

Climate Change, Technology Transfer and Intellectual Property Rights

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International Institute for Sustainable Development

161 Portage Avenue East, 6th Floor

Winnipeg, Manitoba

Canada R3B 0Y4

Tel.: +1 (204) 958-7700

Fax: +1 (204) 958-7710

Web site: <http://www.iisd.org>

Climate Change, Technology Transfer and Intellectual Property Rights

By the International Centre for Trade and Sustainable Development (ICTSD)

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This paper is one of seven papers published in June 2008. The other papers in the series are: *Trade and Climate Change: Issues in Perspective*; *Liberalization of Trade in Environmental Goods for Climate Change Mitigation: The Sustainable Development Context*; *Border Carbon Adjustment*; *Investment in Clean Energy*; *Standards, Labelling and Certification*; and *Embodied Carbon in Traded Goods*.

Abbreviations

GHG	greenhouse gas
IP	intellectual property
MEA	multilateral environmental agreement
R&D	research and development
TRIPS	Trade-related Aspects of Intellectual Property Rights
UNFCCC	United Nations Framework Convention on Climate Change
WTO	World Trade Organization

Summary of key issues, challenges:

- Enhanced action on technology development and transfer will be central in enabling the full and effective implementation of the UNFCCC beyond 2012. Yet disagreements remain, particularly on the obstacles to the transfer of climate-related technologies and the types of measures that should be taken to overcome them.
- Objectives and commitments on transfer of technology exist under the UNFCCC and Kyoto Protocol, as well as in the trade context. The difficulty of their implementation, however, highlights the importance of moving beyond general language to the consideration of concrete problems and solutions.
- IP is potentially both an incentive and an obstacle to the transfer of technology. The exact role of IP in the transfer of climate-related technologies remains unclear. No comprehensive study has been conducted on the impact of IP rights in the different categories of climate-related technologies. Nevertheless, there are calls to address the possible adverse effects of IP on the transfer of climate-related technology.
- The contribution of existing TRIPS flexibilities to climate-related technology transfer could be significant. Several provisions of the WTO TRIPS Agreement could be used to promote such transfer of technology. Some UNFCCC Parties and other stakeholders are of the view that additional measures should be taken to ensure that IP rules support the climate regime.
- A number of measures related to IP and other innovation and access to knowledge schemes could also be considered in the context of a post-2012 climate regime. Some of the possibilities already being discussed include financial mechanisms and guidelines on IP protection for publicly-funded technologies. Other emerging topics include prizes as incentives to climate-related innovation, and institutional arrangements for open or collaborative innovation.

Summary of concluding thoughts:

- An in-depth study of the various aspects of the interaction between IP and the transfer of climate-related technologies could provide the basis for more productive and evidence-based discussions. Specific information on the climate-related technologies most strategic for developing countries, the patent landscape of those sectors and goods, and licensing practices could also assist in identifying problems and solutions. The need for negotiating expertise in the area of technology and IP rights is similarly important.
- The use of existing TRIPS flexibilities to promote the transfer of climate-related technologies should be explored in full.
- Possible measures related to IP and other incentive schemes to promote transfer of technology within the climate regime should also be explored. Possibilities range from the inclusion of IP-related issues in indicators of technology transfer to the development of specific mechanisms—some already used in other public policy areas, such as health or education—to enhance the technology transfer component of the post-Kyoto climate regime.

Introduction

Technological solutions are imperative in meeting the challenges of climate change.¹ A critical factor in greenhouse gas emissions, technology is also fundamental to enhancing existing abilities and lowering the costs of reducing these emissions. Broad diffusion of current technologies and transition to new ones, for example, are expected to improve efficiency in energy use, introduce less carbon-intensive sources of energy, and further develop renewable energy sources. Indeed, the transition to a low-carbon economy, as all previous energy transitions in history, will be driven by cycles of technological discontinuities and innovations. In this context, the UNFCCC and the Kyoto Protocol require Parties to promote and cooperate in the development and diffusion, including transfer, of technologies that control, reduce or prevent GHG emissions.² Enhanced action on technology development and transfer will also be central in enabling the full, effective and sustained implementation of the UNFCCC beyond 2012, as recognized in the Bali Action Plan (see Box 1).

