GLOBAL ENVIRONMENT BENEFITS

The project on "Climate technology transfer mechanisms and networks in Latin America and the Caribbean" (hereinafter the Project) aims at promoting the development and transfer of environmentally sound technologies (EST) in Latin-America and the Caribbean (LAC), in order to contribute to the ultimate goal of reducing greenhouse gas (GHG) emissions and reducing the vulnerability to climate change in specific sectors in LAC. The Project's objective is to build national capacities to identify, assess, develop and transfer EST, focusing on: (i) the promotion of and support to regional collaborative efforts; (ii) the support to planning and policy-making processes at national and sectoral levels; (iii) the demonstration of policies and enabling mechanisms; and (iv) the mobilization of private and public financial and human resources. The Project's activities will promote enabling environments for the development and transfer of EST, addressing policy, regulatory, financial, technical and information barriers in key sectors (i.e. renewable energy, energy efficiency, transport, forestry and agriculture). In particular, components three and four will enable the adoption of EST that will deliver global environment benefits (GEBs), namely the reduction of GHG emissions and the reduction of the vulnerability to climate change.

Instead of promoting a set of predefined EST, the Project strategy will focus on responding to country originated demands. From this strategy it follows that the composition of the portfolio of Project interventions (i.e. the combination of countries, technologies and sub-sectors/industries) will be defined gradually, as country requests are received, assessed, prioritized and answered. Therefore, a low uncertainty estimation of GEB can only be completed during Project execution.

Indirect GEBs. Component three of the Project, "Pilot technology transfer mechanisms", aims at facilitating the adoption of technology transfer mechanisms, including policies, regulations, standards and financial mechanisms. GEBs resulting from the successful adoption of technology transfer mechanisms with Project support should be estimated following GEF methodologies and reported by Project Executing Agencies (PEA). Project support for the adoption of a technology transfer mechanism may include, inter alia, technical assistance for the preparation of draft regulations or standards, preparation of technology assessments or roadmaps that recommend the adoption of a given mechanism, the elaboration of feasibility studies or market analysis that lead to the adoption of the given financial mechanism, etc. Estimates of indirect GEBs should follow a conservative approach, in particular when assuming the causality factor attributed to the GEF intervention. Estimations by PEAs will be compiled by the IDB and reported in the relevant GEF tracking tool.

Direct GEBs. Component four of the Project, "Leverage private and public investments", will enable investments in the EST by means of identifying investment opportunities, preparing investment plans, feasibility studies, financial models and project proposal for the mobilization of international climate finance resources. PEAs will follow GEF methodologies to estimate direct GEBs resulting from Project supported investments and report the estimates to the IDB. The IDB will compile estimates and report in the relevant GEF tracking tool. PEAs should follow a conservative approach when producing

estimates, in particular when assessing the uncertainty that a given Project supported investment will materialize at a time beyond the Project closure date.

Estimation of expected global environment benefits

The Project seeks to mobilize USD 50 million in investment in EST, mainly through country-driven activities executed under component four. The following assumptions are made to provide an estimation of the expected GEB:

Assumptions	
IADB investments	USD 50 million
Leverage ratio	1:2
Total investments mobilized	USD 100 million
Allocation:	
Energy efficiency (20%)	USD 20 million
Renewable energy (40%)	USD 40 million
Transport (20%)	USD 20 million
Forestry (10%)	USD 10 million
Agriculture (10%)	USD 10 million
Ratio of direct to indirect emissions reductions	1:2

Energy efficiency

Emission reductions	
Average abatement cost[†]	0.150 USD/kWh/y
Annual energy savings	133,000 MWh/y
Emission factor[‡]	0.430 tCO_2/MWh
Annual emission reductions	57,000 tCO_2/y
Average lifetime	8 years
Direct emission reductions	456,000 tCO_2
Ratio of direct to indirect emissions reductions	2
Indirect emission reductions	912,000 tCO_2
Total emission reductions	**1,368,000 tCO_2**

[†] Average investment per kWh saved per year in developing countries, based on the concept of energy productivity, as presented in "*The Case for Investing in Energy Productivity",* McKinsey Global Institute, 2008.

