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Development and transfer of technologies

Report of the Global Environment Facility on the progress made in carrying out the Poznan strategic programme on technology transfer

Note by the secretariat*

1. The Conference of the Parties (COP), by its decision 2/CP.14, welcomed the Poznan strategic programme on technology transfer proposed by the Global Environment Facility (GEF).¹ The COP, by the same decision, requested the GEF to report on the progress made in carrying out the activities identified under the Poznan strategic programme to the COP at its sixteenth session, with a view to assessing its progress and future direction in order to help inform Parties in their consideration of long-term needs for implementation of the strategic programme.

2. In response, the GEF secretariat has submitted the attached report (see annex) dated 1 October 2010; it is reproduced here as submitted, without formal editing, and with the original pagination.

* This document was received from the Global Environment Secretariat on 22 October 2010.

¹ FCCC/SBI/2008/16.

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Global Environment Facility

October 1, 2010

IMPLEMENTATION OF THE POZNAN STRATEGIC PROGRAM
ON TECHNOLOGY TRANSFER:
REPORT OF THE GEF TO THE SIXTEENTH SESSION
OF THE CONFERENCE OF THE PARTIES TO THE
UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE
CHANGE

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ABBREVIATIONS AND ACRONYMS

AfDB	African Development Bank
COP	Conference of the Parties
EGTT	Expert Group on Technology Transfer
EST	Environmentally Sound Technology
GEF	Global Environment Facility
GHG	Greenhouse Gas
GRS	Global and Regional Set-aside
IDB	Inter-American Development Bank
IEA	International Energy Agency
IFAD	International Fund for Agricultural Development
LDCF	Least Developed Countries Fund
PPP	Public Private Partnership
RCCS	Renewable CO ₂ Capture and Storage
SBI	Subsidiary Body for Implementation
SCCF	Special Climate Change Fund
STAR	System for Transparent Allocation of Resources
TNA	Technology Needs Assessment
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
URC	UNEP Risoe Centre

INTRODUCTION

1. The Global Environment Facility (GEF) prepared this report for the sixteenth session of the Conference of the Parties (COP16) to the United Nations Framework Convention on Climate Change (UNFCCC).
2. COP decision 2/CP.14, in Paragraph 1, welcomed “the Poznan strategic programme on technology transfer,² as a step towards scaling up the level of investment in technology transfer in order to help developing countries address their needs for environmentally sound technologies” and recognized “the contribution that this strategic programme could make to enhancing technology transfer activities under the Convention.”
3. COP decision 2/CP.14, in Paragraph 2, requested “the Global Environment Facility:
 - (a) To promptly initiate and expeditiously facilitate the preparation of projects for approval and implementation under the strategic programme referred to in paragraph 1 above in order to help developing countries address their needs for environmentally sound technologies;
 - (b) To collaborate with its implementing agencies in order to provide technical support to developing countries in preparing or updating, as appropriate, their technology needs assessments using the updated handbook for conducting technology needs assessments for climate change published by the United Nations Development Programme, to be made available in early 2009 in collaboration with the Expert Group on Technology Transfer, the UNFCCC secretariat and the Climate Technology Initiative;
 - (c) To consider the long-term implementation of the strategic programme, including: addressing the gaps identified in current operations of the Global Environment Facility that relate to investment in the transfer of environmentally sound technologies; leveraging private-sector investment; and promoting innovative project development activities;
 - (d) To report on the progress made in carrying out the activities referred to in paragraph 2 (a-c) above to the Conference of the Parties at its sixteenth session, in addition to providing interim reports to the Subsidiary Body for Implementation at its thirtieth and thirty-first sessions, with a view to assessing its progress and future direction in order to help inform Parties in their consideration of long-term needs for implementation of the strategic programme.”
4. In accordance with decision 2/CP.14, the GEF presented interim reports to the Subsidiary Body for Implementation (SBI) 30 and SBI 31, respectively, on the progress made in carrying out the Poznan Strategic Program on Technology Transfer.

² Previously referred as the strategic programme of the Global Environment Facility (FCCC/SBI/2008/16) and renamed by the Conference of the Parties at its fourteenth session.

5. Subsequently, the conclusions of SBI 31 (FCCC/SBI/2009/L.18) invited the GEF to provide a report on the progress made on the implementation of this program at SBI 32, including reporting on the long-term aspects of the program. In response to the above conclusions of SBI 31, the GEF presented an interim report to SBI 32.

