

## Acronyms

<b>Acronyms</b>	<b>Name</b>
<b>AML</b>	Aerodyne Mobile Laboratory
<b>ARI</b>	Aerodyne Research, Inc.
<b>BC</b>	Black Carbon
<b>CB/CBA</b>	Cost benefit / cost benefit analysis
<b>CCM</b>	Climate Change Mitigation
<b>CENICA</b>	National Centre of Environmental Research and Training (Centro Nacional de Investigación y Capacitación Ambiental)
<b>CH4</b>	Methane
<b>CNG</b>	Compressed Natural Gas
<b>CO</b>	Carbon Monoxide
<b>CONAGUA</b>	National Water Commission (Comisión Nacional de Agua)
<b>CONAFOR</b>	National Forestry Commission (Comisión Nacional Forestal)
<b>EA</b>	Executing Agency
<b>FA</b>	Focal Area
<b>GEF</b>	Global Environment Facility
<b>GHG</b>	Greenhouse gas
<b>GIRA</b>	Grupo Interdisciplinario de Tecnología Rural Apropiada A. C.
<b>GPS</b>	Group of Professional Staff
<b>IA</b>	Implementing Agency
<b>IIASA</b>	International institute for Applied Systems Analysis
<b>IMP</b>	Mexican Petroleum institute (Instituto Mexicano de Petróleo)
<b>INE</b>	National Ecology Institute (Instituto Nacional de Ecología)
<b>INEGEI</b>	National GHG inventory
<b>IPCC</b>	Intergovernmental Panel for Climate Change
<b>LEDS</b>	Low Emission Development Strategy
<b>MCE2</b>	Molina Center for Energy and the Environment
<b>M&amp;E</b>	Monitoring and Evaluation
<b>MNEI</b>	Mexican National Emission Inventory
<b>MSP</b>	Medium-sized Project
<b>NAMA</b>	Nationally Appropriate Mitigation Measures
<b>NASA</b>	National Aeronautics and Space Administration

<b>NGO</b>	Non-Governmental Organization
<b>PECC</b>	Special program on climate change (Programa Especial para Cambio Climático)
<b>PEMEX</b>	Mexico Petroleum (Petróleos Mexicanos)
<b>PIF</b>	Project Identification Form
<b>PIR</b>	Project Implementation Review
<b>PSC</b>	Project Steering Committee
<b>SAGARPA</b>	Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación)
<b>SEDESOL</b>	Social Development Secretariat (Secretaría de Desarrollo Social)
<b>SEMARNAT</b>	Ministry of Environment and Natural Resources (Secretaría de Medio Ambiente y Recursos Naturales)
<b>SENER</b>	National ministry of energy (Secretaría de Energía)
<b>SLCF</b>	Short lived Climate Forcers
<b>SLCP</b>	Short lived Climate Pollutants
<b>SMA</b>	Environment Secretariat of Mexico City Federal District (Secretaria de Medio Ambiente)
<b>STAP</b>	Scientific Technical & Advisory Panel
<b>TA</b>	Technical Assistance
<b>TNA</b>	Technical Needs Assessments
<b>TOR</b>	Terms of Reference
<b>UAB</b>	Universidad Andrés Bello (UAB), Chile
<b>UAEM</b>	Universidad Autónoma de Estado de México
<b>UN</b>	United Nations
<b>UNAM</b>	Universidad Autónoma de Mexico
<b>UNDAF</b>	United Nations Development Assistance Framework
<b>UNEP</b>	United Nations Environment Programme
<b>UNFCCC</b>	United Nations Framework Convention for Climate Change
<b>VOCs</b>	Volatile Organic Compounds
<b>WHO</b>	World Health Organization
<b>WMO</b>	World Meteorological Organization

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**Appendix 1: Incremental Cost Analysis**

<b>Project Component</b>	<b>Baseline</b>		<b>Alternative (Baseline + Increment)</b>		<b>Increment</b>	
<b>Component 1:</b> Characterization of methane, black carbon (BC) and co-pollutants from key emissions sources	Current Mexico National Emissions Inventory (MNEI) does not include black carbon		Measurements supported by project will produce data on emission factors and activity data for BC and CH4 at a level necessary to define targeted SLCF mitigation measures and develop inventories to be integrated into existing ones (MNEI and INEGI)		GEF: USD 399,365	
	GHG Emission Inventory (INEGI) includes methane but at tier 1 and intermediary levels				Co-finance: USD 611,191	
	<b>Total</b>	<b>USD 1,140,000</b>	<b>Total</b>	<b>USD 2,150,556</b>	<b>Total</b>	<b>USD 1,010,556</b>
<b>Component 2.</b> Assessment and selection of technically feasible and economically viable SLCF mitigation policies for implementation in Mexico	Current identification of SLCF mitigation measures for Mexico is done at a very preliminary level and not supported by detailed emission source characterization. Measures are not evaluated in terms of their benefits for climate, health, ecosystems and agriculture.		Improved data on emission sources will help identify more targeted mitigation measures. Evaluation of mitigation potential of selected mitigation measures and modeling of their climate, health, ecosystem and agriculture impact, as well as of their cost and benefits will help identify priority measures and integrate these into the LEDS.		GEF: USD 213,850	
					Co-finance: USD 1,045,922	
	<b>Total</b>	<b>USD 500,000</b>	<b>Total</b>	<b>USD 1,259,772</b>	<b>Total</b>	<b>USD 759,772</b>
<b>Component 3.</b> Demonstration of SLCF mitigation technologies for key sources	Technologies have not been demonstrated yet with regard to their SLCF mitigation, climate, health, ecosystem and agriculture potential including evaluation of their barriers and opportunities		As a result of improved emission source data and of evaluated mitigation measures, project will be able to select promising SLCF mitigation technologies and to demonstrate these in real circumstances		GEF: USD 218,965	
					Co-finance: USD 446,365	
	<b>Total</b>		<b>Total</b>	<b>USD 665,330</b>	<b>Total</b>	<b>USD 665,330</b>

<b>Project Component</b>	<b>Baseline</b>		<b>Alternative (Baseline + Increment)</b>		<b>Increment</b>	
<b>Component 4:</b> Integration of SLCF mitigation measures into LEDS	LEDS mentions SLCF but does not integrate targeted measures and policies.		Embedding of priority mitigation policies in the context of Mexico's LEDS.		GEF: USD 21,800	
		<b>19,000,000<sup>1</sup></b>		<b>19,021,800</b>	<b>Total</b>	<b>USD 21,800</b>
<b>Component 5:</b> Capacity building, awareness raising, monitoring and evaluation	Awareness on relevance of SLCF for health, agriculture, ecosystems and climate is limited. Measurement tools are partly available and capacity for conducting measurement and for assessing mitigation measures is given but has not yet been applied in the SLCF context.		Project will support dissemination of SLCF emission sources and targeted mitigation measures through workshops and coalition/network meetings. Training to national mitigation policy developer and modeler will be provided.		GEF: USD 15,110 Co-finance: USD 195,565	
	<b>Total</b>		<b>Total</b>	<b>USD 210,675</b>	<b>Total</b>	<b>USD 210,675</b>
<b>Component 6:</b> Project management and monitoring and evaluation			Development and execution of the project activities and work plan.		GEF: USD 40,000 Co-finance: USD 195,080	
	<b>Total</b>	<b>1,000,000</b>	<b>Total</b>	<b>USD 1,235,080</b>	<b>Total</b>	<b>USD 235,080</b>
<b>Total Cost:</b>	<b>Baseline:</b>	<b>USD 21,640,000</b>	<b>Alternative:</b>	<b>USD 24,543,213</b>	<b>Total:</b>	<b>USD 2,903,213</b>

<sup>1</sup> Please note the funding provided for the development of the LEDS represents baseline finance and co-finance at the same time since the project activities will help strengthen the LEDS

**Appendix 2: Work Plan and Timetable for 36 months**

<b>Project activities (quarterly)</b>	<b>1-3</b>	<b>4-6</b>	<b>7-9</b>	<b>10-12</b>	<b>13-15</b>	<b>16-18</b>	<b>19-21</b>	<b>22-24</b>	<b>25-27</b>	<b>28-30</b>	<b>31-33</b>	<b>34-36</b>
<b>Component 1: Characterization of methane, black carbon and co-pollutants from key emission sources</b>												
Development of preliminary national BC emission inventory based on PM2.5 and national energy balance approaches	X											
Collect and process meteorological and emissions activity data at the national and regional levels	X	X										
Development of preliminary model-ready national emissions inventory	X											
Execution of mobile laboratory measurements of methane emissions from waste water treatment plants, landfills and oil and gas operations and development of emission factors,		X	X									
Execution of mobile laboratory measurements of black carbon and co-pollutants emissions from brick kilns, oil and gas operations, cook stoves, on road diesel vehicle emissions and development of emission factors		X	X									
Execution of complementary measurements through UNAM, CENICA, GIRA and other institutions		X	X									

Development of emission inventory for methane produced by enteric fermentation of cattle based on research, in vivo estimation and integrated modeling	X	X										
Development of emission inventory for methane produced from wastewater treatment plants	X	X										
Integration of improved emission source data into national inventories INEGI and MNEI			X	x								
Development of updated model-ready national emissions inventory using improved emissions data			X	x								
Documentation of procedures and challenges in developing national SLCF emission inventories					x	x						
<b>Component 2: Assessment and selection of technically feasible and economically viable SLCF mitigation policies for implementation in Mexico</b>												
Preliminary selection of SLCF mitigation measures and evaluation of mitigation potential	x	x										
Integrated evaluation of selected mitigation measures based on improved emission data and data from mitigation assessments with the help of the WRF Chem model and development of SLCF mitigation scenarios and implications for climate, health and agriculture			x	x	x	x	x	x				
Cost and benefit analysis of selected			X	X	X	X	x	x				

mitigation measures and prioritization of evaluated mitigation measures												
<b>Component 3: Demonstration of SLCF mitigation technologies for key sources</b>												
Demonstration of selected SLCF mitigation technologies and evaluation of mitigation potential (various periods)		x	x	x	x	x						
Documentation of cost and benefits of demonstrated technologies including barriers to application and assessment of environmental, social and economic impacts								x	x	x		
<b>Component 4: Integration of SLCF mitigation measures into LEDS</b>												
Integration of evaluated prioritized mitigation measures into LEDS						x	x	x				
<b>Component 5: Capacity building, awareness raising, monitoring and evaluation</b>												
Organization of training on applied measurement methodologies and modeling tools (continuous)		x	x	x	x	x	x	x	x	x		
Development and dissemination of education and outreach material, i.e., on requirements for developing SLCF emission inventories and on selecting and evaluating targeted SLCF mitigation measures including related challenges					x	x	x	x	x	x		
Organization of technical workshops and outreach meetings, i.e., through SLCP coalition, regional climate					x	x	x	x				



change networks,												
Publication of project results in peer reviewed journals; presentation of key findings to government personnel and relevant stakeholders.									x	x	x	X
Monitoring and evaluation	x	x	x	x	x	x	x	x	x	x	x	X
<b>Component 6: Project management</b>												
Project meeting - organizational procedures, evaluation and selection of potential sites and logistics	x											
Project coordination to foster smooth collaboration among project partners	x	x	x	x	x	x	x	x	x	x	x	X

**Appendix 3: Key deliverables and benchmarks**

<b>Component</b>	<b>Activities</b>	<b>Timeframe</b>	<b>Responsibility</b>	<b>deliverable</b>
<b>Component 1: Characterization of methane, black carbon and co-pollutants from key emission sources</b>	Development of preliminary national BC emission inventory based on PM2.5 and national energy balance approaches	1-3 mos	UNAM, MCE2	Preliminary national BC emission inventory
	Execution of mobile laboratory measurements of methane emissions from waste water treatment plants, landfills and oil and gas operations and development of emission factors, activity data and emission inventories	3-6 mos	ARI, MCE2	Reports with results from measurements including methane emission factors and activity data from WWTP, landfills and oil and gas operations
	Development of emission inventory for methane produced by enteric fermentation of cattle based on research, in vivo estimation and integrated modeling	3-6 mos	UAEM	Emission inventory for methane from enteric fermentation
	Execution of mobile laboratory measurements of black carbon and co-pollutants emissions from brick kilns, oil and gas operations, cook stoves, on road diesel and gasoline vehicle emissions and development of emission factors, activity data and emission inventories	3-6 mos	ARI, MCE2	Reports with results from measurements including BC emission factors and activity data from brick kilns, oil and gas operations, cook stoves, on road diesel and gasoline vehicle emissions
	Execution of complementary measurements through UNAM, CENICA, UAM-A, GIRA and others	3-6 mos	UNAM, CENICA, UAM-A, GIRA, etc.	Report with results from measurements
	Integration of improved emission source data into national inventories INEGI and MNEI	6-9 mos	MCE2 and Project Partners	Integrated emission inventories (MNEI, INEGI)

	Development of model-ready emissions data	6-9 mos	MCE2	Model ready emission data
	Documentation of procedures and challenges in developing national SLCF emission inventories	9-12	MCE2 and partners	Report/guidance document for developing SLCF inventories and mitigation measures
<b>Component 2: Assessment and selection of technically feasible and economically viable SLCF mitigation policies for implementation in Mexico</b>	Preliminary selection of SLCF mitigation measures and evaluation of mitigation potential	1-3 mos	ALL	List with pre-selected mitigation measures
	Integrated evaluation of selected mitigation measures based on improved emission data and data from mitigation assessments with the help of the WRF Chem model and development of SLCF mitigation scenarios and implications for climate, health and agriculture	6-18 mos	MCE2, UNAM	Report with integrated evaluation of mitigation measures and prioritization exercise
	Cost and benefit analysis of selected mitigation measures and prioritization of evaluated mitigation measures	6-18 mos	INE consultants	Report with cost and benefits of evaluated measures
<b>Component 3: Demonstration of SLCF mitigation technologies for key sources</b>	Demonstration of selected SLCF mitigation technologies and evaluation of mitigation potential (various periods)	3-12 mos	ARI, MCE2, etc.	Technology design documents
	Documentation of cost and benefits of demonstrated technologies including barriers to application and assessment of environmental, social and economic impacts	19 mos	INE, MCE2	Report with results from demonstration
<b>Component 4: Integration of SLCF</b>	Integration of evaluated prioritized mitigation measures into LEDS	16-24 mos	MCE2, INE	LEDS with project results included

