Technology Transfer: A Pillar of Climate Change Solutions

By Kenneth Markowitz, *Akin Gump Strauss Hauer & Feld LLP,* on 05 November 2007

As the nations of the world gear up to meet in Bali next month to begin negotiating a successor agreement to the Kyoto Protocol, one of the key issues is how to design innovative financial mechanisms for the development and transfer of cleaner, more energy efficient technologies. Building consensus on how to get new and existing technologies into the hands of those countries that need them most, while protecting the financial interests of those exporting the technologies, will require significant creativity and compromise. Major emitter countries, such as the United States, are promoting technology development and transfer as a pillar of their strategy to combat climate change.

An International Framework to Transfer Technology

The United Nations Framework Convention on Climate Change (UNFCCC), which was signed by 154 countries, including the United States, in 1992, calls for developed countries to take "practicable steps to promote, facilitate, and finance the transfer of…environmentally sound technologies" to developing countries. The term "technology transfer" is interpreted broadly to indicate any process that enables the sharing of "know-how, experience and equipment for mitigating and adapting to climate change."

Several financial mechanisms have been established to facilitate the transfer of knowledge and technologies since the Convention went into force. Chief among these is the Global Environment Facility (GEF), the official financial mechanism of the UNFCCC. The GEF currently disburses about $250 million dollars per year to support energy efficiency improvement, enhancement of renewable energies use, and sustainable transportation projects. The GEF estimates that, between 1990 and 2000, $1 billion in funding was awarded to 270 climate change related projects in over 120 countries.

Since its inception at the UNFCCC Marrakech Conference in 2001, the Expert Group on Technology Transfer (EGTT) has committed itself into establishing the enabling environment for development and transfer of clean, climate-friendly technologies, particularly enhancing innovative options for financing technology transfer and needs assessments. "Thanks to the help by the EGTT and the UNFCCC Secretariat, several international financial institutions and private financiers have already made their commitments in providing financing to projects in developing countries as well as training and consulting services for project developers. I have observed a series of developments under the UNFCCC technology transfer framework with excitement and confidence," says Kuni Shimada, Co-chair of UNFCCC Contact Group on Development and Transfer of Technology and Japanese lead negotiator.

Both donor and recipient countries are further encouraged to offer "positive incentives," including "preferential government procurement and transparent and efficient approval procedures for technology transfer projects, which support the development and diffusion of environmentally sound technologies."

Developed countries have established complementary additional funding mechanisms. The U.S. Climate Technology Partnership, for example, supports direct technical assistance through programs such as the Asia-Pacific Partnership on Clean Development and Climate (APP) and the Methane to Markets Partnership (M2M).

The Clean Development Mechanism (CDM) has served as an indirect mechanism for transferring technologies and know-how to countries with economies in transition and developing countries. According to Natsource, in setting up CDM projects, the Netherlands has shared its expertise in setting up landfill gas projects, France has assisted with NO2 reduction, and Spain and Denmark have facilitated wind energy projects. These projects have offered opportunities to build capacity in the host countries as well, from lessons learned during the design, installation and operations phases.

These multilateral and bilateral funding mechanisms have greatly aided the transfer of knowledge, expertise, and public awareness of technological solutions. Much more needs to be done however to encourage private firms to get their cleaner, more energy efficient technologies into use in developing countries. The inconsistent enforcement of intellectual property laws, high tariffs, and the lack of financial incentives for investors have limited the interest and ability of the private sector to transfer clean and renewable energy technologies.

Intellectual Property Rights (IPRs)

Enforcement of intellectual property law is one of the greatest concerns of industrialized countries and private vendors when conducting business in developing economies. Companies are often unwilling to initiate projects or sell their technologies in countries where there is a reasonable likelihood that their products will be copied and sold for less money by local firms.

To strengthen intellectual property right protections, the World Trade (WTO) Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) requires signatory countries to develop and enforce basic protections of copyrights, industrial designs, trademarks, and undisclosed information.

China reformed its intellectual property rights framework when it joined the WTO in 2001. Unfortunately, enforcement and application of penalties to deter non-compliance remains a significant challenge. However, because of recent efforts to reduce trade barriers combined with the substantial market opportunities, companies have been increasingly willing to conduct business in China. On October 29, for example, General Motors (GM) committed $250 million to a state of the art research center in Shanghai to support the development of energy-efficient and environmentally friendly transportation alternatives. The New York Times reported that GM Chief Executive Rick Wagoner believed that the company could "keep control of [its] intellectual property in China even while doing cutting-edge research."

Tariffs, Financial Incentives, and other Enabling Mechanisms

Tariffs are taxes implemented at national borders, meant to protect domestic industries from cheaper international competition. Tariffs directly impede technology transfer by increasing the cost of goods, impeding the sale of pollution controls, and limiting the access that developing countries have to innovative technologies.

The 2001 WTO Ministerial Declaration instructs members to negotiate on the reduction or elimination of tariff and non-tariff barriers on environmental goods and services. The goal is to achieve sustainable development by creating a "triple win" - for trade, the environment and development.

Countries seeking to attract foreign businesses are working to improve the investment climate for clean and renewable technology. India, for example, established financial incentives, including excise tax relief and facilitated loans, to promote foreign private sector engagement, particularly with regards to renewable energy. The U.S. Department of Commerce estimates that the "market in India for renewable energy is estimated to be worth $500 million, and is growing at an annual rate of 15 percent" and with these mechanisms in place it will continue to grow efficiently.

Simultaneously, there is a greater local capacity for research and development in countries like China and India for technological solutions to climate change. One example, as profiled by the *UN Chronicle,* is the Beijing Shenwu Thermal Energy Technology Company, which invented equipment that reduces the energy consumption of industrial processes by 30 to 60 percent.

The recent trend toward placing increased importance on adaptation to climate change impacts is evident in the shift in the technology debate as well. Historically, focusing almost exclusively on mitigation technologies, which are generally complex and sector specific, the Parties are now emphasizing adaptation technologies, which are generally process, location, and activity specific. Adaptation technologies are more likely to be developed at the local point of application, and may result in economic development and export from developing countries.

The 13th Conference of the Parties to the UNFCCC (COP13) and the 3rd Meeting of the Parties to the Kyoto Protocol (COP/MOP3), which will be held in Bali, Indonesia, from 3- 14 December 2007, will provide an important opportunity to develop agreement on financial mechanisms to promote global objectives on technology transfer. There needs to be an effective market system to facilitate the trade of the best technologies to that solve the great challenges presented by climate change. These technologies will not invent themselves, nor will they adequately reach the developing world without the elimination of tariffs for energy efficient technologies, the protection for intellectual property rights, and continued support for financial assistance programs like the GEF.

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