Box 1 – Technology transfer in the Bali Action Plan

The Bali Action Plan launched “a comprehensive process to enable the full, effective and sustained implementation of the Convention through long-term cooperative action,” by addressing, *inter alia*:

“(d) Enhanced action on technology development and transfer to support action on mitigation and adaptation, including, *inter alia*, consideration of:

- (i) Effective mechanisms and enhanced means for the removal of obstacles to, and provision of financial and other incentives for, scaling up of the development and transfer of technology to developing country Parties in order to promote access to affordable environmentally sound technologies;
- (ii) Ways to accelerate deployment, diffusion and transfer of affordable environmentally sound technologies;
- (iii) Cooperation on research and development of current, new and innovative technology, including win-win solutions;
- (iv) The effectiveness of mechanisms and tools for technology cooperation in specific sectors;”

Both aspects of the technology-related action in the Bali Action Plan—the development and the transfer of technology—are important. Technology transfer, however, has been the focus of technology-related discussions in most MEAs, including the UNFCCC. Remaining technological disparities at the international level and the consideration of mitigation commitments for developing countries in a post-2012 climate

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1 While this paper focuses primarily on technology as a solution to climate change, it should be noted at the outset that technology is only a part of the overall solution, albeit a centrally important part. Also key will be addressing consumption patterns, primarily in developed countries but increasingly among the wealthy in developing countries as well. If increased efficiency of resource use simply means more consumption—the classic rebound effect—then technology will not get us where we need to go.

2 See, e.g., Article 4.1 (c) of the UNFCCC and Article 10 of the Kyoto Protocol. This note collectively refers to these technologies as “climate-related technologies.”

regime have determined that—as initial meetings on long-term cooperative action on climate change proceed—transfer of technology will take an unprecedented place on centre stage in the debate. Moreover, it is clear that significant divergences remain as to the obstacles that impede the effective transfer of technology for sustainable development, and the types of measures that can and should be taken in overcoming these obstacles.

Most transfer of technology occurs in the private sector. Channels for the transfer of technology can be market-based (including trade, foreign direct investment and technology licensing) or informal (such as imitation and the mobility of technical and managerial personnel). The role of the public sector, however, is no less critical. Given that the transfer of technology is not an automatic or costless process, legal and policy incentives are generally required to achieve the most effective rate and approach for transfer of technology in relation to national and international needs and objectives.

As a legal and policy measure, intellectual property is potentially both an incentive and an obstacle to the transfer of technology. IP rights, as private rights, have been established and conceived as instruments to promote innovation and the dissemination of knowledge. Yet an excessive scope or level of protection of IP rights might stifle innovation or make access to knowledge more difficult or costly. In any policy context, including climate change, a balance between the protection of IP rights and the promotion of public objectives, such as the transfer of technology, is necessary.

From discussions on the Bali Action Plan, it would seem that UNFCCC Parties disagree on whether such a balance exists under the current legal and policy framework governing IP and technology as it relates to climate change. As a result, they also appear to have diverse positions as to whether additional measures are necessary in the international IP system and beyond to ensure the transfer of the technologies needed for climate change mitigation and adaptation. The WTO Agreement on Trade-related Aspects of Intellectual Property Rights (TRIPS Agreement), which introduced IP rights into the international trading system and remains the most comprehensive international agreement on the topic, seems to have been of particular interest and concern in ongoing discussions on the transfer of climate-related technologies.

