

**SUSTAINABLE HUMAN DEVELOPMENT: why PATENTS are the
PARAMOUNT**

“The most meaningful engine of change, powerful enough to confront corporate power, may be not so much environmental quality, as the economic development and growth associated with the effort to improve it”.

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^{*} Hall, A, “Interview with Barry Commoner”, *Scientific American*, 23 June 1997.

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ABSTRACT

The toughest challenge confronting the 21st century is the economic growth on sustainable scale. That would entail equal opportunity for everyone, within and between generation, to obtain economic and social advantages while making a considerate use of natural resources. A new global culture of sustainability then should be rooted for a large-scale awareness. Economic growth, social interests and environmental instances should be equally weighed up and form the essential objectives in any decision-making process. Business-as-usual is no longer valid. A driving force to this change is without doubt new technology. Indeed the invention and transfer of new renewable and environmentally friendly technologies are fundamental to attain sustainable human development. In this context patent system is crucial, as promoter of technological innovation and incentive to R&D of new technology. To fulfil the role, the actual inert patent law should turn into a driving engine able to promote new tendencies and lay down positive rules, which reward any technical achievement or knowledge conveying to a sustainable economy. Green innovation as a result might be capable to make flourish the new resource-efficient and sustainable-thinking society of the future.

INTRODUCTION

Over recent years, Intellectual Property Rights (IPRs) have become a controversial issue amongst the international political and economic decisional bodies. They are the focal point of discussions on public health, food security, education, trade, environment, traditional knowledge, biotechnology, the Internet and media industries. The role IPRs could play in all of these areas is of extraordinary importance on how better to serve sustainable human development.

Regrettably, the current system still reflects the traditional growth-oriented economy based on the interests of the most powerful IPR-based industries lobbying for strengthening IP protection so as to preserve and optimize their financial incomes, with consequent bias against any economics of sustainability.

This situation has given rise to a sort of social reluctance of IPRs, flowing into a refusal of their legitimacy¹. It is now the moment to rethink the international intellectual property system towards the new impelling global issues in order to preserve or even better recover its legitimacy and credibility.

With particular regard to patent law, it cannot develop further as a self-contained regime in relative isolation from other areas of international law (i.e. environmental law and energy law) and remain silent to issues such as sustainable development. Global crises in which the world is involved² are so intimately correlated that is unlikely to act separately.

Currently, the system treats the environmental impact as externality³, without a proper

¹ *Movements*: Anti-patents party, Access to Knowledge movement, Anti-copyright, Cultural environmentalism, Free culture movement, Free software movement.

Organizations: Creative Commons, Electronic Frontier Foundation, Free Software Foundation, The Pirate Bay, Piratbyrå, Pirate Party, Students for Free Culture.

² Economic, Political, Environmental and Development.

³ This is manifestly evident in the EPO *Plant Genetic Systems (PGS)* decision (further discussed below): *Plant cell/Plant Genetic Systems v (Opposition by Greenpeace)* T-356/93 [1995] E.P.O.R. 357.

assessment for harmful technologies to which protection is granted, and with no account to the unrestricted consumption is made of natural resources. Due also to the belief that economic growth is absolutely positive, its policies have led to a never-ending increase in production and consumption to the detriment of the ecosystem. In fact, it should be born in mind that by promoting innovation, patent law has triggered a massive technology rush in order to have state-of-the-art inventions protected so as to dominate exclusive market platforms. This path of development cannot be pursued anymore making believe that it is beneficial to the human progress.

Still, this systemic crisis arises also from the fact that nearly every kind of production made from high-tech inventions is likely to cause some sort of damage to the public health, whether it be in industry, energy, transportation and even agriculture⁴. Accordingly, the main issue to deal with it is not the mere protection of the environment, but mainly the human, animal and plant health, being the survival of these species of course dependent on a healthy environment⁵.

The role patent law should fulfil then is an active one. In this sense, from a sleepy area of law patent regime could turn into a driving engine able to promote new tendencies and lay down positive rules, which reward any technical achievement or knowledge conveying to a sustainable economy. In this sense, the patent system can certainly be a driving force for green innovation⁶ and can help flourish the new resource-efficient and sustainable-thinking society of the future.

⁴ The UK Department for Environment, Food and Rural Affairs estimated that approximately the 80% of all product-related environmental impacts are determined by product design; see "Securing the future: delivering UK sustainable development strategy", available at <http://www.defra.gov.uk/sustainable/government/publications/index.htm>, accessed on 11 May 2010.

⁵ According to the World English Dictionary that defines the *Environment* as "the combination of external physical conditions that affect and influence the growth, development, and survival of organisms".

⁶ "It has allowed GE to start investing heavily in green technologies because it is believed that IP is a rewarding system" Carl Horton, chief IP counsel for General Electric, affirmed in his speech given at DUKE University on February 2009, available at <http://www.law.duke.edu/webcast/> accessed on 12 May 2010.

Indeed the patent system underpins technological progress and economic growth, but in the same breath it is indeed a key element to promote social and economic development as well as the process of safeguard of the environment. Hence, while patents by fuelling a stand pat technology advance have contributed to endanger the stability of the ecosystem, likewise they can have direct impact on many of future technologies that can help reduce and stabilize GHG emissions, and also play a determinant role to change market behaviour.

Over the centuries human being has always relied on technology to find solutions of practical problems and face up to challenges defying the world. In this regard, and far from the environmentalists' traditional threaten-inclined approach, this paper calls for positive, far-sighted and innovative policies to address the abovementioned impelling issues, with a view to sort some of world's hardest problem out. Indeed technological innovation oriented towards an evolutionary concept of sustainability is vital to switch from the old to a new economy.

It is acknowledged the idiosyncrasy of this work, whose first part is dedicated to the concept of sustainable human development. This choice comes from the considered necessity to fix the notion, given the lack of concern and confusion surrounding it. It will be argued that sustainable human development is not exclusively related to environmental matters. On the contrary, it has a wide-ranging meaning embracing social and economic aspects. A better understanding of its importance would lead to a systemic change in consumption and production patterns within our society. This paper has no intention to plead for the climate issue. It is accepted that, whereas climate change is a constant threat in the planet history, the human environment misuse is forcing and speeding up this process. Thus if correct international economics and politics of sustainability will be structured and addressed successfully, the climate change mitigation goal could be attained too.

As far as patent law is concerned, is the aim of the second part stressing some purportedly needed actions so as to give incentives for the manufacturing and R&D of environmentally-friendly technology. Specifically, improving the system functionality by requiring applicants' quality submissions, applying fees diversion and making use of the so-called mutual recognition between patent offices worldwide. Besides, dissemination and privileged deployment of such a technology appear likewise indispensable. This article will seek to demonstrate that, while the first cluster actions would benefit the economic growth of developed and least developed countries at sustainable level, technology transfer is undoubtedly *one* solution in order for developing countries to catch up and keep the pace with the economies of more advanced countries.

These findings strive thus to draw attention to the possibility of having a patent system able to guarantee that the future technological development be economically sustainable, by leading the transition to new eco-friendly and green technologies, which are vital for sustainable production and consumption patterns.

