

# Climate change, technology transfer and intellectual property: options for action at the UNFCCC

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# Chapter 10

## Summary

This thesis faced the challenge of answering a question that may have seemed to many to already have been asked and answered. However, it was that very assumption that this thesis proposed to challenge and doing so required looking at the manner in which the question was framed and the context in which it was asked. The question had been asked in order to address the question of whether it was necessary for the UNFCCC or any other international body to address intellectual property regarding climate change. The way in which it was answered, was to ask empirical questions about the existence and distribution of patents, and whether this was a barrier to technology transfer. The error in focusing on the empirical issues was two-fold: it did not address the actual problem which was not the existence of patents, but the uses to which they were put, especially licensing; and it did not address the actual issue of regulatory freedom to address intellectual problems if they were to arise.

Understandably wishing to avoid having to revisit the entire intellectual property system, empirical studies aimed to design around the issue by showing that there are no empirical concerns regarding intellectual property protection in developing countries. If there are few patents in the industries studied, if there are few patents in the countries studied, if the patents that exist are not in the hands of concentrated ownership, then the necessity for developing countries to take unilateral actions beyond the existing intellectual property framework does not exist, and there is no need to renegotiate international intellectual property norms. The Copenhagen Economics/IPR Company Study,<sup>1353</sup> the Chatham House Study<sup>1354</sup>, the EPO/UNEP/ICTSD Study<sup>1355</sup>, the Dechezleprêtre et. al. Study<sup>1356</sup> and the John Barton ICTSD study<sup>1357</sup> all work within this framework. They all seek to answer the question of whether intellectual property

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<sup>1353</sup> Copenhagen Economics and the IPR Company “Are IPRs a Barrier to the Transfer of Climate Change Technology?” Study Commissioned by European Commission DG Trade, January 2009.

<sup>1354</sup> Lee, B et al. “Who owns our Low Carbon Future: Intellectual Property and Energy Technologies” Chatham House, September 2009.

<sup>1355</sup> Karachalios, K et al. (eds.) “Patents and Clean Energy: Bridging the Gap between Evidence and Policy: Final report” UNEP/ EPO / ICTSD 2010.

<sup>1356</sup> Dechezleprêtre, A et al. “Invention and Transfer of Climate Change–Mitigation Technologies: A Global Analysis” 5 Rev Environ Econ Policy 109 (2011).

<sup>1357</sup> Barton, J “Intellectual Property and Access to Clean Energy Technologies in Developing Countries: An Analysis of Solar Photovoltaic, Biofuel and Wind Technologies” Trade and Sustainable Energy Series, Issue Paper No. 2, ICTSD December 2007.

poses a barrier to action empirically. However, I argued that the barrier question has always been a contingent one rather than one that is susceptible solely through empirical determination. Thus, in this thesis, I divided the broader question into two elements: the necessity to act; and where there is necessity to act, is there capacity to act? The first is an empirical question but the second is a legal question. The issue of whether the UNFCCC, or any other international regime, should act to address intellectual property lies, primarily in the answer to the second question rather than the first. This is because necessity to act (of the country, not the UNFCCC) is actually an issue that is primarily legal rather empirical. The room and the ability to act is determined by how necessity is framed in the international rules as much by the conditions in the national market, the behaviour of rightholders in that market, framed within the policy goal of addressing climate change. To the extent that global assessments of the distribution of patents, ownership of patents, can tell us where problems are likely to arise, if at all, they provide useful information. To the extent that such global assessments tell us something about the nature and scope of licensing and other uses of intellectual property protected technologies, they provide useful information as to the kinds of interventions that may be needed. However, given the variety of different countries, with different markets, with varying technology needs, and varying distributions of patent protection use, *a priori* determinations that a country or set of countries they will not need to take particular kinds of action to address intellectual property issues can never truly be made.

