Intellectual Property Rights (IPR) – Another Untested Hurdle in Copenhagen

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Among the emerging issues concerning longer-term intellectual property (IP) developments belongs the relationship between IP rights and environmental degradation. Looking back at the relations between IP and possible transfers of environmentally sound technologies (ESTs), indeed not very much has been said about IP in the climate context – until recently, before the COP 15 in Copenhagen 2009, where many and strong arguments were put forward from developing countries to limit the patentability of climate-related patents and to open up the WTO Agreement on Trade-Related Aspect of Intellectual Property rights (TRIPS). There may be good reasons for opening up TRIPS, but this is not so easy, and it is doubtful whether the negotiations on climate change are the right forum. TRIPS says little about environmental concerns. Thus, any agreement on IP and climate change seems to be better placed in the UN than in the WTO, which does not contradict future cooperation on related matters.

1. IPR and the new interfaces

The Agreement on Trade-related Aspects of Intellectual Property Rights (TRIPS) seems to have been a catalyst provoking a shift in perspective and marking a new form of discourse on Intellectual Property (IP),[1] which is characterized by on the one hand, power of companies and markets, and on the other, a number of moral and human rights issues such as globalization, sustainable development and public health.[2] IP laws are now subject to a much wider public scrutiny than in the past, and it is likely they can no longer be developed under the radar of public consciousness.[3] The growing awareness of IPR at all levels has not only challenged the system but also pressed forward some important statements during the last years, including a public health amendment to TRIPS,[4] the progress of a World Intellectual Property Organization (WIPO) Development Agenda[5] and the recent adoption by the World Health Organization (WHO) of a Global Strategy on public health, innovation and intellectual property.[6] In other instances, challenges to TRIPS are framed through reinterpretation of existing agreements and the creation of nonbinding declarations, recommendations and other forms of soft law.[7] All these developments have been intensely ventilated in the academic discourse on TRIPS, as well as by states and non-governmental organizations (NGOs) in forums such as WIPO, The World Trade Organization (WTO), WHO and the Conference of the Parties to the Convention on Biological Diversity (CBD).[8] Among the emerging issues concerning longer-term IP developments belongs the relationship between IP and environmental degradation, or climate change.[9] Positions held in this area by developed and developing countries do not differ very much from the ones in other international discussions, but contrary to in most other IP negotiations, the emerging economies China and India have clearly chosen the side of developing countries.

2. IPR and Climate Change an ambiguous relation?

As scientific projections suggest, we have only experienced the earliest stages of a growing and complex environmental crisis,[10] and climate change problems have advanced to one of the hottest subjects in our time. As may be recalled,

Agenda 21 agreed at the Rio Summit in 1992 concluded that a large body of useful technological knowledge lies in the public domain.[11] But to the extent that this is not the case, the Agenda urged governments and international organizations to promote, and to encourage the private sector to promote, effective modalities for the access and transfer,[12] in particular, to developing countries of environmentally sound technologies (ESTs).[13] This can be done by *e.g.* enhancing the access to and transfer of patent protected ESTs, and purchasing patents and licences on commercial terms for their transfer to developing countries on non-commercial terms toward the aim of sustainable development, taking into account the need to protect IP.[14]

Even if the declared aim of the Uruguay Round of General Agreement on Tariffs and Trade (GATT) in 1986 to 1994 was to narrow the gaps between IP laws in various parts of the world,[15] the TRIPS text is in fact based on Northern norms, due to the fact that the Uruguay Round negotiations were driven by a USA-EU-Japan-Swiss alliance.[16] TRIPS has not only made IP protection globally standardized at a developed country minimum level but also strengthened the system as such. Since TRIPS, there has been a particular focus on the role of IP as a barrier to the international diffusion of technologies to developing countries,[17] and especially to least developed countries (LDCs).[18] Even though, at least to date, evidence of serious impediments have been referred to as 'anecdotal', and it is rather the level of tacit knowledge not covered by IPR that may prevent effective transfer of ESTs,[19] the effects of strong intellectual IP protection and proprietary licensing have been criticized as impeding access to *e.g.* renewable energy technology.

Notwithstading the unclear role IP in the climate context and the lack of and empirical data for informed and objective decision-making,[20], this critical attitude may be a crucial hurdle at any future negotiations of a revised UNFCCC and Kyoto Protocol,[21] and risks to become the next big IP confrontation after medicines. While access to medicine is important, because it concerns many, especially in the developing world, clean water, clear air and a stable climate concern everybody. Thus, if IP ***may be a negative influence in the range of policy initiatives that are needed to deal with climate change*** and impede access to climate technologies there might be a very strong case against IP protection. On the other hand, quantitative and qualitative analysis finds that patents have not yet mounted to a significant barrier to access in developing countries.[22] Instead, there are arguably a number of potential social and economic benefits from a strong IP system, such as:[23] increased innovation; innovators reap the fruits of their creative labour and influence how their technology is used; public disclosure as a requirement for exclusive rights; and assurance for investors to recapture their investment in a protected technology...[24]