I. SUSTAINABLE HUMAN DEVELOPMENT

a. The current concept

Concern about sustainability is more than one century old⁷, but the issue started gaining significance in the late 80's with the report of the UN World Commission on Environment and Development that concretely addressed the growing problem *"about the accelerating deterioration of the human environment and natural resources and the consequences of that*

⁷ In 1865 the English economist William Stanley Jevons published the book *The Coal Question* pointing out several sustainability issues such as limits to growth, overpopulation, overshoot, post-global re-localization, energy return on energy input (EROEI), taxation of the energy resource, renewable energy alternatives, and resource peaking. He cleverly questioned: "Are we wise in allowing the commerce of this country to rise beyond the point at which we can long maintain it?". This work is available at http://oll.libertyfund.org/?option=com_staticxt&staticfile=show.php%3Ftitle=317&Itemid=27, accessed on 16 July 2010.

*deterioration for economic and social development*⁸. The resolution adopted by the UN General Assembly stressed the necessity to launch global policies having sustainable development as central guiding principle. They then first elaborated its notion that implies “*meeting the needs of the present without compromising the ability of future generations to meet their own needs*”⁹.

Despite the attempt made by the UN, sustainable development lacks a universally accepted definition. This has given rise to a great confusion on the value of this term, allowing an indiscriminate and arbitrary way to use it. A frequent mistake is without doubt to confine it to the environmental matter. But, as outlined before¹⁰, both economies and societies are constrained by environmental limits. As regards, the UN General Assembly has resolutely affirmed that the sustainable development notion entails economic, social and environmental aspects¹¹, and that it is thus placed at the core of these three constituent pillars. Beside that, further correlated facets are the corollary to this scheme, namely: culture, education, capacity building, infrastructure, governance and public procurement. All the above bridged by information, collaboration and social awareness¹². Nonetheless, the UN themselves identify sustainable development as being an eclectic concept and have provided 21 topics to individuate the area of work for a coordinated action¹³.

⁸ The report entitled *Our Common Future*, published in 1987 and also known as Brundtland Report by the name of its Chair Gro Harlem Brundtland, was commissioned by the UN General Assembly within the UN Environment Program. It is available at <http://www.un-documents.net/wced-ocf.htm>, accessed on 16 July 2010.

⁹ The resolution is available at <http://www.un-documents.net/a42r187.htm>, accessed on 16 July 2010.

¹⁰ *Supra* note 5.

¹¹ UN General Assembly adoption of the 2005 World Summit Outcome, 10th tenet, available at <http://www.un.org/summit2005/documents.html>, accessed on 16 July 2010.

¹² These are the key building blocks identified by the UN Agenda 21 to help countries achieve sustainable development. Agenda 21 is a plan run by the UNEP on the actions to be taken by UN agencies, Governments and other major groups to achieve sustainable development. It was revealed at the Earth Summit held in Rio de Janeiro in 1992, alongside the Rio Declaration, and its plan of full implementation presented at the Johannesburg World Summit on Sustainable Development in 2002, alongside the Millennium Development Goals. It is available at <http://www.un.org/esa/dsd/agenda21/>, accessed on 10 August 2010.

¹³ United Nations department of Economic and Social affairs, Division for Sustainable Development, list available at <http://www.un.org/esa/dsd/resources/>, accessed on 16 July 2010.

b. Strong Sustainability & Weak Sustainability

Within the perception on how sustainable development could be achieved, it is possible to discern two distinct theories, specifically: the strong and weak sustainability. Both theories draw on the concept of critical 'natural capital'¹⁴, whether it might be substituted for artificial capital or not¹⁵, and differentiate themselves by the degree of trade-offs needed for capital substitutability.

Strong sustainability emphasises the unconditional restriction of trade-offs, because of the limitation of resources in space and time. It argues for a '*constant-natural-capital rule*', given that artificial capital does not constitute an equal substitute of natural entities¹⁶, although complementary. It stresses moreover that economic production will be limited by the scarcity of natural resources. Accordingly, strong sustainability pleads for a developed society concerned about the preservation of the natural ecosystem.

Weak sustainability approach¹⁷, on the contrary, quarrels that artificial capital is by all accounts a proper substitute of the natural one. Hence it points out that the right of future generation to enjoy the same quality of life of their predecessors can be ensured by replacing the stock of environmental assets with artificial means, as long as it is to be produced at same rate. In this sense, trade-offs re the depletion and degradation of natural resources are tolerable¹⁸.

Whilst strong sustainability urges on thorough ecosystem conservation, weak

¹⁴ The term capital is intended as 'means of production'.

¹⁵ Adams, W. M., "The Future of Sustainability: Re-thinking Environment and Development in the Twenty-first Century", [2006], Report of the IUCN Renowned Thinkers Meeting, 29–31 January 2006, Gland, Switzerland.

¹⁶ Ott, K. "The Case for Strong Sustainability", p. 59-64, in Ott, K. & Thapa, P., *Greifswald's Environmental Ethicsn*, (2003), Greifswald: Steinbecker Verlag Ulrich Rose.

¹⁷ Better known as Hartwick's rule that reads: Under many circumstances in an economy with depletable resources, the rent derived from resource depletion is exactly the level of capital investment that is always needed to achieve constant consumption over time.

¹⁸ Ott, K. "The Case for Strong Sustainability", *supra* note 16.

sustainability stresses the necessity of trade-offs, which represents the realistic scenario of any decisional process. Arguably, a one-size-fits-all strategy defectively combines to bring about the scope of sustainable development. Different policies have to be adapted to the different needs of various countries. China and India, for instance, will have to tackle this issue differently from the U.S. as well as from the European Union. The former are rapidly catching up with western economies, hugely increasing consumption of coal, timber and steel oil, whereas the latter must recover the pollution caused by the preceding fifty-year unbridled development. On the other hand, Sub-Saharan countries face development problems unknown to richer countries such as health care, education, water and energy supply.

c. Intergenerational Justice & Social Equity

Strictly linked with the previous assumptions is the *intergenerational principle* intended as the need to preserve natural resources for a fair bequest of future generations¹⁹. Accordingly, rational persons would agree to establish a saving agenda so as to ensure that future generations have equal welfare opportunities for achieving the “*at least*” same quality of life of their predecessors. That means nothing more than the same carefulness used by responsible parents towards their offspring. More often than not, life is planned to fulfil personal ambitions and have a well-off life with a view to hand it down to the progeny. Sustainable development stands then for an *intergenerational justice*, requiring our commitment to deliver next generation the same living conditions as they are today.

By the same token, it also entails a *distributive justice*, being the latter intended as an equal

¹⁹ Solow, R., M., “Intergenerational Equity and Exhaustible Resources”, [1974] *Review of Economic Studies*, *Symposium on the Economics of Exhaustible Resources*, Longman Group Ltd: Edinburgh.

opportunity for everyone to obtain economic and social advantages²⁰. Indeed, the ecosystem degradation deeply involves the problem of poverty²¹. The consequences of the current ecological spoilage will be much more detrimental to poor generations, who first and foremost are at the mercy of this eroding economic development careless of any sustainable patterns of production and consumption. The prospective devastating effect will be an inadequate access for poorest people to clean water, germ-free food, health care and education, which will constrain prosperity, opportunities and standard of life. All this will accentuate the stark gap between richness and poorness²². On this account, sustainable development calls for a *social equity* and overlaps with human rights. Indeed health, nutrition and education are overriding in human rights²³ and conceived as vital rights because of their importance in guaranteeing the continuity of life.