Increased research and analysis on the links between transfer of technology and IP will be fundamental to overcome these apparent differences, and to develop effective technology-related international cooperative action on climate change. Given the complexity of the topic, the present paper does not aim to comprehensively address the topic, but merely to provide an initial review of selected issues. In the context of ongoing work on trade and climate change, the objective of this paper is thus to briefly look at the relationship between IP and the transfer of climate-related technologies and outline some of the existing and prospective measures, primarily in the TRIPS Agreement, that could be considered in support of a post-Kyoto climate regime.³

Technology transfer: Role and potential impact of intellectual property rights

There is no single definition for “transfer of technology.” In general, however, “transfer of technology” can be defined as the transfer of systematic knowledge for the manufacture of a product, for the application of

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3 Other concurrent and upcoming studies by the International Centre for Trade and Sustainable Development will look at additional aspects of the issue of trade and climate change—both generally and in relation to specific industry or technology sectors, other intellectual property rules and issues relevant to climate change, and technological change in relation to climate change. See, for example, the ICTSD policy paper on “Climate Change and Trade on the Road to Copenhagen.”

a process, or for the rendering of a service (Draft International Code on the Transfers of Technology, 1985). The transfer of a technology is thus not exhausted in the transmission of the hardware, but also requires facilitating access to related technical and commercial information and the human skills needed to properly understand it and effectively use it. In this regard, a critical aspect of the technology transfer process is the development of the domestic capacities to absorb and master the received knowledge, innovate on that knowledge, and commercialize the results.

In the complex process of transfer of technology, the role of IP protection—despite being only one of many influential factors—has proven particularly contentious. Indeed, IP is potentially both an incentive and an obstacle the transfer of technology. IP rights were conceived as private rights to reward innovation and promote the dissemination of knowledge in the context of broader societal goals. By offering protection against a loss of control of information in technology-related transactions, IP is thus—in part—an instrument aimed at facilitating the transfer of technology. Studies have shown that such a positive impact does exist, including by establishing a link between stronger patent rights and productivity, trade flows, foreign direct investment and the sophistication of the technologies transferred (Maskus, 2003).

On other hand, the existence of IP protection does not guarantee or suffice for effective transfer of technology. IP rights need to be buttressed by appropriate infrastructures, governance and competition systems in order to be effective (Maskus *et al.*, 2003). Moreover, there may be circumstances in which IP rights are not incentives at all (Foray, 2008). The market power provided by patents and other IP rights over certain technologies—by allowing owners to limit the availability, use, or development of a process or product—may also result in prices that exceed the socially optimal level and hamper the transfer of these technologies (Hoekman *et al.*, 2004).

Given the tension between IP protection and the transfer of technology, a “balancing act” is necessary to ensure international IP rules advance broader public policy objectives (Maskus, 2003). Such balance is considered to be particularly important in the context of the TRIPS Agreement, which establishes the most comprehensive minimum standards of IP protection, both in terms of covered areas and their applicability to all Members of the WTO. The TRIPS Agreement (Article 7) states that the objective of the protection and enforcement of IP should be to 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...” Article 8 also recognizes that measures “may be needed to prevent the abuse of intellectual property rights by right holders or the resort to practices which ... adversely affect the international transfer of technology.”

Despite such language, concerns remain as to whether the TRIPS Agreement does achieve a balance between IP protection and the transfer of technology. Moreover, there is still no broad understanding in IP-related discussions at the WTO on the types of additional national and international policies needed to promote the transfer of technology. Article 66.2 of the TRIPS Agreement requires developed country WTO Members to “provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least-developed country Members.” There are growing concerns, however, that such a mechanism is inadequate to promote effective transfer of technology in least-developed countries. An analysis of reports on the measures taken to date, for example, found several shortcomings, including in the types and areas of incentives chosen (Foray, 2008). As a result, it is still unclear to which degree transfer of technology takes place under the TRIPS Agreement, and what specific measures might be taken to encourage such flows of technology.

In the context of the UNFCCC, determining or addressing the role of IP rights in the transfer of climate-related technologies—although it has not been the focus of most related discussions—is not proving any easier. The UNFCCC and the Kyoto Protocol, like most MEAs, contain specific commitments on technology transfer. Article 4.5 of the UNFCCC urges developed country Parties, for example, to take all practica-

ble steps to promote, facilitate and finance the transfer of, or access to, environmentally sound technologies and know-how, particularly to developing countries. Article 10 of the Kyoto Protocol, among others, reaffirms these commitments. Under Article 4.3 of the UNFCCC, moreover, developed country Parties are required to provide the financial resources needed by the developing country Parties to meet the agreed full incremental costs of implementing their obligations, including for the related transfer of technology. Indeed, the effective implementation by developed country Parties of their commitments on transfer of technology is inherently linked to the extent to which developing country Parties are required to implement their own commitments. As in other contexts, however, the difficulty of realizing the goals and complying with the obligations of transfer of technology in the climate change context highlights the importance of moving beyond language to concrete consideration of the problems and the potential solutions.

