present.<sup>21</sup> Sustainable development implies renewable resources to be managed in the same way as money, thus preventing a shrink of resources, and if possible an increased investment for future generations.

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<sup>19</sup> WTO Council for Trade in Services, Environmental Services (July 6, 1998, S/C/W/46) (“WTO 1998b”), para. 19.

<sup>20</sup> General Assembly Resolution (A/RES/42/186) Environmental Perspective to the Year 2000 and Beyond and 2000, at the United Nations Millennium Summit.

<sup>21</sup> World Commission on Environment and Development, *Our Common Future* (Oxford, England, Oxford University Press. 1987).

Environmental sustainability implies avoiding degradation of “natural capital” such as biomass and bio-productivity.<sup>22</sup> The concept is wide enough to encompass an effective strategy for dealing with challenges of poverty, development and the environment simultaneously, including health care, education, women’s rights, role of youth, of indigenous people and of local communities and democratic participation.

It is suggested that the notion of ‘sustainable development’ has acquired a status of customary international law. A plethora of instruments and world consensus speaks of the fact. For example see: United Nations Conference on the Human Environment, World Commission on Environment and Development, 1987, discussions of the UN General Assembly leading to the passage of the 1989 resolution 44/228, Rio Declaration on Environment and Development, Sustainable Development Agenda 21, the Earth Summit which established UN Commission on Sustainable Development, UN Framework Convention on Climate Change, Convention on Biological Diversity, the Fifth Environmental Action Programme of the European, 1997 Special UN conference Rio+5 (General Assembly Resolution (A/RES/S-19/2) 19 September 1997), 2002 Rio+10 (Johannesburg Summit 2002) 2002 amendments to Treaty of Amsterdam by European Community for sustainable development and UN Millennium Declaration 2000.

### **3.1.3 Polluted and Contaminated technologies are injurious to human, animal or plant life or health and serious prejudice to the environment and sustainable development**

The significance and vital role of ESTs cannot be appreciated unless we fully comprehend the scope of harm that is presently being inflicted upon the environment by polluted industrial processes and contaminated technologies. Moreover this discussion is very crucial to evaluate the patentability of such technologies under the TRIPs Agreement. The following discussion would establish that contaminated and polluted processes and products are seriously prejudicial to the environment, human, animal, plant life and health. It would highlight the importance of clean and environment-friendly technologies as well.

#### **3.1.3.1 Impacts on Global Warming**

The increase in greenhouse gases (GHG) generated due to polluted technologies, is leading to global warming and affecting the climate to an unpredictable and highly unstable trigger point. This may result in bringing the climate to a stage of the pre-ice age period. Other repercussions of GHG include the rise of the sea level, a negative impact on ecosystems, economic losses and displacement of coastal inhabitants, threat to plant life, and

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<sup>22</sup> Thomas J. Goreau “Environmentally Sound Technology for Sustainable Development Advanced Technology Assessment System”, Department of Economic and <[http://globalcoral.org/environmentally\\_sound\\_technology.htm](http://globalcoral.org/environmentally_sound_technology.htm)>

adverse impacts on livelihoods in agrarian economies. Consequently, if remedial measures were not adopted as per UNFCCC,<sup>23</sup> the future of our ecosystem may be in serious jeopardy. The main GHG's, generated due to polluted technologies are: Carbon dioxide (from living things and fossil fuels), CFCs/chlorofluorocarbons/, SF6 (man made, used in aerosols, refrigerants, foams), Methane (wetlands, fires, ruminants, fossil fuel production and distribution), Nitrous oxide (from soils, nitrogenous fertilizer use, combustion), Ozone (by-product of pollution by nitrogen oxides and hydrocarbons mainly from cars but it is very short-lived, i.e. several weeks in the lower atmosphere, and there is great uncertainty regarding its distribution and trends).<sup>24</sup>

### 3.1.3.2 Impacts on Human Health and life

The pollution caused by polluted technologies and contaminated biotechnologies, poses a serious threat to human health and life. This fact has been substantiated by scientific evidence. I will illustrate it by citing some of the findings. In a recently published study in March 2002, in the Journal of the American Medical Association, researchers have, on the basis of the strongest evidence to date, linked long-term exposure to fine particles of air pollution from coal-fired power plants, factories and diesel trucks to an increased risk of dying from lung cancer and heart diseases. The report concluded that people living in the most heavily polluted metropolitan areas have a 12 percent increased risk of dying of lung cancer than people in the least polluted areas.<sup>25</sup> Similarly exposure to radiation was found to affect the breakdown of cell structure.

Additionally, in recent research conducted by the Keck School of Medicine of the University of South California, researchers announced in February 2002 the first evidence suggesting that ground-level ozone is a "causative factor" in the development of childhood asthma. In high-ozone cities, kids who played the most outdoor sports were 3 to 4 times more likely to develop asthma than the kids who played no sports.<sup>26</sup> Singly United States is facing from 50, 000 to 100, 000 deaths annually associated with air pollution. This was revealed in the American Lung Association's annual

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<sup>23</sup> Means the United Nations Framework Convention on Climate Change, adopted in New York on 9 May 1992, The UNFCCC is the foundation of global efforts to combat global warming.

<sup>24</sup> Prof.Dsc. Rem. Nyi K.Roly "Greenhouse Gas Reduction Under the Kyoto Protocol in Hungary in Electric Power Industry" Presented at 18 the Congress, Buenos Aires, October 2001 <[http://www.worldenergy.org/wec-geis/publications/default/tech\\_papers/18th\\_Congress/downloads/ds/ds4/ds4\\_2.pdf](http://www.worldenergy.org/wec-geis/publications/default/tech_papers/18th_Congress/downloads/ds/ds4/ds4_2.pdf)>

<sup>25</sup> Study Ties Pollution, Risk of Lung Cancer, reported by Eric Pianin, Washington Post , Wednesday, March 6, 2002; Page A01 <<http://www.niehs.nih.gov/centers/2002News/news7.htm>>

<sup>25</sup> Technologies and Loss of Health (excerpted from *When Technology Wounds*, by Chellis Glendinning) <<http://eces.org/es/technowounds.shtml>>

<sup>26</sup> USC study shows air pollution may trigger asthma in young athletes <<http://www.usc.edu/hsc/info/pr/1vol8/803/air.html>>

progress report on the state of the air for the years 2001 and 2002.<sup>27</sup> This report indicated that there was increasing evidence to show that ozone pollution may also have a role in this most serious of health outcomes.

A study of air pollution and daily mortality in London between 1987 and 1992 found that same-day ozone levels were associated with a significant increase in mortality due to all causes and with respiratory deaths in particular. It was suggested in *State of the Air 2001* that there is a need to reduce emissions substantially due to global climate change, in order to help the most vulnerable citizens to survive hot summers without having to struggle to breathe due to ozone pollution.

WHO plan to publish in their World Health Report for 2002 that among the global burden of diseases caused by risk factors, seven are environmental. These are ambient air, indoor air, lead, water and hygiene, climate change, food safety and other selected occupational risks including selected airborne particulates etc.<sup>28</sup>

Premature death and illness attributed to environmental factors are currently estimated to make up one fifth of the total burden of disease in developing countries, almost 10 times more than the developed world, a World Bank (2000) report estimated.<sup>29</sup>

Foodborne parasitic diseases affect almost more than 10% of the world's population at risk of infection.<sup>30</sup>

Similarly the use of **genetically modified technology** sometimes proved inappropriate for human consumption. This can be illustrated by the use of Kanamycin, one of the antibiotic resistance genes, most commonly used for plant genetic modification. Kanamycin is still used for the treatment of the many human infections like bone, respiratory tract, skin, soft-tissue, abdominal and complicated urinary tract infections etc. Widespread use of such genes in plants results in antibiotic resistance of human pathogens, causing food borne illnesses.<sup>31</sup> So the use of safety measures and policies

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<sup>27</sup> *American Lung Association, State of Air 2001*

<<http://www.lungusa.org/air2001/intro.html>>

<sup>28</sup> Global estimates of burden of disease caused by the environment

<<http://www.who.int/peh/burden/globalestim.htm>>

<sup>29</sup> Health, poverty and the environment; Norwegian perspectives and inputs to the WSSD process. Background: making the case for a stronger focus on poverty, health and the environment <<http://odin.dep.no/ud/norsk/bistand/p10003047/032001-990602/index-dok000-b-n-a.html>>

<sup>30</sup> Food Safety - a worldwide public health issue

<[http://www.who.int/fsf/fctshfts.htm#Recognition of food safety at international level](http://www.who.int/fsf/fctshfts.htm#Recognition%20of%20food%20safety%20at%20international%20level)>

<sup>31</sup> Foodborne illnesses have been defined as are defined as diseases, usually either infectious or toxic in nature, caused by agents that enter the body through the ingestion of food. Every person is at risk of foodborne illness. See fact sheet on Food Safety And Foodborne Illness prepared by WHO<<http://www.who.int/inf-fs/en/fact237.html>>

for assessment of food, derived from biotechnology, have been urged by WHO.<sup>32</sup>

Jean Ziegler- a United Nations human rights envoy indicated another prejudicial aspect of GMO. She warned that the farmers accepting GM seeds would be compelled to continue buying them “for ever” from big biotechnology corporations. She also challenged its justification to produce by TNCs.<sup>33</sup>

It is against this background that the 3<sup>rd</sup> World Health Assembly, 2000<sup>34</sup> and OECD Conference on New Biotechnology, Bangkok 2001<sup>35</sup> assigned to the WHO Food Safety Department the task of carrying out an empirical study of the implications of modern food biotechnology on human health. Also the Agenda 21 and the CBD required the creation of an international protocol on biosafety and advance risk assessment (AIA) before importation of GMOs, which resulted in the Cartagena Protocol to the CBD.

### 3.1.3.2.1 Environmental Hazards and Children

Children in a dynamic process of growth and development are particularly vulnerable to the acute and chronic effects of pollutants in their environments.<sup>36</sup> A recent WHO-report revealed that some 3 million children die every year due to environmental hazards.<sup>37</sup>

The International Conference on Environmental Threats to the Health of Children has recognized that more than one-quarter of the global burden of disease could be attributed to environmental risk factors. Over 40% of the environmental disease burden falls on children under 5 years of age, though they constitute only 10% of the world population. An everlasting adverse health effect can occur when the embryo, fetus, newborn, child and adolescent are exposed to environmental threats during early periods of special vulnerability. In the industrialized developed world, children become exposed to toxicants due to environmental hazards, causing them serious harm.<sup>38</sup> It is estimated that annually 3 million deaths are caused by diarrhea

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<sup>32</sup> Food Safety And Foodborne Illness – WHO ‘s Revised Fact Sheet N°237, January 2002  
<<http://www.who.int/inf-fs/en/fact237.html>>

<sup>33</sup> A United Nations Food Envoy questions Safety of Gene Crops  
<<http://www.planetark.org/dailynewsstory.cfm/newsid/18204/newsDate/17-Oct-2002/story.htm>>

<sup>34</sup> <http://www.who.int/fsf/GMfood/53WHA.htm>.

<sup>35</sup> <http://www1.oecd.org/bangkok/>.

<sup>36</sup> International Conference on Environmental Threats to the Health Of Children: Hazards and Vulnerability, Bangkok, 3-7 March 2002.  
<<http://www.who.int/peh/ceh/Bangkok/bangkstatement.htm>>

<sup>37</sup> Agence France Presse, Bangkok, 3 March 2002, “Environmental hazards killing three million Children annually” <<http://www.who.int/peh/ceh/articles/Environhazards.htm>>

<sup>38</sup> International Conference on Environmental Threats to the Health Of Children: Hazards and Vulnerability, Bangkok, 3-7 March 2002.  
<<http://www.who.int/peh/ceh/Bangkok/bangkstatement.htm>>

among children under five, largely in developing countries, 70% of which are, believed to be, caused by biologically contaminated food.<sup>39</sup>

### 3.1.3.3 Impacts on plant and animal life

Ground-level ozone impedes plants-ability of producing and food storage thus compromising its growth, reproduction and the overall plant health. It reduced agricultural yields of crops like soybeans, kidney beans, wheat and cotton. Overall entire ecological functions can also be adversely affected in a way. Natural beauty recreation areas are also susceptible as ground-level ozone also damages leaves of long-lived species, for instance trees, which either diminish in number or get dotted. Fishes are killed by nitrogen oxide (a key component of ozone) and sensitive vegetation is more vulnerable to disease and environmental stresses.<sup>40</sup>

Similarly the use of contaminated biotechnology of high-yielding varieties and breeds proved harmful to the genetic base of plants, animals and micro-organisms, resulting in the world's irretrievable loss of some one tenth to one fifth of its 5 to 10 million species by the year 2000.<sup>41</sup>

## 3.2 A Brief Survey of development of International Environmental Law (MEAs) on ESTs

### 3.2.1 (1992) Agenda 21

The relevant provisions relating to EST are contained in Chapters 2, 31 and 34. Chapter 2 and 31 of the Agenda 21 emphasizes the need for international cooperation to accelerate sustainable development in developing countries. The purpose of such co-operation is to meet the challenges of the environment and sustainable development and to establish a new global partnership for achieving a more efficient and equitable world economy.<sup>42</sup> Chapter 31 concentrates on the ways to enable the scientific and technological community to make a more open and effective contribution to the decision-making processes concerning environment and development. The chapter 34 of the Agenda 21 explicitly spells out the transfer of ESTs. It stresses the need for favourable access to and transfer of environmentally sound technologies, specifically to developing countries, through supportive measures that *promote technology cooperation*. For example, by provision of much needed technological expertise as well as by building up economic, technical, and managerial capabilities for the efficient use and further

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<sup>39</sup> [http://www.who.int/fsf/fctshfts.htm#Recognition of food safety at international level](http://www.who.int/fsf/fctshfts.htm#Recognition%20of%20food%20safety%20at%20international%20level)

<sup>40</sup> How does Ground-Level Ozone Harm the Environment?

<[http://www.ams.org/air\\_pollution/ozone\\_environment.html](http://www.ams.org/air_pollution/ozone_environment.html)>

<sup>41</sup> General Assembly, A/Res/42/186 'Environmental Perspective to the Year 2000 and Beyond' <<http://www.un.org/documents/ga/res/42/ares42-186.htm>>

<sup>42</sup> Chapter 2.

development of transferred technology. The collaboration of government, private sector, and research and development facilities is necessary to guarantee the best possible results from transfer of technology at all levels.<sup>43</sup> In order to promote sustainable development, the activities for access to and transfer of technology, include up- to-date technology, related expertise and capacity building, specifically to developing countries, as well as cooperative partnerships in the field of technology.

Agenda 21 stresses that in view of the need for sustainable development for the protection of the environment, alleviation of poverty and human sufferings; modern and efficient technologies will be indispensable to enhance the capabilities of developing countries specifically. It is suggested that existing technologies that are currently in use are either improved or replaced with more accessible and more environmentally sound technology. Availability and access to ESTs were found to be vital for sustainable development.<sup>44</sup>

Two interconnected mechanisms have been suggested to ensure adequate information on the environmental aspects of present technologies. *Firstly*, by upgrading information relating up-to-date technologies, including their environmental risks. *Secondly*, by improving access to environmentally sound technologies.<sup>45</sup> The primary goal of such improved access is to enable informed choices regarding transfer of such technologies as well as strengthening of countries' own technological capabilities.<sup>46</sup>

It urges developed countries to facilitate access to developing countries of such useful technology along with associated expertise in public domain.<sup>47</sup> Further, the agenda obliges the developed countries to extend enhanced support to developing countries so as to enable them to develop and adapt existing technologies and capacities according to their indigenous need. Transferring of ESTs should involve education, training programmes mirroring the needs of specific goal-oriented research activities aimed at producing specialists learned in ESTs with an interdisciplinary outlook and entailing ingeniously adopting ESTs into the local or national culture.<sup>48</sup>

### **3.2.2 1982 Convention on the Law of the Sea**

ESTs- related provisions can be found in Article 61(2), 123, 129, 143, 144 and 242. Article 61 requires the coastal states to make sure, through proper conservation and management measures, that the maintenance of the living resources in the exclusive economic zone is not endangered by over-exploitation. In view of such an objective, the coastal state and competent international organizations (sub regional, regional or global, as the case may

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<sup>43</sup> 31.4 supra.

<sup>44</sup> 34.5 supra.

<sup>45</sup> 34.7 agenda 21.

<sup>46</sup> 34.8 supra.

<sup>47</sup> 34.9 supra.

<sup>48</sup> 34.13 supra.

be) agreed to co-operate mutually.<sup>49</sup> The convention requires the parties to conduct marine scientific research in the area for peaceful purposes and for the benefit of mankind as a whole and to promote international co-operation in marine scientific research in the adjacent area.

