Intellectual Property and Climate Change from a Trade Perspective

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Intellectual property rights are often accused of being a barrier to the dissemination of climate change technologies. The Trade-Related Intellectual Property Agreement (TRIPS) is particularly criticised because it obliges WTO Members to protect intellectual property rights and is enforceable through a powerful dispute settlement system. The purpose of this article is to consider whether TRIPS might constrain or assist WTO members in transferring climate change technologies. A review of the provisions of TRIPS suggests that WTO members retain significant discretionary powers which may assist climate change technology transfer. Indeed, TRIPS may be positively beneficial by promoting confidence through balance and predictability.

1. Introduction

Intellectual property rights (IPRs) have often been accused of placing unnecessary obstacles in the way of transfer of climate change technologies (CCTs). They are criticised for imposing higher costs, hindering further innovation by patent thickets or wilful obstruction, and discouraging trade and investment.[1] The WTO Trade-Related Intellectual Property Agreement (TRIPS) is often implicated in these accusations because it requires WTO Members to protect intellectual property rights and is supported by a powerful dispute settlement process.[2] Questions about the precise relationship between TRIPS and national intellectual property law, and between intellectual property and technology transfer, need greater investigation.[3] However, the urgent need to respond to climate change suggests that significant time and effort should not be given to what may turn out be misplaced criticism. The question that this paper seeks to answer is whether TRIPS significantly constrains the power of WTO Members to regulate patents in order to promote the transfer of CCTs.

This enquiry is set against the complex scientific, political and economic problem of climate change, a problem which is multifocal, resistant to simple answers and inseparable from contemporary industrial practices. Although developed countries have contributed to the beginning of raised greenhouse gas emissions, rapidly developing economies, such as China, are rapidly joining the group of major emitters.[4] Transferring CCTs to developing countries is therefore an inherent part of climate strategy and is featured in the key climate change instruments, including the UN Framework Convention on Climate Change, the Kyoto Protocol, the Bali Action Plan, and the Copenhagen Accord.[5] However, there is little mention of intellectual property despite its obvious connection to technological innovation and diffusion, perhaps because the relationship between intellectual property rights and the development and use of climate change technology remains uncertain. In addition, there is the practical difficulty of defining a CCT from the intellectual property perspective. For example, potentially useful technology might be something specifically designed for the purpose, or something that is incidentally useful; it might be central or peripheral to a climate change measure; it might relate to mitigation or adaptation; it might be aimed at a sink or a source. This makes it difficult to see how intellectual property rules might be adapted to differentiate between CCTs and other forms of invention.[6]

However, from a trade regulatory perspective, the role that TRIPS might play in facilitating or obstructing technology transfer of environmentally friendly inventions cannot be ignored.[7] The purpose of this paper is to consider the constraints that TRIPS might place on the ability of Members to regulate patentability and the exercise of intellectual property rights over CCTs. For the sake of brevity, the analysis will focus on patents.[8] Certain assumptions are made: that successful climate change mitigation and adaptation requires technological innovation, that patents create an incentive to innovate, that such incentives cannot be adequately provided by other means such as prizes,[9] and that eliminating patent protection will defeat the objective of finding effective technological solutions to the problem of climate change.[10] It is accepted that the existence and exploitation of patents may lead to obstacles to technology transfer in some circumstances. Likewise, it is not argued here that market mechanisms are sufficient in themselves; public regulation and non-private funding will be required. Parallel strategies will be needed, such as voluntary non-exclusive licensing and technology pools, and patent rights that do cause obstruction may have to be bought out at a premium.[11]

The argument proposed is that TRIPS does not necessarily impede technology transfer for climate change policies. A review of its provisions suggests that the minimum standards for patentability laid down by TRIPS are limited and underdefined, and that some areas of patent law are left untouched, leaving significant areas of Member discretion. In addition, TRIPS contains exclusions from patentability and exceptions to the exercise of patent rights. Combined with a well-balanced jurisprudential approach from panels and the Appellate Body, TRIPS and its enforceability through the powerful WTO dispute settlement process is less constraining on technology transfer than is sometimes claimed.[12] In so far as TRIPS provides a compromise that allows conflicting private and public interests to be held in balance, it should not be used as a distraction from the fundamental policy issues that need to be addressed to meet the challenges of climate change.