NGOs, international associations and other stakeholders have brought forth pro-active battles to advocate the need for a global-habit change and have established social expectations of the *intergenerational* and *distributive justice*. Despite that, governments, industrial lobbying groups and other decision-making actors are always more concerned about economics than ethical concepts. Yet, this is what sustainable development still represents: a desirable fleeting outcome of international policies. As a result, notwithstanding the long-lasting efforts to epitomize the definition of sustainability and to address its importance, the idea of sustainable development is still perceived as loose one and practically ignored when it comes to reach fundamental choices, whether they be

²⁰ Hinsch, W., "Global Distributive Justice" p. 58-78, in *METAPHILOSOPHY*, Volume 32, Issue 1-2, January 2001, Blackwell Publishing Ltd: Oxford.

²¹ The poorest countries suffer from several diseases associated with deforestation, desertification, drought and water insanitation. All this is due to the human increasing exploitation of natural assets. Adams, W. M., "The Future of Sustainability: Re-thinking Environment and Development in the Twenty-first Century", *supra* note 15.

²² Strange, T. and Bayley, A., "Sustainable Development: Linking economy, society, environment", (2008), OECD Publishing, ISBN: 9789264047785.

²³ Art 25 and Art 26 of the Universal Declaration of Human Rights 1948.

economical or political. Hence, the human claim on the safeguard of the environment is somewhat unheard and the problem of increasing poverty consciously unnoticed.

d. Principle Implemented as Soft Law

In addition to that, its stringent character still forms part of soft law, not having been yet implemented as binding rule within international and/or domestic laws. On this point, sustainable development and its components form part of three major international agreements, specifically the Stockholm Declaration²⁴, the Rio Declaration²⁵ and the Johannesburg Declaration²⁶. Although some of their provisions now reflect the customary international law, none of the principles proclaimed therein are mandatory for the ratifying States.

On the same vein, the mere notion has been taken in by the EU law and introduced as policy objective in Articles 2 and 6 of the ECT²⁷. With regard to the principle of economics of sustainability, Art 2 reads: *“The Community shall have as its task, [...], to promote [...] a harmonious, balanced and sustainable development of economic activities”*. Safeguard of the environment instead is enshrined in Art 6 stating that the definition and implementation of the Community’s policies must be *‘integrated’* by considerations re environmental protection *“in particular with a view to promoting sustainable development”*. Amongst these policies, those involving commerce, economy and technological development stand out as they should lead

²⁴ Declaration of the United Nations Conference on the Human Environment, Stockholm, June 1972, available at <http://www.unep.org/Documents>, accessed on 9 August 2010. Even though the sustainable development formulation never appears therein, Principles 1, 2, 8 and 9 in particular convey all its components.

²⁵ Rio Declaration on Environment and Development, Rio de Janeiro, June 1992, available at <http://www.unep.org/Documents>, accessed on 9 August 2010, Principles 1, 4, 5, 7, 8, 9, 12, 20, 21, 22, 24 and 27.

²⁶ Johannesburg Declaration on Sustainable Development, Johannesburg, September 2002, available at <http://www.un-documents.net/jburgdec.htm>, accessed on 10 August 2010. During the Summit, where the Declaration was adopted, the full implementation of Agenda 21 was also affirmed. See for Agenda 21 *supra* note 13 and implementation document *below* note 38.

²⁷ Consolidated Version of the Treaty establishing the European Community, [2002], OJ C325/33.

to a more effective strategies driving Europe to compete at highest levels, even better to foster new sustainable market trends.

Art 6 furthermore identifies the *integration principle*. That means, when there are two conflicting objectives to be reached they must be reconciled as far as possible and, where not feasible, one of them should have the priority to be carried out²⁸. Although environmental protection is accepted to be envisaged by the EU Community among its fundamental goals *on a par with* the economic growth one²⁹, it has been correctly pointed out that up till now the integration principle is still far from being applied upon the side of environmental objectives and there is still long way forward to render it fully effective³⁰.

e. A New Positive and Compelling Principle

Before that, what should be given effectiveness and valuable significance is the idea of sustainable development. Only when its perception will be considered as a fundamental social value then it can be effectively implemented. The current notion of sustainable human development must be fixed³¹ so as to constitute a more concrete tenet, a precept of life conveying somehow the idea of obligation. It cannot anymore represent a loosely ethical concept but should lead to a new normative orientation within the economic, financial and technological field so as to start a well-planned culture-changing process. In this regard, it is upheld the anthropocentric distinctness of sustainable *human* development in a sense that is the human being to have to flourish and use its enhanced knowledge to open-up more and

²⁸ Wasmeier, M., "The integration of environmental protection as a general rule for interpreting community law", [2001], 38 C.M.L.R. 159.

²⁹ *Ibid.*

³⁰ Derclaye, E., "Should patent law help cool the planet? An inquiry from the point of view of environmental law: Part 1", [2009], 31(4) E.I.P.R. 168-184.

³¹ "*Keep it but fix it*", this is the concept stressed by the International Union for Conservation of Nature (IUCN). See also, Adams, W. M., "The Future of Sustainability: Re-thinking Environment and Development in the Twenty-first Century", *supra* note 15.

more options for a vital uniform transformation.

This is envisaged to be the most suitable path to move forward after three decades of unfruitful discussions. It is now time for a new positive debate to be opened that address the needs of both poorest countries, to enhance their expectancy and quality of life, and industrialized world, to move away from over-consumption so that GHG emissions be reduced and stabilized.

In this respect, sustainable human development compels the integration of environmental and societal considerations within economical and political strategies so as to ensure equal opportunities to everyone, within and between generations, to achieve a stable economic and social growth in conjunction with a responsible management of the environment.

Yet again, the first step to make in order for the principle to be legally binding is to create a public understanding on the value of sustainability as human wellbeing producing. Regrettably, the economics of 'affluence', global media and large-scale advertising have passed the over-consumption as "*unproblematic, uniformly good and desirable*"³². Besides, the lack of public awareness about the life-threatening production systems delays the capacity of people to have a proper turn of mind about no-limit consumption. Such circumstances do not permit to grasp the fact that actual patterns of production are in contrast with any criterion of wellbeing and security, and that they constitute a persistent threat to our global welfare.

f. Culture of Sustainability

Instead of professing commodity affluence, new sustainable-minded aspirations should be widely diffused as the utmost achievement for humans in terms of lifestyle, health, security

³² Adams, W. M., "The Future of Sustainability: Re-thinking Environment and Development in the Twenty-first Century", *supra* note 15.

and natural balance. Thereafter, following the long-established market rules based on stimulation of demand, a viable way to solve the dilemma is to root a *culture of sustainability* by means of market trends, to influence social consumption patterns with the view to curve the demand towards lower-impact products and services. In fact, the market is unique platform from which starting this enlightenment, given its distinctive capacity of offering rapid opportunities of enrichment, deflecting the interests of industrial groups and redirecting economic strategies and political choices. Therefore, *“human aspirations, and subsistence, are inextricably linked to the performance of that economy”*³³. The promise would be *“getting more from less”*³⁴. The market has thus a pivotal role and the duty to bring up new economic alternatives capable of telling ‘the truth’ about the industrial production externalities³⁵. It should function as shaper of a considered-consumption society where wellbeing does not merely correspond to amassing material goods but be synonymous of equal possibilities for achieving a good quality of life and extend it to future generations³⁶.