With regard to the transfer of technology, the authority under the convention has undertaken to take measures as per this convention to: (a) acquire technology and scientific knowledge relating to activities in the area; and (b) support the developing states for transfer of such technology and scientific knowledge so that all states parties could benefit from them.<sup>50</sup>

For this purpose the state parties and the authority are required to cooperate in promoting the transfer of technology and scientific knowledge relating to activities in the area for the benefit of enterprise and all states parties. The idea being to initiate and promote, particularly (a) programmes for the transfer of technology to the enterprise and to developing countries with regard to activities in the area, including, *inter alia*, facilitating **access of the enterprise and of developing states to the relevant technology**, under fair and reasonable terms and conditions; (b) measures aimed at promoting the technology of the enterprise and the domestic technology of developing states, particularly by providing opportunities to personnel from the enterprise and from developing states for training in marine science and technology and for their full participation in activities in the area.<sup>51</sup> Further parties are obliged to afford to other state parties a reasonable opportunity to obtain information necessary to prevent and control damage to the health and safety of persons and to the marine environment.<sup>52</sup>

### **3.2.3 1983 FAO International Undertaking on Plant genetic Resources**

The provisions of this undertaking relevant to EST s are contained in Article 6. The objective of the Undertaking is to make sure that plant genetic resources of economic and/or social interest, particularly for agriculture, will be explored, preserved, evaluated and made available for plant breeding and scientific purposes. The objective is based on the universally accepted principle that plant genetic resources are a heritage of mankind and consequently should be available without restriction.<sup>53</sup>

In order to enable all countries to make full use of plant genetic resources for the benefit of their agricultural development, Article 6 of the undertaking requires international cooperation particularly directed at establishing the capabilities of developing countries, relating to plant genetic resources activities, including plant survey and identification, plant breeding, seed

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<sup>49</sup> Article 61 (2) conservation of the living resources.

<sup>50</sup> Article 144: Transfer of technology.

<sup>51</sup> Article 144 (1)(2).

<sup>52</sup> Article 242 (2).

<sup>53</sup> Article 1 - Objective.

multiplication and distribution.<sup>54</sup> It also necessitates international cooperation in order to intensify international activities in the preservation, evaluation, documentation, exchange of plant genetic resources, plant breeding, germplasm maintenance, and seed multiplication, including activities conducted by FAO and other relevant UN agencies.<sup>55</sup> The purpose was to progressively cover all plant species that are important for agriculture and other sectors of the economy, in the present and for the future.<sup>56</sup>

### **3.2.4 1985 Vienna Convention for the Protection of the Ozone Layer**

The convention acknowledges the potentially harmful impact of modification of the ozone layer on human health and the environment. It recognizes the sovereign right of states to exploit their own resources pursuant to their own environmental policies, but makes them accountable for the activities within their jurisdiction that are harmful to the environment of other states or of areas beyond the limits of national jurisdiction.

For the ESTs, the term ‘*alternative technologies or equipment*’ has been used and it has been defined as ‘technologies or equipment the use of which makes it possible to reduce or effectively eliminate emissions of substances which have or are likely to have adverse effects on the ozone layer’.<sup>57</sup>

The parties to the convention resolved to protect human health and the environment against adverse effects resulting from modifications of the ozone layer. And for this purpose Convention requires international co-operation based on relevant scientific and technical considerations.<sup>58</sup>

In this regard, the state parties are obliged to cooperate, *inter alia* (a) by means of systematic observations, research and information exchange in order to assess the effects of modification of the ozone layer on human health and the environment; and (b) by adopting appropriate legislative or administrative measures and policies to control, limit, reduce or prevent human activities likely to adversely affect modification of the ozone layer.<sup>59</sup>

It is assumed that the parties would initiate co-operation, particularly keeping in view the needs of the developing countries, in conducting research and scientific assessments of the effects of physical and chemical processes prejudicial to the ozone layer and to evaluate other biological and climatic impacts on human health, along with alternative technologies etc.<sup>60</sup>

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<sup>54</sup> Article 6 (a).

<sup>55</sup> Article 6 (b).

<sup>56</sup> Supra (b).

<sup>57</sup> Article 1 of the convention.

<sup>58</sup> Preamble of the Convention.

<sup>59</sup> supra Article 2.

<sup>60</sup> Article 3 (1) of the Convention read with Annex I: Research and systematic observations.

Similarly it is also assumed that parties guarantee the regular collection, validation and transmission of research and observational data through appropriate world data centers.<sup>61</sup> The parties also agreed to co-operation in the legal, scientific and technical fields to facilitate and encourage the exchange of scientific, technical, socio-economic, commercial and legal information relevant to this Convention. It has been undertaken by the parties that such information shall be supplied to bodies agreed upon by the parties. It has been further made obligatory that “any such body receiving information regarded as confidential by the supplying Party shall ensure that such information is not disclosed and shall aggregate it to protect its confidentiality before it is made available to all Parties”<sup>62</sup> (underline is mine)

Under the convention the parties are bound to co-operate subject to their own national laws, regulations and practices, *in promoting the development and transfer of technology and knowledge*, directly or through competent international bodies to developing countries. Such co-operation has to be carried out particularly by facilitating the acquisition of *alternative technologies* by other parties; providing information on alternative technologies and equipment, supplying special manuals and guides and the necessary equipment and facilities for research and systematic observations; and appropriate training of scientific and technical personnel.<sup>63</sup> The Conference of the parties, in this connection, shall adopt programmes for research, systematic observations, technological co-operation, exchange of information and the transfer of technology and knowledge.<sup>64</sup> The parties recognized the collection and sharing of information as an important means of implementing the objectives of the convention, hence to exchange scientific, technical, socio-economic, business, commercial and legal information. However it was made clear that such co-operation was to be consistent with national laws, regulations and practices regarding patents, trade secrets, and protection of confidential and proprietary information.<sup>65</sup>

### 3.2.5 1987 Montreal Protocol

The relevant provisions on transfer of ESTs are Article 5 and 10A.

This Protocol recognizes the special situation of developing countries. Consequently, they were given a ten-year grace period to meet their commitments in order to meet their basic domestic needs. So developing countries are obliged to eliminate production and use of CFCs by the year 2010. It is further laid down that developing the capacity to fulfill the obligations to comply with the control measures set out and for the implementation by the same Parties will depend upon the effective

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<sup>61</sup> Article 3 (2).

<sup>62</sup> Article 4 (1).

<sup>63</sup> Article 4 (2).

<sup>64</sup> Article 6 (d).

<sup>65</sup> Annex II: Information exchange.

implementation of the financial co-operation as provided by Article 10 and *transfer of technology* as provided by Article 5.<sup>66</sup>

Under the Protocol, each party has undertaken to take every practicable step, consistent with the programmes supported by the financial mechanism, to ensure that the best available, environmentally safe substitutes and related technologies are expeditiously transferred to the parties and further that such transfer takes place under fair and most favourable conditions.<sup>67</sup>

### **3.2.6 1992 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal**

In this Convention the parties expressed their awareness regarding the need to continue the development and implementation of environmentally sound low-waste technologies, recycling options, good housekeeping and management systems with a view to reducing to a minimum level the generation of hazardous and other wastes.<sup>68</sup> Parties called for and encouraged the transfer of environmental protection technology for the sound management of hazardous and other wastes, specifically to the developing countries.<sup>69</sup> In order to achieve this purpose, the state parties with a view to promoting the environmentally sound management of hazardous and other wastes obliged themselves to grant access to information, on request, on a bilateral or multilateral basis.<sup>70</sup>

In addition, the state parties are obliged, subject to their national laws, regulations and policies, to co-operate in the development and implementation of new environmentally sound low-waste technologies and the improvement of current technologies in order to eliminate the generation of hazardous and other wastes.<sup>71</sup> Moreover, cooperation is required in the transfer of technology and management systems related to the environmentally sound management of hazardous and other wastes, in developing the technical capacity among parties, especially those in need and those that ask for technical assistance in this field.<sup>72</sup>

The convention also obliges the state parties to co-operate in monitoring the effects of the management of hazardous wastes on human health and the environment,<sup>73</sup> to assist developing countries,<sup>74</sup> in developing appropriate technical guidelines or codes of practice.<sup>75</sup> It further obliges the parties to,

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<sup>66</sup> Article 5 (5).

<sup>67</sup> Article 10A(a)(b) Montreal Protocol.

<sup>68</sup> The preamble of the Convention.

<sup>69</sup> The preamble of the Convention and Article 10(1).

<sup>70</sup> Article 10(2)(a).

<sup>71</sup> Supra (2)(C).

<sup>72</sup> supra (2) (d).

<sup>73</sup> supra(2) (b).

<sup>74</sup> Article 10(3).

<sup>75</sup> Article 10(e).

keeping in view the needs of developing countries, to promote, *inter alia*, public awareness, the development of sound management of hazardous wastes and wastes and the adoption of new low-waste technologies.<sup>76</sup>

### **3.2.7 1997 Kyoto Protocol<sup>77</sup>**

In the protocol the parties reaffirmed their existing commitments in the Convention (UN FCCC), to continue and to further their implementation with the view of achieving sustainable development. The key provision relating to sustainable development and transfer of ESTs can be found in Article 10 of the protocol. It obliges the parties to cooperate and take all practicable steps to further, facilitate and finance the effective modalities for the development, application and diffusion of transfer of, or access to, environmentally sound technologies, its expertise, practices and processes relevant to climate change. For this purpose while the Protocol necessitates the formulation of policies and programmes for the effective transfer of ESTs in the public domain, in the same way, it calls for the creation of a conducive environment for the private sector, to promote and enhance access to, and transfer of, environmentally sound technologies. This protocol acknowledges the common but differentiated responsibilities of developed countries to cooperate with particularly developing countries in this regard.<sup>78</sup> With the view of reducing uncertainties related to the climate system, adverse impacts of climate change and the economic and social consequences of various response strategies, it obliges the parties to cooperate in scientific and technical research, development of data archives, to further the development of systematic observation systems and strengthening of indigenous capacities and capabilities.<sup>79</sup> Kyoto Protocol obliges parties to cooperate in particular with developing countries around national capacity building, consolidation and training.<sup>80</sup>

### **3.2.8 1994 UN Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification**

The convention spells out the obligation of the state parties and international community to extend cooperation to the country parties experiencing serious drought and/or desertification, including in the field of technology transfer

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<sup>76</sup> Article 10 (4).

<sup>77</sup> The Kyoto Protocol to the United Nations Framework Convention on Climate Change/UNFCCC/was formally adopted on 11 December 1997. The Protocol establishes a legally binding obligation on Annex I countries/subject to entry into force/to reduce emissions of greenhouse gases/GHGson average by 5.2% below 1990 levels by the years 2008-2012.

<sup>78</sup> Article 10 (c).

<sup>79</sup> Article 10 (d).

<sup>80</sup> Supra (e).

as well as scientific research and development, information collection and dissemination and financial resources.<sup>81</sup>

In order to ensure systematic observation of land degradation in affected areas and for assessing the processes and effects of drought and desertification, the convention obliges the parties to integrate and coordinate in collecting, analyzing and exchanging relevant short term and long term data and information for 'early warning' and advance planning for periods of adverse climatic variation.

For this purpose, the parties are obliged to promptly exchange and make available information relevant to combating desertification and mitigating the effects of drought. They are also obliged to exchange information on local and traditional knowledge, subject to their respective national legislation and/or policies, while ensuring adequate protection for it. The parties are obliged to provide appropriate returns from the benefits derived from it, on an equitable basis and on mutually agreed terms, to the local populations concerned.<sup>82</sup>

The parties also agreed, according to their respective capabilities, to promote technical and scientific cooperation in the fields of combating desertification and mitigating the effects of drought by different activities. The Convention obliges state parties to develop and strengthen the development of local skills and to strengthen the appropriate capacities in affected developing countries, specifically in Africa. State parties are obliged to assist them in the development of improved, affordable and accessible technologies for sustainable development through effective participation of local populations and communities.<sup>83</sup>

With a view to contributing toward the achievement of sustainable development the parties to the convention, have undertaken, both bilaterally and multilaterally, and subject to their respective national legislation and/or policies, to cooperate in *promoting, financing, facilitating the financing of the transfer, acquisition, adaptation and development of environmentally sound, economically viable and socially acceptable technologies* pertinent to combating desertification and mitigating the effects of drought.<sup>84</sup> In this connection they are specifically obliged to a) fully utilize relevant existing information systems and clearing-houses for the dissemination of information on available technologies at different levels, their sources, their environmental risks and the broad terms under which they may be acquired; (b) assist particularly affected developing countries *to obtain access, on favourable terms, including on concessional and preferential terms subject to the need to protect intellectual property rights, to technologies most suitable to practical application for specific needs of local populations, paying special attention to the social, cultural, economic and environmental*

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<sup>81</sup> Article 12 of the Convention.

<sup>82</sup> Article 16 of the Convention.

<sup>83</sup> Article 17.

<sup>84</sup> Article 18.

*impact of such technology; (c) facilitate technology cooperation among affected country parties through financial assistance or other means; (d) extend technology cooperation with affected developing country parties, including, where relevant, joint ventures for fostering alternative livelihoods; and (e) take appropriate measures to create domestic market conditions and incentives, conducive to the development, transfer, acquisition and adaptation of suitable technology, knowledge, know-how and practices, including measures to ensure adequate and effective protection of intellectual property rights.*<sup>85</sup>

This Convention obliges the parties, subject to their respective capabilities and national legislation and policies, to protect, promote and use especially relevant traditional and local technology, knowledge, know-how and practices.<sup>86</sup> To achieve this purpose parties are obliged to (a) supply technology, knowledge, know-how and practices and their potential uses with the involvement of local populations, and disseminate such information, in cooperation with relevant intergovernmental and non-governmental organizations; (b) ensure that such technology, knowledge, know-how and practices are adequately protected and the benefits derived from any commercial utilization or technological development are available to local populations on the basis of equitable and mutually agreed terms; (c) pursue actively the improvement and dissemination of such technology, knowledge, know-how and practices or the development of new technology based on them; and (d) facilitate the adaptation of such technology, knowledge, know-how and practices for wide use and integrate them with modern technology.<sup>87</sup>

### **3.2.9 1994 The Energy Charter Treaty**

In this Charter, the parties resolved to progressively remove technical, administrative and other barriers to trade in Energy Materials and Products and related equipment, technologies and services. It also recalls previous developments in this regard with a desire to place the commitments, contained in that Charter, on a secure and legally binding basis.<sup>88</sup> Article 8 of the Charter is related to access and transfer of energy technology. The contracting parties committed themselves to promote access to and transfer of energy technology on a commercial and non-discriminatory basis, in order to contribute to effective trade in energy materials, products, investment and for the implementation of the objectives of the Charter *subject to their laws and regulations, and to the protection of Intellectual Property rights.*<sup>89</sup> For the effective enforcement of their commitment, the Charter obliges the contracting parties to eliminate obstacles to the transfer of technology in the field of Energy Materials and Products and related

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<sup>85</sup> Article 18 (1).

<sup>86</sup> Article 18 (2).

<sup>87</sup> Article 18 (2).

<sup>88</sup> Preamble of The Charter.

<sup>89</sup> The Charter, Article 8(1).

equipment and services, subject to non-proliferation and other international obligations.<sup>90</sup>

### 3.2.10 1992 Convention of Biological Diversity

The objectives of the Convention of Biological Diversity are (i) the conservation of biological diversity, (ii) the sustainable use of its components and (iii) the fair and equitable sharing of the benefits arising out of the utilization 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>91</sup> Benefits sharing with the party providing such resources, of the commercial utilization of genetic resources, shall be upon mutually agreed terms.<sup>92</sup> The parties to the convention agreed to appropriate cooperation for the conservation and sustainable use of biological diversity.<sup>93</sup>

The **sovereign rights** of the states over their natural resources and authority, subject to their national legislation, to determine access to genetic resources have been recognized.<sup>94</sup> The parties agreed to make an effort to create conditions conducive to facilitate access to genetic resources for environmentally sound uses by other contracting parties without undue restrictions.<sup>95</sup> Moreover such access shall be **subject to prior informed consent** of the contracting party providing such resources, unless otherwise determined.<sup>96</sup>

It recognizes that technology includes biotechnology, and that both access to and transfer of technology among parties are essential elements for the attainment of the objectives of this Convention. Consequently, each contracting party has assumed the responsibility to provide and/or facilitate access to and transfer of technologies that are relevant to the conservation and sustainable use of biological diversity to other contracting parties and to make use of genetic resources that do not cause significant damage to the environment.<sup>97</sup> Such pledged access to and transfer of technology to developing countries (supplier of genetic resources) has to be provided under fair and most favourable terms, including on concessional and preferential terms where mutually agreed and as per financial mechanisms established under the convention, if necessary.<sup>98</sup> In this connection the parties are required to adopt appropriate legislative, administrative or policy measures, aimed at providing access to and transfer of such technology to

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<sup>90</sup> Supra, Article 8(2).

<sup>91</sup> Biological Diversity, Article 1.

<sup>92</sup> Biological Diversity, Article 15(5)(6).

<sup>93</sup> Supra Article 5.

<sup>94</sup> Supra Article 15(1).

<sup>95</sup> Biological Diversity, Article 15(2).

<sup>96</sup> Biological Diversity, Article 15(5).

<sup>97</sup> Supra Article 16(1).