Even though these benefits can be better exploited by developed countries,[25] and the mere existence of IPR does not make people invent or invest,[26] or even guarantees or suffices for effective transfer of technology, arguably caution should be exercised in advocating changes that would weaken the established IP system as such.[27] Notably, this statement does neither contradict that a functioning IP system has to be well-calibrated, nor that there may appear unbalances as results of technological developments and uneven negotiating powers that need adjustments.[28] It was also clear from the Ad hoc Working Group report on Further Commitments for Annex I Parties under the Kyoto Protocol and the report on Long-term

Cooperative Action under the Convention that the existing IP system basically is satisfactory and *status quo* should be maintained.[29] IP is, at least in part, an instrument aimed at facilitating transfer of technology,[30] and TRIPS also contains provisions to prevent the abuse of IP rights by right holders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology.[31] This could be important to developing countries, with often inferior regulations of unfair competition law.[32]

Sharing knowledge, like minimising CO^2 emissions, is considered by many to be essential to achieving a fair balance between rich and poor countries, between industry and consumers and between large corporations and SMEs.[33] Notwithstanding the fact that some examples could be found where IP arguably has blocked access to substitutes, [34] and there might exist limitations with respect to specific technologies such as key existing mitigation technologies,[35] where public-private partnerships could be less suitable for buying IP, so far no clarity exists on where IP may prevent access to ESTs and hinder the protection of a public good.[36] But if this were the case, there are indeed good reasons for the international community to react.

Since 1972 it has been accorded that ESTs should be made available to developing countries on terms which would encourage their wide dissemination without constituting any economic burden on the developing countries.[37] This was reaffirmed at the creation of the UNFCCC in Rio 1992, where *e.g.* Arts. 4.1, 4.3 and 4.5 talk about transfer of technology. And even if IPR as such were not mentioned, this does not mean that IPR where not thought of. Agenda 21 of the Rio Summit states that,[38]

Consideration must be given to the role of patent protection and IPR along with an examination of their impact on the access to and transfer of ESTs, in particular to developing countries, as well as to further exploring efficiently the concept of assured access for developing countries to ESTs in its relation to proprietary rights with a view to developing effective responses to the needs of developing countries in this area.

It is also clear from Agenda 21 that the objective must be:[39]

To promote, facilitate, and finance, as appropriate, the access to and the transfer of ESTs and corresponding know-how, in particular to developing countries, on favourable terms, including on concessional and preferential terms, as mutually agreed, taking into account the need to protect IPR, as well as the special needs of developing countries for the implementation of the Agenda.

In regard of privately owned technologies, the following measures should be adopted, in particular for developing countries:[40]

Purchase of patents and licences on commercial terms for their transfer to developing countries on non-commercial terms as part of development cooperation for sustainable development, taking into account the need to protect IP;

In compliance with and under the specific circumstances recognized by the relevant international conventions adhered to by States, the undertaking of measures to prevent the abuse of IPR, including rules with respect to their acquisition through compulsory licensing, with the provision of equitable and adequate compensation.

In June 1997 the UN General Assembly expressed that the international community should promote, facilitate and finance, as appropriate, access to and transfer of ESTs and the corresponding know-how, in particular to developing countries, on favourable terms, including concessional and preferential terms, as mutually agreed, taking into account the need to protect IPR as well as the special needs of developing countries for the implementation of Agenda 21.[41] In this context, it is important to identify barriers and restrictions to the transfer of publicly and privately owned ESTs, with a view to reducing constraints for the transfer of such technologies.

In COP 7 of the UNFCCC (2001) the protection of IP was specifically identified as one of the means of creating an enabling environment, as well as providing access to publicly funded technologies.[42] This was again taken up in the Bali Road Map,[43] with a recommendation to encourage parties to avoid trade and IPR policies, or lack thereof, 'restricting transfer of technology'. Existing vehicles and new initiatives should help enabling environments for technology transfer; and licences to support the access to and transfer of low-carbon technologies and know-how. This led up to the Bali Action Plan, of March 2008 where the exchange of views among Parties on financial and technological cooperation and support that had addressed general principles to guide governance and action with a diversity of ideas and proposals regarding means of generating and delivering substantial new and additional finance, including facilitation of access, and the design of effective institutional arrangements for finance and technology transfer. With technology as a key component, attention was also given to the potential for technological cooperation, including cooperative research and development and ways of dealing with the issue of IPR.[44]

In the light of the progress of discussions on the Bali Action Plan,[45] the Ad Hoc Working Group on Long-term Cooperative Action at its fifth session, apart from generating substantial new and additional finance, and design of institutional arrangements for finance and technology under the UNFCCC, recommended also on cooperative research and development of new technologies and focus on IPR for existing ones. A comprehensive process should enable the full, effective and sustained implementation of the UNFCCC through long-term cooperative action by addressing:[46]

- *The contribution of existing TRIPS flexibilities to climate-related technology transfer, which could be significant*
- *The provisions of TRIPS that could be used to promote such transfer of technology, and*
- *Possibly also additional measures to ensure that IPR support the climate regime.*

Thus, the Bali Action Plan recommended increased research and analysis on:

- *The links between transfer of technology and IPR to overcome apparent differences and to develop effective technology-related international cooperative action on climate change;*
- *The relationships between IPR and the transfer of climate-related technologies and to outline some of the existing and prospective; and*
- *Measures in TRIPS to be considered in support of a post-Kyoto climate regime.*