However, I do not aim to dismiss such global empirical approaches. I believe they can provide crucial information to policymakers regarding potential opportunities and blockages in international technology markets. It is on this basis that I have made several proposals in Chapter 9 for the ways in which the UNFCCC should address technology transfer and especially investment, market access and licensing related to intellectual property protected technologies. After all, based on the existing studies examine in Chapter 4, it was possible to tentatively conclude that:

- existing data in the very limited set of sectors studied show concentrated ownership of patents in developed countries, largely OECD. Of patents that exist in developing countries, the vast majority are in China. In terms of ownership by developing countries, China may have the largest ownership but this is still relatively small in comparison to OECD rightholders;
- The majority of technologies in the very limited set are likely not patented in least developed countries. They are almost certain to be patented in China, and in the main emerging economies of Brazil, India and China;
- with respect to licensing in some of the sectors (especially wind and solar), there appears to be some evidence of licensing to major developing countries, but with some suggestion of geographical and other restrictions;

- What licensing there is appears to be from national or smaller companies, not necessarily in possession of best available technologies, and not from transnational enterprises with significant production capacity of their own.

The lesson from these studies lies in the insight they provide regarding the dearth of technology transactions, and the pace of diffusion of intellectual property protected technologies. What data we have from Chapter 3 also points to trends in patenting; increasing overall patenting in climate technologies, and a significant jump in R&D accompanied by significant transfers of IP into private sector hands.

I also argue that, for the most part, the studies on the distribution of patenting fail by their own measures. The studies tell us very little about how patents in the sectors studied are exercised. In addition, there are basic methodological differences regarding the use of patent data that limit the scope of conclusions that they can make. This critical analysis of the relatively small pool of studies so far has not really been carried out before, especially within the framework that has been used here by looking at the scope of technologies, the timing of distribution of technologies, and the geographic focus. This critique provides a way of properly assessing the claims made as to nature and scale of the intellectual property problem for technology transfer; and this thesis concludes that while a useful start they do not provide sufficient purchase for a policy decision based purely on their findings.

The problem of course is that the default of taking no action is entirely congruent with the untenable recommendations<sup>1358</sup> that no action is necessary to address intellectual property at this time. The mistake is to conflate taking action regarding intellectual property with taking action to address intellectual property norm-setting. It seems entirely appropriate to conclude from their findings that some action regarding intellectual property needs to take place, especially regarding licensing and transaction, without necessarily concluding that norms on intellectual property need to be changed.

The primary sin is one of scope: the landscapes and studies cover only a small sector of relevant technologies, mostly focused on mitigation, and within that power generation. The discussion in chapter 2 constructed a set of technologies of particular relevance to developing countries based on TNAs, NAMAs, National Communications and several scenarios based on mitigation potentials. That extensive discussion was necessary to drive the point home that the scope of technologies is necessarily wide and that studies and recommendations for action must be commensurate with that.

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<sup>1358</sup> See e.g. Copenhagen Economics and the IPR Company "Are IPRs a Barrier to the Transfer of Climate Change Technology?" Study Commissioned by European Commission DG Trade, January 2009.

The importance of timing is also crucial. Almost all studies looking at intellectual property and climate change ignore the issue of timing and the role of timing in influencing the assessment of how a barrier operates. Intellectual property creates a friction in the number and scope of technology transactions that take place. We have to be concerned not just about the static volume of patenting but also the effect of patenting on the rate of diffusion. That means that we must ask about the extent to which patenting may delay adoption and diffusion of technologies by relevant peaking dates, in the case of mitigation, 2015-2018, in terms of adaptation, 2025-2030. Where the existence and exercise of patent rights creates frictions that delay the adoption and replication of climate technologies in developing countries, we have to consider that this may indeed pose a barrier, even if it is not an absolute bar. This thesis concludes that while there is insufficient data to address this in the existing studies, there is some small indication (e.g. the Chatham House study) that diffusion is not happening fast enough due to the limited number of transactions into developing countries.