<sup>98</sup> Supra Article 16(2).

developing countries, including those technologies protected under patent and IP law. However any such pledge is not unfettered but subject to the condition that if the technology is protected under patents and other intellectual property rights, such access and transfer shall be provided on terms, which recognize and are consistent with the adequate and effective protection of intellectual property rights.<sup>99</sup> In this connection the private sector has been urged to facilitate access to, joint development and transfer of technology, for the benefit of both governmental institutions and the private sector of developing countries.<sup>100</sup> However foreseeing, the possible **influence patents and other intellectual property rights** on the implementation of this Convention, the contracting parties are obliged to cooperate in this regard subject to national legislation and international law in order to ensure that **such rights are supportive of and do not run counter to its objectives.**<sup>101</sup>

Further parties are to facilitate the exchange of information, from all publicly available sources, relevant to the conservation and sustainable use of biological diversity to meet the special needs of developing countries.<sup>102</sup> The Convention also highlights the need for cooperation in development and for the strengthening of national capabilities of developing countries.<sup>103</sup> In addition, it highlights the need to promote the establishment of joint research programmes and joint ventures for the development of technologies relevant to the objectives of this Convention.<sup>104</sup>

In the field of biotechnology, parties agreed to take legislative, administrative or policy measures to *provide for the effective participation* of developing countries, if feasible<sup>105</sup> and to take all practicable measures to promote priority access to developing countries, on mutually agreed terms and on a fair and equitable basis, of the results and benefits arising from biotechnologies based upon genetic resources.<sup>106</sup>

Regarding the potential adverse effects of contaminated living modified organisms (GMOs) resulting from biotechnology on conservation and sustainable use of biological diversity, the parties agreed to consider the protocol for advance informed agreement, in the field of the safe transfer.<sup>107</sup> In this connection, the parties agreed to provide any available information about the use and safety regulations, required in handling such organisms, as well as any available information on the potential adverse impact of the specific organisms.<sup>108</sup>

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<sup>99</sup> Supra Article 16(3).

<sup>100</sup> Supra Article 16(4).

<sup>101</sup> Supra Article 16(5).

<sup>102</sup> Supra Article 17(1).

<sup>103</sup> Supra Article 18(2).

<sup>104</sup> Supra Article 18 (5).

<sup>105</sup> Supra Article 19(1).

<sup>106</sup> Biological Diversity, Article 19(2).

<sup>107</sup> Supra Article 19(3).

<sup>108</sup> Supra Article 19(4).

### 3.2.11 Cartagena Protocol on Biosafety to the Convention on Biological Diversity

This protocol to the CBD specifically focuses on transboundary movements of living modified organisms and contributes to ensuring an adequate level of protection in the field of the safe transfer, handling and use of GMOs, resulting from modern biotechnology that may have an adverse effect on the conservation and sustainable use of biological diversity, and may pose risks to human health.<sup>109</sup>

It sets out appropriate procedures for advance informed agreement, keeping in view the rapid expansion of modern biotechnology, growing public concern over its potential adverse effects on biological diversity, human health as well as taking into account the limited capabilities of many countries, particularly developing countries, to cope with the nature and scale of known and potential risks associated with living modified organisms. It acknowledges also that modern biotechnology has great potential for human well being if developed and used with adequate safety measures for the environment and human health. It further recognizes that trade and environment agreements should be mutually supportive with a view to achieving sustainable development, while emphasizing that this Protocol shall not be interpreted as implying a change in the rights and obligations of a party under any existing international agreements.

For the capacity-building of developing country, LDCs, and small island developing, all parties have undertaken to cooperate in development and/or strengthening of human resources and institutional capacities in biosafety, including biotechnology to the extent that it is required for biosafety, through different levels of institutions and through facilitating private sector involvement in these countries.<sup>110</sup> For the purposes of implementing such cooperation in biosafety-capacity building, the special needs of such developing countries for access to and transfer of technology and know-how and financial recourses are required to be taken into account.<sup>111</sup>

*However each party has undertaken to protect the confidentiality of information (with certain exceptions) received under this protocol, in a manner no less favourable than its treatment of confidential information in connection with domestically produced living modified organisms and the party of import is obliged not use such information for a commercial purpose, except with the written consent of the notifier. The party of import is bound to respect the confidentiality of commercial and industrial information even after the withdrawal of notification by the notifier, including research and development information as well as information on which the Party and the notifier disagree as to its confidentiality.*<sup>112</sup>

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<sup>109</sup> Supra, Article 1.

<sup>110</sup> Supra, Article 2.

<sup>111</sup> Supra, Article 22.

<sup>112</sup> Supra Article 21.

### 3.2.12 1994 General Agreement on Trade in Services (GATS)

For the purpose of enhancing developing country members' participation in world trade and the strengthening of their domestic services capacity, efficiency and competitiveness, the parties to the agreement are obliged to facilitate, *inter alia* (a) access to technology on a commercial basis; (b) the improvement of their access to distribution channels and information networks.<sup>113</sup>

Developed country members, have undertaken to establish contact points within two years from the date of entry into force of the WTO Agreement to facilitate the access of information to developing country members This information relates to their respective markets, regarding *inter alia* the availability of *services technology*, with special regard to special needs of LDCs.<sup>114</sup> They are also required to support developing countries in services and in the development of telecommunications and information technology and to assist in strengthening their domestic telecommunications services sector, with special consideration to opportunities for the LDCs. In this regard they are required to encourage foreign suppliers of telecommunications services to assist in the technology transfer, training and other activities for development and expansion of their telecommunications infrastructure in the services trade.<sup>115</sup>

## 3.3 International Human Rights law on ESTs and Sustainable Development

We have already concluded that Environmentally Sound Technologies (ESTs) are indispensable for *sustainable development*, which is *ipso facto*, a concept closely linked to the notion of human rights law. Consequently, there is plethora of international instruments, which highlight the necessity of dissemination and transfer of and access to technology from north to south for the protection and promotion of sustainable development.

### 3.3.1 Interplay between Human Rights, Sustainable Development and Environmental Protection

Human rights, environmental protection and sustainable development are three angles of one triangle. In the words of Mary Robinson, (at that time) High Commissioner for Human Rights: "Each side is linked to, and mutually supports the others. Without one, effective realization of the other two is not possible."<sup>116</sup> Though sustainable development is the overarching

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<sup>113</sup> Article 4(1).

<sup>114</sup> Article 4(2).

<sup>115</sup> The GATS: Annex on Telecommunications.

<sup>116</sup> UN Press Release, HR/02/3, 15 January 2002, "Seminar To Review Environment And Human Rights Links Held A Decade After Earth

goal, it cannot be achieved without also respecting human rights and protecting the environment... The human rights aspects of sustainable development are many and varied. Poverty, health, indigenous peoples, and food: many of these issues, which are central to sustainable development, are also central to the UDHR. On another occasion in her concluding remarks, she said, “[t]he links between human rights the environment and sustainable development have already been established, and we have our simple image of the triangle to remind us of this. The human dignity of an individual is intimately linked to their environment, for the current generation and for generations to come for whom we hold this world in trust.”<sup>117</sup>

In a recently published paper presented by the Office of the High Commissioner for Human Rights it was concluded that sustainable development cannot be achieved without a substantial reduction in the number of people who are poor.<sup>118</sup> While U.N. Secretary General Kofi Annan, said sustainable development cannot be achieved without strong links between environmental issues and the U.N.’s overarching agenda for poverty eradication, human rights and peace building.<sup>119</sup> Though apparently conflicting goals, as human rights centered at individual’s standards while the environmental community is only concerned with protecting the environment but it is an oversimplification and ultimately false, as pointed out by Mary Robinson.<sup>120</sup>

Further this intrinsic linkage has been either incorporated in some constitutions especially in South Asia and Latin America or has been elaborated in a growing body of case law from many national jurisdictions. The first link may be illustrated by reference to the South African constitution, enshrined in the right to *access to sufficient water*<sup>121</sup> and the right to **a clean and healthy environment in the words** “not harmful to . . .

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Summit”. <<http://www.unhchr.ch/hurricane/hurricane.nsf/view01/D03DB249E38879CDC1256B43003FEB68?opendocument>>

<sup>117</sup> Mary Robinson, High Commissioner for Human Rights; Speech to Civil Society Workshop on Human Rights, Sustainable Development and Environmental Protection, World Summit on Sustainable Development, Johannesburg, South Africa, 1 September 2002, 10:00-18:00

<<http://www.unhchr.ch/hurricane/hurricane.nsf/view01/A551686D4B5905D0C1256C28002BF3D6?opendocument>>

<sup>118</sup> Human Rights, Poverty Reduction and Sustainable Development: Health, Food and Water, A Background Paper, World Summit on Sustainable Development Johannesburg, 26 August – 4 September 2002 <<http://193.194.138.190/development/bp-summit.pdf>>

<sup>119</sup> UN Secretary-General Message: “Environmental Policy Makers Must Provide ‘Coherent Vision’ To Johannesburg”- Secretary-General in Message to Global Forum of U.N. Environment Program Ministerial Environment Forum in Cartagena, Colombia <<http://www.un.org/News/Press/docs/2002/sgsm8124.doc.htm>>

<sup>120</sup> Mary Robinson, High Commissioner for Human Rights; Speech to Civil Society Workshop on Human Rights, Sustainable Development and Environmental Protection, World Summit on Sustainable Development, Johannesburg, South Africa, 1 September 2002, 10:00-18:00

<<http://www.unhchr.ch/hurricane/hurricane.nsf/view01/A551686D4B5905D0C1256C28002BF3D6?opendocument>>

<sup>121</sup> Ch. 2, Art. 27(1)(b) of the Bill of Rights of the 1996 South African Constitution.

health and well being”.<sup>122</sup> The case law from national jurisdictions may be exemplified by the judgment delivered by the Supreme Court of Pakistan in a matter: Ms. Shela Zia and Others v. Water And Power Development Authority (WAPDA).<sup>123</sup> In this case, the Highest Court held that the right to a clean environment is a fundamental right of all the citizens of Pakistan covered by the “right to life” and the “right to dignity” provided under Articles 9 and 14 of the Constitution of the Islamic Republic of Pakistan of 1973.

### 3.3.1.1 Some Specific References in International Human Rights Law Relating to Sustainable Development

The United Nations Charter<sup>124</sup> regards conditions of stability and well being as a sine qua non for peaceful and friendly relations among nations. Hence it pledges to promote: (a.) *higher standards of living, full employment, and conditions of economic and social progress and development; (b) solutions of international economic, social, health, and related problems; and international cultural and educational cooperation; and (c) universal respect for, and observance of, human rights and fundamental freedoms for all without distinction...*

As we have examined previously, these conditions are essential ingredients of sustainable development. The implications of overlooking them to promote the above goals will be to let the poverty, hunger, illiteracy and diseases to persist. Such non-fulfillment might amount to persistent violations of *human dignity*. The Universal Declaration of Human Rights, recognizes it as the ‘foundation of freedom, justice and peace’.<sup>125</sup>

Additionally, in the Charter of Fundamental Rights of the European Union, it is regarded as inviolable and must be respected and protected.<sup>126</sup> The infringement of such rights encompasses a range of violations of rights. The list may include violations of the right to life, education, child rights, women’s rights,<sup>127</sup> the rights to food clothing, housing or health and opportunities for employment right, indigenous people’s rights etc. They comprise primarily such human rights, which have been categorized as social, economic and cultural rights. The 1993 World Conference on Human Rights<sup>128</sup> reiterated that all human rights are universal, indivisible, and interdependent and interrelated.<sup>129</sup>

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<sup>122</sup> Supra Ch. 2, Art. 24.

<sup>123</sup> PLD 1994 SC 693.

<sup>124</sup> UN Charter, article 55 <<http://www.un.org/Overview/Charter/chapter9.html>>

<sup>125</sup> In its preamble, first paragraph.

<sup>126</sup> Article 1 of the Charter.

<sup>127</sup> It has recognized in situations of poverty women have the least access to food, health, education, training and other needs. See Paragraph 8 of Preamble to Convention on the Elimination of All Forms of Discrimination Against Women.

<sup>128</sup> In 1993, representatives of 171 governments gathered in Vienna at the World Conference on Human Rights.

<sup>129</sup> World Conference on Human Rights: Vienna Declaration and Programme of Action, UN doc. A/CONF.157/23, Part I, para. 5.

### 3.3.1.1.1 Rights to standard of living adequate for the health and well-being...

The Universal Declaration of Human Rights ‘as a common standard of achievement’ recognizes everyone’s right to a standard of living adequate for the health and well being of himself and of his family, including food, clothing, housing, security etc. (Article 25). It also acknowledges that ‘the highest aspiration of the common people’ is the ‘advent of a world in which human beings shall enjoy...*freedom from fear and want*’.<sup>130</sup>

### 3.3.1.1.2 Right to food

Although, as we discussed above, the right to food is included in adequate standard of living in UDHR, Universal Declaration on Elimination of Hunger & Malnutrition (World Conference Convened By GA 16 Nov.1974), declared freedom from hunger and malnutrition as an *inalienable right*, in order to develop fully their physical and mental faculties.<sup>131</sup> However the International Covenant on Economic, Social and Cultural Rights deals more comprehensively than any other instrument with this right. According to article 11.1 of the Covenant, state parties recognize “the right of everyone to an adequate standard of living for himself and his family, including *adequate food*, clothing and housing, and to the continuous improvement of living conditions”. While in article 11.2 they recognize that more immediate and urgent steps may be needed to ensure “the fundamental right to freedom from hunger and malnutrition”.

The *concept of adequacy* has been referred by the Committee on Economic, Social and Cultural Rights<sup>132</sup> as particularly significant in relation to the right to food since it serves to underline a number of factors which must be taken into account in determining whether particular foods or diets that are accessible can be considered the most appropriate under given circumstances for the purposes of article 11 of the Covenant. 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. 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. Violations of the Covenant, has been described to occur “when a State fails to ensure the satisfaction of, at the very least, the minimum essential level required to be free from hunger”.

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<sup>130</sup> Second paragraph in Preamble.

<sup>131</sup> Section 19, Universal Declaration on Elimination of Hunger & Malnutrition.

<sup>132</sup> E/C.12/1999/5, CESCR General comment 12

<[http://www.unhcr.ch/tbs/doc.nsf/\(symbol\)/E.C.12.1999.5,+CESCR+General+comment+12.En?OpenDocument](http://www.unhcr.ch/tbs/doc.nsf/(symbol)/E.C.12.1999.5,+CESCR+General+comment+12.En?OpenDocument)>

### 3.3.1.1.3 Right to clean water, air and a healthy environment

Although the right to clean air and water has no specific reference in human rights law, while the right food and health has been acknowledged, the Committee on Economic, Social and Cultural Rights, interpreted it to include the right to water and commented that the right to life, food, and an adequate standard of living are meaningless without it. It also emphasized water's quality, sustainability and adequate cleanliness.<sup>133</sup>

In the South African Constitution, there are specific provisions providing for *access to* sufficient water and to a clean environment not harmful to human health and well-being. Such approaches have also been referred to in the 1989 Convention on the Rights of the Child.

### 3.3.1.1.4 Right to Health

In international law instruments, right to enjoy the highest attainable standard of health has been recognized as a "fundamental right" WHO Constitution in 1946. The Universal Declaration of Human Rights (UDHR) recognizes every person's right to a standard of living adequate for his/her health (Article 25), the right to a social and international order in which the Declaration's rights can be fully realized (Article 28). The UDHR has achieved the status of customary international law; its many norms are considered legally binding upon all the world's countries.

Similarly the International Covenant on Economic, Social and Cultural Rights recognizes the right of everyone to the enjoyment of the highest attainable standard of physical and mental health. (Article 12(1)) Right to health is generally interpreted restrictively to refer to the absence of disease and the right to access to health care facilities. This erroneous approach loses sight of its broader implications that also includes the right to clean water and clean air and a social environment that respects and supports human dignity.<sup>134</sup> Our reference to the right to health is in relation to the environment and in the broader spectrum of sustainable development, which is affected by polluted and contaminated technologies. Such reference could be found in many international human rights instruments that address health and health-related issues. For example

ICESER<sup>135</sup> recognize the right of everyone to the enjoyment of just and favorable conditions of work, which ensure, in particular Safe and healthy working conditions (Article 7(b)). The States Parties are required to take steps to achieve the full realization of this right which shall include *inter*

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<sup>133</sup> E/C.12/2000/4, CESCR General comment 14, on "The right to the highest attainable standard of health.

<sup>134</sup> Economic and Social Rights and the Right to health- An interdisciplinary discussion held at Harvard Law School in September, 1993  
<<http://www.law.harvard.edu/programs/HRP/Publications/economic1.html>>

<sup>135</sup> Adopted and opened for signature, ratification and accession by General Assembly resolution 2200A (XXI) of 16 December 1966.