In order for this cultural change to be effective, positive opportunities should be offered to avoid falling back to the distrustful environmentalist rhetoric³⁷. A positive intimation to a mass consumption by means of renewable and eco-alternatives has to be made, deploring

³³ Adams, W. M., "The Future of Sustainability: Re-thinking Environment and Development in the Twenty-first Century", *supra* note 15.

³⁴ UK Department for Environment, Food and Rural Affairs, "Securing the future: delivering UK sustainable development strategy", *supra* note 4.

³⁵ Concerning the duty of market actors, the European Commission is involved in conveying the concept of Corporate Social Responsibility and has stressed: *“CSR can contribute to sustainable development while enhancing Europe’s innovative potential and competitiveness, thereby also contributing to employability and job creation”*. See *Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee, “Implementing the partnership for growth and jobs: making Europe a pole of excellence on corporate social responsibility”*, COM (2006) 136 final.

³⁶ The UK Government defines the core of sustainable consumption and production as *“continuous economic and social progress that respects the limits of the Earth’s ecosystems, and meets the needs and aspirations of everyone for a better quality of life, now and for future generations to come”*, in DEFRA (2003) “Changing Patterns” UK Government Framework for Sustainable Consumption and Production, Department for Environment, Food and Rural Affairs, London.

³⁷ *“Environmentalists are seen as priests warning people of hell”*, the economist and Nobel Peace Price recipient Muhammad Yunus has affirmed.

global degradation³⁸. A driving force to this transformation is undoubtedly technology. It is stressed that new green and eco-friendly innovations are the key component for a substantial change of market trends. There is a wealth of data and ideas to discuss and debate on how to improve technology as to achieve an economic growth on sustainable scale. Yet people must be ready to change their *status quo* and negotiate their way of living and, most important, they should become emancipated from the *deliberate ignorance*³⁹, which is latent within society and characterizes business-as-usual and politic-as-usual.

II. THE VALUE OF PATENTS CONTRIBUTION

a. Patent Laws & Environmental Instances

It has become increasingly accepted the assumption that *economy is dependent from technology*⁴⁰. Innovation indeed constitutes a source of economic advantages and the primary means to ensure a long-term economic growth. In the same breath the patent system is crucial for technological progress since it aims to propel technological innovation as well as R&D in technology field. Therefore, using a pure hypothetical syllogism⁴¹ it is possible to affirm that if economic growth relies on technology progress and if technology advance is

³⁸ Sustainable production and consumption are seen by the UN as promoter of “social and economic development within the carrying capacity of ecosystems by addressing and, where appropriate, delinking economic growth and environmental degradation”, Plan of Implementation of the World Summit on Sustainable development, Johannesburg, September 2002, available at <http://www.un.org/esa/sustdev/documents>, accessed on 11 August 2010.

³⁹ For *deliberate ignorance* is intended the condition of living in a state of voluntary unawareness. That is to say, an aptitude to evaluate the events and discern the right from the wrongfulness without the will to exercise it. This condition might lead to different forms of incompetence. In economic and political matters it takes the form of inadequacy to appropriately administer the *res publica*.

⁴⁰ The WIPO General Director Francis Gurry has recently reaffirmed this statement in a public lecture delivered at the CEIPI – University of Strasbourg on the topic “Intellectual Property, a Changing International Landscape”, on March, 19th 2010.

⁴¹ Given the absence of empirical data confirming the positive impact that patents have on innovation, a pure hypothetical syllogism is used where the premises consist of conditional sentences and the only conclusion is a categorical proposition. On the dispute about whether patents have a positive or negative impact on innovation *see*: Lévêque, F. and Ménière, Y., “Patents and Innovation: Friends or Foes?”, [2006], SSRN: <http://ssrn.com/abstract=958830>, accessed on 11 August 2010.

boosted up by patents, then patents increase economic growth.

Accordingly, patent law has engendered a never-ending race between firms to secure profitable registrations so as to gain industrial leadership or to simply use them as leverage for license or worst to litigate and get damage rewards⁴². Yet, up till now patent systems has carelessly availed technological development by granting patents without consideration about possible ecological impact the invention awarded could have had. In this sense, albeit environmental concerns have been internationally internalized by the provision contained in Art 27.2 of the TRIPS agreement⁴³, it can be affirmed that the systems treat environmental degradation as externality and can be thus considered “*environmentally neutral*”⁴⁴.

In Europe, the most transparent example of this concealed neutrality can be found in the EPO *Plant Genetic Systems* decision⁴⁵. Art 53(a) of the EPC⁴⁶ excludes from patentability those inventions “*the commercial exploitation of which would be contrary to ordre public or morality*”. The EPO Technical Board whilst affirming that “*the concept of ‘ordre public’ covers the protection of public security and the physical integrity of individuals as part of society*”⁴⁷ and that it “*encompasses also the protection of the environment*”, has on the other hand interpreted

⁴² The latter is the case of the so-called ‘patent trolls’ mainly diffused in the U.S.A., see: NG Siew Kuan, E., “Patent trolling: innovation at risk”, [2009], 31(12) E.I.P.R. 593-608; Brennan, J., Hsueh, F., Sahashi, M. and Ohkuma Y., “Patent Trolls in the US, Japan, Taiwan and Europe”, [2006] 13(2) *CASRIP Newsletter*; EPO Scenarios for the Future – 2007, available at <http://www.epo.org/topics/patent-system/scenarios-for-the-future.html>, accessed on 11 August 2010.

⁴³ Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) Art 27.2 provides: “*Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation 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 environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law.*”

⁴⁴ Abbot, C. and Booton, D., “Using Patent Law’s Teaching Function to Introduce an Environmental Ethic into the Process of Technical Innovation”, [2009] *The Georgetown International Environmental Law Review* XXI/2.

⁴⁵ *Plant cell/Plant Genetic Systems* T-356/93, *supra* note 3.

⁴⁶ European Patent Convention (EPC) Art 53.a provides: “*European patents should not be granted in respect of inventions the publication or exploitation of which would be contrary to ‘ordre public’ or morality, provided that the exploitation shall not be deemed to be so contrary merely because it is prohibited by law or regulation in some or all contracting states*”.

⁴⁷ *Plant cell/Plant Genetic Systems* T-356/93, *supra* note 3, at reasons 5.

this exception as to be “*narrowly construed*”⁴⁸. The reasoning, they insisted, was in accordance with the predominant view of the EPC drafters who affirmed: “*the concept of patentability in the European patent law must be as wide as possible*”⁴⁹. Following its narrow interpretation, the Board concluded that the revocation of a patent “*on the grounds that the exploitation of the invention for which the patent has been granted would seriously prejudice the environment presupposes that the threat to the environment be sufficiently substantiated at the time the decision to revoke the patent is taken by the EPO*”⁵⁰. The opposition then was rejected on the fact that Greenpeace showed the mere possibility of the destructive consequences for the environment⁵¹.