6. This report presents the progress made in carrying out the Poznan Strategic Program on Technology Transfer to COP16, in accordance with decision 2/CP.14.

POZNAN STRATEGIC PROGRAM ON TECHNOLOGY TRANSFER

7. In November 2008, the GEF Council and the Least Developed Country Fund (LDCF)/Special Climate Change Fund (SCCF) Council approved the Strategic Program on Technology Transfer. The Program aimed to scale up the level of investment in the transfer of environmentally sound technologies (ESTs). The approved Program included a funding window of \$50 million with \$35 million coming from the GEF Trust Fund and \$15 million coming from the SCCF. The Strategic Program was then renamed the Poznan Strategic Program on Technology Transfer at COP14.

8. There are three funding windows to support technology transfer under the Poznan Strategic Programme, namely: (1) technology needs assessments (TNAs); (2) piloting priority technology projects linked to TNAs; and (3) dissemination of GEF experience and successfully demonstrated environmentally sound technologies (ESTs).

9. The report presents the progress made in the order of the COP decision paragraphs. Section a on technology transfer pilot projects reports on the progress made in carrying out the activities referred to in COP decision 2/CP.14 Paragraph 2 (a). Section b on technology needs assessments reports on the progress made in carrying out the activities referred to in Paragraph 2 (b). Section c on long-term implementation of the Poznan Strategic Program reports on the progress made in carrying out the activities referred to in Paragraph 2 (c). In addition, the dissemination of the GEF experience and successfully demonstrated ESTs is presented as Section d.

a. Technology Transfer Pilot Projects

10. The purpose of this funding window for technology transfer pilot projects is to finance projects that support the deployment, diffusion, and transfer of technologies that have been identified by countries as priorities.

11. The Call for Proposals for technology transfer pilot projects was issued on March 25, 2009 by the GEF CEO and circulated to all national GEF operational focal points, copied to the GEF agencies and the UNFCCC secretariat. The call for proposals provided the background information, procedure for proposal submission, and selection criteria. In addition to the standard criteria for reviewing GEF climate change projects, the Call for

Proposal placed emphasis on, among others, consistency of targeted technology with national priorities as identified in the TNAs, national communications to the UNFCCC, or other national policy documents, innovative technologies and mechanisms for technology transfer, as well as highly leveraged projects, including investments from both the public and the private sector, as well as South-South technology transfer and international collaborative projects. The deadline for submission was August 14, 2009, which was subsequently extended to September 30, 2009.

12. Fourteen proposals of technology transfer pilot projects were prioritized for funding out of 39 proposals submitted to the GEF Secretariat. Total GEF resources requested for these 14 projects amount to \$36.8 million from the Poznan Program, with additional \$21.2 million requested from the GEF Trust Fund. Total GEF funding for the 14 pilot projects amounts to \$58 million, and total cofinancing for these projects comes to more than \$195 million.

13. The technologies targeted by these projects for development and transfer are diverse and innovative. They include technologies on renewable energy (solar, biomass, wind, wave, and hydrogen production and storage), energy efficiency (insulation materials, and efficient and hydrofluorocarbon-free appliances), transport (“green” trucks), composting, carbon capture and storage from sugar fermentation, and membrane drip irrigation for adaptation.

14. The projects take place in the following countries: Brazil, Cambodia, Chile, China, Columbia and Kenya, Code d’Ivoire, Jamaica, Jordan, Mexico, Russia, Senegal, Sri Lanka, Thailand, as well as Turkey and Cook Islands. The project proposals are available at the GEF website: http://www.thegef.org/gef/gef_projects_funding.

15. As of September 2010, GEF Agencies charged with implementing the technology transfer pilot projects have reported considerable progress in project development and implementation, as summarized in Table 1. Short descriptions of each pilot project financed by the GEF are attached to this report as Annex 1.

b. Technology Needs Assessments (TNAs)

16. Immediately following COP14, the GEF Secretariat organized a stakeholder consultation meeting in January 2009 to formulate a strategy and work plan for the implementation of the TNAs. Participants at the meeting, including representatives from the GEF agencies, the UNFCCC Secretariat, the Climate Technology Initiative, and the GEF Scientific Technical Advisory Panel (STAP), provided suggestions, stressing that TNAs should be actionable to provide a pathway to the implementation of projects on the ground. Other suggestions included incorporation of the private financial sector engagement in the TNA process, identification of priority technologies for pilot projects and investment opportunities based on the TNA for future funding by the GEF and other sources.