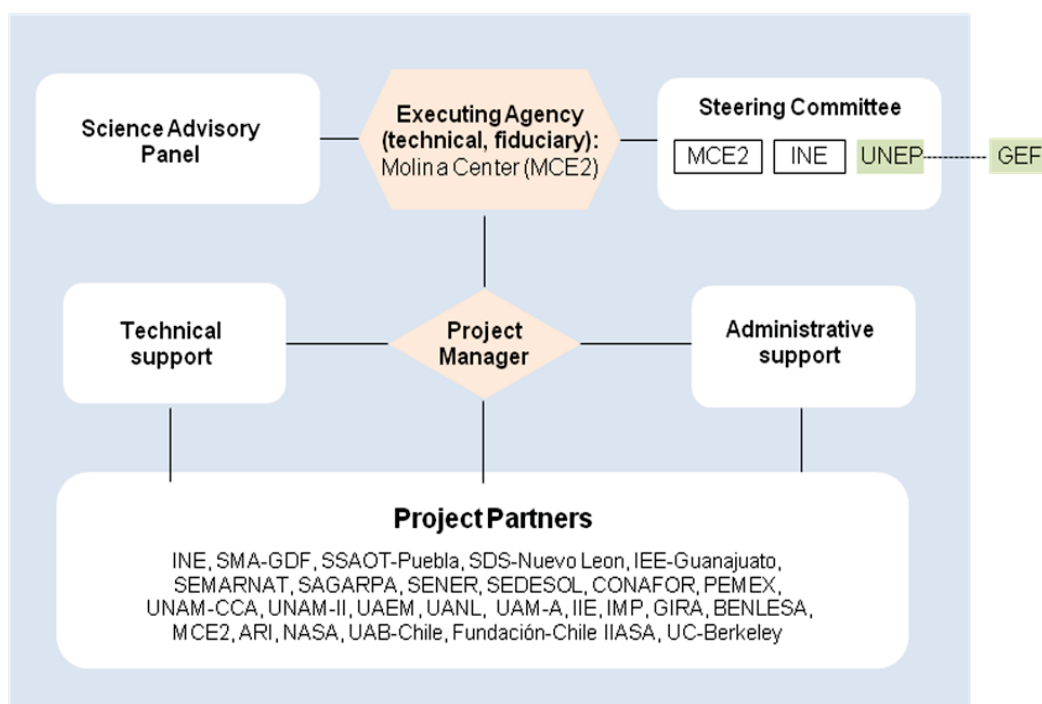
<b>mitigation measures into LEDS</b>				
<b>Component 5: Capacity building, awareness raising and monitoring and evaluation</b>	Organization of training on applied measurement methodologies and modeling tools	Continuous	MCE2 and Project Partners	Training reports including number of people trained, training materials etc
	Development and dissemination of education and outreach material on requirements for developing SLCF emission inventories and on selecting and evaluating targeted SLCF mitigation measures;	12-24 mos	MCE2 and Project Partners	National action plan Guidance document
	Organization of technical workshops and outreach meetings i.e. through SLCP coalition, regional climate change networks	13-24 mos (continuous)	MCE2, INE	Workshop reports
	Publication of project results in peer reviewed journals	13-36 mos (continuous)	ALL	Peer reviewed articles

## Appendix 4: Project implementation arrangement and flowchart

### General implementation arrangements:

The Molina Center will coordinate and implement all technical activities in close coordination with INE through a group of professional staff (GPS) led by a Project Manager, and will also be in charge of all fiduciary responsibilities, including financial management, and the procurement of goods and services. The Molina Center will manage the entirety of the project funds. The implementation of the measurements and demonstration activities will be supported and implemented through the participation of the project partners detailed in Appendix 5 who also contribute co-financing to the project. Oversight of the Project will be the responsibility of a steering committee. An implementation flow chart is shown below.

### Project Implementation Flow Chart



### Technical implementation arrangements:

**Steering Committee.** The main responsibility of the Steering Committee (comprising of representatives from the Molina Center, INE, and UNEP) is to assure political and strategic support for the implementation of the measurements and demonstration and the coordination with counterpart resources. The Steering Committee will also provide guidance on the implementation of the project work plan and make high-level recommendations regarding the project's development, technical and management issues.

**Scientific Advisory Panel.** A Scientific Advisory Panel, appointed by the Molina Center and INE, will be convened regularly to advise on project implementation, including reviews of emerging science in the field, assessments of the impacts on climate, health, agriculture, and ecosystems, and evaluations of the costs and benefits of various mitigation options. The advisory panel will also include UNEP staff that has been working on SLCF related issues depending on the specific issue at stake such as representatives from the ABC team, UNEP staff working on national communications

and specifically GHG inventories for component 1, members of the UNEP secretariat of the clean air coalition to reduce SCLP, experts on global SLCP assessments etc .

**Group of Professional Staff.** A group of professional staff (GPS) composed of staff from the Molina Center, INE and Project partners will be responsible for the implementation of project activities led by the Project Manager. Specifically, the Project Manager will be in charge of the overall operational coordination of the project work plan, including monitoring and evaluation of project activities and public outreach.

## Appendix 5: Team member roles, expertise, and comparative advantage

Team Member	Role	Expertise and comparative advantage
UNEP	Implementing agency & co-organizer	UN organization and international leader in caring for the environment; centrally involved in all components of the Initiative
Molina Center	Project coordination and management; development and implementation of project activities.	Non-profit organization focuses primarily on efforts to make contributions to energy and environmental sustainability through policy-relevant interdisciplinary research and education activities. Emissions measurements and demonstration, integrated assessment of mitigation strategies and their impacts. Please see more detailed information on Molina Center following the table.
INE	Technical project coordination and integration	Deconcentrated entity within SEMARNAT and has the mission to generate scientific and technical information related to environmental problems and to strengthen capacities in order to inform society, to support decision making processes, to foster environmental protection, to promote the sustainable use of natural resources, and to support the ministry of environment in attaining its objectives. Leading agency in applied environmental research that develops and promotes scientific cooperative projects for Mexico. Leading agency for national communication and LEDS thus ensuring integration of project's results. The personnel from the various general directors will contribute to emissions measurement, mitigation strategies, health and economic impacts.
UNAM-CCA	Project partner	Emission measurements, evaluation of activity data for emissions and mitigation strategies.
GIRA	Project partner	Emissions measurement and mitigation strategies (small industry and residential sector)
University of California, Berkeley	Project partner	Impacts of emissions and mitigation strategies on residential sector
UNAM-II	Project partner	Emissions characterization and mitigation strategies of methane from waste water treatment plants.

Universidad Autonoma de Estado de Mexico (UAEM)	Project partner	Emissions characterization and mitigation strategies of methane from enteric fermentation in cattle.
Aerodyne Research Inc.(ARI), USA	Project partner	The Aerodyne mobile laboratory is equipped with state-of-the-science equipment to measure black carbon, methane and other greenhouse gases
NASA, USA	Project partner	Integrated assessment of mitigation strategies and their impacts.
IILASA, Austria	Project partner	Emissions model
Universidad Andrés Bello (UAB), Chile	Project partner	Integrated assessment of mitigation strategies and their impacts.
Universidad de Autónoma de Nuevo León	Project partner	Emissions measurement and mitigation strategies
GDF-SMA	Project partner	Demonstration of diesel vehicles; characterization of methane from landfill.
IMP	Project partner	Emissions and mitigation strategies from oil and gas system.
UAM-A	Project partner	Emissions from agricultural burning
DGGCARETC-Semarnat	Project partner	National emissions inventory
Instituto de Investigaciones Eléctricas	Project partner	Analysis of municipal waste and the mitigation potential for biogas in landfills at the regional level.
BENLESA	Project partner	Biogas recovery from active landfill
SSAOT-Puebla, SDS-Nuevo León, IEE-Guanajuato, PEMEX, CONAGUA, SENER, SEDESOL, CONAFOR	Project partner	logistical support, technical information, institutional management, and participation in the discussion of mitigation strategies

### **Molina Center for Energy and the Environment (MCE2)**

The Molina Center for Strategic Studies in Energy and the Environment (or shorter name Molina Center for Energy and the Environment (MCE2)) is a non-profit organization focuses primarily on efforts to make contributions to energy and environmental sustainability through policy-relevant interdisciplinary research, including holistic assessment of complex problems and possible solutions to meeting the demand for energy production and consumption, improvement of decision-making concerning environmental problems through better application of scientific and technological knowledge, and contributions to the training of future leaders through interdisciplinary research and by collaboration with leading international academic and research institutions.

The Molina Center has close collaboration with several Mexico government agencies, including the National Institute of Ecology (INE) of the Mexican Ministry of the Environment and Natural Resources (SEMARNAT), Metropolitan Environmental Commission (CAM) of the Valley of Mexico, Government of the Federal District (GDF), and the State of Baja California. As part of this



collaboration, INE has provided office space for the Molina Center's research and education staff at INE.

The following list a few of the collaborations:

1) During March 2006, the Molina Center organized and coordinated a major international collaborative scientific project to examine the outflow of emissions from a megacity; Mexico City was used as a case study. Major findings from this project, Megacity Initiative: Local and Global Research Observations (MILAGRO) are being used by international scientific community and policy makers to assess the impact of megacities on the regional and global composition of the atmosphere as well as impacts on climate. Key findings and policy implications have been incorporated by the Mexican government officials as the scientific basis in the design of Mexico's new air quality improvement program (PROAIRE 2011-2020), which was released in December 2011. The scientific findings from the field studies and the policy implications in a synthesis report coordinated by the Molina Center are included in the new document.

2) In June 2010, the Molina Center coordinated a US-Mexico collaborative study to characterize the sources and processes of emissions in the California-Mexico border regions and to assess possible impact of these emissions on local and regional air quality, human health and climate, focusing on black carbon. The key findings from this study will be included in the new air quality improvement program for the City of Tijuana in the State of Baja California.

3) In January 2011, the Molina Center organized an expert workshop on the characterization of emissions sources of methane and black carbon in Mexico and their mitigation strategies. This was followed by an international workshop in September, 2011. Summary of the workshop was presented at the first high-level ministerial meeting on SLCF on September 12, 2011, hosted by Mexico Ministry of the Environment.

4) The Molina Center has organized several workshops for Mexican policy makers and scientists on policy implications of scientific findings, and training workshops on air quality forecasting and modeling for government officials and researchers.

5) The Molina Center has implemented educational and outreach activities to raise public awareness on environmental issues, including public lecture series, documentaries, internship for college students, and youth encounter and professional development workshops for high school teachers.

## **Appendix 6: Terms of reference for project staff, consultants and steering committee**

### **Project Staff**

#### **Project Manager**

The overall task of this position will be to coordinate the overall project technically and to be responsible for its financial management as well as for the procurement of goods and services under this project. The project manager will carry out all the duties in close collaboration with INE.

#### **Main duties and responsibilities:**

- Ensure technical execution according to the execution plan laid out in the project document
- Ensure technical quality of products, outputs and deliverables
- Provide day to day oversight of project execution
- Establish, hire and equip the SLCF team that will coordinate this project
- Define the operational, administrative and financial working procedures of the SLCF team
- Define communication, reporting and coordination mechanisms of the SLCF team
- Draft TOR and define contractual arrangements for the consultants required for achieving the goals of the project. TOR will be based entirely on the activities, work plans and budgets set forth in the project support document and will also clearly specify requirements and provide a template for technical and financial reporting.
- Prepare biannual consolidated technical and financial progress reports as per guidelines included in the project document and based on inputs received from the partners. The reports will be based on the structure of the project logical framework (and any revisions thereof) and will include revised budgets and work plans, status of the M&E plan implementation, etc.
- Prepare annual PIR (Programme Implementation Reports), including updating of GEF tracking tools and any other reporting requirement for the GEF, as per instructions provided by the UNEP
- Provide technical and managerial support and guidance to the project partners towards the implementation of their activities.
- Review and approve biannual technical and financial reports (including annexes such as technical reports and other in-country project deliverables specified in the consultants' TORs).
- Coordinate and update the project's M&E framework and ensure its adequate implementation with inputs from all project executing partners.
- Coordinate and participate in the project's steering committee
- Prepare and implement a project's outreach plan to ensure adequate dissemination of project results and lessons learned.

#### **Molina Center for Energy and the Environment (MCE2)**

The Molina Center has been involved in various research and educational activities, in particular on the local and global impacts of emissions generated from megacities. During March 2006, the Center helped organize and coordinate a major international collaborative scientific project to examine the outflow of emissions from a megacity; Mexico City was used as a case study. Major findings from this project, Megacity Initiative: Local and Global Research Observations (MILAGRO) are being used by international scientific community and policy makers to assess the impact of megacities on the regional and global composition of the atmosphere as well as impacts on climate. Key findings and policy implications have been incorporated by the Mexican government officials as the scientific basis in the design of Mexico's new air quality

management program and climate action plan (PROAIRE 2011-2020), which was released in December 2011.

The Molina Center has also coordinated a US-Mexico collaborative study to characterize the sources and processes of emissions in the California-Mexico border regions and to assess possible impact of these emissions on local and regional air quality, human health and climate, focusing on black carbon.

The staff at the Molina Center will participate in all aspects of this pilot project. The following are the main responsibilities that will be conducted by the Molina Center, in collaboration with INE and Project Partners:

**Task 1: Preliminary Scoping study of the Pilot Project**

During the initial phase of the project, the Molina Center staff and project partners will conduct a scoping study to provide the roadmap for the development and implementation of the Pilot Project. This includes:

- Evaluate available existing information on emissions and mitigation strategies of black carbon and methane from key sources
- Identify information gaps and develop plans to fill the remaining gaps
- Meet with relevant stakeholders to identify opportunities for mitigation strategies and the barriers for development and implementation

**Task 2: Characterization of methane, black carbon and co-pollutants from key emissions sources**

- Collaborate with project partners to identify measurement sites for key emissions sources, including site visits to secure local cooperation
- Coordinate with all project partners regarding their measurement plans and provide logistical support
- Perform measurements with ARI during the 4-week intensive field measurements, focusing on diesel vehicle, cook stove, brick kilns, waste water treatment plants (WWTP), landfills and petroleum production facility emissions at selected Mexican sites.
- Coordinate, collect and archive all field measurement data
- Analysis and evaluation of emissions data obtained from field measurements

**Task 3. Assessment and selection of technically feasible and economically viable SLCF mitigation policies for implementation in Mexico.**

- Conduct preliminary scenario analysis using a list of suggested mitigation strategies based on proven general measures and using the initial model-ready emissions inventory data to be developed by the Center staff with project partners
- Select mitigation strategies for the integrated assessment based on improved knowledge on the emission sources obtained from Task 2 and. prioritize based on the cost-benefit analysis.
- Apply regional air quality to investigate mitigation strategies for SLCF on regional climate and air quality for Mexico, combined with epidemiological studies and crop-responses to climate change and air quality
- Perform integrated assessment of selected mitigation strategies on regional climate, human health, agricultural production, and energy efficiency

**Task 4. Demonstration of SLCF mitigation technologies for key sources**

- Coordinate demonstration activities for selected mitigation technologies with Project partners, focusing on transport, cookstoves, and small combustion sources, including brick kilns

#### **Task 5. Integration of SLCF priority mitigation into LEDS**

- **Coordinate with INE in integrating evaluated SLCF measures into LEDS.**

#### **Task 6. Capacity building and awareness raising**

- Develop and maintain a website for the SLCF Pilot Project for communication and dissemination of Project activities
- Coordinate education and outreach activities, including presentations to the relevant stakeholders and general public
- Provide guided tour of the measurement sites and workshops on the operation of equipment being used in the measurement of emissions and demonstration
- Meet with key stakeholders to identify opportunities and barriers for development and implementation of mitigation strategies
- Organize workshops involving researchers, policy makers and relevant stakeholders to discuss the development and implementation of public policies based on the presentation of new scientific findings from the Pilot Project

#### **Task 6. Reporting**

- Prepare and present a National Action Plan for the SLCF for Mexico, in collaboration with the project partners
- Prepare a document on the estimation of black carbon emissions, in collaboration with UNAM-CCA
- Develop model-ready national emissions inventory
- Prepare project reports, presentations and publications for scientific and technical journals
- Present key findings at national and international conferences.