These types of studies are now made in an intensified frequency, *e.g.* under the auspices of the ICTSD, the OECD, the WIPO and the World Bank. And also if such further research will be critical to give any effective solutions,[47] an overview of the potential opportunities and challenges presented by international IP rules to technology transfer under the post-2012 climate regime can still be expected to present important lessons for possible next steps both in the UNFCCC and in the WTO.[48]

To sum up and looking back at the relations between IPR and possible transfers of ESTs, indeed not very much has been said about IP in the climate context – until recently before the UNFCCC COP 15 in Copenhagen 2009. The closer the Copenhagen meeting came, the more

positions were hardening. On the side of developing countries many and strong arguments were presented to limit the patentability of climate-related patents and to open up TRIPS. On the side of developed countries, *e.g*. the U.S. Congress issued a directive that any new climate treaty cannot limit the scope or exercise of American IPR, while some developing countries pushed for strong language on compulsory licensing or even exclusion of ESTs from patentability.[49] Obviously, such politicised claims can hardly proactively serve present or future climate discussions.

3. So what is in TRIPS?

Originally, international IPR were mainly discussed in the WIPO and foremost as a legal technological matter. Today, TRIPS as part of the WTO package solution is the primary and most comprehensive global IP treaty, and its (new) 'trade-related dimension'[50] seems to have given free room for political jockeying in present discussions, including in the context of the UNFCCC. Around 75 percent of the parties to the UNFCCC are also – willingly or unwillingly[51] – parties to TRIPS. Notably, the objective of TRIPS framed in Art. 7 is not only to protect IPR, but also to promote the transfer and dissemination of technology to the mutual benefit of producers and users of technological knowledge:

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.

3.1 TRIPS flexibilities

Furthermore, under Art. 8 TRIPS, members may enact laws and regulations to 'protect public health and nutrition' and to 'promote the public interest in sectors of vital importance to their socio-economic and technological development', as long as such measures conform to the terms of the Agreement. In addition, specific TRIPS provisions allow some flexibility, *e.g.*:

- *Art. 27.1 on criteria for patentability;*
- *Art. 27.2 on patentability exclusions;*
- *Art. 30 on exceptions to exclusive rights;*
- *Art. 31 on compulsory licensing; and*
- *Art. 40 on control of anti-competitive practices in licenses.*

The use of these flexibilities has not proved easy in other areas,[52] but how far-reaching the flexibilities are in practice has only been tried in a few cases. Even if so far the WTO-TRIPS panels rather have confirmed the monopolistic strength of IP right holders with absolute powers in most respects,[53] there is no evidence of such obstacles in the climate change context.[54] Eventually, this could probably depend on economic and political power distribution and the involvement of NGOs and other stakeholders,[55] and last but not least whether IPR really form a threat to positive climate solutions. The assumption must be that balancing of interests; not only within the IP system but also weighting the objectives of IP law against larger societal and economic welfare interests, including a sustainable development, ares required and in the interest of all actors. This should arguably also follow from a loyal interpretation of TRIPS.

3.2 Provisions designed to address the environmental concerns

In the climate change context Art. 27.2 TRIPS can be seen as a confirmation of a certain environmental awareness by the legislator at the time, as prejudice to the environment is regarded as part of 'ordre public':

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.

This provision, which is also repeated in recital 29 to the Directive on biotechnological patents,[56] has never been tried by a WTO Panel. But from a European perspective the Boards of Appeal of the European Patent Office observed that:[57]

It is generally accepted that the concept of 'ordre public' covers the protection of public security and the physical integrity of individuals as part of society. This concept encompasses also the protection of the environment to breach public peace or social order (for example, through acts of terrorism) or to seriously prejudice the environment. Accordingly, under Article 53(a) EPC, inventions the exploitation of which is likely are to be excluded from patentability as being contrary to 'ordre public'.

However the in-built 'necessary test' requires that the purpose of an overriding social interest be objectively justified when addressing a possible exclusion, and there could be clashes in the interpretation. Though TRIPS constitutes the *lex specialis* for dealing with patent issues in the WTO framework, the GATT/WTO jurisprudence on Art. XX of GATT is likely to play a role in the interpretation of Art. 27.2. In the India- Patent Protection for Pharmaceutical and Agricultural Chemical Products case (WT/DS50) the Panel, on the one hand, held that,[58] TRIPS has a 'relatively self-contained, *sui generis* status within the WTO'. On the other, the Panel also held that the Agreement is 'an integral part of the WTO system, which itself builds upon the experience of over nearly half a century under the GATT 1947'.[59] Before that background, the risk of being hauled up before a WTO dispute panel may discourage a member from making use of this provision.[60]

For ethical or other reasons, members can also exclude plants or animals from patentability, subject to certain conditions. Thus, under Art. 27.3 TRIPS members can make certain inventions ineligible for patenting, if believed that the invention has to be prevented (within the territory) for these and certain other objectives.

3.3 Provisions in TRIPS for Technology Transfer

Apart from Arts. 7 and 8.2 TRIPS, Art. 66.2 on LDCs states that:

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.