It is further argued here that TRIPS may be positively beneficial to promoting CCT innovation and diffusion because it provides a substantive balance between minimum standards of protection and flexibilities in Member discretion. This balance, buttressed by a structured international legal regime, is helpful in avoiding barriers to innovation, enhancing the legitimacy of both patent holder and technology user interests, and promoting confidence and capacity building.

2. Key TRIPS provisions

2.1. General principles

TRIPS obliges WTO Members to respect certain minimum standards of intellectual property protection. As well as providing its own definitions and obligations, TRIPS applies the general principles of the Paris Convention.[13] In addition, it contains two non-discrimination principles that are fundamental to trade law, the national treatment principle and the most-favoured-nation principle. Thus Members are obliged to accord treatment to the nationals of other Members that is no less favourable than the treatment accorded to its own nationals.[14] Likewise, they must grant the same level of protection to all Members.[15]

TRIPS specifies rights that must flow from a patent. Patent holders may prevent others from making, using, offering for sale, selling, or importing the patented product or a product obtained by using a patented process without the consent of the patent holder.[16] Patent owners also

have the right to assign or license their patents. These are significant powers, but they are restricted by the doctrine of exhaustion which means that patent rights over a particular product terminate after it has been distributed for the first time, for example after it is sold.[17] In some jurisdictions, exhaustion only applies nationally or regionally so that patent holders can still control the release of their products in other markets. Other jurisdictions recognise international exhaustion, with the effect that a product which has been sold anywhere in the world can be resold in another national market without the patent holder's consent. The effect of international exhaustion is that it is possible to buy a product at its cheapest global price wherever that may be, rather than being forced to accept the price determined by the producer for a particular market. TRIPS does not provide any rule for exhaustion and it is therefore left up to national legal systems to determine, subject to MFN and national treatment provisions.[18] This gives national governments flexibility which may help to reduce the purchase costs of patented products.

2.2. Criteria of patentability (Article 27.1)

TRIPS lays down a minimum set of criteria for patentability of novelty, inventiveness and the capacity for industrial application.[19] Patentability extends to both products and processes, and to all fields of technology, and no discrimination between fields of technology is permitted. It is not clear, therefore, that a WTO Member is permitted to introduce patent rules that give preferential treatment to certain types of products or processes.[20]

As to controlling patentability and the exercise of patent rights, however, there is greater flexibility. First, since implementation of the criteria occurs through national legislation, there is room for variation and choice. So, for example, it is possible for countries to lay down stricter tests of novelty or inventiveness than other countries.[21] Second, TRIPS provides some exceptions to the obligation to permit patentability even for products or processes that satisfy the basic criteria. These take the form of allowable exclusions and exceptions.

2.3. Exclusions from patentability

Members have the power to exclude patentability for certain inventions. Of these potential exclusions, the most relevant to CCT patents are those that refer to inventions where it is necessary to prevent commercial exploitation in order to protect *ordre public* or morality, including the protection of human, animal or plant life or health and the avoidance of serious prejudice to the environment.[22] This has obvious implications for the use of IPRs and CCTs, but it is not clear precisely what those implications are. It has been argued, for example, that the wording of this provision allows Members to exclude IPR protection for climate change technology inventions on the grounds that they are designed to protect human, animal and plant life or health and to prevent serious prejudice to the environment.[23] However, the problem with this interpretation is that exclusion from patentability of inventions is only warranted where they might, if commercially exploited, lead to harm to human, animal or plant life or health or cause serious prejudice to the environment. It does not give permission to exclude patentability for inventions that are positively good for those things, as would presumably be the case for a CCT.

In addition, the morality exception has proven to be very difficult for patent offices to apply in practice. Patent offices, including the European Patent Office, have been cautious about taking responsibility for decisions of public policy. They are conscious that their role is to decide questions

of patentability, whereas the political institutions of each country are the most appropriate actors to consider arguments about whether an invention, patented or otherwise, should be allowed to be commercially exploited.[24]

2.4. Exceptions to the exercise of intellectual property rights

There are several exceptions contained in TRIPS, of which the most relevant are contained in Articles 30, 31 and 40. Article 30 provides that Members may provide limited exceptions to the exclusive rights of patent holders. The grounds for these exceptions are not further defined, but are constrained by the need to ensure that they "do not unreasonably conflict with a normal exploitation of the patent and do not unreasonably prejudice the legitimate interests of the patent owner, taking account of the legitimate interests of third parties".[25]