### **Sub-contractors**

#### **Aerodyne Research Inc. (ARI)**

The Aerodyne Mobile Laboratory (AML) is a unique and innovative platform for suites of real-time (~1s) and near-real time (<600 s) research-grade instruments capable of a wide variety of emissions detection and quantification measurements (Kolb *et al.*, 2004; Herndon *et al.*, 2005b). It has previously been used to measure key on-road vehicle emissions parameters in and around Mexico City during MCMA 2002/2003 and MILAGRO 2006 (Zavala *et al.*, 2006, 2009b; Thornhill *et al.*, 2010) and along both sides of the Mexico/US border (Zavala *et al.*, 2009a), in collaboration with MCE2. These studies yielded important emissions indices (gram pollutant emitted/kilogram fuel burned) for many gasoline and diesel vehicles, and a few CNG fueled vehicles. In addition, emission plumes from industrial sources, sewage treatment plants, trash fires and other urban sources were detected and characterized. Emissions measurements in US cities have included on-road emissions from a variety of urban buses with diverse engine configurations, including unburned methane emissions from CNG fueled buses (Herndon *et al.*, 2005a).

The AML has also been used to quantify emissions from nearly all major civil transport aircraft during taxi, takeoff and landing activities, ships at harbor and biomass fires. It has recently performed extensive measurement of nitrogen oxides and a wide range of VOC emissions, including many air toxics, from petrochemical facilities in Houston, Texas (Wood *et al.*, 2009).

The AML, as depicted in Figure 6, has been used to characterize emissions from petrochemical facilities in Houston, TX.

The focus of the proposed AML measurements will be on methane and BC emissions, but NO<sub>x</sub> and selected VOC emissions, pertinent to tropospheric ozone control, will also be characterized for many sources. The key instruments for the proposed emissions factor measurements are described in the following section;

**Main duties and responsibilities:**

**TASK 1: Measurement Planning & Logistics (4 weeks)**

Work with the Molina Center and Mexican Collaborators to plan black carbon (BC) and methane (CH<sub>4</sub>) and ozone precursor (NO<sub>x</sub> and VOC) emissions measurements. Secure lodging and mobile laboratory siting accommodations. Prepare Mexican customs documentation with customs broker.

**TASK 2: Mobile Laboratory Instrumentation/Calibration/Testing (2 wks)**

Test and calibrate trace gas and fine particle instrumentation. Install full instrument suite in mobile laboratory and test in mobile operation mode. Prepare mobile laboratory and auxiliary equipment for transport to Mexico.

**TASK 3: Mobile Laboratory Transport to and from Mexico (2 wks)**

Transport mobile laboratory and auxiliary equipment from Boston to Texas, through Mexican customs and to first measurement site in Mexico.

**TASK 4: Mobile Laboratory Emissions Characterization and Demonstration (4 weeks)**

Perform measurements planned in Task 1, focusing on diesel vehicle, cook stove, brick kiln, WWTP, landfills and petroleum production facility emissions at selected Mexican site in collaboration with Molina Center and Mexican researchers

**TASK 5: Data QA/QC, Data Analysis, Reporting (16 weeks)**

Data quality analyses and control, data evaluation, presentation and reporting in collaboration with the Molina Center and Mexican measurement and analysis teams.

**UNAM-CCA:**

**Main duties and responsibilities:**

- Estimation of black carbon emissions inventory
- Characterization of small combustion sources using a mobile unit equipped with a wide array of conventional instrumentation
- Analysis of emission samples from specimen vehicles using simulator.
- Assessment of mitigation strategies for Central Mexico.

**UNAM-II:**

**Main duties and responsibilities:**

- Development of detailed inventory of municipal WWTP in Mexico considering technologies installed, treated flow rate, input and output water quality
- Measurement of methane emissions in sample of facilities
- Estimation of methane from municipal WWTP using IPCC methodology
- Development of model to obtain methane emission factor for WWTP in Mexico

**UAEM:**

**Main duties and responsibilities:**

- Produce an up to date description of herd structure and feeding practices in the two climatic regions in which the national cattle livestock is divided
- Provide a realistic estimate of the national inventory for methane produced by the enteric fermentation of cattle, based on simulation models, to differentiate the CH<sub>4</sub> produced by cattle fed typical diets from the tropical regions and that produced by cattle in temperate climate regions of Mexico, and
- Investigate various options to mitigate CH<sub>4</sub> emissions from cattle production systems in Mexico.

#### **GIRA:**

##### **Main duties and responsibilities:**

- Provide logistics, household selection, and coordination in the field
- Carry out experiments on biomass burning and efficiency test for small combustion sources as fuel-wood stoves or fuel-wood ceramic ovens.
- Measurements and sampling of small combustion sources using biomass or other fuels.

#### **Steering Committee**

The steering committee will be composed of representatives from the Molina Center, INE and UNEP. The Steering Committee will meet at least once a year. Its objective is to assure political and strategic support for the implementation of the measurements and demonstration and the coordination with counterpart resources. The Steering Committee will also provide guidance on the implementation of the project and make high level recommendations regarding the project's development, technical difficulties and management issues. The Steering Committee will approve the Annual Working Plans of the project. Additionally, a Scientific Advisory Panel, appointed by the Molina Center and INE will be convened regularly, to advise on project implementation.

The key roles and functions of the steering committee will be:

- Provide strategic oversight and guidance on the implementation of the project;
- Ensure project implementation is in accordance with national objectives, goals and policies;
- Ensure coordination between participating institutions;
- Review, agree on and approve annual work plans;
- Facilitate liaison with relevant national authorities;
- Facilitate the creation of and the consultation with a scientific advisory panel on the technical and scientific aspects of the project implementation.
- Provide a forum for sharing experiences and lessons learnt;
- Make high level recommendations regarding the project's development, technical difficulties and management issues;
- Provide advice and guidance on efficient and timely execution of the project;
- Take decisions on the issues brought to its notice by cooperating agencies, departments, institutions;
- Initiate remedial action to remove impediments in the progress of project activities that were not envisaged earlier;
- Ensure adequate coordination between the SLCF project and other relevant activities in the country.
- Facilitate integration of the project's outputs into national strategies and development plans

The SC should ideally hold a preliminary meeting within the first three months of the start of the initiative (possibly in combination with the launch workshop of the initiative) and after all the project team is recruited. Thereafter the SC will meet once a year. Should the need arise, additional meetings and/or teleconferences may be organized at the discretion of the SC Chairman. SC

meetings will review progress and achievements, discuss and agree on the way forward on any relevant issues as raised by the project team and/or the SC members, review the status of the M&E plan, and endorse the revised project work plan and budget allocations for and the following year. The Initiative Steering Committee may invite any number of specialist experts to contribute to SC tasks, or to attend SC meetings, as agreed by the Steering Committee Chair. These experts may i.e. be invited to contribute to a peer review of selected products of the initiative, therefore acting as ad-hoc technical advisors to the project.

In between meetings, the Steering Committee will be provided with copy of all technical and administrative reports from the project as supplied by the project team.

## Appendix 7: Summary of reporting requirements and responsibilities

Reporting requirements	Due date	Format appended to legal instrument as	Responsibility of
Procurement plan (goods and services)	2 weeks before project inception meeting	N/A	Project Manager
Inception Report	1 month after project inception meeting	N/A	Project Manager
Expenditure report accompanied by explanatory notes	Quarterly on or before 30 April, 31 July, 31 October, 31 January	<u>Annex 11</u>	Project Manager
Cash Advance request and details of anticipated disbursements	Quarterly or when required	<b>Annex 7B</b>	Project Manager
Progress report	Half-yearly on or before 31 January	<b>Annex 8</b>	Project Manager
Audited report for expenditures for year ending 31 December	Yearly on or before 30 June	N/A	Executing partner to contract firm
Inventory of non-expendable equipment	Yearly on or before 31 January	<b>Annex 6</b>	Project Manager
Co-financing report	Yearly on or before 31 July	<b>Annex 12</b>	Project Manager
Project implementation review (PIR) report	Yearly on or before 31 August	<b>Annex 9</b>	Project Manager, TM, DGEF FMO
Minutes of steering committee meetings	Yearly (or as relevant)	N/A	Project Manager
Mission reports and "aide memoire" for executing agency	Within 2 weeks of return	N/A	TM, DGEF FMO
Final report	2 months of project completion date	<b>Annex 10</b>	Project Manager
Final inventory of non-expendable equipment		<b>Annex 9</b>	Project Manager
Equipment transfer letter		<b>Annex 10</b>	Project Manager
Final expenditure statement	3 months of project completion date	<b>Annex 11</b>	Project Manager



Mid-term review or Mid-term evaluation	Midway though project	N/A	TM or EOU (as relevant)
Final audited report for expenditures of project	6 months of project completion date	N/A	Executing partner to contract firm
Independent terminal evaluation report	6 months of project completion date	Appendix 9 to Annex 1	EOU

## Appendix 8: GEF budget by project components and UNEP budget lines

GEF Template												
Project title:		Integrated Responses to Short-Lived Climate Forcers promoting Clean Energy and Energy Efficiency										
Project number:												
Project executing partner:		Molina Center for Strategic Studies in Energy and the Environment										
Project implementation period:		Expenditure by project component/activity (provide description)						*Insert actual year				
From:		Add additional components/activities as required						Add additional years as required				
To:								Expenditure by calendar year				
UNEP Budget Line		1	2	3	4	5	6	Total	Year 1*	Year 2*	Year 3*	Total
<b>10</b>	<b>PERSONNEL COMPONENT</b>											
	1100	Project personnel (include staff fringe benefits)										
	1101	Research Scientist (emissions, data analysis)	33,418	35,125	16,710			85,253	50,128	30,000	5,125.00	85,253
	1102	Research Scientists (scenarios, impacts)		98,480		21,800		120,280	23,056	85,696	11,528.00	120,280
	1103	Post-doc (meteorology, impacts)		16,395				16,395	10,000	6,395		16,395
	1104	Data manager/webmaster	8,707					8,707	8,707			8,707
	<b>1199</b>	<b>Sub-total</b>	<b>42,125</b>	<b>150,000</b>	<b>16,710</b>	<b>21,800</b>	<b>-</b>	<b>230,635</b>	<b>91,891</b>	<b>122,091</b>	<b>16,653</b>	<b>230,635</b>
	1200	Consultants										
	1201											
	1202											
	1203											
	<b>1299</b>	<b>Sub-total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
	1300	Administrative Support										
	1301											
	1302											
	1303											
	<b>1399</b>	<b>Sub-total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
	1600	Travel on official business	5,000		5,000			10,000	5,000	5,000		10,000
	1601											
	1602											
	1603											
	<b>1699</b>	<b>Sub-total</b>	<b>5,000</b>	<b>-</b>	<b>5,000</b>	<b>-</b>	<b>-</b>	<b>10,000</b>	<b>5,000</b>	<b>5,000</b>	<b>-</b>	<b>10,000</b>
<b>1999</b>	<b>Component total</b>	<b>47,125</b>	<b>150,000</b>	<b>21,710</b>	<b>21,800</b>	<b>-</b>	<b>-</b>	<b>240,635</b>	<b>96,891</b>	<b>127,091</b>	<b>16,653</b>	<b>240,635</b>
<b>20</b>	<b>SUB-CONTRACT COMPONENT</b>											
	2100	Sub-contracts (MOUs/LOAs for cooperating agencies)										
	2101	ARI	200,000		150,000			350,000	250,000	100,000		350,000
	2102	UNAM-CCA	76,140	34,250	28,350			138,740	69,370	55,496	13,874	138,740
	2103	UNAM-II	53,500	7,000				60,500	48,500	12,000		60,500
	2104	UAEM	22,600	22,600	7,600			52,800	40,700	12,100		52,800
	2105	GIRA			11,305			11,305	11,305			11,305
	<b>2199</b>	<b>Sub-total</b>	<b>352,240</b>	<b>63,850</b>	<b>197,255</b>	<b>-</b>	<b>-</b>	<b>613,345</b>	<b>419,875</b>	<b>179,596</b>	<b>13,874</b>	<b>613,345</b>
	2200	Sub-contracts (MOUs/LOAs for supporting organizations)										
	2201											
	2202											
	2203											
	<b>2299</b>	<b>Sub-total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
	2300	Sub-contracts (for commercial purposes)										
	2301											
	2302											
	2303											
	<b>2399</b>	<b>Sub-total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>2999</b>	<b>Component total</b>	<b>352,240</b>	<b>63,850</b>	<b>197,255</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>613,345</b>	<b>419,875</b>	<b>179,596</b>	<b>13,874</b>	<b>613,345</b>
<b>30</b>	<b>TRAINING COMPONENT</b>											
	3200	Group training										
	3201	Workshops				5,000		5,000	2,500	2,500.00		5,000
	3202											
	3203											
	<b>3299</b>	<b>Sub-total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>5,000</b>	<b>-</b>	<b>5,000</b>	<b>2,500</b>	<b>2,500</b>	<b>-</b>	<b>5,000</b>