These weak and diffuse obligations do not bring much of practical commitments. So, it might be symptomatic that the European Commission issued a paper in September 2007 reminding Member States that the deadline for notifications on developed countries reports on their technology transfer incentives for the implementation of Article 66.2 TRIP on an annual basis had passed.[61] In reality, fairly little has been done by developed countries to provide concessions to developing countries and to provide incentives to/impose obligations on enterprises and institutions to disseminate or transfer technology.[62]

3.4 Provisions in TRIPS for compulsory licensing

Under Art. 31 TRIPS each country has the right and discretion to grant compulsory licenses and the right to determine what constitutes national emergency or other circumstances of extreme urgency. The 2001 Doha Declaration on TRIPS and Public Health has clarified the flexibility afforded by TRIPS to member countries in setting IP protection with respect to pharmaceutical

patents in a public health crisis afflicting a poor country or other urgent national concerns. When in such an emergency situation a poor country is lacking the manufacturing capacity, a waiver should enable the export of a pharmaceutical produced under a compulsory license to a destination where it is critically needed.[63] But the scope is limited to precisely that.

4. Trying to sum up the IP situation

The question whether special IP arrangements in the context of climate change are needed remains open.[64] But it has been argued that the increasing public attention and concerns for the relationship between IP and the transfer of ESTs call for measures and adjustments to TRIPS to support the post-Kyoto climate regime – to the extent that TRIPS flexibilities would not already be sufficient to allow international IP rules to support the rapid and widespread transfer of technologies needed for climate change mitigation and adaptation.[65] According to the UN Economic and Social Affairs (DESA)(reference), the climate change problem has the status of a global emergency in the vein of current epidemics, why DESA claims that the Doha Declaration should apply analogously.

Apart from the mentioned Art. 27.2, TRIPS says little about environmental concerns. Contrary to the field of health or nutrition, TRIPS does not provide for any special treatment or flexibilities for access to and dissemination of ESTs.[66] Arguably, neither Art. 31, nor the Doha waiver for pharmaceuticals (or other urgent national concerns mentioned in the Doha Declaration) brings any solution to transfer of technology in the general climate context. There exists no such waiver for any other products than pharmaceuticals, and there is no overlap between these and ESTs. Thus, a country trying to set up a compulsory license to export an environmental good or service to a developing country will most probably violate WTO rules.[67] Furthermore, in light of the long-winded procedures to reach a decision on TRIPS and public health and the uncertain scope of the Doha flexibilities, no general 'analogue application' seems probable. In addition, it also seems difficult to more precisely identify those inventions that should merit for such a special treatment, if it is not by the initiative of the right holders.[68] This does not contradict that workable solutions are required if IP shows to be of hindrance to crucial technology transfer,[69] and in such a scenario, IPR should not be allowed unduly to hinder transfers.[70] But arguably, this is not equal to free IP or a ban on patents, nor is it consistent with the Rio Summit.

With the goal to create an IP regime that provides incentives for technological innovation and its global diffusion and usage, both whip and carrot might be needed. Even if so far a majority of ESTs have not been patented, tendencies to increased patenting in the green area are now visible,[71] and also supported: The UK patent Office has, for instance, recently introduced a Green Channel for patent applications.[72] This service allows applicants to request accelerated processing of their patent application if the invention has an environmental benefit. One could well argue that IP as a barrier to free competition must be tolerated only to the extent necessary to encourage technological progress.[73] Thus, the encouragement of open-source models for the supply of a 'global public good' such as ESTs should be given special attention.[74] Developments such as the ECO Patent Commons[75] could be one solution to meet the growing energy demands of developing countries in a sustainable fashion.

In addition to big companies' willingness to contribute on a voluntary basis, it must always be acknowledged that the possible success of the climate change programme is very much

dependent on big funding, including enhancing capacity building, as well as installing and improving ESTs in developing countries. Without IP being acknowledged and respected, such activities, as well as R&D are likely to be low and deprived of financial incentives from the (industrialized countries) governments as well as private investors, especially in times of financial crises. It is indeed difficult to envisage EU, Japan and the USA 'selling out' IP, even in this urgent context.[76] But the same goes for China, one of the Top Ten on the world patent ranking list. Therefore, the active role of China and India in the lead of the developing countries for free access to IP-protected ESTs and other earlier disputed TRIPS-related IP seems more of a power game, where IP is being used as a tool in big politics rather than being the main focus. For an IP lawyer, it is to regret that IPR once more seem to have become a political chip, this time in the UNFCCC, rather than using the system to solve climate problems in a constructive manner! But this was never put to an edge.