*alia*: The provision of the healthy development of the child (Article 12(2)(a)); The improvement of all aspects of environmental and industrial hygiene (Article 12(2)(b)); The prevention, treatment and control of epidemic, endemic, occupational and other diseases. (Article 12(2)(b))<sup>136</sup> Right to health in Article 12, has been interpreted in this broader spectrum, by the Committee on Economic, Social and Cultural Rights General Comments<sup>137</sup> as:

a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity “the highest attainable standard of physical and mental health” is not confined to the right to health care. On the contrary, the drafting history and the express wording of article 12.2 acknowledges that the right to health embraces a wide range of socio-economic factors that promote conditions in which people can lead a healthy life, and extends to the underlying determinants of health, such as food and nutrition, housing, access to safe and potable water and adequate sanitation, safe and healthy working conditions, and a healthy environment (emphasis added).

‘[P] reventive measures in respect of occupational accidents and diseases’ in (Art. 12.2 (b)) include the requirement to ensure an adequate supply of safe and potable water and basic sanitation; the prevention and reduction of the population’s exposure to harmful substances such as radiation and harmful chemicals or other detrimental environmental conditions that directly or indirectly impact upon human health, ... Implementation of the principle of non-discrimination requires that girls, as well as boys, have equal access to adequate nutrition, safe environments.

While state parties have been reminded to provide a safe and supportive environment for adolescents, to adopt measures against environmental and occupational health hazards and by implementing national policies aimed at reducing and eliminating pollution of air, water and soil, including pollution by heavy metals such as lead from gasoline (emphasis added).

Further this approach could be found in documents of (1) *Sundsvall* International Conference on Health Promotion: Supportive Environments for Health, held in, Sweden (2) Bangkok Meeting on supporting Environments for promoting Health (November 1993), (3) Bruntland Report in 1987, (4) the 1992 “Agenda 21” of UNCED, (5) 1993 WHO Global Strategy for Health and the Environment,<sup>138</sup> (6) The discussion of the Commission on Human Rights and Sub-Commission on

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<sup>136</sup> Article 12(2).

<sup>137</sup> *E/C.12/2000/4, CESCR General comment #1 (General Comments)* 11 August 2000 “The right to the highest attainable standard of health”

<[http://www.unhchr.ch/tbs/doc.nsf/\(symbol\)/E.C.12.2000.4,+CESCR+General+comment+14.En?OpenDocument](http://www.unhchr.ch/tbs/doc.nsf/(symbol)/E.C.12.2000.4,+CESCR+General+comment+14.En?OpenDocument)>

<sup>138</sup> <http://www.who.int/archives/who50/en/human.htm>.

Protection and Promotion of Human Rights, 1997, on the environmentally harmful impacts on right to health, extreme poverty and indigenous peoples.<sup>139</sup>

#### **3.3.1.1.4.1 Rights of the Child and environmental health**

Children are particularly vulnerable to the acute and chronic effects of pollutants in their environments.<sup>140</sup> Article 24 of the Convention on the Rights of the Child (CRC) spells out the right of children to the highest standard of health and healthcare attainable. Special emphasis should be placed on the provision of primary and preventive health care. No child should be deprived of health care services. Article 24 highlights the obligation of State Parties to provide adequate nutritious foods and clean drinking water, taking into consideration the dangers and risks of environmental pollution. It also highlights the significance of education for children on health and hygiene, environmental sanitation and the prevention of accidents. (emphasis added)

The International Conference on Environmental Threats to the Health of Children: Hazards and Vulnerability, 2002, stresses the need to protect children against physical, chemical and biological hazards, and also against social hazards that threaten children's health and quality of life. It also affirms their right to a safe, clean and supportive environment to ensure their survival, growth, development, healthy life and well being, especially in the context of the world's shift towards the adoption of sustainable development practices.<sup>141</sup>

Further reference to the right of the child to environmental health can be found in the World Declaration on the Survival, Protection and Development of Children (1990),<sup>142</sup> UNEP (1992) agenda 21<sup>143</sup> Convention on Worst forms of Labor,<sup>144</sup> Declaration of the Third Ministerial conference on Environment and Health (1999), The Berlin Commitment Pledging to create an environment fit for children (2001).<sup>145</sup>

#### **3.3.1.1.5 Rights of indigenous people**

Indigenous peoples and their traditional knowledge have very strong linkage with sustainability and conservation of biodiversity. Their input in species

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<sup>139</sup> Health as a human right <<http://www.who.int/archives/who50/en/human.htm>>

<sup>140</sup> International Conference on Environmental Threats to the Health Of Children: Hazards and Vulnerability, Bangkok, 3-7 March 2002.

<<http://www.who.int/peh/ceh/Bangkok/bangkstatement.htm>>

<sup>141</sup> The Bangkok Statement, The International Conference on Environmental Threats to the Health of Children: Hazards and Vulnerability, Bangkok, 3-7 March 2002

<<http://ehp.niehs.nih.gov/bangkok/>>

<sup>142</sup> <http://www.unicef.org/wsc/declare.htm>

<sup>143</sup> <http://www.un.org/esa/sustdev/>.

<sup>144</sup> <http://www.ilo.org/public/english/standards/ipec/intro/>.

<sup>145</sup> <http://www.unicef.org/newsline/01pr47.htm>

variation for thousands of years made the current breadth of biodiversity possible. Indigenous knowledge, expertise and understanding of rainforest biodiversity are based on sustainable principles. The relationship between indigenous peoples and biodiversity is said to be 'encoded in customary law' which is needed to be respected.

Moreover the Special Rapporteur<sup>146</sup> on Toxic Wastes and Human Rights depicted the linkage between human rights and the environment. She said that human rights violations have a negative impact on the preservation of the environment and vice-versa: environmental degradation has an adverse effect on the enjoyment of human rights, especially on vulnerable groups such as indigenous peoples.<sup>147</sup>

Moreover the Committee on Economic, Social And Cultural Rights (ICESCR), highlighted the importance of protection of medicinal plants, animals and minerals necessary to the full enjoyment of the health of indigenous peoples. In this respect, the Committee warned against such development-related activities, which lead to the detriment of the health and environment of indigenous peoples.<sup>148</sup>

Furthermore, United Nations initiatives such as the UN Decade for the World's Indigenous Peoples and the draft Declaration on the Rights of Indigenous Peoples demonstrate the recognition of indigenous people rights and aspirations. Some more frequently asserted rights claimed by indigenous communities, have already been recognized by international human rights instruments.<sup>149</sup> Their rights regarding sustainable development may include such rights as the right to control their indigenous knowledge, right to self-determination; right to the exercise of customary law according to their social and cultural practices etc.

### **3.3.1.1.6 Right to development**

The right to development, in the Declaration on the Right to Development,<sup>150</sup> has been described on one hand as 'an inalienable human

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<sup>146</sup> United Nations, Commission of Human Rights appointed Mrs Fatma-Zohra Vesely, as Special Rapporteur on Toxic Wastes and Human Rights.

<sup>147</sup> <http://www.cedha.org.ar/docs/doc99-eng.htm>

<sup>148</sup> *E/C.12/2000/4, CESCR General Comment 14 (General Comments)* 11 August 2000

"The right to the highest attainable standard of health"

<[http://www.unhcr.ch/tbs/doc.nsf/\(symbol\)/E.C.12.2000.4,](http://www.unhcr.ch/tbs/doc.nsf/(symbol)/E.C.12.2000.4,+CESCR+General+comment+14.En?OpenDocument)

+CESCR+General+comment+14.En?OpenDocument>

<sup>149</sup> Their rights have reference in the following international instruments: The International Labour Organization's Convention 107; The International Labour Organization's Convention 169; The Draft Declaration of the Rights of Indigenous Peoples (ECOSOC); The Draft Declaration of the Rights of the Indigenous Peoples of the Americas (OAS); The World Bank's Policy on Indigenous peoples (OD 4.20); The World Bank's Forest Policy (OD 4.36); The ITTO Guidelines for Sustainable Forest Management; Agenda 21 - Chapter 26; Article 5 of the UNCED 'Forest Principles'; IUCN Guidelines for the Management of Tropical Forests (1989); WWF-International's Draft Policy on Indigenous Peoples and Conservation and most importantly CBD.<sup>149</sup>

<sup>150</sup> Adopted by General Assembly resolution 41/128 of 4 December 1986

right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realized',<sup>151</sup> and on the other hand the human person has been regarded as the central subject of development and to be the active participant and beneficiary of the right to development.<sup>152</sup> It also implies the full realization of the right of peoples to self-determination, which includes, subject to the relevant provisions of both International Covenants on Human Rights, the exercise of their inalienable right to full sovereignty over all their natural wealth and resources.<sup>153</sup> The second aspects of the human right to development emphasize the notion close to 'sustainable development'.

A rights based approach begins with the objective of ensuring equity and a decent standard of life for all persons. With this as a starting point, we can then examine growth-led development and hope for better equity, lower poverty rates, and improved standards of living.<sup>154</sup> The 1992 Rio Declaration on Environment and Development states that 'the right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations' (Principle 3).<sup>155</sup> The same language has been incorporated in the 1993 Vienna Declaration and Programme of Action.<sup>156</sup>

### 3.3.2 Dissemination and transfer of EST as Human right

**The UN General Assembly** on many occasions stressed for transfer of ESTs to developing countries for sustainable development. For example the 1970 Declaration on Principles of International Law concerning Friendly Relations and cooperation among States<sup>157</sup> requires the States to co-operate in the economic, social and cultural fields as well as in the field of science and technology for the promotion of economic, cultural and educational progress.

In its 93rd plenary meeting it called for dissemination and transfer of scientific and technological knowledge in order to foster economic and social progress in developing countries.<sup>158</sup> In its 11th plenary meeting,<sup>159</sup> emphasizing that economic growth and development of developing countries are essential in order to address problems of the degradation and

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<<http://www.unhchr.ch/html/menu3/b/74.htm>>

<sup>151</sup> Article 1(1) Declaration on the Right to Development.

<sup>152</sup> Article 2(1) Declaration on the Right to Development.

<sup>153</sup> Article 1(2) Declaration on the Right to Development.

<sup>154</sup> Jorge Daniel Taillant, A Rights Based Approach to Development, Presentation to the World Social Forum Seminar on Globalization and Human Dignity March 2, 2002 Porto Alegre <<http://www.cedha.org.ar/docs/doc78.htm>>

<sup>155</sup> UN doc. A/CONF.151/Rev.1, 13 June 1992.

<sup>156</sup> Part I, paragraph 11 of the Vienna Declaration requires that the right to development should be fulfilled (the word 'should' has been used instead of 'must').

<sup>157</sup> General Assembly resolution (A/RES/2625 (XXV)).

<sup>158</sup> The General Assembly, A/RES/42/100, in its 93rd plenary meeting on 7 Dec. 1987.

<sup>159</sup> UN General Assembly Resolution A/RES/S-18/3, 11th plenary meeting on 1 May 1990.

protection of the environment, it called for effective modalities for favourable access to, and transfer of, environmentally sound technologies, in particular to developing countries, including on concessional and preferential terms.

In its 22<sup>nd</sup> Special session<sup>160</sup> for the Sustainable Development of Small Island Developing States it affirmed a commitment to helping them to become integrated in the world economy by, *inter alia*, the transfer of environmentally sound technologies and capacity building. The UN General Assembly acknowledged that environmental constraints are generally relative to the state of technology and socio economic conditions, which can and should be improved and managed to achieve sustained world economic growth through strategies to deal with environmental challenges *inter alia* by evolving environmental management technology.<sup>161</sup>

During the UN General Assembly “2001 Summit Declaration of Commitment on HIV/AIDS”,<sup>162</sup> it expressed commitment to strengthen international and regional cooperation in particular North/South, South/South, related to transfer of relevant technologies, suitable to the environment in prevention and care of HIV/AIDS, the exchange of experiences and research findings, subject to the legal protection to such findings.<sup>163</sup>

In the United Nations Millennium Declaration 2000 to address the challenges of poverty eradication and sustainable development in Africa, transfers of technology were recognized as one of goals to achieve this. In the Johannesburg Summit 2002<sup>164</sup> to protect biodiversity and get better ecosystem management, delegates pledged to improve developing countries’ access to environmentally-sound alternatives to ozone depleting chemicals by 2010.

### **3.3.2.1 Some references in Human right law regarding dissemination and transfer of ESTs**

UDHR recognizes the right of everyone to enjoy the arts and to share in scientific advancement and its benefits (Article 27(1)). A similar reference for recognition of the right can be found in Article 15 (b) of International

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<sup>160</sup> UNGA Resolution (A/RES/S-22/2) 12 June 2000, Twenty-second special session, Agenda item 8.

<sup>161</sup> The General Assembly in its 96<sup>th</sup> plenary meeting on 11 December 1987 (A/RES/42/186 Environmental Perspective to the Year 2000 and Beyond).

<sup>162</sup> 26<sup>th</sup> Special session of the General Assembly held on 25 to 27 June 2001, convened in accordance with resolution 55/13, as a matter of urgency, to review and address the problem of HIV/AIDS in all its aspects as well as to secure a global commitment to enhancing coordination and intensification of national, regional and international efforts to combat it in a comprehensive manner.

<sup>163</sup> UN General Assembly Special Session On HIV/AIDS, June 25-27, 2001  
<<http://www.un.org/ga/aids/coverage/>>

<sup>164</sup> Johannesburg Summit 2002 (26 August –4 September 2002)  
<[http://www.johannesburgsummit.org/html/whats\\_new/feature\\_story38.htm#top](http://www.johannesburgsummit.org/html/whats_new/feature_story38.htm#top)>

Covenant on Economic, Social and Cultural Rights (ESCR) in the words “[t]o enjoy the benefits of scientific progress and its applications”

Further, while it recognizes ‘the fundamental right of everyone to be free from hunger’, parties are obliged to adopt certain measures, including specific programmes, which are needed 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 (Art.11 (2)(a)). ICESCR).

The ‘Universal Declaration on Elimination of Hunger and Malnutrition’ affirmed “*society has already possess sufficient resources, organizational ability and technology and hence competence to achieve this objective. Eradication of hunger is common objective of all countries especially developed countries and other in position to help.*” and called for highly industrialized countries, for promotion of food production technology and to make efforts for its transfer, adoption, and dissemination for developing countries including to disseminate result of their research.<sup>165</sup>

Moreover the states parties to ICESCR are required to take steps to achieve the full realization of this right, including those necessary for the conservation, the development and the diffusion of science and culture. In this regard the states parties to ICESCR, recognized the benefits to be derived from the encouragement and development of international contacts and co-operation in the scientific and cultural fields. (Article 15(4))

The ‘right to share in scientific advancement and its benefits’, articulated in Article 27 of the UDHR and the obligations of States set out in Articles 15(4) and 2 of the *International Covenant on Economic, Social and Cultural Rights* regarding States’ legal obligations to cooperate internationally to realize economic, social, and cultural rights, including the right to the benefit of technological advances, are further complemented by the Declaration by the General Assembly “Right to use of Scientific and Technological Progress in the Interests of Peace and for the Benefit of Mankind”. It declares that, among other things, all States “shall” promote international co-operation to ensure that (1) the results of scientific and technological developments are used ...for the purpose of the economic and social development of peoples and the realization of human rights; take measures to ensure that scientific and technological achievements satisfy the material and spiritual needs for all sectors of the population;(2) co-operate in the establishment, strengthening and development of the scientific and technological capacity of developing countries with a view to accelerating the realization of the social and economic rights of the peoples of those

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<sup>165</sup> Adopted on 16 November 1974 by the World Food Conference convened under General Assembly resolution 3180 (XXVIII) of 17 December 1973; and endorsed by General Assembly resolution 3348 (XXIX) of 17 December 1974  
< <http://www.unhchr.ch/html/menu3/b/69.htm>>

countries;(3) and take measures to extend the benefits of science and technology to all strata of the population;(4)take the necessary measures, including legislative measures, to ensure that the utilization of scientific and technological achievements promotes the fullest realization of human rights and fundamental freedoms....<sup>166</sup>

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<sup>166</sup> UN General Assembly, Resolution 3384 (XXX) of 10 November 1975, Articles 1, 3, 5, 6 and 7.