For example, in the UNFCCC context, the challenge of technology transfer really presents two related but different challenges. Technology is needed in least-developed and small developing countries as an engine of development, and the challenge is to ensure that it does indeed come, and that what comes does not contribute unduly to global climate change. As well, technology is needed in the fast-growing developing economies to help blunt the impact of growth on global climate change. The substantial energy infrastructure being put in place in those countries will, after all, be locked in for generations to come. Of course there is no bright line separating these categories of countries, but to the extent that their situations differ, so do the needs and dynamics of each with respect to climate-related technology needs.

The exact role of IP in the transfer of climate-related technologies remains unclear, however. IP is not mentioned expressly in UNFCCC or Kyoto Protocol provisions on transfer of technology. It has, however, been raised in the discussions of the Expert Group on Technology Transfer, for example, as both an element of and a potential obstacle to an “enabling environment” for transfer of technology—the establishment of the institutions, regulations and policies needed to promote technology transfer. In a report by UNFCCC (2006) that identified common needs for and barriers to environmentally sound technologies in developing countries, IP-related issues did not feature prominently within a broad range of economic and market barriers to the transfer of technology. Although no comprehensive study has been conducted on the potential impact of IP rights in the different categories of climate-related technologies, initial research found that the impact of patents on access to solar, wind and biofuel technologies in developing countries might not be significant (Barton, 2007). On the other hand, studies by the European Patent Office (2007) have noted the increasing number and scope of patent claims in wind energy and biofuels technologies. The precise implications of these patent trends for the transfer of technology in these industry sectors remain uncertain.

Nevertheless, there are already significant calls to address the potential adverse effects of IP on the transfer of climate-related technology. On the eve of the Bali conference, for example, the European Parliament adopted a resolution, which stated that an ambitious post-Kyoto agreement might require “corresponding adjustments” to be made to other international agreements, including on IP.⁴ In discussions on the Bali Action Plan, moreover, several developing countries have stated as their position that IP is one of the various obstacles that must be addressed in a systemic and cross-cutting manner to promote the transfer of technology. In the initial round of talks in 2008, Cuba, India, Tanzania, Indonesia, China and others stressed the need to address IP within technology discussions, while some developed countries including Australia and the U.S., affirmed their belief that IP was not a barrier, but a catalyst for technology transfer.⁵

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4 European Parliament resolution of 29 November 2007 on trade and climate change (2007/2003(INI)).
5 The first meetings of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol and the Ad Hoc Working Group on Long-term Cooperative Action under the Convention were held in Bangkok in April 2008.

As discussions on the Bali Action Plan continue, more research and analysis on the relationship between IP and the transfer of climate-related technologies will be useful in bridging these gaps. In addition, it will be helpful to increase the awareness and understanding of the types of measures that exist or could be taken—within and beyond international IP rules—to enhance the role of IP rights and other incentive schemes in promoting technology transfer. Measures within the international IP system will be looked at below.

Promoting the transfer of climate-related technology in the TRIPS Agreement

A central aspect of the TRIPS Agreement is that it not only establishes minimum standards of IP protection, but also incorporates certain flexibility, allowing countries to position IP rights in the context of their public policy objectives and priorities. For example, the TRIPS Agreement allows for certain limitations and exceptions to the protection of IP rights and for national determination of the appropriate method of implementation. These provisions are known as “TRIPS flexibilities” and have been found to provide critical policy space in areas ranging from biodiversity and agriculture to public health and education.