17. The TNA project concept was subsequently developed by UNEP, and was approved

by the LDCF/SCCF Council in April 2009. A full project document was endorsed by the GEF CEO in September 2009.

18. The TNA project has the objective to provide targeted financial and technical support to assist 35 to 45 developing countries in developing and/or updating their TNAs within the framework of Article 4.5 of the UNFCCC. The intention is that assisted countries go beyond identifying technology needs narrowly and develop national technology action plans for prioritized technologies that reduce greenhouse gas (GHG) emissions, support adaptation to climate change, and are consistent with national development objectives. The project seeks to use the updated TNA Handbook and provide feedback to fine tune methodologies through an iterative process involving project partners.

19. The project started in October 2009. It is scheduled for completion within 30 months. Total GEF funding for this project is \$9 million.

20. A Project Steering Committee (PSC) has been constituted by UNEP, consisting of representatives of the Expert Group on Technology Transfer (EGTT), the UNFCCC Secretariat, UNEP, UNDP, UNIDO, the World Bank, UNEP Risoe Centre (URC) and the GEF Secretariat. PSC meetings have been held in December 2009 and June 2010.

21. This project approach is complementary to individual country-level TNA projects supported by the GEF outside the Poznan Strategic Program. Such individual TNA projects help larger countries that need more in-depth and extensive analysis to facilitate technology transfer. For example, the GEF is providing support to China to carry out a detailed assessment of current technology developments and needs, key barriers, and ways to promote EST transfer. Going beyond technology identification, the project will pursue pilot activities to operationalize key assessment findings. Specifically, programs that target and reduce barriers identified as impeding diffusion of priority technologies will be designed and potentially launched on a pilot basis. The China TNA project is implemented by the World Bank.

22. Key areas of the UNEP TNA project progress, summarized from an update submitted by the Agency, include the following:

Country-Driven Preparatory Activities

23. Fifteen countries were selected as first round participating countries in early 2010. They are: Argentina, Bangladesh, Cambodia, Cote d'Ivoire, Costa Rica, Georgia, Guatemala, Indonesia, Kenya, Mali, Morocco, Peru, Senegal, Thailand, and Viet Nam.

24. All 15 countries have initiated and largely completed preparatory actions including the following:

- Formal institutional structures for project implementation have been established in all countries;

- Operating guidelines to govern activities and inter-agency relationships amongst national stakeholders engaged in TNA work have been agreed and disseminated in several countries;
- Awareness of the TNA among stakeholder groups has been raised through workshops and other mechanisms, such as National Inception Workshops in 10 countries;
- TNA workplans have been finalized in 14 countries in consultation with stakeholders; and
- Senegal and Argentina have taken a lead in identifying priority sectors to set the stage for identification of technology transfer barriers.

Technical Support Activities

25. Building on the foundation established in most countries, technical support activities are underway. Three regional capacity building workshops were held in September 2010 in Africa, Asia and Latin America, attended by 54 participants from 13 countries. The objective of the workshops was to build capacity of the country teams to conduct high quality TNAs.

26. Topics covered included: methodology and tools for prioritization of technologies, multi-criteria analysis, financial assessments of technologies, and facilitation of effective stakeholder consultation. The workshops were organized jointly by URC and selected Regional Centres for the project, namely: Asian Institute of Technology for the Asia region, Environment and Development Action in the Third World (ENDA) in the Africa region, and Fundación Bariloche with Libélula in the Latin America and Caribbean Region.

Completion of TNA Guidebook

27. The use of the updated handbook for conducting TNAs for climate change published by UNDP, to be made available in early 2009, was included in COP decision 2/CP.14. The updated TNA handbook has been shared with country teams and is being used as the basic resource document on the general methodology of sector prioritization. Its usage is somehow constrained as it is a work in progress. The revised version is expected by the end of October 2010. As a result, the multi-criteria analysis tool of the handbook (TNAsses) could not be used during the regional workshops held in September 2010. A similar tool was therefore developed and presented to participants.