3300	Meetings/Conferences												
3301	Meetings					10,100		10,110	5,000	5,110			10,110
3302								-					-
3303								-					-
3399	<b>Sub-total</b>	-	-	-	-	10,110	-	10,110	5,000	5,110	-		10,110
3999	<b>Component total</b>	-	-	-	-	15,110	-	15,110	7,500	7,610	-		15,110
<b>40</b>	<b>EQUIPMENT AND PREMISES COMPONENT</b>												
4100	Expendable equipment												
4101								-					-
4102								-					-
4103								-					-
4199	<b>Sub-total</b>	-	-	-	-	-	-	-	-	-	-	-	-
4200	Non-expendable equipment												
4201								-					-
4202								-					-
4203								-					-
4299	<b>Sub-total</b>	-	-	-	-	-	-	-	-	-	-	-	-
4999	<b>Component total</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>50</b>	<b>MISCELLANEOUS COMPONENT</b>												
5100	Operation and maintenance of equipment								Year 1*	Year 2*	Year 3*		Total
5101								-					-
5102								-					-
5103								-					-
5199	<b>Sub-total</b>	-	-	-	-	-	-	-	-	-	-	-	-
5200	Project Managemet												
5201	Project team meetings					10,000	10,000	5,000	5,000				10,000
5202	Reporting					10,000	10,000	2,000	4,000	4,000			10,000
5203								-					-
5299	<b>Sub-total</b>	-	-	-	-	20,000	20,000	7,000	9,000	4,000			20,000
5300	Sundry												
5301								-					-
5302								-					-
5303								-					-
5399	<b>Sub-total</b>	-	-	-	-	-	-	-	-	-	-	-	-
5400													
5401								-					-
5402								-					-
5403								-					-
5499	<b>Sub-total</b>	-	-	-	-	-	-	-	-	-	-	-	-
5500	Project Monitoring and Evaluation												
5501	Project monitoring					10,000	10,000	5,000	5,000				10,000
5502	Projec evaluation					10,000	10,000		5,000	5,000			10,000
5581								-					-
5599	<b>Sub-total</b>	-	-	-	-	20,000	20,000	5,000	10,000	5,000			20,000
5999	<b>Component total</b>	-	-	-	-	40,000	40,000	12,000	19,000	9,000			40,000
<b>99</b>	<b>GRAND TOTAL</b>	<b>399,365</b>	<b>213,850</b>	<b>218,965</b>	<b>21,800</b>	<b>15,110</b>	<b>40,000</b>	<b>909,090</b>	<b>536,266</b>	<b>333,297</b>	<b>39,527</b>		<b>909,090</b>
<b>Previous Budget (Rev.</b>													
<b>Variance (As at Rev.</b>													
		<b>399,365</b>	<b>213,850</b>	<b>218,965</b>	<b>21,800</b>	<b>15,110</b>	<b>40,000</b>	<b>909,090</b>	<b>536,266</b>	<b>333,297</b>	<b>39,527</b>		<b>909,090</b>

**Appendix 9: Co-financing by source and UNEP budget line**

**Project name: Integrated responses to short lived climate forcers promoting clean energy and energy efficiency**

CO-FINANCING SOURCE	CO-FINANCING BY PROJECT COMPONENT/ACTIVITY						CO-FINANCING BY TYPE			
	1	2	3	4	5	6	TOTAL	CASH	IN-KIND	TOTAL
	US\$	US\$	US\$	US\$	US\$	US\$	US\$	US\$	US\$	US\$
USAID				19,000,000		1,000,000	20,000,000	20,000,000		20,000,000
UNEP		500,000					500,000		500,000	500,000
INE	296,475	245,000	258,525		120,000	80,000	1,000,000	250,000	750,000	1,000,000
MCE2	166,276	234,557	77,970		75,565	115,080	669,448	152,853	516,595	669,448
UNAM-CCA	95,190	38,615	75,870				209,675		209,675	209,675
UNAM-II	23,750	23,750					47,500		47,500	47,500
UAEM	4,500	4,000	4,000				12,500		12,500	12,500
ARI	25,000		25,000				50,000		50,000	50,000
GIRA			5,000				5,000		5,000	5,000
<b>TOTAL</b>	<b>611,191</b>	<b>1,045,922</b>	<b>446,365</b>	<b>19,000,000</b>	<b>195,565</b>	<b>1,195,080</b>	<b>1,994,123</b>	<b>20,402,853</b>	<b>2,091,270</b>	<b>22,494,123</b>

## Appendix 10: Standard terminal evaluation TORs

### Terminal Evaluation of the UNEP GEF project {Title}

#### 1. PROJECT BACKGROUND AND OVERVIEW

##### Project rationale

*The objective was stated as:*

*The indicators given in the project document for this stated objective were:*

##### Relevance to GEF Programmes

*The project is in line with:.*

##### Executing Arrangements

*The implementing agency(ies) for this project was (were) UNEP and {}; and the executing agencies were:*

*The lead national agencies in the focal countries were:*

##### Project Activities

The project comprised activities grouped in {number} components.

##### Budget

At project inception the following budget prepared:

	<u>GEF</u>	<u>Co-funding</u>
Project preparation funds:		
GEF {Medium/Full} Size Grant		

##### **TOTAL (including project preparation funds)**

Co-funding sources:

Anticipated:

## TERMS OF REFERENCE FOR THE EVALUATION

### **1. Objective and Scope of the Evaluation**

The objective of this terminal evaluation is to examine the extent and magnitude of any project impacts to date and determine the likelihood of future impacts. The evaluation will also assess project performance and the implementation of planned project activities and planned outputs against actual results. The evaluation will focus on the following main questions:

1. Did the project help to [ ] among key target audiences (international conventions and initiatives, national level policy-makers, regional and local policy-makers, resource managers and practitioners).
2. Did the outputs of the project articulate options and recommendations for [ ]? Were these options and recommendations used? If so by whom?
3. To what extent did the project outputs produced have the weight of scientific authority and credibility necessary to influence policy makers and other key audiences?

### **Methods**

This terminal evaluation will be conducted as an in-depth evaluation using a participatory approach whereby the UNEP/DGEF Task Manager, key representatives of the executing agencies and other relevant staff are kept informed and consulted throughout the evaluation. The consultant will liaise with the UNEP/EOU and the UNEP/DGEF Task Manager on any logistic and/or methodological issues to properly conduct the review in as independent a way as possible, given the circumstances and resources offered. The draft report will be circulated to UNEP/DGEF Task Manager, key representatives of the executing agencies and the UNEP/EOU. Any comments or responses to the draft report will be sent to UNEP / EOU for collation and the consultant will be advised of any necessary or suggested revisions.

The findings of the evaluation will be based on the following:

1. A desk review of project documents including, but not limited to:
  - (a) The project documents, outputs, monitoring reports (such as progress and financial reports to UNEP and GEF annual Project Implementation Review reports) and relevant correspondence.
  - (b) Notes from the Steering Group meetings.
  - (c) Other project-related material produced by the project staff or partners.
  - (d) Relevant material published on the project web-site: [ ].
2. Interviews with project management and technical support including [NEED INPUT FROM TM HERE]
3. Interviews and Telephone interviews with intended users for the project outputs and other stakeholders involved with this project, including in the participating countries and international bodies. The Consultant shall determine whether to seek additional information and opinions from representatives of donor agencies and other organizations. As appropriate, these interviews could be combined with an email questionnaire.
4. Interviews with the UNEP/DGEF project task manager and Fund Management Officer, and other relevant staff in UNEP dealing with [relevant GEF focal area(s)]-related activities as necessary. The Consultant shall also gain broader perspectives from discussions with relevant GEF Secretariat staff.

## 5. Field visits<sup>2</sup> to project staff

### **Key Evaluation principles.**

In attempting to evaluate any outcomes and impacts that the project may have achieved, evaluators should remember that the project's performance should be assessed by considering the difference between the answers to two simple questions "*what happened?*" and "*what would have happened anyway?*". These questions imply that there should be consideration of the baseline conditions and trends in relation to the intended project outcomes and impacts. In addition it implies that there should be plausible evidence to **attribute** such outcomes and impacts **to the actions of the project**.

Sometimes, adequate information on baseline conditions and trends is lacking. In such cases this should be clearly highlighted by the evaluator, along with any simplifying assumptions that were taken to enable the evaluator to make informed judgements about project performance.

## **2. Project Ratings**

The success of project implementation will be rated on a scale from 'highly unsatisfactory' to 'highly satisfactory'. In particular the evaluation shall **assess and rate** the project with respect to the eleven categories defined below:<sup>3</sup>

### **A. Attainment of objectives and planned results:**

The evaluation should assess the extent to which the project's major relevant objectives were effectively and efficiently achieved or are expected to be achieved and their relevance.

- *Effectiveness*: Evaluate how, and to what extent, the stated project objectives have been met, taking into account the "achievement indicators". The analysis of outcomes achieved should include, *inter alia*, an assessment of the extent to which the project has directly or indirectly assisted policy and decision-makers to apply information supplied by biodiversity indicators in their national planning and decision-making. In particular:
  - Evaluate the immediate impact of the project on {relevant focal area} monitoring and in national planning and decision-making and international understanding and use of biodiversity indicators.
  - As far as possible, also assess the potential longer-term impacts considering that the evaluation is taking place upon completion of the project and that longer term impact is expected to be seen in a few years time. Frame recommendations to enhance future project impact in this context. Which will be the major 'channels' for longer term impact from the project at the national and international scales?
    - *Relevance*: In retrospect, were the project's outcomes consistent with the focal areas/operational program strategies? Ascertain the nature and significance of the contribution of the project outcomes to the {relevant Convention(s)} and the wider portfolio of the GEF.
    - *Efficiency*: Was the project cost effective? Was the project the least cost option? Was the project implementation delayed and if it was, then did that affect cost-effectiveness? Assess the contribution of cash and in-kind co-financing to project implementation and to what extent the project leveraged additional resources. Did the project build on earlier initiatives, did it make effective use of available scientific and / or technical information. Wherever possible, the evaluator should also compare the cost-time vs. outcomes relationship of the project with that of other similar projects.

### **B. Sustainability:**

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<sup>2</sup> Evaluators should make a brief courtesy call to GEF Country Focal points during field visits if at all possible.

<sup>3</sup> However, the views and comments expressed by the evaluator need not be restricted to these items.

Sustainability is understood as the probability of continued long-term project-derived outcomes and impacts after the GEF project funding ends. The evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits after the project ends. Some of these factors might be outcomes of the project, e.g. stronger institutional capacities or better informed decision-making. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes. The evaluation should ascertain to what extent follow-up work has been initiated and how project outcomes will be sustained and enhanced over time.

Five aspects of sustainability should be addressed: financial, socio-political, institutional frameworks and governance, environmental (if applicable). The following questions provide guidance on the assessment of these aspects:

- *Financial resources.* Are there any financial risks that may jeopardize sustenance of project outcomes? What is the likelihood that financial and economic resources will not be available once the GEF assistance ends (resources can be from multiple sources, such as the public and private sectors, income generating activities, and trends that may indicate that it is likely that in future there will be adequate financial resources for sustaining project's outcomes)? To what extent are the outcomes of the project dependent on continued financial support?
- *Socio-political:* Are there any social or political risks that may jeopardize sustenance of project outcomes? What is the risk that the level of stakeholder ownership will be insufficient to allow for the project outcomes to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public / stakeholder awareness in support of the long term objectives of the project?
- *Institutional framework and governance.* To what extent is the sustenance of the outcomes of the project dependent on issues relating to institutional frameworks and governance? What is the likelihood that institutional and technical achievements, legal frameworks, policies and governance structures and processes will allow for, the project outcomes/benefits to be sustained? While responding to these questions consider if the required systems for accountability and transparency and the required technical know-how are in place.
- *Environmental.* Are there any environmental risks that can undermine the future flow of project environmental benefits? The TE should assess whether certain activities in the project area will pose a threat to the sustainability of the project outcomes. For example; construction of dam in a protected area could inundate a sizable area and thereby neutralize the biodiversity-related gains made by the project; or, a newly established pulp mill might jeopardise the viability of nearby protected forest areas by increasing logging pressures; or a vector control intervention may be made less effective by changes in climate and consequent alterations to the incidence and distribution of malarial mosquitoes.

**C. Achievement of outputs and activities:**

- Delivered outputs: Assessment of the project's success in producing each of the programmed outputs, both in quantity and quality as well as usefulness and timeliness.
- Assess the soundness and effectiveness of the methodologies used for developing the technical documents and related management options in the participating countries
- Assess to what extent the project outputs produced have the weight of scientific authority / credibility, necessary to influence policy and decision-makers, particularly at the national level.

**D. Catalytic Role**



Replication and catalysis. What examples are there of replication and catalytic outcomes? Replication approach, in the context of GEF projects, is defined as lessons and experiences coming out of the project that are replicated or scaled up in the design and implementation of other projects. Replication can have two aspects, replication proper (lessons and experiences are replicated in different geographic area) or scaling up (lessons and experiences are replicated within the same geographic area but funded by other sources). Specifically:

- Do the recommendations for management of [project] coming from the country studies have the potential for application in other countries and locations?

If no effects are identified, the evaluation will describe the catalytic or replication actions that the project carried out.

#### **E. Assessment monitoring and evaluation systems.**

The evaluation shall include an assessment of the quality, application and effectiveness of project monitoring and evaluation plans and tools, including an assessment of risk management based on the assumptions and risks identified in the project document. The Terminal Evaluation will assess whether the project met the minimum requirements for 'project design of M&E' and 'the application of the Project M&E plan' (see minimum requirements 1&2 in *Annex 4* to this Appendix). GEF projects must budget adequately for execution of the M&E plan, and provide adequate resources during implementation of the M&E plan. Project managers are also expected to use the information generated by the M&E system during project implementation to adapt and improve the project.

#### **M&E during project implementation**

- *M&E design.* Projects should have sound M&E plans to monitor results and track progress towards achieving project objectives. An M&E plan should include a baseline (including data, methodology, etc.), SMART indicators (see Annex 4) and data analysis systems, and evaluation studies at specific times to assess results. The time frame for various M&E activities and standards for outputs should have been specified.
- *M&E plan implementation.* A Terminal Evaluation should verify that: an M&E system was in place and facilitated timely tracking of results and progress towards projects objectives throughout the project implementation period (perhaps through use of a logframe or similar); annual project reports and Progress Implementation Review (PIR) reports were complete, accurate and with well justified ratings; that the information provided by the M&E system was used during the project to improve project performance and to adapt to changing needs; and that projects had an M&E system in place with proper training for parties responsible for M&E activities.
- *Budgeting and Funding for M&E activities.* The terminal evaluation should determine whether support for M&E was budgeted adequately and was funded in a timely fashion during implementation.