Developed countries are in favour of a strong IP system because it fosters economic growth. The private sector should be encouraged to continue to extend the benefits of new technologies by entering into mutually beneficial arrangements with foreign joint venture partners. From this follows that foreign investors in developing countries with stronger IP regimes are more likely to engage in local production, rather than focus solely on setting up distribution networks.[77] Some research results indicate that countries with high per capita incomes probably grow more rapidly with strong IP rights. On the other hand, there is no evidence that stronger IP protection reduces growth in the poor countries, while middle-income countries may have offsetting losses from reduced scope for imitation.[78] Evidence is even less conclusive in the case of foreign direct investments (FDI).[79] However, an important component of any program to attract high-quality FDI and technology transfer seems to be the development of a competent indigenous technological capacity.[80] If indigenous knowledge is perceived to be incapable of contributing to technological advancement,[81] it just risks to be distanced from economic recognition and be made a victim of rent-seeking behaviour.[82]

When advanced developing countries such as China and India seek support for (free) ESTs to meet their growing energy requirements, this support could take many forms, such as joint R&D efforts, shared IPR, and foreign funding for energy infrastructure. The worst situation is, as always, for those countries that do not attract FDI, the LDCs. But with the risk of being cynical, in the present climate change context, solving the IP problems of the LDCs seems less urgent. These countries are neither the greatest emitters, nor will IP in the one or the other direction probably make any big difference. It is important to recall that IPR are only one among many other factors which may impact technology transfer. Other factors such as the enabling environment, in particular financing, adequate incentives and institutions play a more important role.[83]

Finally, it is open to question where the relation between transfer of ESTs and IPR best should be handled. On the one hand TRIPS is binding in another way than UN documents. But on the other, amendments to TRIPS, even if possible, have shown to be cumbersome. The Doha talks are not finalized and the health waiver of the Doha Declaration is still not, after nine years, ratified by a sufficient number of members to enter into force. Even though a majority of parties to the UNFCCC also are parties to TRIPS and even though the UN system offers a weaker framework in regards of enforcement of treaty obligation, any agreement on IP and climate change seems to be better placed in the UNFCCC.

This could also probably enhance cooperation between the UN and the WTO in these matters.

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[1] In short: a number of distinct types of creations of the mind for which property rights are recognised. Common types include copyrights, industrial designs, patents, trade marks, and under some jurisdictions also trade secrets. Under IP law, owners are granted certain exclusive rights. Limitations in time and of other aspects of IP arguably make these monopoly rights useful to society. At least, this has been the established view in a market economy.

[2] *Cf.* Ghafele, Roya, *Perceptions of Intellectual Property*, August 2008, 31, at http://www.iam-magazine.com/blog/articles/PerceptionsofIP.pdf

[3] Halbert, Debora, *Redefining TRIPs in the Face of Global Change,* Paper presented at the annual meeting of the International Studies Association, Hilton Hawaiian Village, Honolulu, Hawaii,5 March 2005, 7, who argues that the current resistance staged by transnational activists anyhow will require a more serious consideration of issues of social justice and global equity within TRIPS, at http://www.allacademic.com//meta/p_mla_apa_research_citation/0/7/0/6/8/pages70689/p70689-6.php

[4] *Cf.* para. 6 of the Doha Declaration on the TRIPS Agreement and Public Health of 14 November 2001, and the following 2005 Ministerial Declaration.

[5] The Development Agenda, formally adopted by WIPO's General Assembly, 10 October 2007 with a set of 45 recommendations to enhance the development dimension of the Organization's activities. The further work on the six clusters of recommendations is handled by a Committee on Development and Intellectual Property (WIPO CDIP). The fifth session of the CDIP ended on 30 April 2010 with a significant breakthrough: delegates agreed on a coordination mechanism for the implementation of the Agenda; see for details at http://www.wipo.int/meetings/en/details.jsp?meeting_id=19686

[6] Sixty-first World Health Assembly, 24 May 2008, at http://www.who.int/mediacentre/events/2008/wha61/en/index.html

[7] Helfer, Laurence R. Mediating Interactions in an Expanding International Intellectual Property Regime, *Case Western Reserve Journal of International Law*, Vol. 36, Fall 2004, 6, at SSRN: http://ssrn.com/abstract=578121

[8] Helfer, 6-7.

[9] *Cf.* e.g. Stern, Nicholas, *The Economics of Climate Change*, (The Stern Report) Cabinet Office/HM Treasury, Cambridge University Press 2006, Part IV, 10 *et seq*, at http://snipurl.com/11fp8.;and Copenhagen Economics, *Are IPR a Barrier to the Transfer of Climate change Technology*?, report prepared for the European Commission on the importance of intellectual property rights as a barrier to transfer to developing countries of technology which reduces emissions of carbon dioxide (2009), at http://trade.ec.europa.eu/doclib/docs/2009/february/tradoc_142371.pdf, or at http://www.copenhageneconomics.com/Publications/Impact-Assesment.aspx

[10] Intergovernmental Panel on Climate Change (IPCC), http://www.ipcc.ch/

[11] Para 34.9.

[12] IPCC 2002 defines "transfer of technology" as 'the broad set of processes covering the flows of knowledge, experience and equipment amongst different stakeholders such as governments, private sector entities, financial institutions, NGOs and research/educational institutions. The broad and inclusive term "transfer" encompasses diffusion of technologies and technology cooperation across and within countries. It comprises the process of learning to understand, utilise and replicate the technology, including the capacity to choose it and adapt it to local conditions. *Cf.* the Draft International Code of Conduct on the Transfer of Technology (1985).

[13] *I.e.* technologies that: 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 than the

technologies for which they were substitutes, *cf.* Arts. 4.5 and 4.7 UNFCCC.

[14] Ch. 34 para. 34.18 e (ii) and (iii).

