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Technology Transfer and Climate Change: Beyond TRIPS

Intellectual property and the climate challenge

The introduction and diffusion of new technologies is crucial in meeting the challenges of climate change and fostering a rapid transition to a low-carbon economy. Such technologies are expected to introduce low-carbon energy sources and help improve energy efficiency. They might also accelerate the development of technologies for climate adaptation, which include improved irrigation techniques to cope with drought, and new plant varieties which are resistant to drought or to salt water. Accordingly, the UNFCCC and the Kyoto Protocol require Parties to promote and cooperate in the development and diffusion of technologies that control, reduce or prevent greenhouse gas emissions.

There is a vigorous debate on whether intellectual property rights help or hinder technology development and transfer. Potentially they can provide a strong incentive to develop new technologies, but they also raise the cost of accessing that technology. Outcomes reflect the political influence of IP owners and the degree of competitiveness of the industry concerned, which can affect the price of and the terms for licensing.

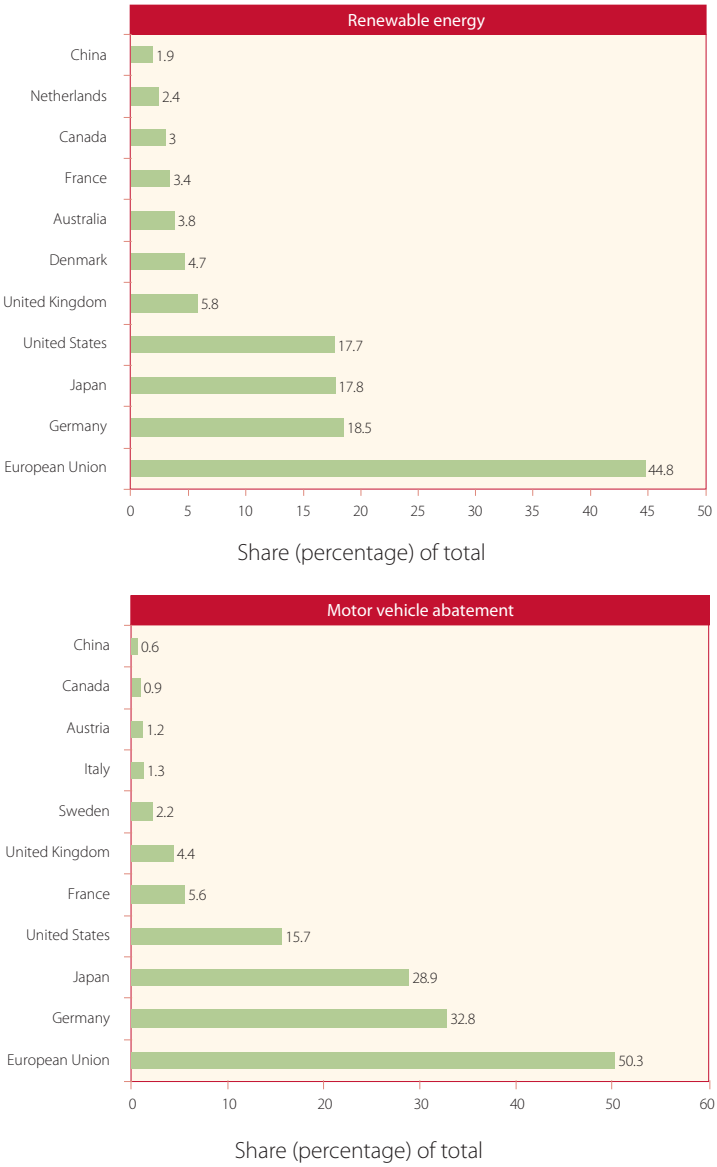
The distribution of patent ownership of climate-related technologies, however, is very heavily skewed in favor of advanced economies (figure 1). The current legal and policy framework governing intellectual property (IP) and technology, as contained mainly in the Agreement on Trade-related Aspects of Intellectual Property (TRIPS), might therefore represent a barrier to technological diffusion and negatively affect both adaptation and mitigation efforts in developing countries.

Multilateral actions to improve the current IP framework and accelerate technology transfer should therefore be regarded as a top priority on the international climate agenda. These actions, in turn, can either be channeled to better exploit existing flexibilities or require a modification of the TRIPS agreement in the framework of the World Trade Organization (WTO).