#### **F. Preparation and Readiness**

Were the project's objectives and components clear, practicable and feasible within its timeframe? Were the capacities of executing institution and counterparts properly considered when the project was designed? Were lessons from other relevant projects properly incorporated in the project design? Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project implementation? Were counterpart resources (funding, staff, and facilities), enabling legislation, and adequate project management arrangements in place?

#### **G. Country ownership / drivenness:**

This is the relevance of the project to national development and environmental agendas, recipient country commitment, and regional and international agreements. The evaluation will:

- Assess the level of country ownership. Specifically, the evaluator should assess whether the project was effective in providing and communicating biodiversity information that catalyzed action in participating countries to improve decisions relating to the conservation and management of the focal ecosystem in each country.
- Assess the level of country commitment to the generation and use of biodiversity indicators for decision-making during and after the project, including in regional and international fora.

#### **H. Stakeholder participation / public awareness:**

This consists of three related and often overlapping processes: information dissemination, consultation, and “stakeholder” participation. Stakeholders are the individuals, groups, institutions, or other bodies that have an interest or stake in the outcome of the GEF- financed project. The term also applies to those potentially adversely affected by a project. The evaluation will specifically:

- Assess the mechanisms put in place by the project for identification and engagement of stakeholders in each participating country and establish, in consultation with the stakeholders, whether this mechanism was successful, and identify its strengths and weaknesses.
- Assess the degree and effectiveness of collaboration/interactions between the various project partners and institutions during the course of implementation of the project.
- Assess the degree and effectiveness of any various public awareness activities that were undertaken during the course of implementation of the project.

#### **I. Financial Planning**

Evaluation of financial planning requires assessment of the quality and effectiveness of financial planning and control of financial resources throughout the project’s lifetime. Evaluation includes actual project costs by activities compared to budget (variances), financial management (including disbursement issues), and co- financing. The evaluation should:

- Assess the strength and utility of financial controls, including reporting, and planning to allow the project management to make informed decisions regarding the budget and allow for a proper and timely flow of funds for the payment of satisfactory project deliverables.
- Present the major findings from the financial audit if one has been conducted.
- Identify and verify the sources of co- financing as well as leveraged and associated financing (in co-operation with the IA and EA).
- Assess whether the project has applied appropriate standards of due diligence in the management of funds and financial audits.
- The evaluation should also include a breakdown of final actual costs and co-financing for the project prepared in consultation with the relevant UNEP/DGEF Fund Management Officer of the project (table attached in *Annex 1* to this Appendix Co-financing and leveraged resources).

#### **J. Implementation approach:**

This includes an analysis of the project’s management framework, adaptation to changing conditions (adaptive management), partnerships in implementation arrangements, changes in project design, and overall project management. The evaluation will:

- Ascertain to what extent the project implementation mechanisms outlined in the project document have been closely followed. In particular, assess the role of the various committees established and whether the project document was clear and realistic to enable effective and efficient implementation, whether the project was executed

according to the plan and how well the management was able to adapt to changes during the life of the project to enable the implementation of the project.

- Evaluate the effectiveness and efficiency and adaptability of project management and the supervision of project activities / project execution arrangements at all levels (1) policy decisions: Steering Group; (2) day to day project management in each of the country executing agencies and {lead executing agency}.

#### **K. UNEP Supervision and Backstopping**

- Assess the effectiveness of supervision and administrative and financial support provided by UNEP/DGEF.
- Identify administrative, operational and/or technical problems and constraints that influenced the effective implementation of the project.

The **ratings will be presented in the form of a table**. Each of the eleven categories should be rated separately with **brief justifications** based on the findings of the main analysis. An overall rating for the project should also be given. The following rating system is to be applied:

HS	= Highly Satisfactory
S	= Satisfactory
MS	= Moderately Satisfactory
MU	= Moderately Unsatisfactory
U	= Unsatisfactory
HU	= Highly Unsatisfactory

### **3. Evaluation report format and review procedures**

The report should be brief, to the point and easy to understand. It must explain; the purpose of the evaluation, exactly what was evaluated and the methods used. The report must highlight any methodological limitations, identify key concerns and present evidence-based findings, consequent conclusions, recommendations and lessons. The report should be presented in a way that makes the information accessible and comprehensible and include an executive summary that encapsulates the essence of the information contained in the report to facilitate dissemination and distillation of lessons.

**The evaluation will rate the overall implementation success of the project and provide individual ratings of the eleven implementation aspects as described in Section 1 of this TOR. The ratings will be presented in the format of a table with brief justifications based on the findings of the main analysis.**

Evidence, findings, conclusions and recommendations should be presented in a complete and balanced manner. Any dissident views in response to evaluation findings will be appended in an annex. The evaluation report shall be written in English, be of no more than 50 pages (excluding annexes), use numbered paragraphs and include:

- i) An **executive summary** (no more than 3 pages) providing a brief overview of the main conclusions and recommendations of the evaluation;
- ii) **Introduction and background** giving a brief overview of the evaluated project, for example, the objective and status of activities; The GEF Monitoring and Evaluation Policy, 2006, requires that a TE report will provide summary information on when

the evaluation took place; places visited; who was involved; the key questions; and, the methodology.

- iii) **Scope, objective and methods** presenting the evaluation's purpose, the evaluation criteria used and questions to be addressed;
- iv) **Project Performance and Impact** providing *factual evidence* relevant to the questions asked by the evaluator and interpretations of such evidence. This is the main substantive section of the report. The evaluator should provide a commentary and analysis on all eleven evaluation aspects (A – K above).
- v) **Conclusions and rating** of project implementation success giving the evaluator's concluding assessments and ratings of the project against given evaluation criteria and standards of performance. The conclusions should provide answers to questions about whether the project is considered good or bad, and whether the results are considered positive or negative. The ratings should be provided with a brief narrative comment in a table (see *Annex 1* to this Appendix);
- vi) **Lessons (to be) learned** presenting general conclusions from the standpoint of the design and implementation of the project, based on good practices and successes or problems and mistakes. Lessons should have the potential for wider application and use. All lessons should 'stand alone' and should:
  - Briefly describe the context from which they are derived
  - State or imply some prescriptive action;
  - Specify the contexts in which they may be applied (if possible, who when and where)
- vii) **Recommendations** suggesting *actionable* proposals for improvement of the current project. In general, Terminal Evaluations are likely to have very few (perhaps two or three) actionable recommendations.

*Prior to each recommendation*, the issue(s) or problem(s) to be addressed by the recommendation should be clearly stated.

A high quality recommendation is an actionable proposal that is:

1. Feasible to implement within the timeframe and resources available
2. Commensurate with the available capacities of project team and partners
3. Specific in terms of who would do what and when
4. Contains results-based language (i.e. a measurable performance target)
5. Includes a trade-off analysis, when its implementation may require utilizing significant resources that would otherwise be used for other project purposes.

- viii) **Annexes** may include additional material deemed relevant by the evaluator but must include:
  1. The Evaluation Terms of Reference,
  2. A list of interviewees, and evaluation timeline
  3. A list of documents reviewed / consulted
  4. Summary co-finance information and a statement of project expenditure by activity
  5. The expertise of the evaluation team. (brief CV).

TE reports will also include any response / comments from the project management team and/or the country focal point regarding the evaluation findings or conclusions as an annex to the report, however, such will be appended to the report by UNEP EOU.

Examples of UNEP GEF Terminal Evaluation Reports are available at [www.unep.org/eou](http://www.unep.org/eou)

#### **Review of the Draft Evaluation Report**

Draft reports submitted to UNEP EOU are shared with the corresponding Programme or Project Officer and his or her supervisor for initial review and consultation. The DGEF staff and senior Executing Agency staff are allowed to comment on the draft evaluation report. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. The consultation also seeks feedback on the proposed recommendations. UNEP EOU collates all review comments and provides them to the evaluators for their consideration in preparing the final version of the report.

#### **4. Submission of Final Terminal Evaluation Reports.**

The final report shall be submitted in electronic form in MS Word format and should be sent to the following persons:

Segbedzi Norgbey, Chief,  
UNEP Evaluation and Oversight Unit  
P.O. Box 30552-00100  
Nairobi, Kenya  
Tel.: +(254-20)762-4181  
Fax: +(254-20)762-3158  
Email: [Segbedzi.Norgbey@unep.org](mailto:Segbedzi.Norgbey@unep.org)

With a copy to:

Maryam Niamir-Fuller,  
Director  
UNEP/Division of GEF Coordination  
P.O. Box 30552-00100  
Nairobi, Kenya  
Tel: +(254-20)762-4166  
Fax: +(254-20)762-4041/2  
Email: [Maryam.Niamir-Fuller@unep.org](mailto:Maryam.Niamir-Fuller@unep.org)

[Name]

[Task Manager]

[Contact details]

The Final evaluation will also be copied to the following GEF National Focal Points.

[Insert contact details here]

The final evaluation report will be published on the Evaluation and Oversight Unit's web-site [www.unep.org/eou](http://www.unep.org/eou) and may be printed in hard copy. Subsequently, the report will be sent to the GEF Office of Evaluation for their review, appraisal and inclusion on the GEF website.

#### **5. Resources and schedule of the evaluation**

This final evaluation will be undertaken by an international evaluator contracted by the Evaluation and Oversight Unit, UNEP. The contract for the evaluator will begin on ddmmyyy and end on ddmmyyy (# days) spread over # weeks (# days of travel, to {country(ies)}, and # days desk study). The evaluator will submit a draft report on ddmmyyy to UNEP/EOU, the UNEP/DGEF Task Manager, and key representatives of the executing agencies. Any comments or responses to the draft report will be sent to UNEP / EOU for collation and the consultant will be advised of any necessary revisions. Comments to the final draft report will be sent to the consultant by ddmmyyy after which, the consultant will submit the final report no later than ddmmyyy.

The evaluator will after an initial telephone briefing with EOU and UNEP/GEF conduct initial desk review work and later travel to [country(ies)] and meet with project staff at the beginning of the evaluation. Furthermore, the evaluator is expected to travel to [country(ies)] and meet with representatives of the project executing agencies and the intended users of project's outputs.

In accordance with UNEP/GEF policy, all GEF projects are evaluated by independent evaluators contracted as consultants by the EOU. The evaluator should have the following qualifications:

The evaluator should not have been associated with the design and implementation of the project in a paid capacity. The evaluator will work under the overall supervision of the Chief, Evaluation and Oversight Unit, UNEP. The evaluator should be an international expert in [ ] with a sound understanding of [ ] issues. The consultant should have the following minimum qualifications: (i) experience in [ ] issues; (ii) experience with management and implementation of [ ] projects and in particular with [ ] targeted at policy-influence and decision-making; (iii) experience with project evaluation. Knowledge of UNEP programmes and GEF activities is desirable. Knowledge of [specify language(s)] is an advantage. Fluency in oral and written English is a must.

## **6. Schedule Of Payment**

The consultant shall select one of the following two contract options:

### **Lump-Sum Option**

The evaluator will receive an initial payment of 30% of the total amount due upon signature of the contract. A further 30% will be paid upon submission of the draft report. A final payment of 40% will be made upon satisfactory completion of work. The fee is payable under the individual Special Service Agreement (SSA) of the evaluator and **is inclusive** of all expenses such as travel, accommodation and incidental expenses.

### **Fee-only Option**

The evaluator will receive an initial payment of 40% of the total amount due upon signature of the contract. Final payment of 60% will be made upon satisfactory completion of work. The fee is payable under the individual SSAs of the evaluator and is **NOT** inclusive of all expenses such as travel, accommodation and incidental expenses. Ticket and DSA will be paid separately.

In case, the evaluator cannot provide the products in accordance with the TORs, the timeframe agreed, or his products are substandard, the payment to the evaluator could be withheld, until such a time the products are modified to meet UNEP's standard. In case the evaluator fails to submit a satisfactory final product to UNEP, the product prepared by the evaluator may not constitute the evaluation report.

*Annex 1 to Appendix 8: OVERALL RATINGS TABLE*

Criterion	Evaluator's Summary Comments	Evaluator's Rating
<b>A. Attainment of project objectives and results (overall rating)</b> Sub criteria (below)		
A. 1. Effectiveness		
A. 2. Relevance		
A. 3. Efficiency		
<b>B. Sustainability of Project outcomes (overall rating)</b> Sub criteria (below)		
B. 1. Financial		
B. 2. Socio Political		
B. 3. Institutional framework and governance		
B. 4. Ecological		
<b>C. Achievement of outputs and activities</b>		
<b>D. Monitoring and Evaluation (overall rating)</b> Sub criteria (below)		
D. 1. M&E Design		
D. 2. M&E Plan Implementation (use for adaptive management)		
D. 3. Budgeting and Funding for M&E activities		
<b>E. Catalytic Role</b>		
<b>F. Preparation and readiness</b>		
<b>G. Country ownership / drivenness</b>		
<b>H. Stakeholders involvement</b>		
<b>I. Financial planning</b>		
<b>J. Implementation approach</b>		
<b>K. UNEP Supervision and backstopping</b>		

### **RATING OF PROJECT OBJECTIVES AND RESULTS**

Highly Satisfactory (HS): The project had no shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Satisfactory (S): The project had minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Moderately Satisfactory (MS): The project had moderate shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Moderately Unsatisfactory (MU): The project had significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Unsatisfactory (U) The project had major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Highly Unsatisfactory (HU): The project had severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

**Please note:** Relevance and effectiveness will be considered as critical criteria. The overall rating of the project for achievement of objectives and results **may not be higher** than the lowest rating on either of these two criteria. Thus, to have an overall satisfactory rating for outcomes a project must have at least satisfactory ratings on both relevance and effectiveness.

### **RATINGS ON SUSTAINABILITY**

- A. Sustainability will be understood as the probability of continued long-term outcomes and impacts after the GEF project funding ends. The Terminal evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits after the project ends. Some of these factors might be outcomes of the project, i.e. stronger institutional capacities, legal frameworks, socio-economic incentives /or public awareness. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes.

#### Rating system for sustainability sub-criteria

On each of the dimensions of sustainability of the project outcomes will be rated as follows.

Likely (L): There are no risks affecting this dimension of sustainability.

Moderately Likely (ML). There are moderate risks that affect this dimension of sustainability.

Moderately Unlikely (MU): There are significant risks that affect this dimension of sustainability

Unlikely (U): There are severe risks that affect this dimension of sustainability.

According to the GEF Office of Evaluation, all the risk dimensions of sustainability are deemed critical. Therefore, overall rating for sustainability will not be higher than the rating of the dimension with lowest ratings. For example, if a project has an Unlikely rating in any of the dimensions then its overall rating cannot be higher than Unlikely, regardless of whether higher ratings in other dimensions of sustainability produce a higher average.