[15] Marinova, Dora & Raven, Margareth, Indigenous Knowledge and Intellectual Property: A Sustainable Agenda, (2006) *Journal of Economic Surveys*, Vol. 20, No. 4, 597, at http://www3.interscience.wiley.com/cgi-bin/fulltext/118583570/PDFSTART.

[16] Negotiators came from an initial group of about 20 countries, increasing over time to about 30 of which about half came from industrialized countries. The negotiators from developing countries however had the disadvantage of not being familiar with IP or even law, see further Gervais, Daniel, The State of Play, *Fordham Law Review* Vol. 74, 2005, 506, at SSRN: http://ssrn.com/abstract=870065.

[17] Walker, Simon, *The TRIPS Agreement, Sustainable Development and the Public Interest*, IUCN, Environmental Policy and Law Paper No. 41, 12, at http://data.iucn.org/dbtw-wpd/edocs/EPLP-041.pdf and *cf.* de Boer, Yvo, *Report on the Bangkok Climate Change Talks 2008* at European Patent Forum, Ljubljana, 7 May. 2008, 4, at http://unfccc.int/files/press/news_room/statements/application/txt/080507_speech_lubljana.pdf

[18] Gueye, Moustapha Kamal, *Technologies for Climate Change and Intellectual Property*, International Centre for Trade and Sustainable Development (ICTSD), Information Note No. 12 (October 2009).

[19] Maskus, Keith E., Environmental Working Paper No. 17, Differentiated Intellectual Property Regimes for Environmental and Climate Technologies, Organisation for Economic Co-operation and Development (OECD) -5 May 2010, at No. 94

[20] Maskus (n. 19).

[21] The UN Framework Convention on Climate Change (UNFCCC) encouraged developed countries to stabilize greenhouse gas emissions. UNFCCC entered into force on 21 March 1994 and has been ratified by 192 countries. The Kyoto Protocol, which has not been ratified by all parties to the UNFCCC, entered into force on 16 February 2005. Under this Protocol the industrialized countries *e.g.* commit themselves to a reduction of their collective greenhouse gas emissions by 5.2 percent from the 1990 level. For the period after 2012 new standards have to be agreed, where 20 percent probably will not suffice.

[22] Maskus, Keith E., Environmental Working Paper No. 17, Differentiated Intellectual Property Regimes for Environmental and Climate Technologies, Organisation for Economic Co-operation and Development (OECD) -5 May 2010, at No. 94, e.g. referring to Clachan et al. (2010) and Copenhagen Economics (2009).

[23] IPCC (2000) Methodological and Technological Issues in Technology Transfer at 3.5.2.

[24] To the justifications for IPR also belong that they are: based on a utilitarian idea and a theory of ownership (Locke & Bentham); are part of 'Human rights' (Art. 17 of the EU Charter); a balance of rights and freedoms; and only monopolies that are useful to society are acceptable (Statute of Monopolies 1623); limited in time and inspire to fair competition in the market. They serve to promote societal progress… (U.S. Constitution), and, at least, originally they were fairly small exceptions.

[25] See *e.g.* Juma, Calestous, Intellectual property rights and globalization: implications for developing countries, at http://www.cid.harvard.edu/archive/biotech/papers/discuss4.pdf. The importance of an IP-based economy is underlined and supported by the fact that *e.g.* in the USA alone studies in the past decade have estimated that over 50 percent of US exports now depend on some form of IP protection, compared to less then 10 percent 50 years ago.

[26] Drexl, Joseph, Responding to the Challenges for Development with a Competition-Oriented Approach in *Views on the Future of the Intellectual Property System*, ICTSD Programme on IPRs and Sustainable Development, Selected Issue Briefs No. 1 (June 2007), 18, at www.iprsonline.org/ictsd/docs/Views%20Future%20IP%20System.pdf

[27] Maskus (n. 22).

[28] *Cf.* Annette Kur and Marianne Levin (eds.), Intellectual Property Rights in a Fair World Trade System, Edward Elgar Publishing Ltd., forthcoming

[29] Bangkok, April 2008, and *cf.* Art. 10 of the Protocol and Arts. 4.1(c) and 4.3 of UNFCCC, while Art. 4.5 urges developed countries to take practical steps to promote, facilitate and finance transfer of and access to ESTs and know-how to developing countries.

[30] Possible negative effects in LDCs are due to weak infrastructures, governance and competition systems; see Gueye, Moustapha Kamal, *Technologies for Climate Change and Intellectual Property*, International Centre for Trade and Sustainable Development (ICTSD), Information Note No. 12 (October 2009).., 3.

[31] Art. 8.2, which is further supported by Art. 40: 'Members agree that some licensing practices or conditions pertaining to intellectual property rights which restrain competition may have adverse effects on trade and may impede the transfer and dissemination of technology.'

[32] *Cf.* Maskus, Keith E. & Lahouel, Mohamed, who argue for a further development of TRIPS, where competition enforcement should aim at disciplining clearly anticompetitive licensing practices rather than attempt to force technology transfer on concessional terms and to encourage imitation without compensation; see *Competition Policy and Intellectual Property Rights in Developing Countries: Interests in Unilateral Initiatives and a WTO Agreement*, The WTO/World Bank Conference on Developing Countries' in a Millennium Round WTO Secretariat, Centre William Rappard, Geneva, 20-21 September 1999, 40.