Beside the questionable decision to not carry out the ‘balancing exercise’ of benefit and disadvantages⁵², two considerations are unavoidable. The viewpoint of the EPC drafters to which the Technical Board referred, represents the aspirations of the sixties’ society. That is to say, a post-war society where the rapid up-and-coming growth paved the way for the economic boom in which technology played as major actor. Thus it is well understandable their inclination to patent “*as wide as possible*”. The position held by the Board is nonetheless explicable as the judgment was given in 1995 wherein the golden economic development still drifted the compulsion to affluence. But nowadays things are slightly different and the main concern is to protract our prosperity and wellbeing as far as possible on sustainable scale. Thereby, a new position is urged from the EPO, notwithstanding the recent

⁴⁸ *Plant cell/Plant Genetic Systems* T-356/93, *supra* note 3, at reasons 8.

⁴⁹ They referred to the Document IV/2071/61-E which constitutes the Comments on the first preliminary draft convention relating to a European patent law, Bonn, 14 March 1961. This document is available from the EPO.

⁵⁰ *Plant cell/Plant Genetic Systems* T-356/93, *supra* note 3, at reasons 18.5.

⁵¹ *Plant cell/Plant Genetic Systems* T-356/93, *supra* note 3, at reasons 18.6.

⁵² The ‘balancing exercise’ is the test adopted in the *Harvard/Onco-Mouse* decision to assess patentability in situations in which an actual damage and/or disadvantage existed with regard to Article 53(a) EPC; see *Harvard/Onco-Mouse*, T19/90 [1990] OJ EPO 476. The Technical Board chose not to adopt this test insofar as “*no sufficient evidence of actual disadvantages has been adduced*”, *Plant cell/Plant Genetic Systems* T-356/93, *supra* note 3, at reasons 18.8.

affirmations of the EPO former President Alison Brimelow at the European Patent Forum 2010, where he made clear that patents do not deal with perceptions but they comply with clear legal conditions and in particular are morally neutral⁵³.

As second point, the requirement that the serious prejudice to the environment be sufficiently demonstrated constitutes a flaw. In fact, it would conflict with the *precautionary principle* which is enshrined in Art 174.2 of the ETC⁵⁴ and is a benchmark for the EU environmental policy⁵⁵. Despite Community Courts have made several attempts to clarify this concept⁵⁶, the precautionary principle still lacks of specific definition. However it has been resumed in the sense that “*lack of full scientific evidence should not be used as a reason for postponing measures to prevent environmental degradation.*”⁵⁷ Albeit it could be affirmed that the EPO as intergovernmental body established outside the EU institutions is not formally bound to the EU legislation⁵⁸, it should nevertheless abide by this principle given that the majority of its contracting States are members of the EU⁵⁹.

The panorama is even gloomier on the other side of the Atlantic. The US patent act has no provision taking into account the environmental issue. In contrast, the US Supreme Court has stressed that patent should be granted to “*anything under the sun that is made by man*”⁶⁰, a statement mirroring the American bias for the full-benefit technological progress.

⁵³ European Patent Forum 2010, President Alison Brimelow, closing remarks, available at <http://www.epo.org/about-us/events/archive/2010/inventor-forum/forum/videos.html>, accessed on 12 August 2010.

⁵⁴ Consolidated Version of the Treaty establishing the European Community, [2002], OJ C325/33.

⁵⁵ Derclaye, E., “Should patent law help cool the planet? An inquiry from the point of view of environmental law: Part 1”, *supra* note 30. The author also points out that related to this principle is the *prevention principle* applied in different EU Directives.

⁵⁶ Douma, W. Th., “The Precautionary Principle in the European Union”, [2000] 9(2) R.E.C.I.E.L. 132-143

⁵⁷ Thornton, J. and Beckwith, S., *Environmental Law*, (2004), 2nd ed., Sweet & Maxwell: London.

⁵⁸ See on this arguable point the letter the Union of European Patent Office employees recently sent to the attention of the European Parliament. The document is available at <http://epla.wdfiles.com/local--files/forum:thread/su10050cl.pdf>, accessed on 13 August 2010.

⁵⁹ Derclaye, E., “Should patent law help cool the planet? An inquiry from the point of view of environmental law: Part 1”, *supra* note 30.

⁶⁰ *Diamond v. Chakrabarty*, [1980] 447 U.S. 303, 309.

Despite the long-established doctrine of ‘moral utility’ advocates to refuse a patent for an invention “*injurious to the well-being, good policy, or sound morals of society*”⁶¹, recently the Federal Court of Appeal has deemed unlawful a rule denying the exploitation of a patent which would be deceptive or for illegal purposes⁶². Although it could be argued that the European position is more progressive re the environmental matters, in actual fact the perceived difference between the laws of Europe and the US brings to no dissimilar results⁶³.

b. The Vocational Role of Patents

Why should thus patent system care about environmental externalities?⁶⁴ Patents are extremely important since they are an essential aspect of the industrial economic strategies and their efficient management is now a crucial task for businesses worldwide. Companies that dedicate time and resources to seek a patent registration can increase their competitiveness. By patenting their inventions large companies hunt for a large portion of market share to become world leader in a given sector. Likewise SMEs have the possibility to extract the underlying profit of their intellectual property assets and effectively exploit it as part of their business strategy. They can also increase the market value of the company and get venture capital funding.

Therefore, patents are at the core of the modern economy and fuel the major industrial technologies whose production and consumption has direct impact on the ecosystem, causing pollution, including the release of GHGs, and shortage of resources. Any production process generally involves the use of raw materials, the natural resources consumed and GHG

⁶¹ Abbot, C. and Booton, D., “Using Patent Law’s Teaching Function to Introduce an Environmental Ethic into the Process of Technical Innovation”, *supra* note 44.

⁶² *Juicy Whip v. Orange Bang*, [1999] (Fed Cir.) 185 F 3d 1364, 1367-8.

⁶³ Abbot, C. and Booton, D., “Using Patent Law’s Teaching Function to Introduce an Environmental Ethic into the Process of Technical Innovation”, *supra* note 44.

⁶⁴ For a brief example of what environmental externalities entail *see*: Bradbrook, A. J. and Ottinger, R. L., “Energy Law and Sustainable Development”, (2003), IUCN Environmental Policy and Law, Paper No. 47.

emitted during its manufacturing process, the waste by-products originating from its fabrication and the final waste disposal⁶⁵. Thereafter, patent law, as promoter of such a technological progress, is deemed to be responsible for the harm to the environment engendered by patented inventions⁶⁶. Currently the patent system passively avails business-as-usual aiming to quantitatively increase the growth and prosperity conceived as compliant with the human wants⁶⁷. But this premise is no longer valid. A radical shift is needed from human wants to human *needs*⁶⁸. Plus, production externalities must be contained and desire of material progress passed into aspiration for sustainable consumption and production patterns.

Nonetheless, it must be acknowledged that patents are not of course liable for the entirety of global pollution. Therefore they cannot 'save the planet' on their own. However as driver of progress and development of new technology, patent regime is undoubtedly *one* essential key to identify trends and indicators of emerging innovations.