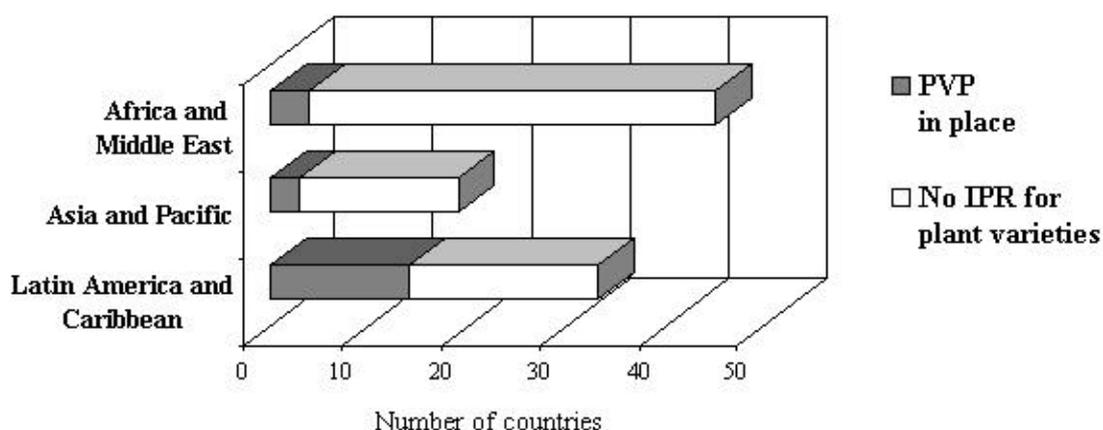
# 4 Transfer Of Environmentally Sound Technology and the TRIPs Agreement

## 4.1 South-North Confrontation: Critically Evaluating Developing Countries' concerns relating to Transfer of Environment friendly technology (EST) & related Issues

The focal point of these concerns is the patentability criteria and transfer of technology. However the provisions relating to potentiality were reviewable in 1999 after 4 years of the entry into force of the WTO Agreement.<sup>167</sup> In order to understand the difficulties and concerns of developing countries, it is instructive to see the progress so far as well as to examine what has been officially proposed by the developing countries, for review after 4 years (1999). Table-I shows the progress and Table-II the official proposals respectively. While table III shows progress in PVP laws in member countries.

Table-I

**STATUS OF THE TRIPs 27.3(b) IMPLIMENTATION IN SOUTH**



Source: Information compiled by GRAIN from numerous sources, February 2000

<sup>167</sup> The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement. Article 27(3)(b).

Table-II

Stakeholder	Patenting (life forms & biological processes)	<i>Sui generis</i> (plant varieties)
Kenya	<ul style="list-style-type: none"> <li>- Need five-year extension of transition period</li> <li>- Harmonize the TRIPs with CBD</li> </ul>	<ul style="list-style-type: none"> <li>- Need five-year extension of transition period</li> <li>- Increase scope of 27.3(b) to include protection of indigenous knowledge and farmers' rights</li> <li>- Harmonize the TRIPs with CBD</li> </ul>
Venezuela	<p>In 2000, introduce mandatory system of IPR protection for traditional knowledge of indigenous and local communities, based on the need to recognise collective rights</p>	
Africa Group	<ul style="list-style-type: none"> <li>- Review should be extended + additional five year transition after that</li> <li>- Review should clarify that plants, animals, microorganisms, their parts and natural processes cannot be patented</li> </ul>	<ul style="list-style-type: none"> <li>- Review should be extended + additional five year transition after that</li> <li>- <i>Sui generis</i> laws should allow for protection of community rights, continuation of farmers' practices and prevention of anti-competitive practices which threaten food sovereignty</li> <li>- Harmonize the TRIPs with CBD and FAO</li> </ul>
LDC Group	<ul style="list-style-type: none"> <li>- There should be a formal clarification that naturally occurring plants and animals, as well as their parts (gene sequences), plus essentially biological processes, are not patentable.</li> <li>- Incorporate provision that patents must not be granted without prior informed consent of country of origin</li> <li>- Patents inconsistent with CBD Art 15 (access) should not be granted</li> <li>- Need for extended transition period</li> </ul>	<ul style="list-style-type: none"> <li>- <i>Sui generis</i> provisions must be flexible enough to suit each country's seed supply system</li> <li>- Need for extended transition period</li> </ul>
Jamaica, Sri Lanka, Tanzania, Uganda, Zambia	<p>No patenting plants without prior informed consent of government and communities in country of origin</p>	
SAARC	<p>There is a need to prevent piracy of traditional knowledge built around biodiversity and to seek the harmonization of the TRIPs Agreements with the UN Convention on Biological Diversity so as to ensure appropriate returns to traditional communities.</p>	
SADC	<ul style="list-style-type: none"> <li>- The transitional period for implementation of 27.3(b) should be extended and the 2000 review should be delayed.</li> <li>- The review of 27.3(b) should harmonize the</li> </ul>	<ul style="list-style-type: none"> <li>- The transitional period for implementation of 27.3(b) should be extended and the 2000 review should be delayed.</li> </ul>

	TRIPs with CBD. - The exclusion of essentially biological processes from patentability should extend to microbiological processes.	- The review of 27.3(b) should retain the <i>sui generis</i> option.
G77	Future negotiations must make operational the provisions relating to the transfer of technology, to the mutual advantage of producers and users of technological knowledge and seek mechanisms for a balanced protection of biological resources and disciplines to protect traditional knowledge	
Bolivia, Colombia, Ecuador, Nicaragua, and Peru	The Seattle Ministerial Conference should adopt a mandate to: (a) carry out studies in order to make recommendations on the most appropriate means of recognizing and protecting traditional knowledge (TK) as the subject matter of IPR; (b) initiate negotiations with a view to establishing a multilateral legal framework that will grant effective protection to the expressions and manifestations of TK; (c) complete the legal framework envisaged in paragraph (b) above in time for it to be included as part of the results of the new round of trade negotiations.	

*Source: Information compiled by GRAIN from numerous sources, February 2000*

**Table III:** demonstrates the PVP laws **in place on 1 January 2000 in developing country members of WTO** (Member of the Union for the Protection of New Varieties of Plants (UPOV, Geneva), 1978 Act)

Africa & Middle East	Asia-Pacific	Latin America & Caribbean
Kenya*, Morocco, South Africa*, Zimbabwe	Hong Kong, Korea, Thailand	Argentina*, Bolivia*, Brazil*, Chile*, Colombia*, Ecuador*, Mexico, Nicaragua, Panama*, Paraguay*, Peru*, Trinidad & Tobago*, Uruguay*, Venezuela*

- **Source: Information compiled by GRAIN from various sources, February 2000**

These concerns expressed by developing countries<sup>168</sup> are commonly regarding the transfer of technology, the *sui generis* protection of plant varieties, patenting of biological forms, biopiracy of indigenous knowledge (TK) and farmers' rights. Similarly concerns regarding climate change, food security, and food safety, have been expressed. Hence more demand for compatibility of the TRIPs with MEAs, transfer of ESTs, exclusion of essentially naturally found biological processes from patentability including microbiological processes and more flexibility of *sui generis* provisions relating to plant varieties. There is also growing insistence on the proper protection of indigenous knowledge (TK), preventing piracy of such

<sup>168</sup> We deliberately avoided to including other wide array of concerns expressed by civil society institutions and NGOs, which also include some exaggerated and needless criticism as well.

knowledge, making patent subject to prior informed consent of the owner of such knowledge and allow prevention of anti-competitive practices which threaten food sovereignty. One significant aspect of the matter is that such concerns reflect the voice of indigenous communities, which although at the forefront of campaigning for such demands, being not parties to the WTO/the TRIPs, could not directly assail their plight.

The legitimacy of some genuine concerns (distinguished from non-genuine one)<sup>169</sup> cannot be ignored in the light of our discussion in the preceding chapter, regarding international human rights standards and undertakings in MEAs to meeting challenges of sustainable development. In order to gauge fully the authenticity of such concerns, it is pertinent to have an overview of the arguments advanced in the favour of such concerns. Following is a brief survey of such arguments:

**Firstly** in developing countries, as opposed to developed countries, no legal protection has been provided for plant varieties. Traditionally reliance has been on informal innovation and traditional knowledge of indigenous communities, which has contributed and is still contributing to the sustained improvement of plant varieties and to the preservation of biodiversity. The concern is expressed that standardized level of IPR protection under new regime under the TRIPs Agreement, poses threat to the traditional knowledge. It gives the TNCs free hand to monopolize the already existing seeds and plant varieties developed by the indigenous communities and farmers. It is alleged that they add comparatively little, through genetic engineering, to such existing varieties and claiming it 'new', patent it in their own names. Thereafter exclude indigenous farmers to use such varieties and seeds. This was termed as *biopiracy of their indigenous traditional knowledge (TK)*. A well-known example is cited that of *basmati* rice and *neem*, famous South Asian's rice varieties. These were patented in US patent office.

**Secondly** it was argued that TK, now under-threat, is necessary for the preservation and growth of biodiversity. Such knowledge was outcome of great efforts by the indigenous communities over thousands and thousands of years, particularly the historic role played by farmer breeders in protection, preservation and genetic variability of agro-biodiversity. They selected several varieties to address specific goals, different growing situations, and resistance to several pests and diseases.

For example rice is a big source of farmers' income and food security (80% of people's daily food). Over thousands and thousands of years in Asia's agricultural history, indigenous communities and farmers developed and conserved, an estimated diversity over 140, 000 rice genetic varieties. Almost 80, 000 of them are presently stored in the gene-bank of the International Rice Research Institute (Los Baños, Philippines). These different varieties have, since time immemorial, allowed farmers and

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<sup>169</sup> However we will still openly examine the proposition whether the TRIPs Agreement impedes transfer of environmentally sound technologies.

consumers to meet their needs. Some have the ability to grow even during droughts. Others can withstand certain pests. Much of this diversity, and the associated communities' indigenous knowledge has disappeared over the past 30 years by so-called 'Green Revolution' spearheaded by the International Rice Research Institute (IRRI), through uniform chemical dependent contaminated technologies like fertilizer, high-yielding seeds, pesticides, displaced the ecological wealth, skills and self-esteem of many indigenous farmers. The outcome of Green Revolution was rise in rice grain yields in some irrigated areas but at the high cost of fragile ecosystem, declining of soil fertility, and elimination of many genetic species and plant varieties. It is argued that the same story is being repeated by the TNCs because new plant varieties and seeds are being introduced through widespread use of genetically engineered (GE) techniques.<sup>170</sup> Such techniques may result in loss of biodiversity and ecological fiasco. It is further alleged that in the past, the whole cycle of the rice economy, from production to distribution, is being monopolized by TNCs, which was previously under the control of indigenous farmers themselves. The net result, according to 1999 UNDP report, is that it is ignoring "the needs of millions", raising price of technology transfer and blocking developing countries out of the knowledge sector and leaving the knowledge of indigenous peoples vulnerable to be claimed by others.<sup>171</sup> This warning was treated as "a strong warning against the negative consequences of the TRIPs Agreement, particularly on food security, indigenous knowledge, bio-safety and access to health care" by the UN Committee on Economic, Social and Cultural rights<sup>172</sup>

**Thirdly** the use and transfer of genetic materials are subject to the disclosure of source and only on the basis of prior informed consent (PIC) of the country of origin and after executing a Material Transfer Agreement (MTA) under the CBD. So it was alleged that this creates clash with the procedures mentioned under the GATT/WTO regime. Also, the CBD's advocacy for preferential location of research and development activities and the transfer of technology on concessional terms to the countries of origin will come into conflict with the implementation of the TRIPs. It was further alleged that the TRIPs does not allows the full exercise of national sovereignty over biodiversity (because it obliges countries to enact intellectual property rights on plant varieties) and denies to seek a share of benefits obtained from patented biodiversity (there is no provision requiring patentees to disclose the country of origin of any biological materials, therefore no claims can effectively be made from the countries of origin). The TRIPs does not require patentees to fulfill access obligations towards

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<sup>170</sup> 'No Patents On Rice! No patent On Life', Statement from peoples' movements and NGOs across Asia, Revised August 2001 <<http://www.grain.org/publications/rice-no-patents-en.cfm>>

<sup>171</sup> See UNDP Human development report 1999. Oxford University Press, 67-72.

<sup>172</sup> See UN Committee on economic, social and cultural rights. Statement to the Third ministerial conference of the WTO, par. 4 in UN doc. E/C.12/1999/9 (26 November 1999). For an illustration of the problem at the domestic level, see Pimble, M. "Indian agriculture, farmers' rights and the WTO" in Mehra, M. (Ed.)(1999), 80-85.

genetic resources (it is therefore presumed to condone and facilitates biopiracy).<sup>173</sup>

**Thirdly**, It is alleged that traditional knowledge (TK) and genetic resources of indigenous communities are being taken away without prior consent and sharing of benefit with them. Such practices run counter to undertakings under multilateral environmental treaties.

**Fifthly** it is alleged that the protection for plant varieties will have considerable implications for small farmers and rural communities in developing countries due to adopting UPOV system in compliance with the TRIPS Agreement. The UPOV 1991 conditions will significantly diminish the farming community's capacity to be self-sufficient in seed and self-reliant as agricultural producers. UPOV had been established to promote the interests of commercial plant breeders in the North rather than the farming communities. Further UPOV's uniformity requirement will contribute to genetic erosion and the cost of maintaining the UPOV certification is beyond the means of most farmer-breeders. Although peasant farmers have also cultivated plant varieties expressing desirable traits over time, their varieties rarely meet the UPOV requirements that they be "distinct" from other varieties, produce genetically "uniform" progeny, and remain genetically "stable" over generations. After the 1991 UPOV amendment, a new quality "novelty"- has been added to the minimal characteristics required of plant varieties, in order to bring them in line with patent requirements. Such conditions for a plant Breeders Right certificate under post 1991 UPOV's go counter to goal of enhancing genetic diversity and will grant an exclusive monopoly right. This contrasts sharply with the broader goals expressed in the CBD and the FAO Global Plan of Action for the Conservation and Sustainable Utilisation of Plant Genetic Resources for Food and Agriculture. FAO was said to recognize farmers' rights arising from the past, present and future contributions of farmers in conserving, improving and making available plant genetic resources, particularly those at the centers of origin or diversity.<sup>174</sup> The CBD also acknowledges the need to equitably share benefits with indigenous communities for their contribution to conservation and their knowledge of sustainable uses of biodiversity. The UPOV's requirements in compliance with Article 27.3(b) of the TRIPS Agreement run counter to FAO and CBD's obligations.<sup>175</sup>

**Sixthly** the most celebrated allegation, that the TRIPS Agreement impedes the transfer of ESTs technologies. This is alleged due to so-called 'too enhanced and high level of IP protection' under the TRIPS Agreement. It is argued that developing countries find extremely difficult to meet their

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<sup>173</sup> We will examine the legitimacy of such allegations, applying customary rules of interpretation.

<sup>174</sup> *Dr. Suman Sahai*, The TRIPS Agreement: Implications For Farmers' Rights And Food Security. <[http://www.ciroap.org/food/documents/The%20the TRIPs%20Agreement-%20Implications%20for%20Farmers'%20Rights%20and%20Food%20Security.doc](http://www.ciroap.org/food/documents/The%20the%20TRIPs%20Agreement-%20Implications%20for%20Farmers'%20Rights%20and%20Food%20Security.doc)>

<sup>175</sup> This concern does not seem to be tenable on the ground that though concerns regarding the UPOV may have substance, however the TRIPS Agreement does not make obligatory for member countries to join the UPOV system. We will discuss it later on.

obligations under MEAs to meet challenges of environment and sustainable development due to lack of access to the clean technologies. For example under the Montreal Protocol requires each state to phase out the use of CFCs and other ozone-damaging substances by year 2010. For this purpose obliges each party to take every practicable step, to ensure to that the best available, environmentally safe substitutes and related technologies are expeditiously transferred to the parties, under fair and most favourable.<sup>176</sup>

The developing countries complain that monopoly of TNCs on such technologies, due to IP regime, does not permit them to develop them locally. Among more frequently cited examples is of five Indian companies key manufacturers of products, which decided to phase out the use of CFCs. When promised transfer of substitute cleaner technology on fair and most favourable terms could not be available, three of them formed a consortium to commission a local institute of technology to manufacture a substitute for CFCs. When research was on advanced stage to find out the substitute substance, consortium was confronted by TNCs (patent right-holder of that substitute). The relevant TNC refused to license it on market price, and made availability contingent upon taking a majority stake in the companies' equity. This example shows their difficulties vis-à-vis lack of proper technology. They are persuaded to ratify the MEAs with promise of access to ESTs on fair and most favourable terms. However when the agreements come into force such technology transfer fails to materialize. Further the trade agreements like the TRIPs Agreement, blocks the South to have access to environmentally sound technology. Yet, when the time comes, the South is expected to meet their full obligations. So it was demanded to change the international laws on patents to have access to environmentally sound technology.

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<sup>176</sup> Article 10A(a)(b) Montreal Protocol.

## **4.2 IP protection under the Framework of the TRIPs Agreement & Technology Transfer: An analysis of the TRIPs Agreement-flexibility regarding technology transfer and related environmental issues and balancing conflicting issues**

### **4.2.1 Analysis of the TRIPs' flexibility regarding transfer of Environmentally Sound Technologies: Whether the TRIPs Agreement really fosters transfer environmentally sound technology or impedes it?**

A concern at everybody's lips, raised by developing countries, NGOs and different IGOs. For example; in the report of the Secretary-General of the UNCTAD, disapproved the resultant effects of IP protection particularly in respect of international transfer and diffusion of technology, despite, the justification of affording higher standards of protection on grounds of giving incentives and securing investment returns for technology creators and innovators. These are including stronger incentives to maintain import monopolies rather than to work or license the technology locally, higher royalties and more restrictive practices in licensing contracts."<sup>177</sup>

Do such propositions really carry weight in the eye of law? We will examine the suggestion analytically. Interestingly, the TRIPs Agreement does not use the term "transfer of environmentally sound technology" rather it simply speaks of "transfer of technology". Does it imply that the TRIPs Agreement does not signifies the transfer of environmentally sound technology and even imprecisely talks of technology transfer? Corollary two questions arise whether is there any flexibility in the TRIPs Agreement regarding fostering of transfer of technology? If answer is yes, then, second, a bit more complicated question strikes mind whether the '*technology*' the subject matter of 'transfer' and 'protection' under the TRIPs-framework is to be environmentally sound or even without it would be subject to protection?