### **RATINGS OF PROJECT M&E**

Monitoring is a continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing project with indications of the extent of progress and achievement of objectives and progress in the use of allocated funds. Evaluation is the systematic and objective assessment of an on-going or completed project, its design, implementation and results. Project evaluation may involve the definition of appropriate standards, the examination of performance against those standards, and an assessment of actual and expected results.

The Project monitoring and evaluation system will be rated on 'M&E Design', 'M&E Plan Implementation' and 'Budgeting and Funding for M&E activities' as follows:

Highly Satisfactory (HS): There were no shortcomings in the project M&E system.

Satisfactory(S): There were minor shortcomings in the project M&E system.

Moderately Satisfactory (MS): There were moderate shortcomings in the project M&E system.

Moderately Unsatisfactory (MU): There were significant shortcomings in the project M&E system.

Unsatisfactory (U): There were major shortcomings in the project M&E system.

Highly Unsatisfactory (HU): The Project had no M&E system.

"M&E plan implementation" will be considered a critical parameter for the overall assessment of the M&E system. The overall rating for the M&E systems will not be higher than the rating on "M&E plan implementation."

All other ratings will be on the GEF six point scale.



GEF Performance Description	Alternative description on the same scale
HS = Highly Satisfactory	Excellent
S = Satisfactory	Well above average
MS = Moderately Satisfactory	Average
MU = Moderately Unsatisfactory	Below Average
U = Unsatisfactory	Poor
HU = Highly Unsatisfactory	Very poor (Appalling)

Annex 2 to Appendix 8: Co-financing and Leveraged Resources

Co-financing (basic data to be supplied to the consultant for verification)

Co financing (Type/Source)	IA own Financing (mill US\$)		Government (mill US\$)		Other* (mill US\$)		Total (mill US\$)		Total Disbursement (mill US\$)	
	Plan ned	Act ual	Plan ned	Actu al	Plan ned	Act ual	Plan ned	Act ual	Plan ned	Actu al
- Grants										
- Loans/Concessional (compared to market rate)										
- Credits										
- Equity investments										
- In-kind support										
- Other (*)										
-										
-										
-										
-										
<b>Totals</b>										

\* Other is referred to contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries.

**Leveraged Resources**

Leveraged resources are additional resources—beyond those committed to the project itself at the time of approval—that are mobilized later as a direct result of the project. Leveraged resources can be financial or in-kind and they may be from other donors, NGO’s, foundations, governments, communities or the private sector. Please briefly describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project’s ultimate objective.

**Table showing final actual project expenditure by activity to be supplied by the UNEP Fund management Officer. (insert here)**

Annex 3 to Appendix 8

**Review of the Draft Report**

Draft reports submitted to UNEP EOU are shared with the corresponding Programme or Project Officer and his or her supervisor for initial review and consultation. The DGEF staff and senior Executing Agency staff provide comments on the draft evaluation report. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. The consultation also seeks agreement on the findings and recommendations. UNEP EOU collates the review comments and provides them to the evaluators for their consideration in preparing the final version of the report. General comments on the draft report with respect to compliance with these TOR are shared with the reviewer.

**Quality Assessment of the Evaluation Report**

All UNEP GEF Mid Term Reports are subject to quality assessments by UNEP EOU. These apply GEF Office of Evaluation quality assessment and are used as a tool for providing structured feedback to the evaluator.

The quality of the draft evaluation report is assessed and rated against the following criteria:

<b>GEF Report Quality Criteria</b>	<b>UNEP EOU Assessment</b>	<b>Rating</b>
A. Did the report present an assessment of relevant outcomes and achievement of project objectives in the context of the focal area program indicators if applicable?		
B. Was the report consistent and the evidence complete and convincing and were the ratings substantiated when used?		
C. Did the report present a sound assessment of sustainability of outcomes?		
D. Were the lessons and recommendations supported by the evidence presented?		
E. Did the report include the actual project costs (total and per activity) and actual co-financing used?		
F. Did the report include an assessment of the quality of the project M&E system and its use for project management?		
<b>UNEP EOU additional Report Quality Criteria</b>	<b>UNEP EOU Assessment</b>	<b>Rating</b>
G. Quality of the lessons: Were lessons readily applicable in other contexts? Did they suggest prescriptive action?		
H. Quality of the recommendations: Did recommendations specify the actions necessary to correct existing conditions or improve operations ('who?' 'what?' 'where?' 'when?'). Can they be implemented? Did the recommendations specify a goal and an associated performance indicator?		
I. Was the report well written?		

(clear English language and grammar)		
J. Did the report structure follow EOU guidelines, were all requested Annexes included?		
K. Were all evaluation aspects specified in the TORs adequately addressed?		
L. Was the report delivered in a timely manner		

**GEF Quality of the MTE report = 0.3\*(A + B) + 0.1\*(C+D+E+F)**  
**EOU assessment of MTE report = 0.3\*(G + H) + 0.1\*(I+J+K+L)**  
**Combined quality Rating = (2\* 'GEF EO' rating + EOU rating)/3**  
 The Totals are rounded and converted to the scale of HS to HU

Rating system for quality of terminal evaluation reports

A number rating 1-6 is used for each criterion: Highly Satisfactory = 6, Satisfactory = 5, Moderately Satisfactory = 4, Moderately Unsatisfactory = 3, Unsatisfactory = 2, Highly Unsatisfactory = 1, and unable to assess = 0.

**GEF Minimum requirements for M&E**

**Minimum Requirement 1: Project Design of M&E<sup>4</sup>**

All projects must include a concrete and fully budgeted monitoring and evaluation plan by the time of Work Program entry (full-sized projects) or CEO approval (medium-sized projects). This plan must contain at a minimum:

- SMART (see below) indicators for project implementation, or, if no indicators are identified, an alternative plan for monitoring that will deliver reliable and valid information to management
- SMART indicators for results (outcomes and, if applicable, impacts), and, where appropriate, corporate-level indicators
- A project baseline, with:
  - a description of the problem to address
  - indicator data
  - or, if major baseline indicators are not identified, an alternative plan for addressing this within one year of implementation
- An M&E Plan with identification of reviews and evaluations which will be undertaken, such as mid-term reviews or evaluations of activities
- An organizational setup and budgets for monitoring and evaluation.

**Minimum Requirement 2: Application of Project M&E**

- Project monitoring and supervision will include implementation of the M&E plan, comprising:
- Use of SMART indicators for implementation (or provision of a reasonable explanation if not used)
- Use of SMART indicators for results (or provision of a reasonable explanation if not used)
- Fully established baseline for the project and data compiled to review progress
- Evaluations are undertaken as planned
- Operational organizational setup for M&E and budgets spent as planned.

**SMART INDICATORS** GEF projects and programs should monitor using relevant performance indicators. The monitoring system should be “SMART”:

1. **Specific:** The system captures the essence of the desired result by clearly and directly relating to achieving an objective, and only that objective.

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<sup>4</sup> <http://gefweb.org/MonitoringandEvaluation/MEPoliciesProcedures/MEPTools/meptstandards.html>

2. **Measurable:** The monitoring system and its indicators are unambiguously specified so that all parties agree on what the system covers and there are practical ways to measure the indicators and results.
3. **Achievable and Attributable:** The system identifies what changes are anticipated as a result of the intervention and whether the result(s) are realistic. Attribution requires that changes in the targeted developmental issue can be linked to the intervention.
4. **Relevant and Realistic:** The system establishes levels of performance that are likely to be achieved in a practical manner, and that reflect the expectations of stakeholders.
5. **Time-bound, Timely, Trackable, and Targeted:** The system allows progress to be tracked in a cost-effective manner at desired frequency for a set period, with clear identification of the particular stakeholder group to be impacted by the project or program.

**List of intended additional recipients for the Terminal Evaluation (to be completed by the IA Task Manager)**

Name	Affiliation	Email
Aaron Zazueta	GEF Evaluation Office	azazueta@thegef.org
<b>Government Officials</b>		
<b>GEF Focal Point(s)</b>		
<b>Executing Agency</b>		
<b>Implementing Agency</b>		

## Appendix 11: Country endorsement letter

Oficio No. 347.A.- 021/2012

Subsecretaría de Hacienda y Crédito Público  
Unidad de Asuntos Internacionales de Hacienda  
Dirección General Adjunta para América del Norte,  
Asia-Pacífico y el Caribe

SECRETARÍA DE HACIENDA  
Y CRÉDITO PÚBLICO



**SRA. MARGARITA ASTRÁLAGA**  
Directora y Representante Regional,  
Oficina Regional para América Latina y  
el Caribe  
Programa de las Naciones Unidas para  
el Medio Ambiente  
margarita.astralaga@undep.org

México, D.F., a 10 de febrero de 2012

Asunto: Endoso al proyecto "Integrated Responses to Short Lived Climate Forcers Promoting Clean Energy and Energy Efficiency"

En mi carácter de Punto Focal para México del Fondo para el Medio Ambiente Mundial (GEF, por sus siglas en inglés), me permito confirmar a Usted que el citado proyecto propuesto: (a) es acorde con las prioridades nacionales del gobierno y con los compromisos de México bajo las convenciones globales correspondientes, por lo que forma parte de la Cartera Nacional de Proyectos de México para ser financiada por el GEF en el Periodo 2011-2014; y (b) ha sido analizado por los interesados, conforme con las políticas del GEF sobre participación pública.

La implementación del citado proyecto se realizará con el Programa de las Naciones Unidas para el Medio Ambiente (PNUMA) como agencia implementadora y por el Instituto Nacional de Ecología y el Centro Molina para Energía y Medio Ambiente como agencias ejecutoras. El financiamiento total requerido del GEF para este proyecto es USD 999,999, el cual incluye USD 909,090 para su implementación y USD 90,909 (10% de los gastos inherentes al proyecto) para la comisión por los servicios asociados al manejo del proyecto de la agencia implementadora. En ese sentido, el Gobierno de México no tiene inconveniente en la utilización de este monto dentro del Sistema de Asignación Transparente de Recursos 2010-2014 del GEF-5, en el área focal Cambio Climático.

Sin otro particular por el momento, aprovecho la ocasión para reiterar a usted la seguridad de mi más atenta y distinguida consideración.

Atentamente,  
La Directora General Adjunta,

Claudia Grayeb Bayata

Insurgentes Sur 1971, Torre III, piso 3.  
Col. Guadalupe Inn, México, D.F. 01020  
tel. +52 (55) 3688 1704, www.hacienda.gob.mx



## Appendix 12: Co-financing commitment letters



SECRETARIA DE MEDIO AMBIENTE  
Y RECURSOS NATURALES

INSTITUTO NACIONAL DE ECOLOGIA  
PRESIDENCIA

Ciudad de México, a 28 MAR 2012

DR. MARYAM NIAMIR-FULLER  
DIRECTOR, GEF COORDINATION OFFICE  
BLOCK 2, NORTH WING, GROUND FLOOR  
UNITED NATIONS ENVIRONMENT PROGRAMME  
PO BOX 30552 NAIROBI, KENYA

RE: Co-financing to support "Integrated Responses to Short-Lived Climate Forcers promoting Clean Energy and Energy Efficiency"

Dear Dr. Niamir-Fuller,

I am pleased to confirm the commitment of the National Institute of Ecology for the UNEP-supported project "Integrated Responses to Short-Lived Climate Forcers (SLCF) promoting Clean Energy and Energy Efficiency," which will be coordinated by Dr. Luisa Molina and involved the participation of Mexican and international experts in science and policy on SLCF.

Mexico shares UNEP's interest to strengthen the international efforts to reduce the short-lived climate pollutants as complements to the over-arching challenge of reducing long-lived CO<sub>2</sub> emissions. Mexico is a founding member of the recently launched "Climate and Clean Air Coalition to Reduce SLCPs," which demonstrates the importance given to this issue at a global level.

Mexico recognizes the transformational impacts of addressing SLCF in an integrated manner and is conducting this pilot project to contribute to the development and implementation of a more comprehensive and sustainable Low Emissions Development Strategy (LEDS) for Mexico through an integrated assessment of SLCF and the demonstration of targeted mitigation policies for near-term climate protection and the co-benefits on energy efficiency, human health, crop production and ecosystems.

Towards this end, Mexico is dedicating significant resources through LEDS-oriented activities to which the proposed project contributes. Over a period of 5 years an estimated USD 20 million is allocated to the development of LEDS and related activities by the USAID as part of the collaboration between the US and Mexican governments. In addition, the National Institute of Ecology is committing USD 1M (\$ 250,000 in cash and \$750,000 in in-kind support) to the development and implementation of this project, which is not only as a pilot effort with global learning value but also for a nationally integrated SLCF assessment and demonstration of key SLCF mitigation measures. Mexico aims to share experiences to replicate effective models through South-South collaboration schemes.

Thank you very much for your support of this important pilot project for Mexico.

Sincerely,

PRESIDENT  
NATIONAL INSTITUTE OF ECOLOGY

FRANCISCO BARNÉS REGUEIRO, PH.D



SECRETARIA DE MEDIO AMBIENTE  
Y RECURSOS NATURALES  
INSTITUTO NACIONAL DE ECOLOGIA

CC: Sylvie Lemmet, Director, Division of Technology, Industry and Economics, UNEP  
Kaveh Zahedi, Climate Change Coordinator  
Mark Radka, Chief, Division of Technology, Industry and Economics, UNEP Energy Branch  
Geordie Colville, UNEP Energy Branch  
Luisa Molina, Molina Center for Strategic Studies in Energy and the Environment.



Secretaría del Medio Ambiente  
Oficina de la Secretaría

*"2012 Año por la Cultura de la Legalidad"*

SMA/MDP/312 /2012

México, D. F. a 3 de abril de 2012

**DRA. MARYAM NIAMIR-FULLER  
DIRECTOR, GEF COORDINATION OFFICE  
BLOCK 2, NORTH WING, GROUND FLOOR  
UNITED NATIONS ENVIRONMENT PROGRAMME  
PO BOX 30552 NAIROBI, KENYA  
PRESENTE**

Estimada Dra. Niamir-Fuller,

La Secretaría del Medio Ambiente del Distrito Federal (SMA), la cual me honro presidir, se complace en participar en el proyecto "Integrated Responses to Short-Lived Climate Forcers (SLCF) promoting Clean Energy and Energy Efficiency", en colaboración con el Instituto Nacional de Ecología, el Molina Center for Energy and the Environment (MCE2) y otras instituciones, bajo el liderazgo de la Dra. Luisa Molina, para implementar el proyecto aprobado por UNEP.