28. The project is developing guidebooks to support the efforts of national teams to carry out adaptation TNAs, as there are presently no sectoral guidebooks available on this subject. The first draft guidebook on coastal zones was received in September 2010 and will be released during COP16. Draft versions of other guidebooks are expected to be available to the countries starting October 2010.

29. Sectoral guidebooks for mitigation in the areas of transport, agriculture and

buildings are under development to support countries on these sectors. Drafts will be available to the countries for guidance from November 2010 onwards.

30. A market assessment methodology for barriers analysis and enabling framework development needed to develop Technology Action Plans is under development. A draft will be available to the countries by the end of October 2010.

31. Data facilitation to the country teams is carried out in collaboration with the following:

- UNDP (on Climate Tech-wiki): linkages to carbon finance are being provided by URC for Climate Tech-wiki. Currently no database exists for adaptation hence the project will provide a database for use;
- Regional Centres: they provide technical support on technologies as well as on methodology on demand;
- IEA (on policies): work includes creating developing country policies database through project.

32. The project website (www.tech-action.org) and intranet are operational, and the preparatory work on creation of a network has been initiated.

Second Round Country Selection

33. The selection process for the second round countries is expected to be completed by October 2010. An initial list of twenty-one additional countries eligible for TNA support from Africa, Asia and Latin America and the Caribbean has been circulated to the PSC in September 2010 for its consideration and approval.

34. The project and its progress will be presented at a side event at COP16.

c. Long-Term Implementation of the Poznan Strategic Program

Background: GEF-5 Climate Change Strategy

35. In keeping with the COP14 decision that requested the GEF to consider the long-term implementation of the strategic program on technology transfer, the GEF has identified technology transfer as a longer-term priority in the climate change focal area for GEF-5 programming.

36. Development of the climate change focal area strategy for GEF-5 (2010-2014) drew on past experience and was guided by three principles: (i) responsiveness to Convention guidance; (ii) consideration of national circumstances of recipient countries; and (iii) cost-effectiveness in achieving global environmental benefits. GEF-5 endeavors to make a transformative impact in helping GEF-recipient countries move to a low-carbon

development path through market transformation of and investment in environmentally sound, climate-friendly technologies.

37. The GEF-5 climate change strategy promotes technology transfer at various stages of the technology development cycle, from demonstration of innovative, emerging low-carbon technologies to diffusion of commercially proven, environmentally sound technologies and practices. The entire GEF climate change portfolio can be characterized as supporting technology transfer as defined by the Intergovernmental Panel on Climate Change and the technology transfer framework outlined by the COP.

38. The climate change mitigation strategy for GEF-5 consists of six objectives. The first objective focuses on innovative technologies at the stage of market demonstration or commercialization where technology push is still critical. The second to fifth objectives focus on technologies that are commercially available in the country but face barriers and require market pull to achieve widespread adoption and diffusion. The last objective is devoted to supporting enabling activities and capacity building under the UNFCCC.

Long-Term Program on Technology Transfer

39. Progress achieved under the Poznan Strategic Program on Technology Transfer, particularly in the development of pilot projects and technology needs assessments, has highlighted the need to go beyond current practices to catalyze investments in technology transfer.

40. COP decision 2/CP.14 requested that GEF report to the COP at its 16th session to consider long-term implementation of the strategic program. The GEF is ready to establish and implement a long-term plan. Such a plan, if agreed upon by the COP, may entail the following elements to further scale up investment in ESTs in developing countries in accordance with the GEF-5 climate change strategy, and to enhance technology transfer activities under the Convention:

- (a) Support for Climate Technology Centers and a Climate Technology Network
- (b) Piloting Priority Technology Projects to Foster Innovation and Investments
- (c) Public-Private Partnership for Technology Transfer
- (d) Technology Needs Assessments
- (e) GEF as a Catalytic Supporting Institution for Technology Transfer.

41. Each element is described in the following sections.

(a) Support for Climate Technology Centers and Climate Technology Network

42. The GEF could provide financial and technical support towards the establishment and operation of technology centers and networks at the global, regional, and national levels, as appropriate, to support and accelerate cooperative actions on technology and the diffusion of environmental technologies for mitigation and adaptation in developing

countries. The types of activities to be funded by the GEF may involve technical assistance, training, information sharing, and knowledge management, taking into account the specific functions of technology centers and networks as reflected in the UNFCCC discussions.

43. The GEF could establish a technology transfer coordination function as part of its knowledge management function, and link it with regional technology transfer centers to be established in regional development banks.