For the sake of analysis and to arrive at findings, we will attempt to examine the issue from two angles:

1. Firstly at flexibility in the TRIPs Agreement regarding transfer of technology
2. Secondly to attempt to find the relationship of the TRIPs with the notion of 'Sustainable development', so as to arrive at findings regarding the second question.

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<sup>177</sup> U.N. Doc. A/45/588, 1990, p. 5.

#### 4.2.1.1 Flexibility of the TRIPs Agreement regarding transfer of technology

The preamble of the TRIPs Agreement recognizes that intellectual property rights are private rights. At the same time it identifies the fundamental public policy objectives of national systems for the protection of intellectual property, including developmental and technological objectives. It also acknowledges the special needs of the least-developed members-country It gives them maximum flexibility in the domestic implementation of laws and regulations in order to enable them to create a sound and viable technological base. The provisions of particular importance relating to technology transfer are found in ‘objectives and principles’ of the Agreement.

##### OBJECTIVES:

Article 7 provides that the protection and enforcement of intellectual property rights 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.

##### PRINCIPLES (Art.8):

1. Members may, in formulating or amending their laws and regulations, adopt measures necessary to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their socioeconomic and technological development, provided that such measures are consistent with the provisions of this Agreement.

2. Members may also take appropriate measures, provided that they are consistent with the provisions of this Agreement and needed to prevent the abuse of intellectual property rights by right holders or the resort to practices, which unreasonably restrain trade or adversely affect the international transfer of technology.

These provisions are of particular importance. These afford the legal basis for domestic power over IP policy as well has significance from the angle of customary rules of interpretation in public international law. According to the general rule of interpretation contained in *Vienna Convention on the Law of Treaties*; a treaty must be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.<sup>178</sup>

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<sup>178</sup> Article 31(1). While the context for the purpose of the interpretation of a treaty shall comprise, in addition to the text, including its preamble and annexes: (a) any agreement relating to the treaty which was made between all the parties in connexion with the conclusion of the treaty; (b) any instrument which was made by one or more parties in connexion with the conclusion of the treaty and accepted by the other parties as an instrument related to the treaty. 3. There shall be taken into account, together with the context: (a) any subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions; (b) any subsequent practice in the application

Further members while obliged to give effect to the provisions of this Agreement, have been left with certain leeway. First, in their domestic legislation, they are not obliged to implement more extensive protection than is required by this Agreement, provided that such protection does not contravene the provisions of this Agreement. Second, they are free to determine the appropriate method of implementing the provisions of this Agreement within their own legal system and practice.

#### **4.2.1.2 The TRIPs Agreement : interface between Sustainable Development, protection of Intellectual Property and transfer of technology**

Now we turn to the second issue i.e. the relationship of the TRIPs with the notion of ‘Sustainable development’. This attempt is to aim at to arrive at findings regarding whether the ‘*technology*’, the subject matter of ‘transfer’ and ‘protection’ under the TRIPs-framework, is needed to be environmentally sound.

It would be pertinent to know what is ‘technology’. It has been defined<sup>179</sup> as the “systematic knowledge for the manufacture of a product, for the application of a process or for the rendering of a service and does not extend to the transactions involving the mere sale or mere lease of goods”.

In the TRIPs Agreement, the protection under patent shall be available for any inventions, in all fields of technology, whether products or processes, provided that they are new, involve an inventive step and are capable of industrial application.<sup>180</sup>

Interestingly, the language used is still silent regarding whether the term ‘technology’ or ‘invention’; the subject matter of ‘protection’ and ‘transfer’ under the TRIPs-framework refers to ‘environmentally sounds technology.’ And in the case it is not environmentally sound, would it be still subject to IP protection? In other word whether the ordinary meaning of the term ‘technology’ and ‘transfer of technology’ used in the TRIPs required to be compatible with the notion of sustainable development or environmental standards.

Let us have a brief look at the TRIPs Agreement, to become familiar with the interface between the conflicting issues of technology transfer, sustainable development and protection of intellectual property.

Objectives of the TRIPs Agreement, as explicitly set out in Article 7 of the Agreement, put emphasis on the public interest rationale of IP protection which is read as: “[t]he protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to

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of the treaty which establishes the agreement of the parties regarding its interpretation; (c) any relevant rules of international law applicable in the relations between the parties. 4. A special meaning shall be given to a term if it is established that the parties so intended.

<sup>179</sup> The UNCTAD ‘Draft International Code of Conduct on the Transfer of Technology, UNCTAD TD/CODE TOT/47, Chapter 1, 1.2, 1985.

<sup>180</sup> Article 27(1).

*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 seems **to strike a balance** between:

- i) the promotion of technological innovation and to the transfer and dissemination of technology,
- ii) the mutual advantage of producers and users of technological knowledge.
- iii) and the manner conducive to social and economic welfare, and to a balance of rights and obligations.

Further member countries are given a fairly wide leeway in their domestic legislative policy and can take, in consistent with the provisions of the Agreement, the following measures:<sup>181</sup>

- iv) to protect public health and nutrition
- v) to promote the public interest in sectors of vital importance to their socio-economic and technological development
- vi) to remedy the practices which unreasonably restrain trade
- vii) to remedy the practices which adversely affect the international transfer of technology.
- viii) to prevent the abuse of intellectual property rights by right holders.

The preamble of the TRIPs Agreement, expressed the aspiration to reduce distortions and impediments to international trade, and the need to promote effective and adequate protection of IP rights. However making effort that such *measures and procedures* enforcing IP rights, do not themselves become barriers to legitimate trade. Similarly the TRIPs Agreement on one hand identifies that intellectual property rights are private rights. On the same time it recognizes the *underlying public policy objectives* of national systems for the protection of intellectual property, including *developmental and technological objectives*.

Just having a glance at the above-cited flexibility of the TRIPs Agreement, would be sufficient to establish that the Agreement gives a fair good deal of leeway to national governments in striking a balance between the ‘private IP rights’ of rightholder and ‘*public policy objectives*’. However for the sake of finding an interface between transfer of technology, Sustainable Development and protection of Intellectual Property, it would be proper to

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<sup>181</sup> Principles contained in Article 8.

classify these *public policy objectives* into two distinct, interdependent categories:

- i) those *objectives* aimed at *development* and promoting *technology*
- ii) those *objectives* supportive of making the development and technological objectives compatible with 'sustainable development'.

The *first category* may include 'promoting transfer and dissemination of technology'<sup>182</sup> and 'to take measure to remedy the practices which adversely affect the international transfer of technology'. Also these may include the measures to curb the practices, which unreasonably restrain trade and measure 'aimed at preventing the rightholder of IP from abusing intellectual property rights'.<sup>183</sup>

The *Second category* may include set of policy objectives relating to secure the purpose of 'sustainable development', which may be found in the heading *objectives*<sup>184</sup>, where reference is made by citing 'in a manner conducive to social and economic welfare, and to a balance of rights and obligations'. They may include 'the measures to promote the public interest in sectors of vital importance to their socio-economic and technological development'.<sup>185</sup> Further reference has been made in article 27(2) empowering members countries to exclude from patentability such inventions, which are necessary to protect *ordre public* or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment (which we will discuss a bit in detail subsequently).

We have already in the previous chapter, discussed the concept of 'sustainable development'. This concept implies such development (whether it is socio-economical or technological) that does not compromise the future for the sake of the present<sup>186</sup> The notion also encompasses the development which could effectively respond to the socio-economic challenges like poverty, malnutrition and hunger by way of focusing on food security, enhanced health care, education, the rights of women, the role of youth and of indigenous local communities etc. Keeping in view the underlying concept of sustainable development and the tacit language used in the TRIPs Agreement, suggests that these policy objectives characterized in our, so-called, *second category* are the goals of 'sustainable development'.

However because the TRIPs Agreement avoided using the term 'sustainable development' in expressed terms, it would be pertinent to refer to the *Vienna Convention on the Law of Treaties*, for the purpose of ascertaining

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<sup>182</sup> Article 7.

<sup>183</sup> Article 8.

<sup>184</sup> Article 7

<sup>185</sup> Article 8 (2).

<sup>186</sup> World Commission on Environment and Development, *Our Common Future* (Oxford, England, Oxford University Press. 1987).

the meaning of the terms technology/invention and transfer of technology. According to the *Vienna Convention*, ‘a treaty must be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose’.(underline is mine).<sup>187</sup> The ‘*context*’ for the purpose of the interpretation of a treaty shall comprise, in addition to *the text*, including its *preamble* and *annexes*: (a) any agreement relating to the treaty which was made between all the parties in connection with the conclusion of the treaty; (b) any instrument which was made by one or more parties in connection with the conclusion of the treaty and accepted by the other parties as an instrument related to the treaty.<sup>188</sup> Also, it is necessary for the purpose of interpretation to take into account, together with the context (a) *any subsequent agreement* between the parties regarding the interpretation of the treaty or the application of its provisions; (b) *any subsequent practice* in the application of the treaty which establishes the agreement of the parties regarding its interpretation; and (c) any relevant rules of international law applicable in the relations between the parties.<sup>189</sup>

In the given situation, the objective contained in the preamble of the WTO Agreement and other package –agreements (especially GATT 1994) become relevant as well as because they qualify the definition of ‘context’ as they ‘were made between all the parties to and in connection with the conclusion of the WTO treaty. The TRIPs Agreement being an integral part of WTO treaty, is contained in it as Annex 1C. Consequently, overall objective of the WTO, as reflected in the Preamble to the WTO Agreements, also concerns the TRIPs Agreement, so it may be helpful to clear the ambiguity. The Preamble of WTO states:

The parties signing the agreement recognize that “their relations in the field of trade and economic endeavour should be conducted with a view to raising standards of living [...] and expanding the production of and trade in goods and services, 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.”(emphasis added)

It also acknowledges the “need for positive efforts calculated to ensure that developing countries, and the least developed among them in particular, secure a share in the growth in international trade commensurate with the needs of their economic development”.<sup>190</sup> The Preamble to the WTO Agreement thus recognizes the need for trade relations to be in compatible

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<sup>187</sup> Article 31(1).

<sup>188</sup> Article 31(2).

<sup>189</sup> Article 31(3).

<sup>190</sup> UN Committee on Economic, Social and Cultural Rights, Background paper submitted by the Secretariat of WTO, ‘*Protection of Intellectual Property Under the TRIPs Agreement*’, UN doc. E/C.12/2000/18 (27November2000)  
<[http://www.unhcr.ch/tbs/doc.nsf/\(Symbol\)/E.C.12.2000.18.EN?Opendocument](http://www.unhcr.ch/tbs/doc.nsf/(Symbol)/E.C.12.2000.18.EN?Opendocument)>

with the objective of sustainable development, indicates that differentiation may be necessary according to level of development.

It is pertinent to mention here that the TRIPs Agreement and the GATT, 1994, the GATS and others are 'annexes' could to be used as tools for interpreting the WTO agreement. Furthermore, because all agreements were negotiated and concluded as a single integral whole by all members of the WTO and made by all the parties to the agreements, therefore all these agreement are within meaning of 'in connection with the conclusion of the treaty'. In other word, on one hand, it would mean that while interpreting WTO agreement (main treaty), the TRIPs Agreement, the GATT and the GATS, for the purpose of interpretation, are within meaning of 'context' as a guide to understanding its ordinary meaning. On the other hand while interpreting the TRIPs Agreement, the preamble, the text of WTO, the GATT and the GATS could be pressed into service for interpretation. To make things clearer, it would be the most relevant to refer to another reference in the GATT. It has particular significance and relevance for the TRIPs Agreement because in its preamble the TRIPs Agreement has specific reference to the GATT.<sup>191</sup>

In the General Agreement on Tariffs and Trade (GATT, 30 October 1947), now annexed to the WTO Agreement the following paragraphs is very pertinent to cite:

Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:

- a) necessary to protect public morals;
- b) necessary to protect human, animal or plant life or health;
- c) relating to the products of prison labour;
- d) imposed for the protection of national treasures of artistic, historic or archaeological value;
- e) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption(...)<sup>192</sup>

The specific concerns of the WTO regarding sustainable development, especially environmental concerns, resulted in the establishment of the Committee on Trade and Environment (the CTE) and signing of certain other trade agreements dealing more or less with environmental issues. With a function that is both analytical and prescriptive, the CTE has the objective "of identifying the links between trade provisions and environmental measures in order to promote sustainable development and of

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<sup>191</sup> The Preamble of the TRIPs Agreement recognizes, while the need for new rules and disciplines concerning the applicability of the basic principles of GATT 1994 and of relevant international intellectual property agreements or conventions.

<sup>192</sup> Article XX, GATT.

making appropriate recommendations to determine whether there is a need to amend the provisions of the multilateral trading system, without prejudicing its open, equitable and non-discriminatory character.”

Two fundamental considerations guide the work of the CTE. Firstly, the policy coordination responsibilities of the WTO are limited to trade and to those aspects of environmental policy that may have substantial effects on trade between member States. In other words, the WTO is not an environmental protection agency and plays no part in assessing national priorities or setting environmental standards. These tasks will continue to be the responsibility of governments and of other intergovernmental bodies that are in a better position to accomplish them. Secondly, if the CTE becomes aware of problems of coordination resulting from efforts to improve environmental protection, these must be settled in a way that does not contravene the principles of the multilateral trading system (MTS).

The mandate of the CTE involves an ambitious working agenda, divided into 10 points. The Committee delivered its first report at the WTO ministerial conference in Singapore, in December 1996. The NGOs, relating to the environmental criticized the CTE for its inability to make any crucial leap towards greater synergy between environmental and trade policies, particularly, showed their resentment regarding the absence of recommendations for sustainable development-oriented changes to the WTO rules and a positive proposal that might clarify the debate on the links between international trade and the environment.

To further explore the issue it would be relevant to have reference to some case-law and state practice in this regard, within the meaning of Article 31(3)(bis) of Vienna Convention.

There has been demand by the developing countries and NGOs for consideration of review such issues by Ministerial Meeting and the TRIPs Council, however they are still pending. Doha Ministerial Meeting assigned a list of such issues relating sustainable development/environment to the TRIPs Council. The TRIPs Council met in March 2002 to start work on a list of issues and supposed to made recommendations thereon to the Trade Negotiations Committee by the end of 2002.<sup>193</sup> So far as case law is concerned, no such dispute in issue, so far been reported to be agitated for settlement, within the framework of substantive provisions of the TRIPs Agreement. But as we have already analyzed that the TRIPs Agreement is an integral part of the WTO-package agreement and are subject to same dispute settlement mechanism. Further, protection afforded to IP is trade related, therefore, any dispute raised by State parties for settlement, relating to conflict of environment and trade become relevant and helpful for seeking the relationship between sustainable development/environmental objectives, technology transfer and IP protection.

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<sup>193</sup> UNCTAD (TD/B/49/12) 20 September 2002 , “Developments And Issues In The Post-Doha Work Programme Of Particular Concern To Developing Countries”  
<[http://www.unctad.org/en/docs/tb49d12\\_en.pdf](http://www.unctad.org/en/docs/tb49d12_en.pdf)>

In the light of objective and purpose, the preambles of the TRIPs Agreement, that of the WTO and the GATT's and their contexts, tentatively, it can be concluded that the intention of member countries at the Uruguay Round negotiations, was to give full regard to environmental concerns and sustainable development. It would be therefore erroneous to presume that the parties to the WTO while incorporating patentability criteria might have contemplated to include, within meaning of 'technology', even those technologies/inventions, which could have prejudicial repercussions for the sustainable development. Such an interpretation appears to be more reasonable because it is more in consonance with Article 30 of the Vienna Convention of law of Treaties. However such interpretation would be entirely untenable if it is not consistent with the other provisions of the TRIPs Agreement and Article 30 of Vienna Convention. For example, if the patent office of a country decides not to afford protection to a particular invention/technology made in a country (say 'A'), on the basis of its incompatibility with sustainable development but subsequently extends protection to another invention of the same nature, also incompatible with sustainable development from a country 'B'. In such cases, if inventor or country move against such refusal to extend patent protection, logically, the WTO dispute settlement bodies, would not incline to favor patent office decisions to decline protection on the ground of its inconsistency with other provision of the TRIPs Agreement. Because in such case of discriminatory treatment is hit by the Article 27(1) of the TRIPs Agreement.

#### **4.2.1.3 Biological diversity related issues & the TRIPs Agreement**

The Convention on Biological Diversity (CBD) is the first worldwide agreement to encompassing all aspects of biological diversity.<sup>194</sup>

The objectives of the Convention are "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources". To achieve its objectives, the CBD in line with Rio Declaration on Environment and Development, is to promote a renewed partnership among countries. Its provisions regarding access to genetic resources and transfer of environmentally sound technologies form the basis of this partnership.