As regards, the system should be improved to spur and reward the creation of high-level eco-technology inventions, which would increase the efficiency of resource use and reduce pollution. Thereafter, it should encourage the development of green technologies involved in the needs of humankind, for example, medicine and health, biotechnology, agriculture, food,

⁶⁵ The European Community's Directive 2002/96/EC OJ L37/24 (WEEE) and Directive 2002/95/EC OJ L37/19 press on the importance of giving early consideration to environmental matters in the design and development of new products.

⁶⁶ Derclaye, E., "Patent law's role in the protection of the environment - re-assessing patent law and its justifications in the 21st century", [2009] 40(3) IIC 249-273

⁶⁷ It has been sharply pointed out: "*Patent examiners, because of their background and training, are natural enthusiasts for scientific and technological development with a particular sensitivity to benefits that are achievable only if such development proceeds. This also creates a mindset which favors grant*", Abbot, C. and Booton, D., "Using Patent Law's Teaching Function to Introduce an Environmental Ethic into the Process of Technical Innovation", *supra* note 44, also quoting Landes and Posner who observed that, "*there is an incentive for patent examiners to dispose of applications as promptly as they can and 'it is easier and faster to secure a final disposition by allowing a patent application than by denying it'*", Landes, W. M. and Posner, R. A. *The Economic Structure of Intellectual Property Law*, (2003), Mass: Belknap Press of Harvard University Press: Cambridge.

⁶⁸ Derclaye, E., "Patent law's role in the protection of the environment - re-assessing patent law and its justifications in the 21st century", *supra* note 66.

fight against poverty and infrastructures. In so doing, it will be possible to reap the benefits of progress for a wealthier society while maintaining a sustainable development perspective.

c. System Functionality

As sharply highlighted by Brimelow, in order for the system to accomplish this purpose it is necessary that it function efficiently⁶⁹. In fact there is still lack of consensus on the international regulatory framework and this creates enormous confusion on how the system could serve the spurring of renewable. Indeed the sustainable development issue must be tackled internationally through coordinated plans delivering coherent measures apt to produce the hoped-for change in business strategies and consumer behavior. Moreover, the absence of incentives to create and diffuse green technologies does not encourage investors to make significant market choices.

Some effective actions could be envisaged to enhance system functionality. Patent backlog is a harsh problem every patent office in the world must face because it creates uncertainty and distortion within jurisdictions⁷⁰. The delay in examining a patent application additionally is likely to give rise to the patent trolls phenomenon⁷¹. The most efficient solution to the backlog void is considered being the mutual recognition⁷², which would consist of a transparent and comprehensive international scheme to give patent users reliable information on the comparability of national metric assessments. Setting the mutual recognition as to automatically register a patent granted by another patent office without incurring in a double assessment is undoubtedly an incentive for green patent applications.

⁶⁹ European Patent Forum 2010, President Alison Brimelow, closing remarks, *supra* note 53.

⁷⁰ Wild, J., "Mutual recognition raises its head as EPO boss says backlog won't be mastered", *IAM Magazine*, 08 May 2008, available at <http://www.iam-magazine.com/blog/>, accessed on 14 August 2010.

⁷¹ Brennan, J., Hsueh, F., Sahashi, M. and Ohkuma Y., "Patent Trolls in the US, Japan, Taiwan and Europe", *supra* note 42.

⁷² EPO former President Brimelow, USPTO Director Kappos and JPO former Commissioner Suzuki all have agreed that this instrument is extremely beneficial to an efficient functioning of the international patent system.

At the moment the PCT, managed by the WIPO, accomplishes a similar function but as conceived it is not a suitable tool in terms of effective improvement of legal certainty⁷³.

Recently however the Patent Prosecution Highway (PPH) has been introduced⁷⁴, a set of initiatives aiming to provide fast-track examination for patents filed in multiple jurisdictions to be given an earlier assessment. That is, an applicant receiving a positive determination from a participating office may request that the same application pending before another office be promptly examined. This would result in paperwork and costs reduction. As of 1st January 2010, the USPTO, the JPO and the EPO agreed for a trilateral PPH on a test basis to permit PPH eligibility for national and regional phase applications under the PCT. On 16th April, the PCT-PPH has been extended to include the KIPO⁷⁵.

This is undoubtedly a right pathway to offer a greater legal certainty worldwide, although some important facets must be considered in order to effectively implement this coordination: first and foremost 'patent quality'. It has been argued, "*the empirical evidence suggests that the EPO provides higher quality services than the USPTO, the JPO being in an intermediate position*"⁷⁶. Because of the favor-grant mindset of examiners within patent offices⁷⁷ there is an inflation of scarce quality patent applications. Of course perception of patentability between US and Europe is still different and that would create significant barriers. Moreover China, a component of the IP5 offices⁷⁸, is missing in the PCT-PPH.

⁷³ In fact the PCT only permits to file an international patent application. For a view on how the PCT works visit the WIPO website at <http://www.wipo.int/pct/en/>.

⁷⁴ In 2005 the Japan Patent Office originally proposed PPH and subsequently in mid-2007 the JPO and the USPTO unveiled the first PPH pilot.

⁷⁵ Wild, J., "Fast Track Examination of Applications on the Patent Prosecution Highway", *IAM Magazine*, 20 July 2010, available at <http://www.iam-magazine.com/blog>, accessed on 14 August 2010.

⁷⁶ van Pottelsberghe, B., "The Quality Factor in Patent Systems", [2010], draft version, available at <http://www.ipjur.com/blog2>, accessed on 14 August 2010. He also stresses, "*evidence for higher quality in Europe comes from a lower grant rate, a lower workload per examiner and other structural factors*". See also Wild, J., "EPO is tops for quality, but can Kappos make a difference in the US?", *IAM Magazine*, 14 June 2010, available at <http://www.iam-magazine.com/blog>, accessed on 15 August 2010.

⁷⁷ *Supra* note 67.

⁷⁸ The IP5 is the name given to a forum of the five largest intellectual property offices in the world that is

Therefore multi-faceted convergences are still needed between the IP5 for work-sharing practice to be put in place. On the same breath, patent quality involves work-sharing from users of the patent system as well to help officers carry out a faster examination. In this context a possible solution could be a holistic definition and measurement of 'quality' with the aim of raising the bar of applicant quality submissions.

A complementary option would be the application of higher fees that would permit the employment of more personnel so as to speeding up the assessment process in qualitative fashion. This topic however is extremely delicate since the overall fees applicants and patentees must afford are already much burdensome. Therefore fees redefinition and diversification are also urged.

d. Special Treatment of Eco-Friendly Inventions

All these appreciated efforts however must be primarily directed towards a special treatment of eco-friendly inventions. Briefly, green technologies embrace a plethora of products, such as cars, TVs, MP3 players, cameras and so forth. This broad category also includes clean energy technology (i.e. wind, solar, geothermal, bio fuel), alternative agricultural technology (i.e. organic food, plant varieties), architectural technology (i.e. energy-efficient buildings), industrial and much more. Clean energy technology in particular is meant to create electricity and fuels with a smaller environmental footprint. By promoting a fast-track examination for products and services that are able to reduce the use of natural resources and cut GHG emissions, patent law would attain the vocational role to underpin a technological progress observant of social and environmental 'stakes'.

being set up to improve the efficiency of the examination process worldwide. IP5 Offices account for 90% of all patent applications filed worldwide and for 93% of all work carried out under the PCT. Visit <http://www.fiveipoffices.org/index.html>.