44. Resources could be provided from the global and regional set-aside (GRS) in the GEF climate change focal area for global and regional activities, or if the needs to be covered are more important than what the GEF Secretariat is foreseeing, complemented by new voluntary contributions to the GEF. Countries that wish to establish national centers are invited to do so utilizing their respective national allocations under the System for Transparent Allocation of Resources (STAR).

(b) Piloting Priority Technology Projects to Foster Innovation and Investments

45. Under the Poznan Program, 14 pilot projects in 16 countries have received assistance for technology transfer.

46. The GEF will step up its efforts in promoting the demonstration, deployment, and transfer of innovative low-carbon technologies. Projects supported under this window will fall under two categories. The first category targets the demonstration and deployment of innovative technologies with significant impact in the long-run reduction of carbon emissions. Demonstration of 3 to 4 innovative technologies are envisaged in 10 to 15 countries. Such support is consistent with Objective 1 of the GEF-5 climate change mitigation strategy.

47. The second category targets the deployment and diffusion of priority technologies (identified in Technology Needs Assessments, National Communications, and other national policy documents), addressing the need to go beyond assessments toward catalyzing investments. Priority sectors are: energy efficiency in industry and buildings; renewable energy; transport and urban systems; and sustainable management of land use, land-use change, and forestry. Such support is consistent with Objectives 2, 3, 4, and 5 of the GEF-5 climate change mitigation strategy.

48. Funding for both pilot project categories will come from country allocations under the STAR. Similarly, a Technology Transfer Program for Climate Adaptation is going to be developed by the GEF, drawing resources from the Special Climate Change Fund. Eligible activities will be informed by COP guidance.

(c) Public-Private Partnership for Technology Transfer

49. Drawing on the GEF's past experience and lessons learned, an initiative to promote Public-Private Partnerships (PPP) for Technology Transfer could be established to support private sector engagement in technology transfer in order to leverage innovative financial instruments or business models for technology deployment and diffusion in developing

countries. The GEF Earth Fund is currently undergoing a review, providing an opportunity to incorporate technology transfer-related initiatives. The GEF could aim at further developing the platform concept, under which a portfolio of technology transfer projects could be managed. Eligible activities will be informed by COP guidance.

50. GEF funding will be drawn from the GEF PPP window, which falls outside of the country allocations under the STAR. The new partnership could be launched at COP17.

(d) Technology Needs Assessments (TNAs)

51. The Poznan Strategic Program allocated resources for 35 to 45 countries to receive targeted financial and technical support to develop and/or update their TNAs within the framework of Article 4.5 of the UNFCCC. This round of TNAs is expected to lead to the development of national technology action plans for prioritized technologies, and facilitate identification of technology transfer projects to be linked to relevant financing sources.

52. Similar support will be provided to another set of 35 to 45 countries, targeting low- and medium-income countries, to carry out and/or update their TNAs as a global initiative. GEF resources for the global initiative will be drawn from the GRS in the climate change focal area. Larger countries that need more in-depth and extensive analysis have the option to request TNAs as a national initiative, to be drawn from the STAR.

(e) GEF as a Catalytic Supporting Institution for Technology Transfer

53. The longer-term implementation plan will utilize the strengthened institutional capacity of the GEF to implement and enhance technology transfer programming. With a cadre of professionals with extensive programming and policy sectoral experiences, the GEF is well-positioned to be a catalytic global supporter for innovative approaches and address guidance on technology transfer from the UNFCCC COP. The GEF-5 programmatic enhancements, such as support for technology transfer across the six strategy objectives, addressing technology transfer elements in project reviews and incorporation of technology-related indicators in portfolio management, underscore the GEF's commitment to innovative approaches.

54. Furthermore, the GEF can also play a useful and growing role in promoting technology transfer through the carbon markets, with its extensive network of partner institutions and its rich experience in financing projects.

d. Dissemination of GEF Experience and Successfully Demonstrated Environmentally Sound Technologies (ESTs)

55. The GEF has recently launched an initiative on the dissemination of GEF experiences and successfully demonstrated ESTs, under the Poznan Strategic Program. The objective of this initiative is two-fold: (1) to gain better, more in-depth understanding of the process of

technology transfer and the role of the GEF with specific cases of technologies; and (2) to disseminate the technologies that have been successfully demonstrated through GEF support to a wider range of countries and audiences with a view to facilitating wider adoption of these technologies. This initiative is managed by the GEF Secretariat in collaboration with relevant GEF agencies and other interested parties.

