



Emerging Asia and technology transfer issues: questions and answers from TERI/AEI study for Copenhagen^{*^}

Effective, timely development and transfer of technologies to the developing countries is crucial for a concerted global action towards reduction of green house gas (GHG) emissions and addressing the concerns of sustainable development objectives.

In the context of the multilateral negotiations on climate change, the Asian region is especially complex, having a mix of developed and major developing countries such as India and China. Asia's energy consumption is growing rapidly, making it a challenge to meet Asia's energy needs while keeping the GHG emissions low. The concerns need to be streamlined for setting out an emerging Asia contribution on issues of technology within the multilateral framework on climate change.

In this context, a research and ongoing dialogue on **Emerging Asia contribution on issues of technology for Copenhagen** has been initiated among five key Asian developing countries, namely, China, India, Indonesia, Malaysia and Thailand. The objective is to contribute to the forthcoming UNFCCC's COP 15 negotiations at Copenhagen in December 2009 from the nongovernmental perspective, on technology transfer (TT) issues pertaining to climate change.

The study examines the need for the select climate friendly technologies in the countries, respective government positions in developing these technologies indigenously, availability of the state of art technologies in the countries vis-à-vis the available global technologies and the domestic barriers. Further, it examines the intellectual property rights (IPR) issues in technology transfer and finally establishes linkages between an appropriate financial mechanism and technology transfer.

Based on the inputs from the five key emerging Asian countries on issues of transfer of select climate change mitigation technologies, this document seeks to answer some key questions around technology transfer issues for Copenhagen.

Further details about the project and full report can be accessed at http://www.teriin.org/index.php?option=com_ongoing&task=details&sid=691

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1. What are the specific needs of emerging Asian countries in terms of their climate friendly technology requirements?

Some of the major national elements required for a workable technology transfer mechanism include the necessity for recipient countries to carry out technology needs assessments; the need for a mechanism to communicate such assessments to actors in provider countries; to address the issue of information costs for carrying out patent landscaping exercises to determine the patent status of certain technologies and coordinating national financing mechanisms for technology transfer.

2. What kind of support is expected both nationally and internationally?

National support expected for local technology development includes subsidies and tax incentives. Expected international financial supports for energy technology development and deployment include: technology transfer support through joint research or reducing licensing costs; investment projects that are supportive of climate change mitigation efforts that cannot be carried out using domestic financial sources; projects that are developed under Clean Development Mechanism (CDM) and other such mechanisms; financial and knowledge supports in the currently carried out assessment to determine Nationally Appropriate Mitigation Actions (NAMAs). Countries have also clearly identified creating technology networks for promoting clean technologies in developing countries, such as the CGIAR (Consultative Group on International Agricultural Research) network as a model to address the challenge of climate change. India has also mooted the idea of technology innovation centres of excellence which would build regional, national and local capacities and provide international support for research and cooperation.

3. What are the kinds of barriers that developing countries face on technology transfer issues?

Key barriers on technology transfer issues include: inadequate support for technology assessment services; product testing and prototyping and professional training and development; limited funds; high maintenance/manufacturing cost; inadequate operation and maintenance and little technological reliability; lack of collaboration between research institution and other agencies; patents, trademarks and copy rights; and lack of local adaptation and inadequate local expert personnel to run and maintain the technology.

4. How can these barriers be overcome?

Strategic government support is required and the sourcing and allocation of necessary funds. Key stakeholders, government agencies, local industries and research institutions will have to join forces in an effort to produce a detailed feasibility solution for this purpose. Developing country governments must be forthcoming in chalking out a detailed action plan and also the specificities of the action plan for this purpose.

5 What is the role of IPRs in technology transfer of technologies relevant to addressing climate mitigation?

The actual impact of IPRs on technology transfer is often context specific depending upon the advancement of the technology, region, the time horizon, number of patent holders, and so on. While one of the ways in which IPRs are believed to restrict technology transfer is through high license costs, it is also alleged that IP costs are not that substantial in a project to act as a real barrier in technology transfer. However, the issue of IP cost in a technology transfer project is itself debatable, as often IPR influences technology transfer not just in the form of license fees and royalties but leads to purchases, import of

associated equipment, losing stake in joint ventures, and so on, all of which do not get reflected as IP costs.

6. What are the demands in the UNFCCC negotiations on IPR issues?

Arguments as detailed above have led to calls within the UNFCCC negotiations for multilateral funds. These funds have to be created to buy IPRs for clean technologies in the form of innovative IPR sharing arrangements to jointly develop ESTs and make them available to developing countries. However, the problem that arises often is that a lot of undisclosed tacit knowledge associated with patents, is to understand and work with new technologies.

7. Within and/or beyond the TRIPs (Agreement on Trade Related aspects of Intellectual Property Rights) mechanism, what are the innovative mechanisms can be sought to facilitate technology transfer?

Some of the innovative mechanisms that can be sought to facilitate technology transfer include the following.