Taking advantage of flexibilities in the TRIPS agreement

On the basis of the guiding principles of the TRIPS Agreement, certain technologies can be excluded from patentability. The Convention on Biological Diversity and the International

Figure 1.
Patent ownership in the areas of renewable energy and motor vehicles abatement among selected countries, 2000-2004



Source: Organization for Economic Cooperation and Development (2007).

Treaty on Plant Genetic Resources for Food and Agriculture provide possible models in this respect. New exemptions may be designed on a gradual basis to meet the needs of countries at different levels of development. Low-income developing countries might be allowed to exclude patents for climate-friendly technologies and products, while middle- and high-income developing countries might be granted voluntary

licenses on request, free of royalty, or automatically, with compensation given to the owner of the technology. The size of the country could also be used as a criterion for choosing the appropriate type of flexibility. For a small country acquiring a license for climate-related technology may not be profitable even if it is a middle- or high-income developing country, unless it is able to use the license to tap export markets. In the latter case, the royalty could be reduced or eliminated and/or the exemption of patent rights could be extended from a domestic to a regional market.

Even when a technology has been already patented, TRIPS offer opportunities for automatic use without the consent of the patent-holder through compulsory licensing. This applies for situations arising in the wake of national and public-health emergencies. There are no hard and fast rules on how to define such emergencies. The recent finding by the United States Environmental Protection Agency that carbon dioxide is a pollutant endangering public health is, however, telling in this respect.

The agreement also limits the use of the technology for which exception is granted to the domestic market only. This limitation may prevent the capture of scale economies which would make the technology cost-effective. Concern with this possibility was reflected in the temporary waiver of the domestic market requirement for certain pharmaceuticals so as to enable the export of those products to regional markets. Such waivers could conceivably be extended to climate-friendly technologies.

In order to encourage innovation, the TRIPS agreement makes it difficult for those who purchase a patent or a patented item to "resell" it abroad without authorization from the patent-holder. These "parallel imports" could, however, increase competition and lead to lower prices and greater access to the underlying technology. A regional approach might strike a proper balance between technology transfer and incentives to innovate by allowing parallel importing only within certain geographical buffers while guaranteeing full patent protection outside these buffers (see UN-DESA Policy Brief No. 17, Reaching a Climate Deal in Copenhagen, http://www.un.org/esa/policy/policybriefs/policybrief17.pdf).

A new agreement on IP and climate change

The threat of dangerous climate change might call for a move beyond the current framework and the adoption of a brand new agreement on IP and climate change crafted to clarify existing flexibilities and offer new incentives for the transfer of environmentally sound technologies, both for adaptation and mitigation purposes. The new agreement could focus particularly on the least developed countries (LDCs), where trade and investment flows are not as responsive to protection of intellectual property rights and the dangers posed by climate change are particularly acute. However, it should not be confined to these countries only.

A new agreement should aim to facilitate compulsory licensing for environmentally sound technologies and simplify procedures for challenging patents in order to lower costs faced by all developing countries. In particular, in cases where the protected asset clearly has environmental benefits, the agreement should be amended in order for the intellectual property right holder to bear the burden of proof in demonstrating why compulsory licensing would not be warranted.

A multi-tiered fee system for intellectual property rights should also be introduced by waiving payments for patent-holders who authorize transfer of climate-friendly technologies to developing countries. Should the granting of full licenses turn out to be an unrealistic option, temporary licenses could be granted along the lines established for conferral of plant breeders' exemptions and farmers' privileges under the International Treaty on Plant Genetic Resources for Food and Agriculture. For example, intellectual property right holders could provide developing-country users with technologies for a limited period, with the expectation of receiving payment once the technology was "tropicalized", that is to say, adapted to local requirements.

There are, of course, great difficulties involved in modifying the TRIPS Agreement. Despite the acknowledgment of development goals, it is equal treatment of nations that is at the heart of any WTO agreement. However, the experience with essential medicines has shown that it could be welfare enhancing to deviate from the principle of equal treatment with regard to certain technologies. Moreover, global action to address climate change is not a zero-sum game and the short-term costs which industrialized countries might incur by loosening IP on green technologies would certainly be more than compensated by the long-term gains of advancing the global public good of a stable climate. ■

Prepared by:
Piergiuseppe Fortunato, Richard Kozul-Wright and Rob Vos

For further information please contact:

Rob Vos, *Director,* Development Policy and Analysis Division
Department of Economic and Social Affairs, Rm. DC2-2020
United Nations, New York, NY 10017, U.S.A.
Tel: +1 212 963-4838 • Fax: +1 212 963-1061
e-mail: vos@un.org • website: http://www.un.org/esa/policy