Finally, the studies generally have committed the sin of not taking geography and the potential of major emerging economies seriously enough. While all focus on the nature and scale of patenting into major developing countries, especially in relation to developed countries, there is rarely enough in depth study of the intellectual property structure of relevant technology sectors at the national level and the role of exports of technology and goods to other developing countries. Some of the best data could have been obtained by focusing on the key developing country markets of Brazil, China, India and South Africa, and, in those jurisdictions and asking:

- Based on the technology needs identified for that country, what is the portion of patenting in those technologies and technology sectors;
- Based on the patented sectors, what is the nature (cost and terms) and scale of licensing of those technologies to domestic firms;
- Looking at technological capacity; what is the trend in the capacity of domestic firms to adopt, adapt and replicate the technologies in the sectors identified in the technology needs.

This kind of research program will still allow some comparative sectoral based work, but will be rooted in the actual technology needs of developing countries and provide sufficient depth to provide useful information about the necessity to act on norm-setting at the international level if the data show that developing countries are unable to take action to address key issues that arise in multiple jurisdictions at a significant scale. Only such findings may provide sufficient impetus for a multilateral solution of sufficient scale in intellectual property norm-setting. Without such information, this thesis finds it difficult to recommend with confidence a course of action at the UNFCCC or any other international body aimed at norm-setting, despite the finding that where the behaviour by an intellectual property right holder bars or

limits or TRIPS does indeed bar or limit the capacity of developing countries to make interventions to address:

- a. Affordability - ensuring that prices of products are not set so high that it is too expensive for all the relevant economic actors to afford.*
- b. Adoptability - ensuring that prices of products and or know-how are not set so high that they make it commercially unviable for all relevant actors to adopt 'climate-friendly' technologies.*
- c. Adaptability – ensuring sufficient distribution of knowledge (information, skills, know-how) to enable a critical number of existing producers/service providers in the market to adopt, adapt and replicate climate technologies and ensure their participation in the market.*

The findings in Chapter 6 depended on identifying the kinds of interventions that developing countries would ostensibly use and examining them in the light of existing WTO and TRIPS jurisprudence. This framework brings something new to the literature which has traditionally looked simply at the agreement itself and the flexibilities it contains. This thesis adds to the literature by first identifying a universe of interventions that have historically been used to encourage technology transfer and that are relevant to technology transfer for climate change; examining whether or not TRIPS addresses them; and finally, discussing the scope of activity available under TRIPS as a legal matter. The novel approach that this thesis takes is to situate the legal analysis directly within the framework of the policy goal that such interventions are meant to achieve. Thus, availability was defined not just in legal terms but in terms of whether it enabled action at the right speed, at the right scope, and in the right countries. Where a purely legal analysis might indeed have found that the TRIPS Agreement does not pose a significant limitation on the universe of potential actions, this allows me to examine the scope and nature of the actions that are legally available and note the ways in which the TRIPS Agreement limits their potential impact, and to conclude that their ability to make changes to market structures and behaviour is severely curtailed. The IP-related interventions that would be most effective as levers have been marginalized and reduced in scope and effectiveness by the TRIPS Agreement. The use of working requirements, one of the more powerful historical incentives for encouraging licensing and FDI has been curtailed. The use of patent exclusions in key sectors of public interest such as pharmaceuticals and agriculture is no longer available. Most importantly, few of the remaining flexibilities allow for the emerging economies to play the role as intermediaries and export products and know-how as they need to do if technologies are to be transferred to other developing countries at the scale and speed required.

The most useful tools that are left legally and practically available by the TRIPS Agreement are the application of competition law and the use of performance and

technology transfer requirements, as well as requirements to have FDI take place in the form of JVs. The rest are smaller, marginal adjustments to domestic intellectual property systems.

This is not to say that there do not remain significant interventions available to developing countries. The list of activities in Chapter 6 that the TRIPS Agreement does not address or limit remains quite extensive. Further research should examine the extent to which these options are actually being exercised by developing countries, looking at their effectiveness in timing, scale and scope. It may be that developing countries have indeed not taken up and used to the fullest the available measures to encourage technology transfer. It may be that some have even signed on to other international regimes, such as bilateral investment treaties, that place additional limits on the measures that TRIPS does not address. In addition, many may have signed on to bilateral and regional free trade agreements that further restrict their ability to use measures identified as legally available in this thesis. It will be important to assess for each country the extent to which this has occurred and the extent to which they are free to take action to remove such restrictions.