The issue of TRIPS flexibilities came to the forefront of international discussions in the context of public health policies. These discussions led to the adoption of the Doha Declaration on the TRIPS Agreement and Public Health, as well as an amendment to the Agreement to address the difficulties that WTO Members with insufficient or no manufacturing capacities in the pharmaceutical sector could face in making effective use of some of the TRIPS flexibilities. Though parallels with other public policy areas must be taken forth with care, the experience with the issue of public health has become a reference point for the discussion of TRIPS flexibilities, including in the context of the transfer of climate-related technologies. This note thus draws repeatedly on this experience, without aiming to advocate a similitude between the problems and the potential solutions in the two areas.

The issue of TRIPS flexibilities has already come up in ongoing discussions at the UNFCCC, where some Parties expressed their concern that these flexibilities may be insufficient to ensure a rapid and widespread transfer of technology. Nevertheless, it is useful to begin by looking at the types of provisions that are available for WTO Members, and could be useful in relation to climate-related technology transfer. For example, several provisions on patents—the exclusive rights granted for an invention—are deemed pertinent to enhancing the transfer of technology to developing countries. These provisions include:

- *Exemptions to patentability.* Patentability refers to the boundaries established in relation to what inventions—generally, products or processes that offer a new technical solution to a problem—may be patented. Prior to the TRIPS Agreement, countries could exclude inventions of certain types or in certain areas of technology such as pharmaceutical products and agricultural methods from patentability, based on their development priorities and strategies. Article 27.1 of the TRIPS Agreement now requires WTO Members to grant patents to all types of inventions in all fields of technology, as long as these inventions meet certain basic criteria. However, because the TRIPS Agreement does not define the patentability criteria (namely novelty, inventive step and industrial applicability), some critical policy space remains in relation to the scope of patentability in each country. The loose definition of these criteria has raised concerns given the resulting all-encompassing patents. For example, patent claims on synthetic biology products and processes among the most promising technologies for cellulosic biofuels are so broad that scientists worry it could bring the discipline to a stand-still (Suppan, 2008). Defining the patentability criteria to adequately limit the scope of patents, on the other hand, would have a positive impact on further innovation by limiting the possibility of conflict with existing patents. In addition, in some contexts, it would also

enhance the transfer of technology. Low-income countries in which market-based channels of technology transfer, such as investment and licensing, are not effective could safeguard other pathways to access some climate-related technologies, such as reverse engineering.

- *Exceptions to patent rights.* The TRIPS Agreement recognizes that the rights of a patent owner to prevent third parties from exploiting the patented product are not absolute. Indeed, Article 30 states that WTO Members may provide “limited exceptions” to these rights. That is, countries may—under certain circumstances—automatically allow the use of the patented invention by a third party without consent of the patent holder. The TRIPS Agreement does not define these circumstances, which will be linked to national policies and objectives. For example, a common exception addresses experimental use, allowing the use of patented inventions for research or experimental purposes by parties other than the patent owner. This type of exception will be relevant in the climate change context, where adaptation of the technology to local needs and environments will be particularly vital. It would also allow companies in developing countries to “invent around” patent claims to gain access to environmentally sound technologies, which has proved important in the context of the implementation of other MEAs.
- *Compulsory licences.* There are also other cases in which the TRIPS Agreement allows the use of a patented product or process without authorization of the rights holder. One of the most important—and perhaps most controversial—is the granting of compulsory licences. These non-voluntary licences are granted by an administrative or judicial authority to a third party, allowing the exploitation of the patented invention without consent of the patent owner.⁶ Developing country Members consider this possibility as essential to ensuring that they can implement the TRIPS Agreement in a way that responds to broader public policies.

Article 31 of the TRIPS Agreement, which deals with compulsory licences, does not define the grounds on which countries may allow non-voluntary licences, although a number of conditions and procedural steps are required. Climate mitigation or adaptation could provide valid ground for compulsory licensing, and could even be considered to be included in general references to “public interest” in most patent laws. Some countries also foresee compulsory licences in cases in which the invention is not exploited in the country, or is insufficiently exploited. Such a measure could restrain some of the anti-competitive practices feared as potentially impeding the transfer of climate-related technologies to developing countries. It is interesting to note that the issuing of compulsory licences in certain situations, including cases of national emergency, other circumstances of extreme urgency or public non-commercial use, is less arduous.⁷ These compulsory licences could thus prove an effective tool to ensure rapid access to critical climate-related technologies in developing countries.