At the moment green technologies are greatly heterogeneous and few patent offices have tried to coral them within a specific class. Last June, a new classification scheme (Y02) has been created by the EPO and made accessible through an *ad hoc* database, in order to make clean energy technologies fall under one single section⁷⁹. Beside this project, on December 2009 the USPTO launched the *Green Technology Pilot Program*. Under the program, which is meant to run for a twelve-month trial period, only 3,000 grantable petitions pertaining to “*environmental quality, energy conservation, development of renewable energy resources, and greenhouse gas emission reduction*” will be accepted⁸⁰. This appealing initiative has been introduced to permit environmentally sound patent applications to be advanced out of turn for examination. It is interesting nonetheless to note that during the first three months from the launch the greater part of applications have been denied. Apparently this is due to the fact that the USPTO has not provided eligible classes for green technology⁸¹, simply requiring that a *green* application be classified in one of the U.S. patent classifications. Following the uncertainty created by this tricky condition, the USPTO decided to eliminate the classification requirement⁸². Despite the questionable avoidance to set a class for this kind of inventions that are extraordinarily increasing, the elimination of this requirement is likely to throw *green* applications down to the swamp of ‘poor quality’.

The USPTO however has been immediately followed in this project by the KIPO and

⁷⁹ See EPO Classification scheme for clean energy technologies, accessible at <http://www.epo.org/topics/issues/clean-energy/classification.html>, accessed on 15 August 2010. Last year, the EPO received 1,259 renewable-energy patent applications, up 27% from 2008 (notwithstanding the overall decrease in patent grants), and the new database will be updated daily to include the growing number of energy patents filed at patent offices worldwide.

⁸⁰ US Pilot Program for Green Technologies Including Greenhouse Gas Reduction notice published on December 8, 2009, at [74 Fed. Reg. 64666](http://www.fedreg.gov/2009/12/08/64666), accessed on 15 August 2010.

⁸¹ Lane, E., “It’s Not Easy Being Green: Navigating the USPTO’s Green Tech Pilot Program”, *Green Patent Blog*, 20 March 2010, accessible at <http://greenpatentblog.com/category/policy-initiatives/>, accessed on 15 August 2010.

⁸² USPTO, elimination of Classification Requirement in the Green Technology Pilot Program notice published on May 21, 2010, at [75 Fed. Reg. 28554](http://www.fedreg.gov/2010/05/21/28554), accessed on 15 August 2010.

UKIPO. The latter has implemented the fast-track procedure called “*Green Channel*” alongside a green patent classification⁸³.

e. A Desirable Green Shift

Although these initiatives represent the willingness of the system to face the *green challenge*, all the above shows us the international patent laws patchwork causing the system to become increasingly complex and unpredictable. This situation is not more acceptable given the urgency of the global crisis. Moreover it is detrimental to a timely development and deployment of eco-friendly technologies. An efficiently coordinated and truly centralized system thus is needed to serve sustainable human development. Green technologies, which are dominant to achieve this goal, must have an international preferential channel to be recognized worldwide.

Several authors have put forward different proposals for a *green shift* of the patent law to invert the course towards a technology progress that be sustainable⁸⁴. All of them are particularly interesting, albeit they would entail a comprehensive structural change requiring a long-drawn-out legislative process. Yet again, that is considered at odd with the stringent necessity to engage in the abovementioned culture-change process, needed to invert at once the actual production and consumption patterns. Amending existing law provisions is indeed

⁸³ For more information visit <http://www.ipo.gov.uk/about/press/press-release/press-release-2010.htm>, accessed on 15 August 2010.

⁸⁴ Amongst them notably: Derclaye, E., “Patent law’s role in the protection of the environment - re-assessing patent law and its justifications in the 21st century”, *supra* note 66; Derclaye, E., “Should patent law help cool the planet? An inquiry from the point of view of environmental law: Part 2” [2009], 31(5) E.I.P.R. 227-235; Abbot, C. and Booton, D., “Using Patent Law’s Teaching Function to Introduce an Environmental Ethic into the Process of Technical Innovation”, *supra* note 44; Reichman, J., Rai, A. K., Newell, R. G. and Wiener, J. B., “Intellectual Property and Alternatives: Strategies for Green Innovation”, [2008], preliminary working draft, Energy, Environment and Development Programme Paper: 08/03, Chatam House Publications: London; de Werra, J., “Brevets d’invention et protection de l’environnement: conflit ou harmonie?”, [2009], in Rita Trigo Trindade, Henry Peter, Christian Bovet (Ed.). *Economie, environnement, éthique : de la responsabilité sociale et sociétale : Liber amicorum Anne Petitpierre-Sauvain*. Genève, Zurich, Bâle : Schulthess, 2009, p. 409-421, available at <http://archive-ouverte.unige.ch/unige:5341>, accessed on 16 August 2010.

much longer than improving governance and administrative procedures.

Therefore short-term actions are urged. They would envisage the creation of a harmonized PPH for green patent applications, inclusive at least of the major international patent offices. In order to do that, patent quality need to be holistically defined and achieved as well as a holistic classification of what is meant for green technology within the patent system is absolutely necessary. All these improvements will bring about a more efficient and coherent system, which in turn will produce certainty and incentive for people who want to invest in production and R&D of eco-friendly technology. In addition, the *green* fast-track examination could even function as deterrent for the old-fashioned polluting technologies, since they will lose novelty and be no more commercially attractive, given the further delay in mastering their pending applications.

f. Implications for ITT

Whilst this quick-fix moves are likely to benefit the economic growth of developed and least developed countries at sustainable level, on the other hand rapid and widespread dissemination and access to environmentally sound technology would help developing countries bridge the gap between their economies and those of most advanced countries, in a manner which will not hinder the global target of sustainable human development. The developing countries' reasonable wish to eliminate poverty while rapidly growing their economy requires vast amounts of energy and huge investments in infrastructure. The UNFCCC has stressed, *"the utilization of ESTs and sustainable development approaches can enable developing countries to avoid the development paths taken by certain industrial countries in*

*the past*⁸⁵. Yet, developing countries has claimed the patent regime mismatch and its monopolistic effect, being its provisions considered as impediment to international technology transfer (ITT). Moreover they argue that, because of their history, developed countries should bear the burden of climate change adaptation. This situation raises concerns re the legitimacy of the patent system, and developing countries industrial policy could make excellent use of anti-IP theories.⁸⁶ In effect the role patent might play in making sure that technology be available to everyone wants to use it is still not yet fully understood. That is mainly because technology transfer is generally depicted as private market activity.