56. Dissemination is targeted to five to ten ESTs that have been successfully demonstrated by GEF projects. These technologies, covering both mitigation and adaptation, have potential for wide applications in many developing countries that will lead to significant GHG emissions reductions while contributing to the development objectives of the countries. The experience and lessons learned are being drawn and disseminated so as to benefit the design of the new projects in the future. A booklet that describes such ESTs as well as lessons learned from project implementation is being developed. The GEF also plans to hold a dissemination event on ESTs at COP16. Furthermore, the GEF plans to develop collaborative activities linked to the ongoing and emerging initiatives of the UNFCCC and other partners under this initiative.

**Table 1. Summary of Technology Transfer Pilot Projects under the Poznan Strategic Program
(As of September 2010)**

Country	Project title	GEF Agency	GEF Poznan Program Funding (\$)	Total GEF Funding (\$)	Cofinancing (\$)	Comment on Progress
Brazil	Renewable CO2 Capture and Storage from Sugar Fermentation Industry in Sao Paulo State	UNDP	2,970,000	2,970,000	7,715,000	Project preparation underway and on schedule. submission to the GEF for endorsement expected in September 2011
Cambodia	Climate Change related Technology Transfer for Cambodia: Using Agricultural Residue Biomass for Sustainable Energy Solutions	UNIDO	1,947,000	1,947,000	3,965,000	Project preparation underway with project preparation grant
Chile	Promotion and Development of Local Solar Technologies in Chile	IADB	3,000,000	3,000,000	32,400,000	Project preparation underway, after experiencing delays due to change in administration (March 2010) and response to earthquake (February 2010)
China	Green Truck Demonstration Project	World Bank	2,998,000	4,868,000	17,400,000	Project preparation underway, with recent clearance through Quality Enhancement Review, and under preparation for appraisal by Agency
Colombia, Kenya	SolarChill: Commercialization and Transfer	World Bank	2,995,000	2,995,000	5,050,000	Reached agreement among consortium partner on project preparation activities, currently discussing
Cote d'Ivoire	Construction of 1000 Ton per day Municipal Solid Wastes Composting Unit in Akouedo Abidjan	AfDB	2,888,000	2,888,000	36,899,000	Project preparation underway

Country	Project title	GEF Agency	GEF Poznan Program Funding (\$)	Total GEF Funding (\$)	Cofinancing (\$)	Comment on Progress
Jamaica	Introduction of Renewable Wave Energy Technologies for the Generation of Electric Power in Small Coastal Communities	UNDP	816,000	816,000	1,420,000	Project preparation underway, experiencing technical challenges
Jordan	dHRS Irrigation Technology Pilot Project to Face Climate Change Impact	IFAD	2,200,000	2,200,000	6,000,000	Project preparation underway, to be submitted for GEF endorsement in February 2011
Mexico	Promotion and Development of Local Wind Technologies in Mexico	IADB	3,000,000	5,500,000	18,600,000	Project document submitted to the GEF for endorsement in September 2010, undergoing revision
Russia	Phase out of HCFCs and Promotion of HFC-free Energy Efficient Refrigeration and Air-Conditioning Systems in the Russian Federation through Technology Transfer	UNIDO	2,970,000	19,800,000	40,000,000	Project document submitted to the GEF for endorsement in May 2010, to be endorsed by November 2010
Senegal	Typha-based Thermal Insulation Material Production in Senegal	UNDP	2,310,000	2,310,000	3,400,000	Project document submission expected by end of October 2010
Sri Lanka	Bamboo Processing for Sri Lanka	UNIDO	2,700,000	2,700,000	10,700,000	Project preparation underway
Thailand	Overcoming Policy, Market and Technological Barriers to Support Technological Innovation and South-South Technology Transfer: The Pilot Case of Ethanol Production from Cassava	UNIDO	2,970,000	2,970,000	8,340,000	Project preparation underway, with project approval inside UNIDO by March 2011
Turkey, Cook Islands	Realizing Hydrogen Energy Installations on Small Island through Technology Cooperation	UNIDO	3,000,000	3,000,000	3,500,000	Project preparation underway, with project submission to be completed after elections in Cook Islands (November 2010)
TOTAL			36,763,000	57,963,000	195,389,000	