Both of the treaties are legally bindings on the parties. Customary rules of interpretation seek to understand treaties as compatible with each other's and to avoid clash.<sup>195</sup>

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<sup>194</sup>It opened for signature on 5 June 1992, during the Earth Summit, entered into force on 29 December 1993. As of 22 December 2002, there were 186 Parties and 168 signatories to the CBD <http://www.biodiv.org/world/parties.asp>.

<sup>195</sup> See Article 30 *Vienna Convention on the Law of Treaties*.

We have already discussed the relevant provisions of the CBD in preceding chapter, here it is just being reproduced to the extent that there appears to be tension between the two.

The Convention is based upon on three pillars (objectives):<sup>196</sup>

- the conservation of biological diversity;
- the sustainable use of its components;<sup>197</sup>
- the fair and equitable sharing of the benefits arising out of the use of genetic resources

The sharing of the benefits means the exchange of benefits. The holder of genetic resources to be provided appropriate access to transfer of relevant technologies, in exchange of taking its genetic resources or by appropriate funding.<sup>198</sup>

So far as the objectives of the CBD are concerned, we have already discussed, the TRIPs Agreement directly or indirectly endorses them. Some further explanation as follows:

The CBD is basically concerned with the conservation of biological diversity and sustainable use of its components.<sup>199</sup> As we already discussed that WTO's preamble (which is also preamble of the TRIPs Agreement) recognizes 'the *relations between the parties to be conducted with a view to raising standards of living, expanding production, 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*'. So both are complement to each other and not antagonistic.

The TRIPs Agreement objectives set out in Article 7 of the agreement put emphasis on the public interest rationale of IP protection. Subject to the objective of the agreement, the rights of the rightholder are that his invention be afforded full enforceable protection during the patent period, provided under law, without discrimination as to the place of invention, the field of technology and whether the products are imported or locally produced.<sup>200</sup> It gives the producer of technological knowledge an incentive by providing a conducive environment where his *technological innovation* could further flourish. As a result nobody is allowed to exploit his knowledge without his consent. The CBD does not contradict these objectives which supports the right of right holder, by saying that appropriate transfer of relevant technologies would take place, taking into account all rights (understandably IP rights) over those technologies.<sup>201</sup>

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<sup>196</sup> Article 1 The Convention on Biological Diversity (CBD).

<sup>197</sup> Sustainable use "means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations" (CBD, Article 2).

<sup>198</sup> Biological Diversity, Article 1.

<sup>199</sup> Its first two principles in Article 1.

<sup>200</sup> Supra.

<sup>201</sup> Biological Diversity, Article 1.

Further while make mandatory for the member, the holder of technology, to give access to such technologies to developing countries, through legislative, administrative or policy measures.<sup>202</sup> It leaves no doubt that 'such access and transfer shall be provided on terms, which recognize and are consistent with the adequate and effective protection of intellectual property rights if technology is protected under patents and other intellectual property rights'.<sup>203</sup> Foreseeing the possible influence of patents and other IP rights on the implementation of the Convention, the contracting parties are obliged to cooperate in this regard subject to national legislation and international law in order to ensure that such rights are supportive of and do not run counter to its objectives.<sup>204</sup>

The Agenda 21 also contemplates such requirement of providing fair incentives to innovators that promote research and development such innovations.<sup>205</sup>

However because the CBD's primary concern is the conservation of biological diversity and sustainable use of its components, it deems ESTs, including biotechnologies, essential elements for the attainment of its objectives. Therefore it obliges parties to transfer of such technologies to other members. It also obliges the parties to use genetic resources in a manner that do not cause considerable damage to the environment.<sup>206</sup> So the CBD by giving access to ESTs and by sustainable use of genetic resources, attempts to protect and preserve the environment'. This is the precise intention of the WTO in its preamble as we discussed supra.

However where the CBD, acknowledges IP rights associated with appropriate transfer of relevant technologies, it, in accordance with its objectives, simultaneously laid down that appropriate access to genetic resources shall be subject to all rights over those resources and by appropriate funding.<sup>207</sup> The CBD recognizes sovereign rights of the states over these genetic resources<sup>208</sup> as well as their authority to determine their access through national legislation<sup>209</sup> Also it affords protection to genetic resources, by imposing condition of 'prior informed consent of the providing contracting party' for an access to such resources.<sup>210</sup> The TRIPs Agreement does not contradict the sovereign right of the states owning these resources, nor controvert that such genetic resource to be used without prior consent of concerned state. Even the purpose of its IP protection is 'to contribute to the transfer and dissemination of technology'. Hence acknowledges the transfer of technology to take place between developed

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<sup>202</sup> Supra Article 16(3).

<sup>203</sup> Supra Article 16(2).

<sup>204</sup> Supra Article 16(5).

<sup>205</sup> Agenda 21, chapter 34, para 11.

<sup>206</sup> Supra Article 16(1).

<sup>207</sup> Biological Diversity, Article 1.

<sup>208</sup> Genetic resources means "genetic material of actual or potential value" "Genetic material means any material of plant, animal, microbial or other origin containing functional units of heredity"(CBD, Article 2).

<sup>209</sup> Supra Article 15(1).

<sup>210</sup> Biological Diversity, Article 15(5).

and developing countries. However, it is not clear how such a transfer takes place in practice and if specific measures might be taken within the WTO to encourage such flows of technology'.<sup>211</sup> The CBD could help us by giving the modus operandi of how it could take place practically. For example one proposed way of transfer of technology which is available from publicly available sources, relevant to the conservation and sustainable use of biological diversity.<sup>212</sup> The TRIPs Agreement does not bar the access to such technologies in public domain.

It is evident that the purpose of the CBD could be served by appropriate technical and scientific cooperation to especially developing countries. For example by appropriate cooperation with international and national institutions,<sup>213</sup> by developing national capabilities of human resources and institution building,<sup>214</sup> the training of personnel and exchange of experts<sup>215</sup> and by promoting establishment of joint research programmes and ventures for the development of technologies relevant to the objectives of this Convention.<sup>216</sup> These types of cooperation is mostly linked to the political will of the respective parties and even where IP regime is involved, it the state responsibility of respective state to find way out.

Correspondingly in the TRIPs Agreement the same nature of provisions could be found to oblige developed countries to extend cooperation. For example in order to enable to create a sound and viable technological base in LDCs and encourage transfer of technology to them, the developed member countries are required to provide incentives to enterprises and institutions in their territories.<sup>217</sup> Further the technologically advance countries are bound to provide, on request and on mutually agreed terms the technical and financial cooperation in favour of developing and LDCs including assistance in the preparation of IP laws, IP offices including the training of personnel.<sup>218</sup>

However the CBD makes obliged to take measures for the priority access on mutually agreed terms and on a fair and equitable basis by especially developing countries members, to the results and benefits arising from biotechnologies based upon genetic resources provided by those contracting parties.<sup>219</sup> Also requires informing about the use and safety regulations regarding any GMOs that may have adverse effect on the conservation and sustainable use of biological diversity. Similarly the parties to conventions are obliged to make effort to create conducive environment to make easy the access to genetic resources for environmentally sound uses.<sup>220</sup>

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<sup>211</sup>[http://www.wto.org/english/tratop\\_e/devel\\_e/dev\\_wkgrp\\_trade\\_transfer\\_technology\\_e.htm#top](http://www.wto.org/english/tratop_e/devel_e/dev_wkgrp_trade_transfer_technology_e.htm#top).

<sup>212</sup> Supra Article 17(1).

<sup>213</sup> Supra Article 18(1).

<sup>214</sup> Supra Article 18(2).

<sup>215</sup> Supra Article 18 (4).

<sup>216</sup> Supra Article 18 (5).

<sup>217</sup> Article 66.

<sup>218</sup> Article 67.

<sup>219</sup> Biological Diversity, Article 19(2).

<sup>220</sup> Biological Diversity, Article 15(2).

#### 4.2.1.4 Patentability Criteria: An Analysis

This section is to further explore the preceding discussion and to analyse the present issues of whether or not contaminated inventions are protected by patent protection. The whole legal controversy appears to be surrounding the patentability criteria. Hence it would be relevant to have a glance of these provisions of the TRIPs Agreement. The patent protection generally afforded to inventions. So naturally question arises what meant by 'invention' or 'patent' so as to know the general scope of patentability and flexibility of the TRIPs Agreement in this regard. *Invention* is technical solution to a problem. Mainly the patent laws do not define the concept of invention and a patent. A *Patent* is a legal protection of an invention, to recompense the endeavor made by investing time and money into a scheme, which leads to something deemed to be an innovative within a specific field. However, the WIPO Model Law for Developing Countries on Inventions (1979) defines inventions as, "an idea of an inventor which permits in practice the solution to a specific problem in the field of technology".<sup>221</sup> But it is just described in general terms for guidance only and not to create legally binding obligations of course. In most of national laws the dominant trend has been to avoid definition of invention, for the purpose of leaving certain degree leeway for judicial or administrative practice. The same approach pursued by the TRIPs Agreement.

In order to be eligible for patent protection, an invention must fall within the scope of patentable subject matter. Article 27.1 of the TRIPs Agreement provides that, subject to certain exceptions or conditions, patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step, and are capable of industrial application.<sup>222</sup> While limited exceptions are possible under the TRIPs Agreement and provided for in some national laws, *the general rule will be to afford patent protection for an invention and will not be refused simply because of its field of technology capable of industrial application such rights are available and enjoyed without discrimination as to the place of invention, the field of technology and whether the products are imported or locally produced.*<sup>223</sup>

However under the TRIPs Agreement, there are few significant exceptions to the general rule, which are left for the member country's discretion, to provide for. So they may exclude from patentability:

- inventions, the prevention of which is necessary to protect *ordre public* or morality including to protect human, animal or plant life or health or to avoid serious prejudice to the

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<sup>221</sup> Collection of Documents on Intellectual Property, Compiled by WIPO Worldwide Academy, 2001.

<sup>222</sup> Article 27(1).

<sup>223</sup> *Supra*.

environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law.<sup>224</sup>

- plants and animals other than microorganisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes.<sup>225</sup>
- diagnostic, therapeutic and surgical methods for the treatment of humans or animals.<sup>226</sup>

So instead of excluding plants and animals from patentability exclusively, all the WTO members are obliged to grant patent protection on microorganisms or biotech inventions/genetically engineered organisms. Also, required to provide for the protection of plant varieties either by patent, by an effective *sui generis* system or by a combination thereof.

Historically patent law was designed to regulate industrial inventions and legislators had not contemplated to include biotech inventions. However with the advent of new developments, patent was extended to the biotech inventions and changes were made to clarify the patentability of biotech inventions. Generally breakthrough in this regard is attributed to a landmark case delivered by the US Supreme Court in Diamond v. Chakrabarty<sup>227</sup> (1980), the Court interpreting S.101 (subject matter) of US patent Act, too broadly and upheld the patentability of biotechnology inventions. Justifying its judgement, the US Supreme held that Congress intended statutory subject matter to “include anything under the sun that is made by man except laws of nature, natural phenomena, and abstract ideas.”

Modern biotechnology, particularly, the genetic engineering was major deriving force behind extension of protectable subject matter, to now include life forms. Similarly the interests of giant corporations were behind this expansion.<sup>228</sup> Modern biotechnology, also, brought to in forefront the significance of genetic resources mainly found in developing countries.

However the provisions under the TRIPS regime were reviewable after 4 years of the date of entry into force of the WTO Agreement.<sup>229</sup> We have already seen the progress made in this regard as well as what was officially proposed for review after 4 years (in 1999) by the developing countries in the beginning of this chapter.

Options for developing countries is that they may interpret mandatory obligation of granting patent protection. In USA, it has been too liberally interpreted; for example, genes that are engineered by mutagenesis or

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<sup>224</sup> Article 27(2).

<sup>225</sup> Article 27(3)(b).

<sup>226</sup> Article 27(3)(a).

<sup>227</sup> Diamond v. Chakrabarty, (1980), 447 U.S. 303, 309 (1980).

<sup>228</sup> Carlos M Correa, Intellectual Property Rights, The WTO and Developing Countries: The TRIPs Agreement and Policy Options, Zed Book Ltd., London and New York and Third World Network, Penang Malaysia, 2000.

<sup>229</sup> The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement. Article 27(3)(b).

genetic engineering techniques or even unmodified genes that known to exist previously in nature are patentable. However, it may be interpreted narrowly as applicable only to genetically modified (GMO) or transgenic microorganisms, and not to those pre-existing in nature, though in some national jurisdictions it has been interpreted liberally to include any cell and sub-cellular element.<sup>230</sup> Such interpretation even get some support from US patent law which also deny proprietary rights in plant and animal varieties and basic biological processes and other elements that can be described as a 'project of nature'.<sup>231</sup>

Members may also provide 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. With further limitation that such exceptions do not unreasonably prejudice the legitimate interests of the patent owner, taking into account of the legitimate interests of third parties. (Art 30). According to Article 28.1(a) of the TRIPs Agreement, patents relating to products confer the right to prevent third parties from "making, using, offering for sale or importing for those purposes the product" without the patentee's consent.

Among the other options, under the TRIPs Agreement, are compulsory licensing which operates 'without the authorization of the right holder' containing detailed set of conditions for grant thereof. There are five specific grounds for granting of compulsory licenses: (1) refusal to deal, 2) emergency and extreme urgency, 3) anti-competitive, 4) non /commercial use, (5) dependent patents. The TRIPs Agreement does not restrict member's right to establish compulsory licenses on ground not explicitly mentioned therein, hence to protect the environment as recommended by agenda 21, only subject to conditions set out therein.<sup>232</sup>

A *sui generis* system of protection is a special system adapted to a particular subject matter, as opposed to protection provided by one of the main systems of intellectual property protection, e.g. the patent or copyright system. It means countries can make their own rules to protect new plant varieties with some form of IPR provided that such protection is effective. The Agreement does not define the elements of an effective system. One possible *sui generis* system likely to be recognised as effective is the UPOV system of Plant Breeders' Rights (PBRs). This was initially developed in the Europe and has now been adopted by the industrialized countries and some developing countries (see table III in the beginning of the chapter). The UPOV system has undergone several changes after its formulation in 1961. New amendments in give no concessions for farmers and breeders. The 1991 amendment brings the UPOV in line with patents. The

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<sup>230</sup> Carlos M Correa, Intellectual Property Rights, The WTO and Developing Countries: The TRIPs Agreement and Policy Options, Zed Book Ltd., London and New York and Third World Network, Penang Malaysia, 2000; Page 68

<sup>231</sup> Funk Bros. Seed Co. v. Kalo Inoculant Co., 333 U.S. 127, 130, (1948).

<sup>232</sup> Correa, supra, page 90, first paragraph.

UPOV's definition of 'effectiveness' of *sui generis* is being opposed by developing countries. This is borne out by the fact that only few countries like Japan, China and South Korea are so far members. Pakistan is still considering option while India is critical of joining the UPOV, considering it against Asian interests. However the TRIPS Agreement, so far does not bind to join or not join UPOV, it just obliges to provide for the protection of plant varieties either by patent, by an effective *sui generis* system or by a combination thereof, hence leaving a certain margin of appreciation for national legislation to decide a system of protection. However with only condition that if to opt *sui generis* then it must be effective but does not bind for a particular definition of 'effective'. India has submitted to the TRIPS Council that the definition of 'effective' must be left to nations and should not be determined internationally.

We turn to the concerns expressed by some developing countries regarding the imposition of the UPOV for the protection of plant varieties. ***Is the TRIPs Agreement inflexible in Plant Variety Protection (PVP)? No*** It may be exaggerated fear regarding the TRIPs Agreement because its minimum requirement is to afford protection to plant varieties. It does not bound to provide such protection through patent regime or the UPOV. Rather it leaves it to the discretion of Member countries to decide in their public and legislative policy to opt mode of protection among three options: (i) by patent (ii) by an effective *sui generis* system or (iii) by a combination of both system. Thus allowing decision-makers to design a system which best meets their country's circumstances, goals and objectives. There is neither to prevent a country from modifying its patent law or creating a *sui generis* patent-like system in order to include exemptions for farmers and/or breeders (see III.5 & 6) nor does the TRIPs Agreement prevent the development of additional protection systems or the protection of additional subject matter. So there is possibility for a member country to include indigenous knowledge as a subject matter to be covered by the *sui generis* system or it could set up a separate system for the protection of farmers' rights as part of the PVP system, with only condition that the additional conditions do not contradict other the TRIPs Agreement requirements. This removes the cynicism that to provide *sui generis* essentially mean to join the UPOV. The UPOV would applicable only if the country in question is also the member of the UPOV. The breadth of such scope may be found in the fact that specifically, the TRIPs Agreement does not define:<sup>233</sup>

- a plant variety
- the requirements for protection, such as novelty, distinctness, uniformity and stability
- the scope of protection, i.e. whether a right should extend to vegetative, reproductive and harvested material, or to the export of the protected material
- the duration of the right

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<sup>233</sup> Protection of Plant Varieties under the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights <<http://www.ipgri.cgiar.org/Policy/KeyQuest.pdf>>

- the relationship between a *sui generis* right and other IPR such as patents.