This provision seems to suggest that patent rights over CCT inventions may be limited in the face of opposing interests, but the effect of this provision depends on the meaning given to those qualifying adjectives, "unreasonably", "normal" and "legitimate". They are commonly considered to cover uses for the purpose of research or private use but could be interpreted more broadly. However, this possible approach towards improving CCT transfer should be treated with caution. Enlarging the exception, for example by privileging environmental protection interests, runs the risk of removing the incentive for innovation. More fundamentally, using Article 30 to balance the relative importance of competing values gives a politically sensitive and inappropriate task to panels and the Appellate Body, and there is the practical problem of how dispute settlement bodies could be expected to evaluate different levels of climate change relevance, for example, whether an invention had been specifically designed to mitigate climate change effects, whether reasonable alternatives already existed, and so on.

The second exception is contained in Article 31 which provides for compulsory licensing. Considerable attention has been paid to this provision, particularly since it became a controversial issue in the sphere of HIV/AIDS pharmaceuticals.[26] Briefly, Article 31 permits the authorisation of the use of patented products or processes against the rights of the patent holder and without their consent. This right to authorise is, as would be expected, carefully circumscribed. It must be done on a case-specific basis, which would probably exclude a blanket compulsory licensing of climate change inventions as a class.[27] An attempt should be made to come to a voluntary agreement for use on "reasonable commercial terms and conditions" within a reasonable period of time.[28] This requirement may be waived in cases of "national emergency or other circumstances of extreme urgency or in cases of public non-commercial use".[29] It has been established that Members have the right to determine on what grounds the authorisation may be granted.[30] These grounds could include climate change effects, particularly if they are likely to be severe.

However, any use under a compulsory licence must be monitored and controlled to ensure that its scope and duration are limited to the purpose for which it was authorised. The use is non-exclusive and non-assignable, and can be terminated if circumstances change.[31] In addition, the patent holder must be paid "adequate remuneration" relative to the economic value of the authorised use.[32] This last provision suggests that compulsory licensing may not provide a better solution to the problem of access to cheap CCTs than a normal commercial license. However, the option of compulsory licensing would help to prevent unreasonable withholding

of patented products or processes, which might be important for ensuring that appropriate technology is widely available for use and encouraging research and development of new CCTs. For these purposes, at least, compulsory licensing may be extremely helpful.

However, Article 31 does have another limitation. It is designed to allow compulsory licensing predominantly to provide domestic supply for the authorising Member.[33] The emphasis on domestic supply is an important practical obstacle for countries without the domestic capacity to produce the patented products. This was the case for South Africa when it considered using compulsory licensing to obtain cheaper HIV/AIDs drugs for its own population.[34] After some controversy, the WTO General Council adopted the Declaration on the TRIPS Agreement and Public Health calling for an expeditious solution to the problem, followed by the decision on Implementation of Paragraph 6 of the Doha Declaration on the TRIPS Agreement and Public Health which waived the need to limit authorisation to domestic producers and the need to provide adequate remuneration.[35] An equivalent waiver for CCTs seems an attractive option for countries unable to pay the costs of patented CCTs, or who are facing unreasonable withholding of products or processes that would assist them in mitigation or adaptation.[36]

However, a number of questions quickly arise. The first is whether the comparison between pharmaceuticals and CCT IPRs is based on a true analogy.[37] Climate change is an enormously diffuse problem, in its causes and potential solutions and in its transboundary impacts; HIV/AIDS drugs offer a specific solution to a specific problem, contained within specific markets. The problem in the case of pharmaceuticals was the danger of cheaply available drugs in one market being exported to other markets where they could be sold at a higher price for profit.[38] Where CCTs would normally attract high prices in developed countries, this danger of parallel importing is likely to provoke resistance and challenges from CCT-producing countries if compulsory licensing is proposed. Resistance would be more likely because the techniques that make it possible to maintain some control over unauthorised use of drugs, such as packaging and product marking, would be more difficult to apply to CCTs because of their variety.