ANNEX 1. SUMMARIES OF PILOT PROJECTS

Brazil: Renewable CO₂ Capture and Storage from Sugar Fermentation Industry in Sao Paulo State. The objective of the project is to remove the barriers to the deployment, diffusion, and transfer of renewable CO₂ capture and storage (RCCS) technology from sugar fermentation in the production of ethanol. The main investment and technology demonstration component of this project will be accompanied by activities to create an enabling environment for RCCS technology, including streamlining of the licensing requirements for RCCS projects. The technology has the potential to mitigate and contribute to a net removal of CO₂ from the atmosphere. The project results have the potential to contribute to South-South technology transfer, as sugar cane is produced mainly in developing countries. This project is implemented by UNDP.

Cambodia: Climate Change Related Technology Transfer for Cambodia: Using Agricultural Residue Biomass for Sustainable Energy Solutions. This project aims to promote the sustained transfer to Cambodia of 3-5 MW agricultural residue biomass-fuelled power and steam generation technologies from one or more countries where these technologies are already proven. The project will address the issue of replicability by using an integrated approach that combines the technical support in the implementation, commissioning, and performance evaluation of the pilot demonstrations, with interventions at the institutional and policy levels and in the market place so as to assure the development of a technology transfer mechanism appropriate for the country. The projected private sector cofinancing is \$3.4 million. This project is implemented by UNIDO.

Chile: Promotion and Development of Local Solar Technologies in Chile. The project supports the government of Chile and the National Energy Commission in the development of a solar technology industry, for both solar water heating and power generation in Chile. This will be achieved through the promotion of transfer of technology, institutional strengthening and capacity building in solar technology, the development of demonstration projects using solar technologies, and the design of incentives, financial mechanisms, and public awareness campaign to promote solar technology projects. This project is implemented by IDB.

China: Green Truck Demonstration Project. This project aims to accelerate transfer and deployment of clean transport technologies, reduce GHG emissions from freight transport, and improve urban air quality in project cities, through a pilot in Guangdong province. This highly-leveraged project has significant private sector cofinancing of at least \$17 million. It will support the following activities: (a) retrofitting more than 150 trucks; (b) purchasing more than 150 new trucks equipped with green truck technologies through innovative financing mechanisms; (c) providing training to approximately 600 truck drivers; and (d) assisting local enterprises to become green truck technology suppliers. This project is implemented by the World Bank.

Columbia and Kenya: SolarChill: Commercialization and Transfer. The project aims to conduct in-situ tests of the SolarChill, a vaccine refrigeration technology, in remote rural areas in Colombia and Kenya. These tests are conducted to address challenges in the vaccine cooling sector related to fuel availability and costs, performance issues, and environmental considerations with respect to the chemicals used as insulation foam blowing agents. These tests are expected to bring the SolarChill vaccine refrigerator technology to the final stages of commercialization in both countries and to allow for the transfer of the technology to local and regional private sector producers. In tandem, the project will explore the potential to market the SolarChill B, an early prototype household/light commercial refrigerator to help preserve food in nonelectrified rural areas. This project is implemented by the World Bank.

Cote d'Ivoire: Construction of 1,000 ton per day Municipal Solid Wastes Composting Unit in Akouedo Abidjan. The project aims to transfer a composting technology to improve the sustainable waste management in the agglomeration of Abidjan. It will build a 1,000 tons/day industrial composting unit contributing to the GHGs emission reduction and producing residuals that have agricultural applications. Activities to facilitate technology transfer include adaptation of the composting process to local conditions and training on the existing sites in China for the engineering and construction team. This project is implemented by AfDB.

Jamaica: Introduction of Renewable Wave Energy Technologies for the Generation of Electrical Power in Small Coastal Communities. The objective of the project is the introduction of renewable wave energy in a Small Island Developing States (SIDS), such as Jamaica, for the electrification of coastal rural communities (both on and off-grid) and to contribute to lowering the risk of high energy storm waves. In addition, the project would demonstrate the technology applicability for beach erosion control and reduction of vulnerability to storm waves. Project components include wave energy conversion technology assessment and wave energy pilot demonstrations, as well as policy and regulatory support. In two to five years, resulting from replication of similar projects in the Caribbean Region, up to 50 small coastal communities are expected to benefit from similar technologies. This project is implemented by UNDP.