El personal e ingenieros de la SMA participarán proporcionando información técnica sobre los sitios que se planea visitar, apoyo para la identificación y selección de los vehículos a medir y para aspectos logísticos durante las mediciones, gestión institucional para facilitar las mediciones, participar en las discusiones sobre las estrategias de mitigación y las reuniones científicas del grupo de trabajo durante el periodo del proyecto.

Tenemos mucho interés en los resultados del proyecto con el fin de definir acciones concretas de política pública para mitigar las emisiones de gases de efecto invernadero y carbono negro, así como para obtener estimaciones robustas de los costos y beneficios directos e indirectos de tales acciones, en aspectos de salud pública, eficiencia energética, rendimiento agrícola y preservación del ecosistema.

En particular, para el Gobierno del Distrito Federal, estos resultados son de suma relevancia para continuar avanzando en la reducción de la contaminación del aire y de las emisiones de compuestos de efecto invernadero en nuestra ciudad.

Sin otro particular, quedo de Usted para cualquier aclaración.

**ATENTAMENTE  
LA SECRETARIA DEL MEDIO AMBIENTE**

  
**LIC. MARTHA DELGADO PERALTA**

C.c.p. Sylvie Lemmet, Director, Division of Technology, Industry and Economics, UNEP  
Kaveh Zahedi, Climate Change Coordinator, UNEP  
Mark Radka, Chief, Division of Technology, Industry and Economics, UNEP Energy Branch  
Geordie Colville, UNEP Energy Branch  
Francisco Barnes, President, National Institute of Ecology  
Luisa Molina, Molina Center for Strategic Studies in Energy and the Environment

Paiza de la Constitución No. 1 • 3er. Piso • Col. Centro • C.P. 06068  
• Deleg. Cuauhtémoc • Tel. 5345-8000 Ext. 1553 y 1442





## CENTRO DE CIENCIAS DE LA ATMOSFERA

CIRCUITO EXTERIOR, CIUDAD UNIVERSITARIA  
C.P. 04510 MEXICO, D.F.

March 27, 2012.

**Dr. Maryam Niamir-Fuller**  
Director, GEF Coordination Office  
Block 2, North Wing, Ground Floor  
United Nations Environment Programme  
PO Box 30552 Nairobi, Kenya

RE: Co-financing to support "Integrated Responses to Short-Lived Climate Forcers promoting Clean Energy and Energy Efficiency"

Dear Dr. Niamir-Fuller,

On behalf of UNAM-CCA, I am pleased to join with the Mexican National Institute of Ecology (INE), the Molina Center for Energy and the Environment (MCE2) and other team members, under the leadership of Dr. Luisa Molina, to implement the UNEP-supported project "Integrated Responses to Short-Lived Climate Forcers (SLCF) promoting Clean Energy and Energy Efficiency."

UNAM scientists and engineers will assist in tasks designed to evaluate the impact of SLCF mitigation strategies, particularly black carbon, methane and tropospheric ozone, on near-term climate protection and the co-benefits on energy efficiency, human health, crop production and ecosystems. We will collaborate with MCE2 in the development of enhanced emissions inventories that will be used for the assessment of mitigation strategies and the demonstration of targeted mitigation strategies.

We believe that the proposed studies will be a vital contribution to the development of effective strategies to achieve a low emissions, energy efficient future for Mexico. Towards this end, UNAM-CCA I is committing USD 209,675 in in-kind support to the development and implementation of this project.

Thank you very much for your support of this important pilot project for Mexico.

Sincerely,

Dra. Ma. Amparo Martínez Arroyo  
Director

CC: Sylvie Lemmet, Director, Division of Technology, Industry and Economics, UNEP  
Kaveh Zahedi, Climate Change Coordinator  
Mark Radka, Chief, Division of Technology, Industry and Economics, UNEP Energy Branch  
Geordie Colville, UNEP Energy Branch  
Francisco Barnes, President, National Institute of Ecology  
Luisa Molina, Molina Center for Strategic Studies in Energy and the Environ  
LGR/ARGS.

National Aeronautics and  
Space Administration  
**Goddard Institute for Space Studies**  
2880 Broadway, New York, NY 10025

TELEPHONE: (212) 678-5605  
E-MAIL: drew.t.shindell@nasa.gov



March 30, 2012

Dr. Maryam Niamir-Fuller  
Director, GEF Coordination Office  
Block 2, North Wing, Ground Floor  
United Nations Environment Programme  
PO Box 30552 Nairobi, Kenya

Dear Dr. Niamir-Fuller,

This letter is to confirm my commitment to work with the Mexican National Institute of Ecology (INE), the Molina Center for Energy and the Environment (MCE2) and other team members, under the leadership of Dr. Luisa Molina, to implement the UNEP-supported project "Integrated Responses to Short-Lived Climate Forcers (SLCF) promoting Clean Energy and Energy Efficiency." This proposal aims to evaluate the impact of SLCF mitigation strategies, particularly those affecting black carbon, methane and tropospheric ozone, for near-term climate protection and the co-benefits on energy efficiency, human health, crop production and ecosystems. We have extensive experience at NASA GISS in this area, and are very eager to continue working on these questions. We welcome the opportunity to cooperate with Dr. Molina's team on this important work (including science team meetings, etc).

We are currently working with the US EPA on projects linking our global climate model to the regional model WRF used at EPA. We are therefore confident that the goals of the proposal, which similarly link the GISS global model to WRF-Chem, can be achieved. In particular, we can provide the required information from the global model to run the regional models. I look forward to a fruitful collaboration.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Drew T. Shindell".

Drew T. Shindell  
Senior Scientist

CC: Sylvie Lemmet, Director, Division of Technology, Industry and Economics, UNEP  
Kaveh Zahedi, Climate Change Coordinator, UNEP  
Mark Radka, Chief, Division of Technology, Industry and Economics, UNEP Energy Branch  
Geordie Colville, UNEP Energy Branch  
Francisco Barnes, President, National Institute of Ecology  
Luisa Molina, Molina Center for Strategic Studies in Energy and the Environment



20 / April / 2012

**Dr. Maryam Niamir-Fuller**  
Director, GEF Coordination Office  
Block 2, North Wing, Ground Floor  
United Nations Environment Programme  
PO Box 30552 Nairobi, Kenya

The Instituto Mexicano del Petróleo (IMP) is pleased to join with the Molina Center for Energy and the Environment (MCE2), the Mexican National Institute of Ecology (INE), and other team members, under the leadership of Dr. Luisa Molina, to implement the UNEP-supported project "Integrated Responses to Short-Lived Climate Forcers (SLCF) promoting Clean Energy and Energy Efficiency."

The IMP has collaborated for more than 45 years with the Mexican oil industry, and has more than 20 years experience in studying the origin, fate and effects of air pollutants from combustion processes and fugitive emissions in Mexico. In particular, it has contributed to the development of emissions inventories for federal agencies, as INE, and local governments.

IMP researchers and specialists are very interested in participating in tasks designed to evaluate the impact of SLCF mitigation strategies, particularly black carbon, methane and tropospheric ozone, on near-term climate protection and the co-benefits on energy efficiency, human health, and ecosystems. We intend to collaborate with INE and MCE2 in the development of enhanced emissions inventories that will be used for the assessment of mitigation strategies.

We look forward to collaborating with the MCE2 team and INE personnel during the planning, implementation, analysis, presentation and archival reporting activities associated with the proposal. We are convinced that the proposed project will be a very significant contribution to the development of effective strategies to achieve a low emission, energy efficient future for Mexico.

Yours sincerely,

**Dr. Francisco Guzmán**  
Safety and Environment Director

CC: Sylvie Lemmet, Director, Division of Technology, Industry and Economics, UNEP  
Kaveh Zahedi, Climate Change Coordinator, UNEP  
Mark Radka, Chief, Division of Technology, Industry and Economics, UNEP Energy Branch  
Geordie Colville, UNEP Energy Branch  
Francisco Barnes, President, National Institute of Ecology  
Luisa Molina, Molina Center for Strategic Studies in Energy and the Environment

Dr. Maryam Niamir-Fuller  
Director, GEF Coordination Office  
Block 2, North Wing, Ground Floor  
United Nations Environment Programme  
PO Box 30552 Nairobi, Kenya


**Dear Dr. Niamir-Fuller**

Fundación Chile is pleased to join with the Mexican National Institute of Ecology (INE) and the Molina Center for Energy and the Environment (MCE2) and other team members in this UNEP supported project "Integrated Responses to Short Lived Climate Forcers (SLCF) promoting Clean Energy and Energy Efficiency" led by Dr. Luisa Molina.

Fundación Chile is a regional leader in clean energy and energy efficiency, and will assist in activities of analyzing economic and health benefits of these practices. We can support in the development of emissions inventories that relate to SLCF on a local scale for Chile, along with some economic analysis of the penetration of such technologies in Chile.

We look forward to collaborating with the MCE2 team and INE personnel during the planning, implementation, analysis, presentation and archival reporting activities associated with the proposal. We believe that the proposed project will be a vital contribution to the development of effective strategies to achieve a low emission, energy efficient future for Latin American Countries.

Yours truly,



Nicola Borregaard  
Manager, Energy and Climate Change Division  
Fundación Chile.

-----  
CC: Sylvie Lemmet, Director, Division of Technology, Industry and Economics, UNEP  
Kaveh Zahedi, Climate Change Coordinator, UNEP  
Mark Radka, Chief, Division of Technology, Industry and Economics, UNEP Energy Branch  
Geordie Colville, UNEP Energy Branch  
Francisco Barnes, President, National Institute of Ecology  
Luisa Molina, Molina Center for Strategic Studies in Energy and the Environment

Dr. Maryam Niamir-Fuller  
Director, GEF Coordination Office  
Block 2, North Wing, Ground Floor  
United Nations Environment Programme  
PO Box 30552 Nairobi, Kenya

**Dear Dr. Niamir-Fuller**

Universidad Andrés Bello is pleased to join with the Mexican National Institute of Ecology (INE) and the Molina Center for Energy and the Environment (MCE2) and other team members in this UNEP supported project “Integrated Responses to Short Lived Climate Forcers (SLCF) promoting Clean Energy and Energy Efficiency” led by Dr. Luisa Molina. We’ve been longtime collaborators and are convinced that this research will bridge the gap between atmospheric pollution and climate change research and policies.

Universidad Andrés Bello hosts one of Chile’s most advanced atmospheric pollution modeling, which includes air quality and climate interactions. We are capable of modeling health effects of pollution prevention, direct and indirect climate effects using the WRF-Chem-MOSAIC model. We can support in the development of emissions inventories that relate to SLCF on a local scale, and regional modeling to evaluate short lived climate forcing effects.

We look forward to collaborating with the MCE2 team and INE personnel during the planning, implementation, analysis, presentation and archival reporting activities associated with the proposal. We believe the SLCF prism in key to overcome resistance from certain sector regarding climate change, as it is a local and global win-win.

Ingeniero Marcela Mena, MS, PhD  
Director, Centro de Sustentabilidad, UNAB.



-----  
CC: Sylvie Lemmet, Director, Division of Technology, Industry and Economics, UNEP  
Kaveh Zahedi, Climate Change Coordinator, UNEP  
Mark Radka, Chief, Division of Technology, Industry and Economics, UNEP Energy Branch  
Geordie Colville, UNEP Energy Branch  
Francisco Barnes, President, National Institute of Ecology  
Luisa Molina, Molina Center for Strategic Studies in Energy and the Environment



**Molina Center for Strategic Studies  
in Energy and the Environment**  
3252 Holiday Court, Suite 223  
La Jolla, California 92037-1808  
Tel: 858-657-0300; Fax: 858-658-0429

March 28, 2012

Dr. Maryam Niamir-Fuller  
Director, GEF Coordination Office  
Block 2, North Wing, Ground Floor  
United Nations Environment Programme  
PO Box 30552 Nairobi, Kenya

RE: Co-financing to support “Integrated Responses to Short-Lived Climate Forcers promoting Clean Energy and Energy Efficiency”

Dear Dr. Niamir-Fuller,

I am pleased to confirm the commitment of the Molina Center for Energy and the Environment for the UNEP-supported project “Integrated Responses to Short-Lived Climate Forcers (SLCF) promoting Clean Energy and Energy Efficiency,” in collaboration with the Mexican National Institute of Ecology and with the participation of Mexican and international experts in science and policy on SLCF.

As the lead institution in charge of managing the development and implementation of the project activities, the Molina Center will coordinate with the partner institutions in various tasks designed to evaluate the impact of SLCF mitigation strategies on near-term climate protection and the co-benefits on energy efficiency, human health, crop production and ecosystems.

We believe that the proposed project will be a vital contribution to the development of effective strategies to achieve a low-emission, energy-efficient future for Mexico. Towards this end, the Molina Center is committing USD 669,450 (\$152,850 in cash and \$516,600 in in-kind support) to the development and implementation of this project, which is not only as a pilot effort with global learning value but also for a nationally integrated SLCF assessment and demonstration of key SLCF mitigation measures.

Thank you very much for your support of this important pilot project for Mexico.

Sincerely,

Luisa T. Molina, Ph.D.  
President

CC: Sylvie Lemmet, Director, Division of Technology, Industry and Economics, UNEP  
Kaveh Zahedi, Climate Change Coordinator, UNEP  
Mark Radka, Chief, Division of Technology, Industry and Economics, UNEP Energy Branch  
Geordie Colville, UNEP Energy Branch  
Francisco Barnes, President, National Institute of Ecology





*Universidad Autónoma del Estado de México*  
*Facultad de Medicina Veterinaria y Zootecnia*

March 27, 2012

**Dr. Maryam Niamir-Fuller**  
**Director, GEF Coordination Office**  
**Block 2, North Wing, Ground Floor**  
**United Nations Environment Programme**  
**PO Box 30552 Nairobi, Kenya**

RE: Co-financing to support "Integrated Responses to Short-Lived Climate Forcers promoting Clean Energy and Energy Efficiency"

Dear Dr. Niamir-Fuller,

I am pleased to join with the Mexican National Institute of Ecology (INE), the Molina Center for Energy and the Environment (MCE2) and other team members, under the leadership of Dr. Luisa Molina, to implement the UNEP-supported project "Integrated Responses to Short-Lived Climate Forcers (SLCF) promoting Clean Energy and Energy Efficiency."

My colleague and I at the UAEM will assist in tasks designed to evaluate the impact of SLCF mitigation strategies, particularly black carbon, methane and tropospheric ozone, on near-term climate protection and the co-benefits on energy efficiency, human health, crop production and ecosystems. We will collaborate with MCE2 in the characterization of enteric fermentation from cattle in Mexico, which will be used for the assessment of mitigation strategies and the demonstration of targeted mitigation strategies..