Indeed a solution has to be found on how a right balance can be struck to give incentives to industries to invest capitals and then again allow low-income countries to access environmentally friendly technologies at affordable prices. Developing countries on the one hand stress the recourse to ‘compulsory licenses’ as by Art 31 TRIPS⁸⁷, whereby a government can authorize the use of patented technology by third parties without the consent of right holder but with appropriate compensation. But critics of this proposal say that applying the same concept to green technology could jeopardise millions of jobs in the developed world that focus on research and production of green technology⁸⁸. On the same vein, the US Chamber of Commerce at the Bonn climate talks made clear that *“was urgently needed to counteract the anti-IP rhetoric of developing nations [...], sending a clear signal that the UN negotiation text now on the table, which contains several IP proposals hostile to IP and*

⁸⁵ UNFCCC, “Fact sheet: Why technology is so important”, available at http://unfccc.int/press/fact_sheets/items/4989.php, accessed on 16 August 2010.

⁸⁶ *Supra* note 1

⁸⁷ TRIPS, Art 31: Other Use Without Authorization of the Right Holder.

⁸⁸ See “Clean Technology and European Jobs”, a Copenhagen Economics study on the relationship between intellectual property rights, innovation in carbon abatement (clean) technology and the impact on European jobs, [2009], available at <http://www.thecied.org/portal/cied/research/default>, accessed on 16 August 2010.

*innovation, is not acceptable to the US*⁸⁹.

On this complex and multidimensional issue a number of contributions have been produced both by international economists and scholars. It has been held that whereas patents would not constitute an obstacle to ITT⁹⁰, in contrast they are not sufficient on their own to encourage optimal investment and ITT of green inventions from industrialized countries, because of the lack of protection in developing countries⁹¹. Moreover they have to face underdeveloped infrastructures, trade barriers and regulatory hurdles⁹². Thereafter, the emerging economies should themselves invest in patent governance, market structure and labor skills if they want to attract green technology. Only after that patent law could be an input to ITT. As regards it has been pointed out that a stronger patent regime should be set in developing countries alongside a flexible internal system giving domestic stakeholders the possibility to access them.⁹³

Afterwards, the implementation of Art 66.2 TRIPS⁹⁴ could be a viable means for ITT⁹⁵. Another option would be the application of Art 31 TRIPS, especially to enact compulsory licenses for so-called dependent patents, or Art 40 TRIPS⁹⁶ for anticompetitive behavior.

⁸⁹ ICTSD Bridges Monthly: "Intellectual Property Rights Spark Debate in Climate Talks", Volume 13, Number 3, September 2009, available at <http://ictsd.org/i/news/bridges/54299/>, accessed on 16 August 2010.

⁹⁰ Barton, J. H., "Intellectual Property and Access to Clean Technologies in Developing Countries: An Analysis of Solar Photovoltaic, Biofuel and Wind Technologies", [2007], Trade and Sustainable Energy Series, Issue Paper 2, ICTSD Publications: Geneva

⁹¹ Reichman, J., Rai, A. K., Newell, R. G. and Wiener, J. B., "Intellectual Property and Alternatives: Strategies for Green Innovation", [2008], *supra* note 84.

⁹² Maskus, K. E., "Economic Perspectives on Encouraging Transfer of Green Technologies: Problems and Prospects", The Duke Law IP & Cyberlaw Society's 8th Annual "Hot Topics" in Intellectual Property Law Symposium, February 2009, available at <http://www.law.duke.edu/webcast/> accessed on 12 May 2010.

⁹³ Pedro Roffe, ICTSD Intellectual Property Senior Fellow, in a private conversation with the author.

⁹⁴ TRIPS, Art 66.2 provides: "Developed country Members shall provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least-developed country Members in order to enable them to create a sound and viable technological base".

⁹⁵ Foray, D., "Technology Transfer in the TRIPS Age: The Need for New Types of Partnerships between the Least Developed and Most Advanced Economies", [2009], Program on IPRs and Sustainable Development, Issue Paper 23, ICTSD Publications: Geneva.

⁹⁶ TRIPS, Art 40 Control of Anti-Competitive Practices in Contractual Licenses.

Still, another form of compulsory license relevant in the environmental sector is the government use license whereby a government may designate as its own agent a private investor to facilitate the production of a certain patented product and make it available to the public⁹⁷. The same could be done by making a third-party a private contractor always with the aim of manufacturing the protected good without the consent of the patentee⁹⁸.

In conclusion, environmentally friendly technology is an outstanding means in order for developing countries to develop in symbiosis with the most advanced economies. They could be employed to reduced poverty, improve agriculture, capture and reuse water, control health disease, flood, drought and desertification. Besides, they would consent the developing countries growth to be consistent with the sustainable production and consumption path above depicted. Hence, the urgency of this systemic change calls for innovative approaches and creative solutions to IIT, with a view to accelerate the transfer of green technologies to developing countries.

The ITT issue has recently arisen and much needs to be done in this respect. As regards, huge investments are required from the private sector for production and R&D of environmentally sound technologies. Such investments can only be spurred by the patent regime that is perceived as a rewarding system⁹⁹. Subsequently, the system should be tailored¹⁰⁰ to allow the diffusion and deployment of such technologies so as to address socio-environmental and economic concerns of developing countries.

⁹⁷ Reichman, J., Rai, A. K., Newell, R. G. and Wiener, J. B., "Intellectual Property and Alternatives: Strategies for Green Innovation", [2008], *supra* note 84.

⁹⁸ *Ibid.*

⁹⁹ Carl Horton, Chief IP counsel for General Electric, *supra* note 6.

¹⁰⁰ WIPO has recently demonstrated his determination to ensure that the IP system serve as an effective instrument to create and disseminate technologies. See "WIPO's Contribution to Meeting the Challenges of Climate Change" at http://www.wipo.int/about-wipo/en/climate_change_conf_09.html.

CONCLUSION

This paper calls for a sustainable economic growth that be respectful of the social equity and environmental healthiness. In order for that to occur a large-scale conversion must bring about new tendencies in production and consumption patterns. A cultural-minded change driven by a new evolutionary and positive concept of sustainability as wellbeing producing, that make people think that progress does not exclusively means quantitative commodity affluence but primarily consists in equal opportunities for achieving qualitative levels of life, health, security and natural balance. Market trends can be a powerful engine of such enlightenment, which is likely to lead to a resource-efficient society aiming at developing in sustainable fashion.

The findings of this work have strived to show that sustainable human development could be achieved by means of green and eco-friendly technology. Such a technology is vital to ensure a global growth taking into account the needs of poorest countries while enhancing the performance of most advanced economies.

In this panorama patents are dominant because of their key role in fostering technological innovation as well as R&D in technology field. Therefore patent system, whose legitimacy and functionality is now the object of harsh criticisms, should be rapidly modified in terms of international harmonisation and cooperation. It should move from quantitative to qualitative examination. Moreover, as long-term action the system should be tailored to offer everyone the possibility to access low carbon technology so that sustainable human development be accomplished worldwide.

Because of its limits this paper has only offered a glimpse of the current scenario. However there are plenty of data and proposals to discuss and debate on how to improve patent

regime in serving the purpose of an economic growth on sustainable scale. All this can be put into practice modifying habits and getting free of the *deliberate ignorance*, but bearing in mind that *“there is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things. Because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new”*¹⁰¹ .

¹⁰¹ Niccolò Machiavelli, *The Prince*, 1532