Beyond patent provisions, there are several other TRIPS flexibilities that may be pertinent in the context of the transfer of climate-related technologies. For example, Article 40 addresses competition policy, focusing on licensing practices that restrain competition and may impede the transfer of technology. As noted above, one of the concerns is that the market power provided by IP rights will result in restrictive practices that limit access to climate-related technologies. As a result, it is important to note that, under the TRIPS Agreement, WTO Members may adopt appropriate measures to prevent or control such practices. Another notable provision is Article 66.1, which recognizes the special needs and requirements of least-developed

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6 The process does have a number of safeguards under Article 31 of the TRIPS Agreement, of course, including the requirements that the proposed user should have made good faith efforts to obtain authorization from the patent holder, the use will be for domestic supply only, the patent holder shall be granted “adequate” remuneration, there be an established review process and so on.

7 In these cases, the requirements are waived for efforts to obtain authorization from the right holder on reasonable commercial terms and within a reasonable period of time.

country Members and awards a special transition period for the implementation of the TRIPS Agreement. During this transition period, which is currently set to expire on 1 July 2013, these countries have available a range of channels for transfer of technology including, for example, imitation and reverse engineering.⁸ These channels allow immediate and free access to some knowledge and facilitate the building of productive capacities, which is particularly important in conditions in which other channels of technology transfer, such as foreign direct investment and licensing, are not effective (Maskus, 2003).

From this overview, it is clear that the potential contribution of TRIPS flexibilities to climate-related technology transfer is significant. Indeed, there is no evidence to date that these flexibilities will not be sufficient to allow international IP rules to support the rapid and widespread transfer of technologies needed for climate change mitigation and adaptation. Moreover, the use of these flexibilities for climate change has not yet been challenged. Increasing public attention and concerns on the relationship between IP and the transfer of climate-related technologies, however, have resulted in calls for such measures and adjustments to the TRIPS Agreements to support the post-Kyoto climate regime. In his speech to the UNFCCC Conference of the Parties in Bali, the Brazilian Foreign Minister proposed that a statement similar to the Doha Declaration on the TRIPS Agreement and Public Health should be considered in the climate change context. The European Parliament, for its part, has recommended launching a study on amendments to the TRIPS Agreement required to allow for the compulsory licensing of environmentally necessary technologies.

Proponents consider that these changes could establish and consolidate policy space that is important for a successful technology component in a post-Kyoto climate change regime. Explicitly incorporating climate protection as a grounds for compulsory licensing, or establishing a specific, streamlined procedure for issuing compulsory licences for technologies needed for climate change mitigation and adaptation would both be helpful in this regard. Other suggested modifications include limiting the patentability of climate-related inventions and shortening their length of protection (Third World Network, 2008).

However, it is important to keep in mind the difficulties and vast political cost of modifications to the TRIPS Agreement, which became clear in the IP and public health debate. In addition, given the ongoing promotion of an agenda of higher levels and enhanced enforcement of IP protection, the risk of “opening” the TRIPS Agreement should not be taken lightly. Finally, on an issue as complex as climate-related technologies, it is questionable whether effective solutions could be achieved in the Council for TRIPS, a forum with a specific and limited approach. A similar situation arose in relation to IP and public health, which is now being addressed—in many opinions, more effectively and comprehensively—in the context of the World Health Organization. As a result, it is important to define the role of the UNFCCC and the climate regime itself in addressing the relationship between IP and climate-related technologies.

Intellectual property and the transfer of technology in the post-2012 climate regime

The scope of the Bali Action Plan would allow the consideration of a number of measures related to IP and other innovation and access to knowledge schemes in the context of a post-2012 climate regime—measures that may prove more feasible and effective than those sought in the context of the TRIPS Agreement. Although a detailed analysis of these potential measures is beyond the scope of this paper, it is nevertheless relevant to briefly mention the possibilities available in the context of ongoing UNFCCC negotiations.

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⁸ In addition, in 2002, WTO Members approved a decision extending until 2016 the transition period during which LDCs do not have to provide IP protection for pharmaceutical products.