[‡] Generation-weighted average of grid CO_2 emission factors reported for clean development mechanism project activities in 19 countries in LAC.

Renewable energy

Emission reductions	
Average investment cost[†]	3,500 USD/kW
Installed capacity	11.4 MW
Load factor[‡]	0.2
Annual power generation	20,000 MWh/y
Emission factor[*]	0.430 tCO_2/MWh
Annual emission reductions	8,600 tCO_2/y
Average lifetime	20 years
Direct emission reductions	172,000 tCO_2
Ratio of direct to indirect emissions reductions	2
Indirect emission reductions	344,000 tCO_2
Total emission reductions	**516,000 tCO_2**

[†] Average investment per kW estimated on the basis of costs reported in "*Projected Costs of Generating Electricity*". International Energy Agency, 2010.

[‡] Load factors for renewable energy are technology and site specific. A conservative estimate for a range of renewable energy sources is used here.

[*] Generation-weighted average of grid CO_2 emission factors reported for clean development mechanism project activities in 19 countries in LAC.

Transport

Emission reductions	
Average abatement cost[†]	137 USD/bbl/y
Annual fuel savings	146,000 bbl/y
Emission factor[‡]	0.365 tCO_2/bbl
Annual emission reductions	53,000 tCO_2/y
Average lifetime	10 years
Direct emission reductions	530,000 tCO_2
Ratio of direct to indirect emissions reductions	2
Indirect emission reductions	1,060,000 tCO_2
Total emission reductions	**1,590,000 tCO_2**

[†] Average investment per barrel of oil (bbl) saved per year in developing countries, based on McKinsey Global Institute, 2008. Estimates are for energy efficient vehicle technologies.

[‡] Estimated value for gasoline.

Forestry

Emission reductions	
Average abatement cost	20 USD/$tCO_{2\,eq}$
Direct emission reductions/removals	500,000/$tCO_{2\,eq}$
Ratio of direct to indirect emissions reductions/removals	2
Indirect emission reductions/removals	1,000,000 tCO_2
Total emission reductions	**1, 500,000 tCO_2**

Direct emissions reductions from investments in EST in all sectors are estimated at 1.7 million tones CO_2-eq. Indirect emissions reductions from investments benefiting indirectly from the Project activities are estimated at 3.3 million tones CO_2-eq. Total emission reductions are therefore estimated at 5 million tones CO_2-eq. As a result, the cost for the GEF Trust Fund contribution (USD 9.16 million) per ton reduced/removed is 1.84 USD/tCO_2-eq.

Agriculture

Unlike the energy, transportation and forestry sectors, the Project activities on the agriculture sector will not focus on climate change mitigation, but on activities on adaptation to climate change. In that context, GEBs sought will be related to the reduction of vulnerability to climate change in the agriculture sector. In particular, the Project´s objectives will be aligned with the third objective of GEF´s ¨Adaptation, Monitoring and Assessment Tool¨ (AMAT), the required framework to measure outputs and outcomes from projects receiving grants from the Special Climate Change Fund (SCCF). AMAT´s objective three measures results regarding the promotion of the transfer and adoption of adaptation technologies under two distinct outcomes: (i) ¨successful demonstration, deployment, and transfer of relevant adaptation technology in targeted areas¨; and (ii) ¨enhanced enabling environment to support adaptation-related technology transfer¨. The Project will deliver results under these two outcomes through, inter alia, the co-financing of proposals to address issues related to the development and transfer of EST in the agriculture sector in LAC. As per AMAT, the following indicators will be used to monitor and report Project GEBs in the agriculture sector:

- Type of adaptation technologies introduced to targeted groups (e.g. resilient agricultural systems)
- % targeted groups adopting adaptation technologies by technology type;
- Type of adaptation technologies introduced to targeted groups;
- Number of individuals trained in adaptation-related technologies;
- Number of policies developed or strengthened;
- Policy environment and regulatory framework for adaptation-related technology transfer established or strengthened.