The third exception is contained in Article 40, which allows Members to control licensing practices or conditions on the use of intellectual property rights which have the effect of restraining competition, including cases where they may interfere with technology transfer.[39] It does not, however, cover other activities relevant to technology transfer, such as joint ventures or patent assignment. This provision is clearly drafted with commercial restrictive practices in mind, as suggested by the examples explicitly given, namely, "exclusive grantback conditions, conditions preventing challenges to validity and coercive package licensing". Although these are examples and not intended to be exhaustive, they do indicate that the provision was not written with public policy problems such as climate change in mind. However, although it would be tendentious to suggest that patent rights that interfered with the use of CCTs were automatically 'anti-competitive', it is possible to imagine situations in which companies that held relevant patents might be found to be acting in an anti-competitive manner, for example, by refusing to grant licences to competitors.

2.5. Provisions relating to transfer of technology

TRIPS contains relatively few provisions that explicitly refer to technology transfer. According

to Article 7, the objectives of TRIPS are that "the protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations."[40] This rather general provision is not of much assistance in determining how TRIPS should be interpreted or applied to promote the development and dissemination of CCTs. It neatly encapsulates the dilemma between the need to give incentives for CCT innovation and development through the opportunity to commercialise inventions, and the need to ensure that CCT products are rapidly and widely deployed without undue cost, practical difficulty or deliberate withholding. At best, Article 7 suggests that there must be a balance between the right to register and protect intellectual property and the need to have access to technology without excessive cost or difficulty.

However, TRIPS does require developed country Members to provide incentives to their enterprises and institutions "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".[41] This is also unlikely to achieve concrete results on its own. In order to strengthen its effectiveness, the WTO Council adopted a decision in 2003 on the Implementation of Article 66.2 of the TRIPs Agreement to strengthen monitoring of this provision by providing for the provision and review of annual reports by developed country Members.[42] Nonetheless, it has only an indirect effect on technology transfer by promoting incentives rather than imposing an obligation to transfer.

2.6. Interpretative guidance

As well as objectives, TRIPS lays down general principles. Article 8.1 provides that Members may adopt measures necessary to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their socio-economic and technological development.[43] Article 8.2 provides that appropriate measures might be used "to prevent the abuse of intellectual property rights by right holders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology".[44] However, these measures must be consistent with the provisions of the Agreement. It is evident, therefore, that the second part of Article 8 is not intended to grant an exception to the general obligation to protect patents.

It may be argued that Article 8 is simply a soft law provision designed to flag up the concerns of some of the negotiating Members, in this case developing countries, but equally it may be argued that it clarifies the right of Members to design their national intellectual property laws so as to give maximum protection for non-commercial public interests within the required minimum standards and non-discrimination principles. In the latter sense, Article 8 can be seen as a way of counterbalancing more extreme interpretations of TRIPs obligations in favour of patent rights.

Much will depend on the interpretation of the words "abuse", "unreasonably" and "adversely". Despite their soft nature, the principles stated in Article 8 and the objectives contained in Article 7 may potentially be used to give 'colour, texture and shading' to the interpretation of TRIPS as a whole.[45] This view is supported by the Declaration on the TRIPS Agreement and Public Health, which states that each provision should be read in the light of the object and purpose of

the Agreement "as expressed, in particular, in its objectives and principles".[46] Additionally, the Panel in *Canada – Pharmaceutical Patents* recognised that Articles 7 and 8 must be 'borne in mind' when interpreting the meaning of Article 30.[47]

3. Conclusions

TRIPS is often accused of being a key barrier to technology transfer of CCTs. On its face, it seems obvious that patent rights must increase costs and encourage obstructive practices even though there is an urgent need to deploy effective climate change measures. But studies so far suggest that the effect of patents on technology transfer varies depending on the sector and type of technology, and that most problems are to be found in particular situations such as patent thickets or wrongly granted patents.[48] If so, adjustments to the patents regime under TRIPS may not be necessary, but would in any case need to be specific rather than generalised if incentives to innovate are also to be preserved.

From a legal point of view, a review of TRIPS provisions suggests that there is a significant degree of open-textured or light touch regulation – in the language of TRIPS, there are flexibilities. Although minimum standards are laid down, and the complaints systems are powerful, there are substantive lacunae. Article 6 on exhaustion is only one example. As a result, national discretion as to what and how to legislate for IP protection is wider than it might first appear. There are also exclusions and exceptions that are available for Members to use.