Finally, developing countries find themselves placed in a peculiar position in the relationship between TRIPS and the climate change regime. In the event that a country finds that there are actions that it wishes to undertake in order to benefit from rights or implement obligations from one treaty that are prevented by their obligations under another treaty, they can appeal to conflict resolution mechanisms in international law that provide a framework for interpreters to either give priority to one set of obligations or to find a way to make the obligations mutually supportive and implementable.<sup>1359</sup> This thesis concludes that the UNFCCC does not present such an obligation to developing countries because their obligations under the treaty to reduce emissions are conditional. Article 4.7 of the UNFCCC makes the implementation of their obligations under the UNFCCC dependent on being provided sufficient technology and financial support. Chapter 7 shows that they cannot use their obligations under the UNFCCC as a justification for taking actions that are not compliant with the TRIPS Agreement. This limitation is also exacerbated by the fact that WTO law remains hostile to the intrusion of non-WTO law in its dispute settlement process providing very little purchase for entry of UNFCCC treaty language in any case, even if it applied. As long as the approach in the WTO panel case *EC – Approval and Marketing of Biotech Products*<sup>1360</sup> remains applicable, then, absent any other statement from within the institutions of the WTO, the UNFCCC cannot be used as applicable law between the

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<sup>1359</sup> Pauwelyn, *J Conflict of Norms in Public International Law: How WTO Law Relates to Other Rules of International Law*. (New York: Cambridge University Press, 2003.). In line with Condon, B “Climate Change and Unresolved Issues in WTO Law” 12 J. Int'l Econ. L. 895 (2009).

<sup>1360</sup> See para. 7.70 – 7.71, Panel Reports, *European Communities – Measures Affecting the Approval and Marketing of Biotech Products*, WT/DS291/R / WT/DS292/R / WT/DS293/R, Add.1 to Add.9, and Corr.1, adopted 21 November 2006, DSR 2006:III-VIII, 847 (*EC – Approval and Marketing of Biotech Products*)

parties to a dispute at the WTO that challenges a unilateral measure that has an effect on a TRIPS-related right or obligation.

I also conclude, in Chapter 7, that the hope that framing technology transfer as a human rights matter and thus part of the general international law that the WTO must consider remains an untested assertion at best. There is no indication that the rights most relevant in this framework of economic, social and cultural rights are of such universality and integral nature as to trigger the obligation of other regimes to integrate them as applicable law. In addition, intellectual property law has a special place in human rights law where intellectual property-like rights are part of the human rights framework rather than external to it. Thus one cannot reach to the human rights framework to try and use it to impose other considerations when the human rights framework itself contains an obligation of a sort to protect rights in intangible creative property. In the end, in Chapter 8, I suggest that recourse to broader structures of international law may be the only option, with developing countries working in the UNFCCC and other international fora to take a far more active role in integrating the values of regimes such as the UNFCCC into the WTO by using ‘interaction’ clauses that explicitly state the intention to construct a particular relationship to the other regime. The limits of this are clearly political: to the extent that countries are unable to negotiate relaxations of norms in the WTO itself, they may not be able to agree to do so in the UNFCCC or other fora. I provide some framing that developing countries can use to make an effective case for the jurisdiction and competence of one venue over another on issues such as sustainable development and technology transfer, and to take advantage of the differing constitutional frameworks of the UNFCCC regime compared to that of the WTO.

The scale of the climate challenge can be daunting. The combination of the language of catastrophe, with the long time frame for action, and the initially slow growth of climate impacts creates an environment where caution and incrementalism prevail. Nobody wants to spend all their time staring into the sun. And yet, in the case of climate change, it seems the incrementalists may not be the true realists. In addressing climate change true realism may require that we all become radicals, an uncomfortable thought, especially for traditional intellectual property scholars and lawyers. It is a habit of thought to which environmental lawyers and scholars have had more time to become accustomed. It is my hope that this thesis, by working to bridge the frameworks of both areas of law goes some way to providing a proper basis for a fruitful conversation between the intellectual property and climate change regimes.