Some are already being discussed, including financial mechanisms to address the link between IP and the transfer of technology and guidelines on IP protection for publicly-funded technologies. Other emerging topics include prizes as incentives to climate-related innovation, and institutional arrangements for open or collaborative innovation.

Financial mechanisms are considered an important approach to addressing the issue of IP and transfer of technology. A “Multilateral Technology Acquisition Fund,” for example, has been proposed as a way to fund the transfer of technologies to developing countries through, *inter alia*, the buying-out of IP rights.⁹ Given the relative success of the Multilateral Fund for the Implementation of the Montreal Protocol, such a proposal is actively being considered in the negotiations. Nevertheless, Anderson *et al.* (2007) note that, under the Montreal Protocol, “IP rights did not constitute as large a barrier to technology transfer as was feared.” Moreover, it is unclear that the case-by-case approach used in ozone-related technologies would work in the climate change context, given the greater range of relevant technologies and potential patent challenges.¹⁰

Implications of public financing for the IP rights available over climate-related technologies has also been raised in the UNFCCC context, albeit not in recent negotiations. Government financing of research and development—significant in most environmentally sound technologies—particularly benefits climate-related technologies. Nevertheless, such financing currently has few implications for the mode of ownership, commercialization or transfer of these technologies, which are usually protected by IP rights (UNCTAD, 1998). As a result these technologies, though stemming from publicly-funded R&D, are not necessarily publicly available. A series of guidelines might guide public entities to retain some influence on the use and commercialization of publicly-financed climate-related technologies, and could be considered in the post-Kyoto climate regime.

Concluding thoughts

Given remaining uncertainties, a definitive conclusion on the relationship between IP and the transfer of climate-related technologies is not yet feasible. Similarly, there is still little clarity as to the manner to best address this relationship in the various relevant international institutions and rules, and not much discussion on the modalities by which we might address the different challenges posed by fast developing and least-developed countries. Nevertheless, an overview of the potential opportunities and challenges presented by international IP rules to technology transfer under the post-2012 climate regime does present important lessons for possible next steps both in the UNFCCC and in the WTO.

First, it is clear that further research and analysis will be critical to achieve any effective solutions. An in-depth study of the various aspects of the interaction between IP and the transfer of climate-related technologies could provide the basis for more efficient and evidence-based discussions. Specific information on the climate-related technologies most strategic for developing countries, the patent landscape of those sectors and goods, and the manner in which these patents impact the transfer of technology in practice (looking, for instance, at licensing arrangements: how technology is being commercialized, under what conditions, and to whom) could assist in moving negotiations towards more concrete problems and potential solutions.

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9 See, for example, the statement of the African Group in COP-12 of the UNFCCC.

10 In addition, it should be noted that in the case of ozone depleting substances, alternative technologies to specifically and effectively address the problem had been identified and were available, which is not the case in the climate change context.

Second, it should be noted that the TRIPS Agreement has a number of provisions that could be used to promote the transfer of climate-related technologies. The use of these flexibilities has not proved easy in other areas, but there is no evidence of such obstacles in the climate change context. Existing possibilities, therefore, should be explored in full. Third, it is important to note the need for negotiating expertise in the area of technology and IP rights—an expertise that is not shared by many environmental negotiators.

Finally, and although this note only briefly touched on the issue, the consideration of measures related to IP and other incentive schemes should not be limited to the discussions on the TRIPS Agreement, but should also consider opportunities within climate negotiations. Considering IP-related issues in the development of measurable, verifiable indicators of technology transfer, for example, could help in ensuring adequate consideration of any positive and negative impact of IP on the implementation of the relevant UNFCCC and Kyoto Protocol provisions. In addition, a number of mechanisms increasingly explored and used in other public policy areas—including health, education and R&D—provide interesting examples to explore in ongoing UNFCCC negotiations as ways to enhance the technology transfer component of the post-Kyoto climate regime. Moving beyond what has often been a general and political discussion, and—above all—moving towards an effective solution to the greatest development challenge of our time, requires such informed, comprehensive and coherent debate on intellectual property and climate change.

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