It is likely that Article 7 will not be of significant use because of its generality and careful preservation of the balance between the competing interests of IPR holders and countries seeking favourable technology transfer arrangements. But it might affect the interpretation of more specific provisions. A generous reading might allow preferential treatment for CCT patents which would otherwise be discriminatory. The *ordre public* or morality exclusions are unlikely to assist, despite their explicit reference to dangers to life and health and to serious prejudice to the environment, other than to enable the exclusion of harmful rather than beneficial inventions from patentability.

However, Articles 7 and 8 do give some interpretative opportunities, and the exceptions contained in Articles 30, 31 and 40 do contain useful flexibilities for the purpose of easing access to climate change technologies. None of them can be used for blanket overriding of patent rights, but the limited exception test in Article 30 may allow useful climate change work, such as using patented products or processes in the course of research and development. Even more powerful is the compulsory licence procedure, for which climate change mitigation or adaptation could be used as a ground for action. This would be balanced by the obligation to pay adequate remuneration and the limitation that production is limited to supply of a domestic rather than export market, unless there is sufficient political consensus to grant a waiver as occurred in the area of pharmaceuticals.

Arguably, therefore, TRIPS gives Members sufficient flexibility to cope with most barriers that patents may pose in climate change mitigation or adaptation policies, whether they are patent thickets, unreasonable withholding of licences or sale, or high costs. In addition, TRIPS can be seen as facilitating the development and transfer of CCTs. If patents are essential for providing incentives for innovation, then too radical a departure from intellectual property protection in general and TRIPS in particular will defeat the objective of developing and diffusing

climate change inventions. Equally, TRIPS offers a combination of predictability and flexibility, and the powerful dispute settlement process that supports it helps to maintain confidence on both sides. Without that confidence, transfer of CCTs might prove to be even more difficult to negotiate.

This is not to say that relying on market forces and regulatory intervention only when necessary will meet the urgent need to respond to climate change. A balance between the need to create incentives to innovate and the need to develop and diffuse climate change inventions in all countries, including developing countries, can also be attempted through parallel means, such as public funding of research or the purchase of patented products and processes by international institutions for dispersal in poorer countries. But it does mean that energy devoted to trying to emasculate TRIPS may be misplaced. For those that believe that patents have no place in the response to climate change, then TRIPS is the embodiment of international obligation and coercion that over-privileges intellectual property rights. It is a natural target. But for those who accept, reluctantly or otherwise, that patents do have a role to play, then TRIPS represents a promising legal and institutional balance for safeguarding the interests of patent holders and the effectiveness of public climate change policies.

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[1] Keith E Maskus and Jerome H Reichman, 'The Globalization of Private Knowledge Goods and the Privatization of Global Public Goods' 7 *Journal of International Economic Law* (2004) 279; Cameron Hutchison, 'Does TRIPS Facilitate or Impede Climate Change Technology Transfer into Developing Countries?' 3 University of Ottawa Law and Technology Journal (2006) 517. While it is evident that patent rights may give rise to barriers to trade and investment, through higher costs and hindrances such as patent thickets or wilful obstruction, studies have also suggested that IPRs are a minor obstacle to technology transfer compared to reluctance to lose control over patentable technology, lack of capacity to absorb new technology due to limits on human resources, and access to credit or other forms of financing. See, for example, Thomas L. Brewer, 'Climate Change Technology Transfer: a new paradigm and policy agenda' 8 Climate Policy (2008) 516, 517. One study suggests that IP does not significantly affect the price that consumers of clean technology pay, but it does appear to make it more difficult for local industries to develop their own version or to innovate because of fears of patent infringement, see SPRU and TERI, UK-India Collaborative Study on the Transfer of Low Carbon Technology' (Phase II Final Report, March 2009), available at: http://www.sussex.ac.uk/sussexenergygroup/documents/decc-uk_india_carbon_technology-web.pdf (accessed 17 July 2010). Recent literature emphasises the need to examine the impact of patents in specific sectors and technologies. See John Barton, 'Intellectual Property and Access to Clean Energy Technologies in Developing Countries' (ICTSD, December 2007); Keith E Maskus, 'Regulatory Standards in the WTO: comparing intellectual property rights with competition policy, environmental protection, and core labor standards' (2002) World Trade Review 135, 138-9; Jerome Reichman, Arti K Rai, Richard G Newell, and Jonathan B Wiener, 'Intellectual property and alternatives: strategies for green innovation', Energy, Environment and Development Programme Paper 08/03 (Chatham House, December 2008), available at: http://fds.duke.edu/db?attachment-103--6101-view-766 (accessed 17 July 2010); Bernard Hoekman, Keith E Maskus, and Kamal Saggi, 'Transfer of technology to developing countries: Unilateral and multilateral policy options' 33(10) World Development (2005) 1587.