[33] The European Patent Office (EPO), Scenarios for the Future (2007), 74, at http://www.epo.org/topics/patent-system/scenarios-for-the-future.html

[34] Kohr, Martin, Intellectual Property, Competition and Development, Third World Network (June 2005), 16, at http://webcache.googleusercontent.com/search?q=cache:fWrdit3RIy8J:www.twnside.org.sg/title2/par/mk002.doc+6.+policies+and+methods+to+propertise+competition+principles,+kohr&cd=1&hl=sv&ct=clnk&gl=se

[35]http://www.greenfacts.org/en/climate-change-ar4/figtableboxes/40.htm
http://webcache.googleusercontent.com/search?q=cache:fWrdit3RIy8J:www.twnside.org.sg/title2/par/mk002.doc+6.+policies+and+methods+to+propertise+competition+principles,+kohr&cd=1&hl=sv&ct=clnk&gl=se

[36] de Boer, *op. cit*., 5 *et seq.;* Stern Report Part IV, 10, Copenhagen Economics, *op. cit*. 34 *et seq*.

[37] Principle 20 of the UN Conference on the Human environment, Stockholm (1972), and *cf.* also the preamble and Art. 10.2 of the Basel Convention on the Prevention of Transboundary Movements of Hazardous Wastes.

[38] Ch.34:10.

[39] Ch. 34:14 b).

[40] Ch. 34:18 b) at iii) and iv), respectively.

[41] A/RES/S-19-2, para. 88.

[42] Under the Montreal Protocol, developed countries originally agreed to eliminate production and use of CFCs by the year 2000, whilst developing countries are given a ten-year grace period to do the same. A fund was set up to help developing countries meet the costs of implementing their phase-out, and the protocol's Article 10 provides for technology transfer to developing countries; *cf.* Kohr, Martin, Intellectual Property, Competition and Development (2005), 15.

[43] UNFCCC (Dec. 2007), Annex I.C.

[44] No. 34.

[45] See spec. paras. 1 (d) and 1 (e).

[46] Fulfillment of the Bali Action Plan (March/April 2009), No. 40.

[47] *Cf.* Gueye *op. cit*., 8.

[48] A patent landscaping study is presently being made by the EPO in conjunction with United Nations Environment Programme (UNEP) and the ICTSD aims to contribute to this understanding. Preliminary results show that, over the past few years, there has been a marked increase in patenting activity in clean energy technologies as compared to those using fossil fuel energy. In particular, recent years have seen a rapid growth in wind power, solar photovoltaic (but not thermal) and CO_2 capture and storage technologies. Notably, the number of patents in these areas increased appreciably after the Kyoto Agreement was signed. The patenting activity in all relevant technologies appears to be dominated by Japan, the US, Germany, Korea, the UK and France. A full report on the findings is not due until the first half of 2010 in the area of energy generation, see http://www.epo.org/about-us/press/releases/archive/2009/20091125.html

[49] Maskus (n. 22), who at No. 94 concludes that neither of these positions is well informed with respect to the economics of intellectual property.

[50] The idea of linking IP to trade policy goes far back in history. Also the Paris Convention for the Protection of Industrial Property Rights (1883) and Berne Convention for the Protection of Literary and Artistic Works (1886) aim at simplifying cross-border trade with IP. The Paris Convention is expressly related to trade; and even if the word 'trade' does not appear in the Berne Convention, this treaty followed in the footsteps of the Paris Convention with the similar legal construction so as to protect an original work published in, or authored by a national of a Member State of the Berne Union against being copied and commercially explored in another part of the Union. Therefore, TRIPS' new trade-related title was obviously more of a way of lifting IP negotiations from WIPO to WTO in an ambition to advance the rules and get away from the dead-lock in WIPO, where North–South conflicts blocked all further developments.

[51] There may be good grounds to presume that developing countries wanted to be part of the open trade, but were at the time in 1994 less observant on the claims included in the TRIPS part of the WTO package, which members have to adhere to as a whole.

[52] ICTSD, *Climate Change, Technology Transfer and Intellectual Property Rights* (June 2008), 7.

[53] de Vuyst, Bruno, Fairchild, Alea M.& Meyer, Gunther, *Exceptions to Intellectual Property Rights: Lessons from WTO-Trips Panels*, Vol. 10, No. 4 (December 2003), at

http://www.murdoch.edu.au/elaw/issues/v10n4/meyer104_text.html.

[54] Gueye, Moustapha Kamal, *Technologies for Climate Change and Intellectual Property*, International Centre for Trade and Sustainable Development (ICTSD), Information Note No. 12 (October 2009).

[55] Frederick M. Abbott, *Innovation and Technology Transfer to Address Climate Change: Lessons from the Global Debate on Intellectual Property and Public Health*, Issue Paper No. 24 (2009), ix.

[56] Directive 98/44/EC of the European Parliament and of the Council of 6 July 1998 on the legal protection of biotechnological inventions.

[57] Case T-356/93; cited from Resource Book on TRIPS, note 618 at 379 f.

[58] Para. 7.19.