- Granting patents for all types of inventions in all fields of clean technology, as long as these inventions meet certain basic criteria.
- Preventing the abuse of IPRs or the practices by right holders which adversely affect the international transfer of technology.
- Creating co-operative R&D (Research and development) and technology acquisition or repository fund.
- Encouraging mandatory price negotiations for patented projects.
- Adapting WIPO (World Intellectual Property Organization) recommendations for pooling and sharing of technologies by technology holders and making the technologies available in the public domain at an affordable price.

8. What is the view of emerging Asia on compulsory licensing?

TRIPs recognize its members' freedom to determine and define national emergency in their specific country context to issue a CL (compulsory license). However, the issue of CL is much more complex than it may seem. This is reflected in the fact that there have been only few instances, particularly in developing countries, where a CL has been issued. The use of a CL for transfer of technology for ESTs would have different characteristics as compared to compulsory licensing in respect of pharmaceutical drugs primarily because compulsory licensing of technology, in the absence of access to equipment, know-how and human skills to adapt and implement the technology, would not be able to translate to effective transfer in case of clean technologies. Several developing countries including India have made submissions at the UNFCCC that demand a paradigm shift in the way climate mitigation technologies are subject to intellectual property rights protection, and to an approach similar to affordable medicines in times of public health emergencies. While many developing countries argue that there is a need for patent exclusion on climate technologies, given the need for a global and systemic response to address the global challenge of climate change, developed countries on the other hand, in particular Japan, Canada, Australia, Switzerland and the US insisted on strong IPR regimes, even opposing the use of CL.

9. Do technology partnerships/networking/pooling work? Can they lead to cartelization?

Networking and technology partnerships are critical and they do sometimes work. The elements constituting such partnerships are broad and generally include binding and non-

binding sectoral agreements for industry, financial tools, joint R&D, demonstration projects, information sharing arrangements, and the like. An example is the Asia Pacific Partnership, which focuses specifically on technology issues and considers bilateral and multilateral partnerships in specific sectors (through eight separate 'task forces'). A win-win technology contract emerges when the material terms of the contract provide that both parties contribute relatively in equal value to a technology transaction and stand to gain relatively equal benefit. However, contracts are not always mutually beneficial, and can create unstable business relationships in the long term. Cartels can arise in case of cooperative sectoral approaches, which is one of the key focus areas in the Bali Action Plan.

10. In what way can the CDM be reformed to encourage investments in less established technologies (within the CCTs family for example)?

CDM is a useful way to promote mitigation technology diffusion in developing countries. The methodology panel needs to be more open and accommodating towards less conservative technologies and approaches. As a financing mechanism, CDM is limited by its dependence on issued CERs and their prices that realize only after the project becomes operational, while the main financing obstacle for many energy efficiency and renewable energy projects remains the high upfront cost. Also, since bio-fuel blending is required as per regulations in many countries, it does not satisfy the additionality requirement of a CDM project.

11 What makes CDM a more proactive mechanism?

The following provisions should be incorporated in functioning of CDM so that it can become a proactive mechanism.

- An internationally agreed higher floor price of CERs.
- A fast track clearing mechanism for projects which are certain to reduce emissions.
- In cases where emission reduction promises are high but technologies are not fully developed, such as bio-fuels, relaxation in additionality clause.
- CDM may also be linked with other financing mechanism such as GEF (Global Environment Facility), proposed technology transfer funds under UNFCCC (particularly the G77 proposal on technology transfer and development).

12. What is the current position on MRV (Measurable, reportable and verifiable)?

Establishing a robust framework to validate a demonstration as MRV is critical in performing accurate cost-benefit and risk analyses, with an eye towards future investment. The G77 + China Proposal calls for a verification body to MRV financial and technical support promised to Non-Annex I countries. A proportion of agreed contributions could come in the form of regional or bilateral cooperation. China is of the view that indicators of technology barriers should be included and nation-specific indicators of technology transfer be included to assess the level of technology transfer to Non-Annex I countries.

13 What is the view on venture capital as an alternative financing mechanism?

Countries are of the view that commercialization of new and emerging technologies should be financed through venture capital, with public investment leveraging private capital markets for emerging technologies; research, development, demonstration of new technologies, and joint technology development. One of the mechanisms outlined in decision 4/CP.13 of the Bali Action Plan for financial support for technology development and transfer is a window for a venture capital fund related to or possibly located in a multilateral financial institution. The venture capital mechanism proposed would link

public financing during the R&D phase with private markets (carbon, capital, and technology), thereby providing the significant increases in private investment required for the demonstration phase.

14 How will the new financial architecture (as proposed in G77 and China proposal) ensure direct access to funding by the recipients?

The new financial architecture that can ensure direct access to funding should incorporate the following elements.

- A full fledged financial structure under the UNFCCC, with certain principles.
- A substantial quantum to fulfil Annex I finance commitment under Article 4.
- Funds outside UNFCCC not to be counted as meeting Article 4 commitments.
- Developed countries to fund critical technology transfer activities with regard to emission reductions of emerging countries.
- The new financial architecture should operate as a single window facility within the UNFCCC financing mechanism, be fully accountable to the COP and have equitable and balanced representation of all parties.