[2] Dispute Settlement Understanding, GATT Secretariat, *The Results of the Uruguay Round of Multilateral Trade Negotiations, the Legal Texts* (Geneva, 1994) 353.

[3] ICTSD, *Climate Change, Technology Transfer and Intellectual Property Rights* (Trade and Climate Change Seminar, June 18-20 2008, Copenhagen (Winnipeg, August 2008), available at: http://www.iisd.org/pdf/2008/cph_trade_climate_tech_transfer_ipr.pdf (accessed 17 July 2010); Estelle Derclaye, 'Should Patent Law Help Cool the Planet? An Inquiry

From the Point of View of Environmental Law: Part 2' (2009) European Intellectual Property Review 227.

[4] Dieter Helm, 'Climate-change Policy: Why has so Little been Achieved?' in Dieter Helm and Cameron Hepburn (eds), *The Economics and Politics of Climate Change* (Oxford University Press, 2009), 12-14.

[5] Rio Declaration, Principle 9; UNFCCC, particularly Article 4(5); Kyoto Protocol, Article 10; Bali Action Plan; Copenhagen Accord, paras 3, 8, 10 and 11.

[6] Note the ongoing research project by UNEP, EPO and ICTSD to try to formulate an objective system of classification, project description at http://www.unep.ch/etb/initiatives/pdf/ESTsProject%20Description1.pdf (accessed 17 July 2010).

[7] In this paper, the phrase climate change technology is used to refer to goods that may used for climate change mitigation or adaptation.

[8] Other relevant intellectual property rights would include trademarks and industrial designs.

[9] In the case of mitigation policies, incentives are found in carbon pricing and patents. It is assumed by most commentators that incentives are required in order to promote the development and diffusion of environmentally friendly technologies, and that public funding of research and development will be swamped by the costs and difficulty of changing the dominant paradigm of carbon-intensive production; IPRs are therefore considered to be an inevitable part of providing incentives to private actors. Where adaptation policies also require technological solutions, for example genetically engineered crops or desalination processes, incentives to innovate will also be found by the granting of patents. Although the drivers of conventional carbon-intensive production may be absent, the need to promote innovation will remain. I am grateful to Professor Thomas Cottier for raising the point that mitigation and adaptation policies will face different impacts from the existence of patents.

[10] See ICTSD, above n 3. Although there is some controversy over these points, they will not be further considered here. For further discussion elsewhere, see above n 1.

[11] There are other types of solutions that could be devised, including expropriation, publicly paid flat fees, public investment in research and development with no opportunities for private commercialisation, publicly paid royalties, and so on. See Reichman et al, above n 1; Heleen de Coninck, Carolyn Fischer, Richard G Newell and Takahiro Ueno, 'International Technology-Oriented Agreements to Address Climate Change' 36 Energy Policy (2008) 335.

[12] A point noted by other commentators, see Daniel Gervais, 'Of Clusters and Assumptions: Innovation As Part of a Full TRIPS Implementation' 77 Fordham Law Review (2009) 2353, 2355-61.

[13] Paris Convention for the Protection of Industrial Property 1883 828 U.N.T.S. 305, revised 1967, available at http://www.wipo.int/treaties/en/ip/paris/trtdocs_wo020.html (accessed 17 July 2010). The Paris Convention has 173 parties, and covers industrial property in a wide sense to include patents, industrial designs, trademarks, marks of origin and unfair competition. Its patent provisions guarantee the right to national treatment within the member countries, and an application in one party gives the inventor a right of priority to file in other member countries. However, patents are considered to be 'independent', meaning that each party may apply their own patent laws. TRIPS Article 2 requires Members *inter alia* to comply with Articles 1-12 and 19 of the Paris Convention.

[14] Article 3.

[15] Article 4.1 states, *inter alia*: "With regard to the protection of intellectual property, any advantage, favour, privilege or immunity granted by a Member to the nationals of any other country shall be accorded immediately and unconditionally to the nationals of all other Members."