Jordan: dHRS Irrigation Technology Pilot Project to Face Climate Change Impacts. This project aims to upscale an innovative irrigation technology, which enables the reuse of waste water for agricultural purposes. With climate change projected to significantly reduce the availability of already scarce water resources in Jordan, effective ways of reducing demand for clean fresh water will be an essential element of reducing the climate change vulnerability of the agricultural system in Jordan. The approach of this project is centered on the link between technology transfer, climate change response, and rural development. The project is articulated through two components: (a) installation of the Dutyion Root Hydration System (dHRS) irrigation technology system in pilot sites; (b) targeted training on the technology. The project is cofinanced by the Agricultural Credit Corporation, which will facilitate the advancement of this technology to willing famers. This project is implemented by IFAD.

Mexico: Promotion and Development of Local Wind Technologies in Mexico. The project will support Mexico to become a key player in the world's wind energy market, expanding its wind generation capacity by enabling local development and implementation of wind mill technologies. It will support the local development of a national wind turbine market, by structuring a value chain for the production of goods and services at the national level, by building human and technical capacities for the manufacturing, and by testing and certification of wind turbines. This project is implemented by IDB.

Russia: Phase out of HCFCs and Promotion of HFC-free Energy Efficient Refrigeration and Air-Conditioning Systems in the Russian Federation through Technology Transfer. The objective of this project is to phase out ozone depleting substances (HCFCs) and to promote energy efficiency in the foam and refrigeration manufacturing sectors in the Russian Federation. Project components include: (a) institutional capacity building; (b) phase out of HCFC consumption in the key consuming sectors of foam and refrigeration and development of ozone depleting substances destruction facility and supporting recovery network; (c) technology transfer for design of higher efficiency, HFC-free refrigeration and air conditioning systems, and purchase of production lines for demonstration projects; and (d) stimulation of market growth for energy efficient equipments. This project is implemented by UNIDO.

Senegal: Typha-based Thermal Insulation Material Production in Senegal. This project aims to facilitate the transfer of the technology for producing an innovative thermal insulation material out of typha australis, an invasive species causing serious problems for Senegal's ecosystem and economy. Typha can be harvested and used as a raw material for insulation, solving yet another problem in the country: shortage of electric power and inadequate insulation of the buildings. The project will also include research and development, certification and patenting, establishing the local production chain through investment in a production facility for the innovative insulation material, adapting the innovative insulation material to local conditions, and showing the demonstration in a public building. This project is implemented by UNDP.

Sri Lanka: Bamboo Processing for Sri Lanka. The project supports to develop a bamboo supply chain and product industry in Sri Lanka, leading to reduced global environmental impact from GHG emissions and a sustainable industry base. This project involves the South-South transfer of bamboo processing technology from India (and possibly also China) to Sri Lanka. Development of a bamboo industry in Sri Lanka requires technology transfer from these countries for key steps in the bamboo processing chain. This project is implemented by UNIDO.

Thailand: Overcoming Policy, Market, and Technological Barriers to Support Technological Innovation and South-South Technology Transfer: The Pilot Case of Ethanol Production from Cassava. The project will remove barriers to promote technology transfer in the production of ethanol and to enhance South-South cooperation. The envisaged technology is the Simultaneous Saccharification and Fermentation (SSF), which includes improved cultural techniques, raw material preparation, and the

fermentation technology and the short-cuts to the fermentation processes, together with options for net energy reduction throughout the project cycle. The project also aims to further increase fermentation efficiency and to transfer the technologies to other countries in Southeast Asia. The technology will be transferred to Viet Nam, reflecting the lessons learned from its demonstration in Thailand. The project will also support activities in Cambodia to lay foundation for technology transfer. This project is implemented by UNIDO.

Turkey and Cook Islands: Realizing Hydrogen Energy Installations on Small Island through Technology Cooperation. The main objective of this project is to transfer the installations of renewable energy in combination with hydrogen energy technologies in two islands, one in Turkey and another in the Cook Islands. This collaborative project aims to increase the share of renewable energy in the energy mix, reduce energy costs as well as provide platforms to demonstrate and assess the performance of these technology systems in remote island locations. The successful realisation of this project could contribute to the strengthening of the hydrogen island concept within developing countries. This project is implemented by UNIDO.