[59] Roffe, Pedro & Spenneman, Christoph, *Resource Book on TRIPS and Development*: *An authoritative and practical guide to the TRIPS Agreement*, ICTSD 2005, 378, at http://www.iprsonline.org/unctadictsd/ResourceBookIndex.htm.

[60] Kohr, Martin, *Intellectual Property, Biodiversity and Sustainable De*velopment, Zed Books, Third World Network 2002, 98.

[61] Communication from DG Trade on 12 September 2009, following-up the decision of the TRIPs Council of 19 February 2003.

[62] *Cf.* further on this issue ***the UN Conference on Trade and Development*** (UNCTAD) *Policy Brief Number 2* (December 2008), Does TRIPS Art. 66.2 Encourage Technology Transfer to LDCs? An Analysis of Country Submissions to the TRIPS Council (1999-2007), a at: http://www.unctad.org/en/docs/iprs_pb20092_en.pdf

[63] See para. 6. The Council for TRIPS was instructed to find an expeditious solution to the problem faced by countries with insufficient pharmaceutical production capacity by making an effective use of the compulsory licensing provisions in TRIPS, and in 2002, the WHO publicly stated its commitment to support WTO Members and the TRIPS Council in whatever way they wished in this regard. (WTO Council for TRIPS, 5-7 March 2002).

[64] de Boer, Yvo, *Report on the Bangkok Climate Change Talks 2008* at European Patent Forum, Ljubljana, 7 May 2008, 4, at http://unfccc.int/files/press/news_room/statements/application/txt/080507_speech_lubljana.pdf., 5.

[65] See Gueye, Moustapha Kamal, *Technologies for Climate Change and Intellectual Property*, International Centre for Trade and Sustainable Development (ICTSD), Information Note No. 12 (October 2009) 7.

[66] Barton, John H., Intellectual Property and Access to Clean Energy Technologies in Developing Countries, An Analysis of Solar Photovoltaic, Biofuel and Wind Technologies (December 2007), ICTSD Programme on Trade and Environment, vii; and *cf.* Art. 8.1 TRIPS, at http://ictsd.net/i/events/dialogues/11251/

[67] Adam, Alexander, Technology transfer to combat climate change: opportunities and obligations under trips and Kyoto, *Journal of High Technology Law,* (Jan, 2009), 6.

[68] *Cf.* Eco Patent Commons, where big business since the 1990s make environmentally-friendly patents available to the public, at www.wbcsd.org/

[69] One not unessential problem seems to be patenting by universities and university inventors with public funding and whether such inventions should not go back to the public with some other incentive for successful scientists than ownership.

[70] *Cf.* Littleton, Matthew, The TRIPS Agreement and Transfer of Climate-Change-Related Technologies to Developing Countries, *DESA Working Paper No. 71*, ST/ESA/2008/DWP/71, 21, at http://www.un.org/esa/desa/papers/2008/wp71_2008.pdf

[71] *Cf.* Findings in note 47 above.

[72] Open from 12 May 2010. To the system is annexed a database that enables a search for published applications and granted patents which have been accelerated under the Green Channel. However, there are no plans to publish a separate list of all environmentally-friendly patents.

[73] *Cf.* Littleton, *ibid.*

[74] *Cf.* Littleton *ibid*.

[75] Since early 2008, several leading global businesses, including IBM, Sony, and Nokia, in association with the World Business Council for Sustainable Development (WBCSD), have announced the Eco-Patent Commons with the goal 'to create a collection of patents that directly or indirectly protect the environment'.

[76] This is not least true for the USA, presently not a signee of the Tokyo protocol, but together with China largest emitter of $C0^2$ in the world.

[77] 151 Smarzynska Javorcik, Beata, The Composition of Foreign Direct Investment and Protection of Intellectual Property Rights: Evidence from Transition Economies in *Intellectual Property and Development. Lessons from Recent Economic Research* (Carsten Fink and Keith E. Maskus eds.), World Bank & Oxford University Press 2005, 151, at http://siteresources.worldbank.org/INTRANETTRADE/Resources/Pubs/IPRs-book.pdf.

[78] See Falvey, Rod, Greenaway, David & Foster, Neil, Intellectual Property Rights and Economic Growth. *Internationalisation of Economic Policy Research Paper* No. 2004/12, 18-19, at SSRN: http://ssrn.com/abstract=715982; also *Review of Development Economics*, Volume 10, Number 4 (November 2006), 700.

[79] Maskus, Keith E., The Role of Intellectual Property Rights in Encouraging Foreign Direct Investment and

Technology Transfer in *Intellectual Property and Development* (2005), *op. cit.*, 41 *et seq.*

[80] Maskus, *op. cit.* (2005), 70.

[81] Verspagen, Bert, Intellectual Property Rights in the World Economy in *Economics, Law, and Intellectual Property* (Ove Granstrand ed.), Springer 2004, 505.

[82] Marinova, Dora & Raven, Margareth, Indigenous Knowledge and Intellectual Property: A Sustainable Agenda, (2006) *Journal of Economic Surveys*, Vol. 20, No. 4, 597, at

http://www3.interscience.wiley.com/cgi-bin/fulltext/118583570/PDFSTART.

[83] *Cf.* Abbott *op. cit.*, vi.