However regarding traditional breeding, such countries relying primarily on the traditional breeding skills of farmers may not find classic PVP, with its requirements for uniformity, stability, etc., well-suited to these breeding methods. Such countries would have to consider how to tailor their PVP system to support the technological capabilities of their breeding sector and meet domestic requirements.

However other objections raised like biopiracy of genetic resources of indigenous communities', piracy of traditional knowledge developed by the indigenous communities' farmers about plant species/varieties and then patenting it in their own name for monopoly rights to make profit, are the genuine concerns if established. Of course if such unfair, abusive practices are allowed to continue would distort and impede international trade and IP rights would become themselves 'barriers to legitimate trade', have been discouraged by the TRIPs Agreement.<sup>234</sup> The member countries may take appropriate measures to keep in check such abuses by right holder, subject to other provisions within the meaning of Article 8(2).

#### **4.2.1.5 Issues of GMO and other inventions prejudicial to the environment or having adverse impacts on public order, human, animal or plant life or health or serious & the TRIPs Agreement**

The TRIPs Agreement of course specifically leaves at national jurisdiction to decide those cases, where an invention poses serious threat to environment or could be injurious to either to human, plants or animal life or their health. This provision relating to patentability criteria explicitly authorizes to exclude such inventions on wider ground of morality or *ordre public*.

The text of the TRIPs Agreement uses the notion of *ordre public* as one of the grounds for exception. This concept may be interpreted as being narrower than "public order" or "public interest". Under the Guidelines for Examination of the European Patent Office, for example, *ordre public* is related to the security reasons, such as riots or public disorder, and inventions that may lead to criminal or other generally offensive behaviour.<sup>235</sup> However, concept of *ordre public*, leaves a wide array of flexibility for the member countries to define which hypotheses are covered by it, depending upon their own comprehension of the protection of public values. Further expressed drafting of Article 27.2 to include to the protection of "human, animal or plant life or health" itself points out that the concept is not confined to mere "security" reasons; it also embraces and

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<sup>234</sup> See preamble of the TRIPs Agreement, first paragraph read with its principles especially contained in Article 8(2).

<sup>235</sup> EPO Guidelines (Part C, Chapter IV, 3.1). <[http://www.european-patent-office.org/legal/gui\\_lines/e/index.htm](http://www.european-patent-office.org/legal/gui_lines/e/index.htm)>

may be applicable to inventions that may lead to “serious prejudice to the environment”(or unsustainable pattern of consumptions etc.)

*Correa* points out that the concept of “morality” is also relative term, may vary from society to society keeping in view its prevalent ethical values, well entrenched in a society in question.<sup>236</sup> Professors *Ann-Christine Halen* and *Björn Thorvaldsson* go a step further to add that patentability standard of living organisms on ethical/morality basis of IP may change even within same society at different point of time. They opine that such moral provision, is a statement for what is not acceptable for the time being, however some of the things that are not acceptable today will probably be considered acceptable in the future.<sup>237</sup> So it would be matter of national public policy to determine when a certain conduct may be deemed contrary to the fundamental values of a society.

Some significant case law concerning patentability may depend upon the findings about morality. As stated by an author, “it is inadmissible to think that patent offices may grant patents to any kind of inventions, without considering ethical issues whatsoever” (Bercovitz, 1996, p. 53). A decision based on this type of consideration cannot be challenged under the WTO dispute settlement process, unless it is clearly beyond the reasonable meaning of the concept.

Two cases are worth mentioning and would be relevant in order to know how concept could be interpreted. First is the ‘Onco-mouse Case’.<sup>238</sup> While reexamining patentability in “Onco-mouse” regarding morality the Examining Division, carefully weighed up the benefit to mankind against protection of environment and cruelty to animals.<sup>239</sup> Any contribution to anti-cancer treatments was considered as benefit to mankind, valuable and highly appreciable by everybody and animal test models were indispensable in cancer research at the time. Though risk of uncontrolled release of animal test models in the environment was deemed as immoral or contrary to public order. Notwithstanding that the patent was granted, keeping into view the severe suffering caused and breadth of cancer -disease as to be decisive part the case.

While ‘Plant Cells’ Case,<sup>240</sup> dealt in by EPO-Board of Appeal notion of “ordre public” was defined as covering the protection of public security and the physical integrity of individuals as part of society, in addition to the protection of the environment. The concept of morality was defined as the conviction that some behaviour is right and acceptable whereas other wrong,

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<sup>236</sup> Carlos M Correa, *Intellectual Property Rights, The WTO and Developing Countries: The TRIPs Agreement and Policy Options*, Zed Book Ltd., London and New York and Third World Network, Penang Malaysia, 2000

<sup>237</sup> Faculty of Law Lund University; Professor Hans Henrik Lidgard ‘s Papers on ‘Intellectual Property and Technology Transfer’, Spring 2002.

<sup>238</sup> T 19/90, *Harvard/Onco-mouse*, OJ EPO 1990, 476: [1990] E P O R 501.

<sup>239</sup> Decision of the Examining Division dated 3 April 1992, Grant of European patent No. 0169672.

<sup>240</sup> T 356/93, *Plant Genetic Systems/Plant Cells*, OJ EPO, 1995, 545: [1995] E P O R 357.

“this belief being founded on the totality of the accepted norms which are deeply rooted in a particular culture. For the purposes of the EPO, the culture in question is the culture inherent in European society and civilization”. The examination concerned whether the invention would seriously prejudice the environment (‘ordre public’) or whether the invention connected to a misuse or destructive use of plant biotechnological techniques (morality). Because no evidence for likely damages of the environment was placed to prove as such, hence the invention was not considered as wrong “in the light of conventionally accepted standards of conduct of European culture”. It was also pointed out by the Board that an examination of patentability with regard to Article 53(a) EPC could not always be based on a balancing of benefits and disadvantages, since disadvantages were not always at hand.

So far as the issue of **biosafety\GMOs vis-à-vis the TRIPS Agreement is concerned**, clash between the two sets of provisions seems inevitable. It is because the Biosafety Protocol MEAs exists side by side to the TRIPS Agreement/WTO agreements. What may be possible legal scenario? What may be the legal implications in case of the TRIPS Agreement’s possible clash with the Protocol? In our opinion, in case of the clash of such prohibited genetically modified invention, may not be protectable, within meaning of Article 27(2). However the WTO case law shows that the WTO Appellate Body and the WTO Committee on Trade and Environment have encouraged countries to seek to resolve multilateral environmental issues through negotiation. For example WTO Report of the Committee on Trade and Environment<sup>241</sup> encouraged multilateral solutions based on international cooperation and consensus as the best way for governments to deal with problems of a transboundary or global nature.

So far the applicability of provision 27(2) of the TRIPs Agreement, is concerned, no direct case law found at the WTO forums. However in other environmental related issues, the tendency shows environmental concerns will not be taken lightly. For example in the Shrimp/Turtle Case,<sup>242</sup> the WTO Appellate Body noted that the United States was applying its legitimate environmental measure in a discriminatory way, should not be understood as indicating “that the protection and preservation of the environment is of no significance to the members of the WTO”. Further much publicized the Beef Hormone Case:<sup>243</sup> the dispute between the EU and the USA & Canada over the EU’s ban on cattle products produced using growth hormones, shows the conflicts between health concerns and the trade system. Due to uncertainty of long-term health effects of eating beef products produced using growth hormones, the EU maintained it had right to ban production and imports of these products. On the other side the USA defended there was no scientific proof that such products pose a danger to

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<sup>241</sup> WT/CTE/W/40, para. 171 (Nov. 7, 1996).

<sup>242</sup> Appellate Body Report, United States – Import Prohibition of Certain Shrimps and Shrimp Products, WT/DS58/AB/R, Paragraphs 166-72 (Oct. 12, 1998, adopted in Nov. 6, 1998 <<http://www.foei.org/trade/activistguide/turtle.htm>>

<sup>243</sup> Available on <http://www.foei.org/trade/activistguide/hormone.htm>

human health. The WTO Appellate Body found that the European Communities' ban on hormone beef violated the SPS, holding that Agreement maintains a risk assessment - involving an analysis based on available scientific evidence needed, that conforms to its procedures must be undertaken before action can be taken. These findings imply that in the opposite case of scientifically grounded environmental or health concern, it might, more probably would have succeeded.

The WTO case law shows two type of tendencies: (1) the bonafide concerns regarding protection and preservation of the environment will be well tenable ground for challenging such a product or process invention (2) even legitimate and bonafide environmental or health concerns would not be tenable if it would have finally established that such measures were applied in a discriminatory manner.

Of course, the possible collision between the obligations arising out of Protocol and TRIPS Agreement would have to be avoided, in accordance with the rules of interpretation contained in Article 30 of Vienna Convention law of treaties. The TRIPs Agreement does not seem to stand in way of member states' other obligations under MEAs.

These two results from case law and interpretation further support and substantiates our findings in discussion regarding inventions and sustainable development.

## 5 Epilogue

IP protection is essentially a human right, as enshrined in Article 27(2) of the UDHR and Article 15 of the ICESCR and as the paper attempted to show, the sustainable development is also a closely related human right issue. This entails that on one side the states of the North are obliged under the TRIPs Agreement as well as MEAs to transfer and disseminate ESTs to developing countries.

On the other hand, the rights and obligations under the MEAs, do not give developing countries of the South, a carte blanche to excuse their international obligations under the TRIPs Agreement/WTO agreements. The developing countries of the South may have of course some genuine environmental concerns. Their concern regarding the transfer and dissemination of environmentally sound technology also appears legitimate. Nevertheless holding the view that the IP regime under the TRIPs Agreement is solely responsible for impeding transfer and dissemination of technology will be a plea without any plausible justification. If the sole impediment in way of transfer of technology is IP regime under the TRIPs Agreement, then we see that this regime is almost a recent phenomenon, established in 1995. The logical question is what made the developing countries lagging behind, prior to the TRIPs Agreement. Just imitation is not the solution to their problems. It is in their own interests to create an environment conducive for creative activities, so as to develop indigenous technologies.

A relevant question arises 'whether the access to and transfer of ESTs, within the MEAs-framework imply that such transfer is without IP protection? Our answer would be no.

The technology subject matter of transfer and access may be categorized as: (i) non-commercial and (ii) commercial. First type of technology is that which is already in public domain (after expiry of term of the patent protection). Second type of technology is protected under IP/patent regime. IGOs and foreign governments generally transfer such non-commercial technology. The developed countries member to MEAs, are under obligation to transfer such technology, its know how, education, training to developing countries. However, the technology in commercial arena is traditionally, subject to the national laws and international law of IP protection. The private enterprises rather than government, is the right-holder of such technology. So states do not have control over such property to transfer. We will illustrate our point with some quick references (the detailed review has already been dealt with).

In Energy Charter Treaty (1994), a commitment to promote access to and transfer of energy technology on a commercial and non-discriminatory basis was made subject to the laws and the protection of intellectual property rights (see supra Article 8(1) of the Energy Charter).(emphasis is mine)

Similarly in the CBD, on one hand, it was pledged by the developed countries to give to developing countries (supplier of genetic resources), the access to and transfer of technology under fair and most favorable terms. On other hand it was made clear that if such technology is protected under patents and other IP rights, then such access and transfer shall be provided on terms, which recognize and are consistent with the adequate and effective protection of intellectual property rights (Article 16(3)). Also see article 21 of the Cartagena Protocol on Biosafety (supra), where each party has undertaken to protect confidentiality of information received under this protocol regarding GMOs and not to use such information for a *commercial* purpose, except with the written consent of the notifier.

Another related question arises if state of art technology, which can really guarantee promotion of sustainable development, is in commercial arena, then why it was pledged to transfer ESTs? (Because only up to date technologies are environment-friendly.) Does it imply that the technology in exclusive monopoly of private patent-holder has not been pledged to transfer? Again answer would be no.

There are expressed provisions in MEAs on the transfer of technology even of commercial nature. Such practice is even not inconsistent with IP regime and rationale. This is due to the reason that because the detailed information regarding patented invention is no longer secret, already sufficiently disclosed to the relevant patent offices. Therefore developed countries can transfer such technology by means of exchange of such information with developing countries. However such transfer will require protection of IP. For example in Vienna Convention for the Protection of the Ozone Layer (1985(in Annex II: Information exchange), where parties recognized to exchange scientific, technical, socio-economic, business, commercial and legal information. Such co-operation was made to be consistent with national laws, regulations and practices regarding patents, trade secrets, and protection of confidential and proprietary information. It is clear from the provision that the only possible impediment in the way of transfer by way of exchange may be the weak IP regime in the recipient developed countries. In so far as developed countries are under the additional duty to protect, the protected disclosed or undisclosed information under municipal law. This was what contemplated by the Vienna Convention for the Protection of the Ozone Layer (1985 and other MEAs. If recipient country's national IP regime is weak, then developed countries (supplier of technology), may have a plausible excuse under the MEAs, to deny the transfer of technology. So the best possible recourse left for the developing countries, recipient of transfer of ESTs, is that they should strengthen their domestic IP regime. Only in this way, the developed countries will be left with no reasonable excuse to avoid their obligations under MEAs and the TRIPs Agreement.

On the other hand it will be contrary to the spirit and word of the MEAs if developed member countries, withhold such transfer, until developing countries have strong IP system. The weakest IP system is found that of

LDCs and such countries, particularly have been urged, in MEAs, the right to have access to such technologies. In such cases, weak IP regime should not be a realistic excuse to deny access to such technologies. The TRIPs Agreement affords too much flexibility in this regard and obliges developed member countries to transfer technology to such countries. Of course private enterprises and institutions of developed country, would not like to transfer technology to such countries because of their weak IP regime. The TRIPs Agreement therefore solves this problem by requiring the developed countries, to provide incentives to such enterprises and institutions in their territories for the technology transfer to LDCs. It also obliges them to extend LDCs with technical and financial cooperation for capacity building (Article 66). The Doha Declaration, as we discussed supra, reaffirms such pledge of mandatory nature regarding technical assistance and capacity building. Special needs of such countries have been recognised in both MEAs and the TRIPs Agreement.

Another important aspect, in respect to technology of commercial nature is that it is not transferred, where there is no incentive in the form of material return for the right holder and investor in R&D. It is presumed that foreign direct investment will not bear fruit in such developing countries. It is because they have nothing to offer as quid pro quo. This is an erroneous assumption and factually oversimplification. The poor countries of the South are endowed with rich biological resources and valuable traditional knowledge of indigenous communities. It is interesting to note that where IP regime intends to give incentive for innovator and investor and give him/her exclusive rights. MEAs highlight the sovereign right of the states over states over their natural and genetic resources to determine access. IP regime gives exclusive rights to innovator/investor, without whom authorization, such rights cannot be enjoyed. This can be equated within MEAs framework, as access to genetic resources subject to prior informed consent (see the CBD supra). Also the exchange information on traditional knowledge is subject to the adequate protection and domestic legislation/policies and with appropriate return from the benefits derived from TK. Moreover, exchange information on traditional knowledge is required to be on an equitable basis and mutually agreed terms to the local populations concerned (see supra UN Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Article 16).

Yet another important aspect is that where IP is essentially an individual human right, human right of indigenous communities/people is also been recognized as a collective right. So intellectual property rights of inventor as well as those relating indigenous knowledge, both should be protected from human rights and MEAs' prospective. The TRIPs Agreement, though silent on the issue, such issues could be addressed in its broader 'fundamental public policy objectives'. WIPO's contribution in this regard, for the protection of Traditional Knowledge (TK), could be consulted in evolving a system. The wrong is not with the TRIPs Agreement but with its wrong practice, by interest groups like few ambitious TNCs, which may be held accountable for that. Such practices may amount to 'abuse of IP rights and

unreasonably restrain trade' and could well be cured by the member states, invoking principles laid down in the TRIPs Agreement. However problem arises, where the states (the de jure custodian of genetic resources and TK), join themselves hands with such few TNCs, to exploit the rights of indigenous communities without compensating them properly. Such practices, infringe the rights of indigenous communities, guaranteed in international human rights and environmental agreements. On other hand raises serious question of 'good governance' as well corporate responsibility. Further dimension of the problem is that in case of human rights violations of indigenous communities', though states could be subject to international monitoring mechanism but not TNCs. In such cases the corporate responsibility is debatable issue because business corporations are not subjects of international law.

A more balanced approach is needed to be adopted, to strike balance among the conflicting rights, emanating from the WTO/the TRIPs Agreement, MEAs and Human rights law. Any approach, which is not mutually supportive and run counter to the objectives of the other international treaties, would be fatal and must be discouraged and avoided. The rights under one sort of treaties do not give states a carte blanche to escape from the obligations under the other treaties. Conflict of interests and rights and obligations under different treaties, should be avoided, whenever crop up, in accordance with customary rules of interpretation under international law.

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