[16] Article 28.1.

[17] See Christopher Heath, "Parallel Imports and International Trade" (WIPO: June, 1999) available at http://www.wipo.int/edocs/mdocs/sme/en/atrip_gva_99/atrip_gva_99_6.pdf (accessed 17 July 2010)

[18] Article 6. This was reinforced by the Doha Declaration, para 5(d).

[19] This is subject to a transition period for countries that are required to extend intellectual property protection to areas of technology not protected prior to the adoption of TRIPS, see Article 65.4.

[20] See Estelle Derclaye, 'Patent Law's Role in the Protection of the Environment – Re-assessing Patent Law

and Its Justifications in the 21st Century' (2009) International Review of Intellectual Property and Competition Law 249, 269-72; Itaru Nitta, 'Proposal for a Green Patent System' 5 Sustainable Development Law and Policy (2005) 61.

[21] Jerome H Reichman, "Universal Minimum Standards of Intellectual Property Protection under The TRIPS Component of the WTO Agreement" in Carlos M Correa and Abdulqawi A Yusuf (eds), *Intellectual Property and International Trade: The TRIPS Agreement* (Kluwer Law International, 1998) 21.

[22] Article 27.2. Note that there is an explicit condition that such exclusions are not to be used merely because they already exist in national law. The other exclusions relate to diagnostic, therapeutic and surgical methods for the treatment of humans or animals, and to biotechnological inventions and plant variety protection, see Article 27.3.

[23] Matthew Rimmer, 'The Road to Copenhagen: Intellectual Property and Climate Change' 4 Journal of Intellectual Property Law and Practice (2009) 784, 786-7.

[24] *Harvard/Onco-Mouse*, Case T 315/03 EPO Board of Appeal, July 2004; *Plant Genetic Systems*, Case T 0356/93 [1995] EPOR 357.

[25] Article 30.

[26] Rachel Roumet, 'Access to Patented Anti-HIV/AIDS Medicine: the South African Experience' 32 European Intellectual Property Review (2010) 137; F M Abbott and J H Reichman, 'The Doha Round's Public Health Legacy: Strategies for the Production and Diffusion of Patented Medicines Under the Amended TRIPS Provisions' 10 Journal of International Economic Law (2007) 921; B C Mercurio, 'TRIPS, Patents, and Access to Life-Saving Drugs in the Developing World' 8 Marquette Intellectual Property Law Review (2004) 211.

[27] Article 31(a).

[28] Article 31(b).

[29] Article 31(b).

[30] Doha Declaration, para 5(b) and (c).

[31] Article 31(c)-(e) and (g).

[32] Article 31(h). See Antony Taubman, 'Rethinking TRIPS: 'Adequate Remuneration' for Non-Voluntary Patent Licensing' 11 Journal of International Economic Law (2008) 927.

[33] Article 31(f).

[34] Above n 26.

[35] WT/MIN(01)/DEC/2, 20 November 2001 and WT/L/540 and Corr.1, 1 September 2003, respectively. The waiver has now been made permanent by the Protocol amending the TRIPS Agreement, WT/L/641, 8 December 2005.

[36] Indeed, the European Parliament has called for an equivalent waiver from the WTO for the purposes of climate change. European Parliament resolution of 29 November 2007 on trade and climate change 2007/2003(INI)).

[37] Alexander Adam, 'Technology Transfer to Combat Climate Change: Opportunities and Obligations under TRIPS and Kyoto' 9 Journal of High Technology Law (2009) 1, text at nn 131-41.

[38] This is the problem of so-called parallel importation or 'grey markets'. See Christopher Heath, above n 17.

[39] Article 40.

[40] Article 7.

[41] Article 66.2.

[42] IP/C/28.

[43] Article 8.1.

[44] Article 8.2.

[45] The quote is from WTO Appellate Body Report, *United States - Import Prohibition of Certain Shrimp and Shrimp Products (US - Shrimp)*, WT/DS58/AB/R, adopted 6 November 1998, para 153, referring to the interpretative role of the preamble of the WTO Agreement.

[46] Doha Declaration, para. 5(a).

[47] Panel Report, *Canada – Patent Protection of Pharmaceutical Products*, WT/DS114/R, adopted 7 April 2000, para 7.26.

[48] Above n. 1.