We believe that the proposed project will be a vital contribution to the development of effective strategies to achieve a low emissions, energy efficient future for Mexico. Towards this end, UAEM is committing USD 12,500 in in-kind support to the development and implementation of this project.

Thank you very much for your support of this important pilot project for Mexico.

Sincerely,

Patria, Ciencia y Trabajo  
"2012, Año Internacional de la Energía Sostenible para Todos"

Dr. Octavio Alonso Castelán Ortega  
Professor FMVZ-UAEM

CC: Sylvie Lemmet, Director, Division of Technology, Industry and Economics, UNEP  
Kaveh Zahedi, Climate Change Coordinator  
Mark Radka, Chief, Division of Technology, Industry and Economics, UNEP Energy Branch  
Geordie Colville, UNEP Energy Branch  
Francisco Barnes, President, National Institute of Ecology  
Luisa Molina, Molina Center for Strategic Studies in Energy and the Environment  
Mauro Mora Victoria, Director, Facultad de Medicina Veterinaria y Zootecnia UAEM

***Aerodyne Research, Inc.***  
45 Manning Road  
Billerica, MA 01821-3976  
(978) 663-9500 Fax (978) 663-4918

March 28, 2012

Dr. Maryam Niamir-Fuller  
Director, GEF Coordination Office  
Block 2, North Wing, Ground Floor  
United Nations Environment Programme  
PO Box 30552 Nairobi, Kenya

RE: Co-financing to support "Integrated Responses to Short-Lived Climate Forcers promoting Clean Energy and Energy Efficiency"

Dear Dr. Niamir-Fuller,

Aerodyne Research, Inc. (ARI) is pleased to join with the Mexican National Institute of Ecology (INE), the Molina Center for Energy and the Environment (MCE2) and other team members, under the leadership of Dr. Luisa Molina, to implement the UNEP-supported project "Integrated Responses to Short-Lived Climate Forcers (SLCF) promoting Clean Energy and Energy Efficiency."

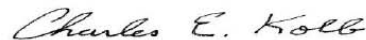
ARI scientists and engineers will assist in tasks designed to evaluate the impact of SLCF mitigation strategies, particularly black carbon, methane and tropospheric ozone, on near-term climate protection and the co-benefits on energy efficiency, human health, crop production and ecosystems. We will collaborate with MCE2 in the development of enhanced emissions inventories that will be used for the assessment of mitigation strategies.

As a member of the proposed science team we look forward to collaborating with the MCE2 team and INE personnel during the planning, implementation, analysis, presentation and archival reporting activities associated with the proposal. We believe that the proposed project will be a vital contribution to the development of effective strategies to achieve a low emissions, energy efficient future for Mexico.

Towards this end, ARI is committing USD 50,000 in in-kind support to the development and implementation of this project.

Thank you very much for your support of this important pilot project for Mexico.

Sincerely,



Dr. Charles E. Kolb  
President

CC: Sylvie Lemmet, Director, Division of Technology, Industry and Economics, UNEP  
Kaveh Zahedi, Climate Change Coordinator, UNEP  
Mark Radka, Chief, Division of Technology, Industry and Economics, UNEP Energy Branch  
Geordie Colville, UNEP Energy Branch  
Francisco Barnes, President, National Institute of Ecology  
Luisa Molina, Molina Center for Strategic Studies in Energy and the Environment



**Grupo Interdisciplinario de Tecnología  
Rural Apropriada A. C.**

**Programa Energía Rural  
*Proyecto Patsari***

March 27, 2012

**Dr. Maryam Niamir-Fuller  
Director, GEF Coordination Office  
Block 2, North Wing, Ground Floor  
United Nations Environment Programme  
PO Box 30552 Nairobi, Kenya**

RE: Co-financing to support "Integrated Responses to Short-Lived Climate Forcers promoting Clean Energy and Energy Efficiency"

Dear Dr. Niamir-Fuller,

On behalf of GIRA, I am pleased to join with the Mexican National Institute of Ecology (INE), the Molina Center for Energy and the Environment (MCE2) and other team members, under the leadership of Dr. Luisa Molina, to implement the UNEP-supported project "Integrated Responses to Short-Lived Climate Forcers (SLCF) promoting Clean Energy and Energy Efficiency."

GIRA scientists and engineers will assist in tasks designed to evaluate the impact of SLCF mitigation strategies, particularly black carbon, methane and tropospheric ozone, on near-term climate protection and the co-benefits on energy efficiency, human health, crop production and ecosystems. We will collaborate with MCE2 in the development of enhanced emissions inventories for small combustion sources, particularly cookstoves, which will be used for the assessment of mitigation strategies and the demonstration of targeted mitigation strategies.

We believe that the proposed project will be a vital contribution to the development of effective strategies to achieve a low emissions, energy efficient future for Mexico. Towards this end, GIRA is contributing USD 5,000 in in-kind support and its facility to the development and implementation of this project.

Thank you very much for your support of this important pilot project for Mexico.

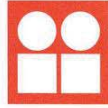
Sincerely,

**Dr. Víctor M. Berrueta Soriano  
Coordinador del Programa de Energía Rural, GIRA, A.C**

CC: Sylvie Lemmet, Director, Division of Technology, Industry and Economics, UNEP  
Kaveh Zahedi, Climate Change Coordinator  
Mark Radka, Chief, Division of Technology, Industry and Economics, UNEP Energy Branch  
Geordie Colville, UNEP Energy Branch  
Francisco Barnes, President, National Institute of Ecology  
Luisa Molina, Molina Center for Strategic Studies in Energy and the Environment

**Grupo Interdisciplinario de Tecnología Rural Apropriada A. C.**  
Centro Comercial "El Parián" Interior 17 A. P. 158  
Col. Morelos, CP 61609, Pátzcuaro, Michoacán, MÉXICO

Tel/Fax: (434) 342.32.16  
e-mail: [energia@gira.org.mx](mailto:energia@gira.org.mx)  
web: <http://www.gira.org.mx>



**INSTITUTO  
DE INGENIERÍA  
UNAM**

March 27, 2012

**Dr. Maryam Niamir-Fuller  
Director, GEF Coordination Office  
Block 2, North Wing, Ground Floor  
United Nations Environment Programme  
PO Box 30552 Nairobi, Kenya**

RE: Co-financing to support "Integrated Responses to Short-Lived Climate Forcers promoting Clean Energy and Energy Efficiency"

Dear Dr. Niamir-Fuller,

On behalf of II-UNAM, I am pleased to join with the Mexican National Institute of Ecology (INE), the Molina Center for Energy and the Environment (MCE2) and other team members, under the leadership of Dr. Luisa Molina, to implement the UNEP-supported project "Integrated Responses to Short-Lived Climate Forcers (SLCF) promoting Clean Energy and Energy Efficiency."

UNAM scientists and engineers will assist in tasks designed to evaluate the impact of SLCF mitigation strategies, particularly black carbon, methane and tropospheric ozone, on near-term climate protection and the co-benefits on energy efficiency, human health, crop production and ecosystems. We will collaborate with MCE2 in the characterization of waste water treatment plants in Mexico, which will be used for the assessment of mitigation strategies and the demonstration of targeted mitigation strategies.

We believe that the proposed project will be a vital contribution to the development of effective strategies to achieve a low emissions, energy efficient future for Mexico. Towards this end, II-UNAM is committing USD 47,500 in in-kind support to the development and implementation of this project.

Thank you very much for your support of this important pilot project for Mexico.

Sincerely,

**El Director**



**Dr. Adalberto Noyola Robles**

CC: Sylvie Lemmet, Director, Division of Technology, Industry and Economics, UNEP  
Kaveh Zahedi, Climate Change Coordinator  
Mark Radka, Chief, Division of Technology, Industry and Economics, UNEP Energy Branch  
Geordie Colville, UNEP Energy Branch  
Francisco Barnes, President, National Institute of Ecology

Av. Universidad No. 3000  
Col. Universidad Nacional Autónoma de México, C.U.  
Delegación Coyoacán, 04510 México, D.F.  
[www.ii.unam.mx](http://www.ii.unam.mx)



SCHOOL OF PUBLIC HEALTH

50 UNIVERSITY HALL  
BERKELEY, CALIFORNIA 94720-7360

April 3, 2012

Dr. Maryam Niamir-Fuller  
Director, GEF Coordination Office  
Block 2, North Wing, Ground Floor  
United Nations Environment Programme  
PO Box 30552 Nairobi, Kenya

Greetings,

I am pleased to join with the Mexican National Institute of Ecology (INE), the Molina Center for Energy and the Environment (MCE2), and other team members, under the leadership of Dr. Luisa Molina, to implement the UNEP-supported project:

“Integrated Responses to Short-Lived Climate Forcers (SLCF) promoting Clean Energy and Energy Efficiency.”

I am head of the oldest and largest research group focusing on the health and climate implications of household energy in developing countries. We pioneered measurements of the climate implications of household combustion starting in the early 1990s, what is now called co-benefits. We currently have on-going collaborations with colleagues in Mexico, Guatemala, India, Nepal, and China with whom we conduct field measurements, epidemiological assessments, and validate new instrumentation.

My research group will assist in tasks designed to evaluate the impact of SLCF mitigation strategies, particularly black carbon, methane and tropospheric ozone, on near-term climate protection and the co-benefits on energy efficiency, human health, crop production and ecosystems. We will collaborate with MCE2 in the development of enhanced emissions inventories for small combustion sources, particularly cookstoves, which will be used for the assessment of mitigation strategies and the demonstration of targeted mitigation strategies. With thanks, I am

Sincerely yours.

A handwritten signature in black ink, appearing to read "Kirk R. Smith".

Kirk R. Smith, MPH, PhD,  
Tyler Laureate 2012  
Professor of Global Environmental Health  
krksmith@berkeley.edu  
<http://ehs.sph.berkeley.edu/krsmith/>

## Appendix 13: LEDS outline

### Short-Lived Climate Forcers Abatement within the Mexican LEDS Context

#### **The Low-Emission Development Strategy for Mexico**

Mexico is developing a Low-Emission Development Strategy (LEDS) as a key short term building block to achieve the Green Growth long term vision. This LEDS will allow Mexico to achieve the following goals under a climate resilient strategy:

1. To significantly reduce Mexico's carbon footprint, while
2. Promoting sustainable and more equitable economic growth,
3. Improving living standards of people and reducing extreme poverty, and
4. Preserving the environment and natural capital

This Low-Emission Development Strategy makes low-carbon footprint compatible with sustained economic growth and social development, and offers tangible opportunities to:

- Create new markets for green products and services, by developing whole new industries and defining creative business models to sustain them.
- Transform traditional value chains into green value chains, by incorporating environmental decision factors into every-day business decisions
- Minimize systemic risks and structural imbalances derived from changes in climate patterns, by providing a robust and climate resilient platform for economic activity and employment
- Enhance productivity and value of natural resources, by adopting a sustainable approach for the use and conservation of these resources
- Foster innovation, by developing proprietary and indigenous technology and adopting proven technologies
- Provide evidence that a low-carbon growth path is not only desirable, but also attractive since it represents a robust and stable platform for sustained economic growth and social development. And it does not imply sacrificing economic value or employment compared with the business as usual scenario;
- Become a leading case example of an economic model to bridge the gap between developed and developing economies that could be adapted and replicated in other countries or regions around the globe;
- Provide a transversal strategy that ensures coordination along different axis: between government, industry, social and academic sectors; between federal, state and local governments; and between government agencies.

#### **SLCFs emissions reduction as part of the Mexican LEDS**

Although reduction on CO<sub>2</sub> emissions remains an essential long-term goal for Mexico, Mexico recognizes the promising opportunity of abatement of (SLCFs) to mitigate climate change in the short term, and must be implemented simultaneously with other climate change mitigation actions. Abatement of SLCFs and CO<sub>2</sub> emissions complement each other, for they target the same sectors (transport, agriculture, waste management, etc.) yet they focus on different substances and therefore on different time frames. Furthermore, abatement of SLCFs emissions can lead to important co-benefits that would improve the living standards of people, such as upgrading the air quality locally and reducing negative effects on human health.

Within the Low-Emission Development Strategy context, Mexico has started a pilot program to evaluate the contribution that SLCFs abatement can have on the climate change mitigation in Mexico. The program includes four technical components:

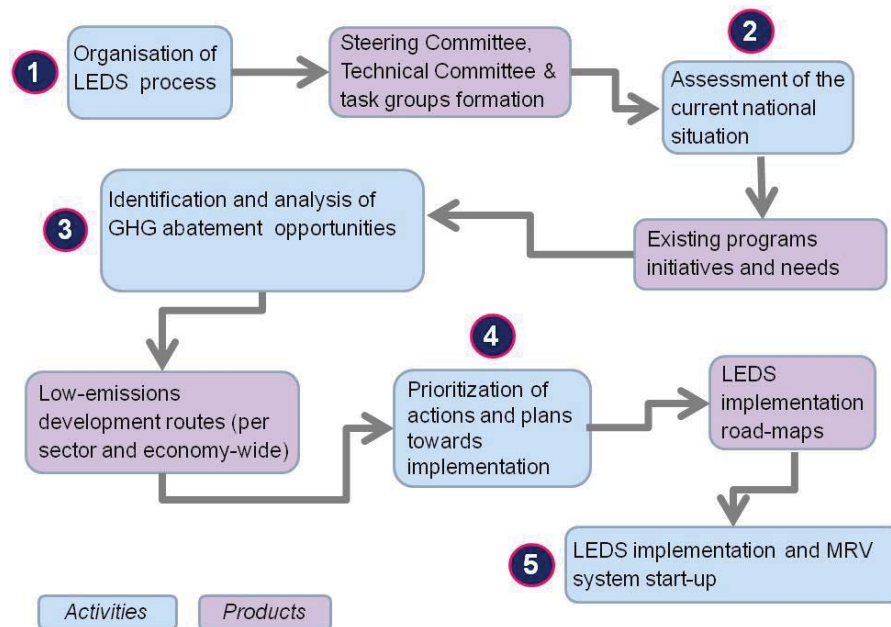
1. Characterization of methane, black carbon (BC) and co-pollutants from key emissions sources, including diesel vehicles, domestic biomass burning, agricultural fires, oil and gas systems, small industries (e.g., brick kilns), landfill, and waste water treatment plants
2. Assessment and selection of technically feasible and economically viable SLCFs mitigation policies for implementation in Mexico
3. Demonstration of SLCFs mitigation technologies for key sources as basis for learning and replication
4. Integrated of SLCF mitigation measures into LEDS.

### Framework for Mexico Low Emissions Development Strategy (LEDS)

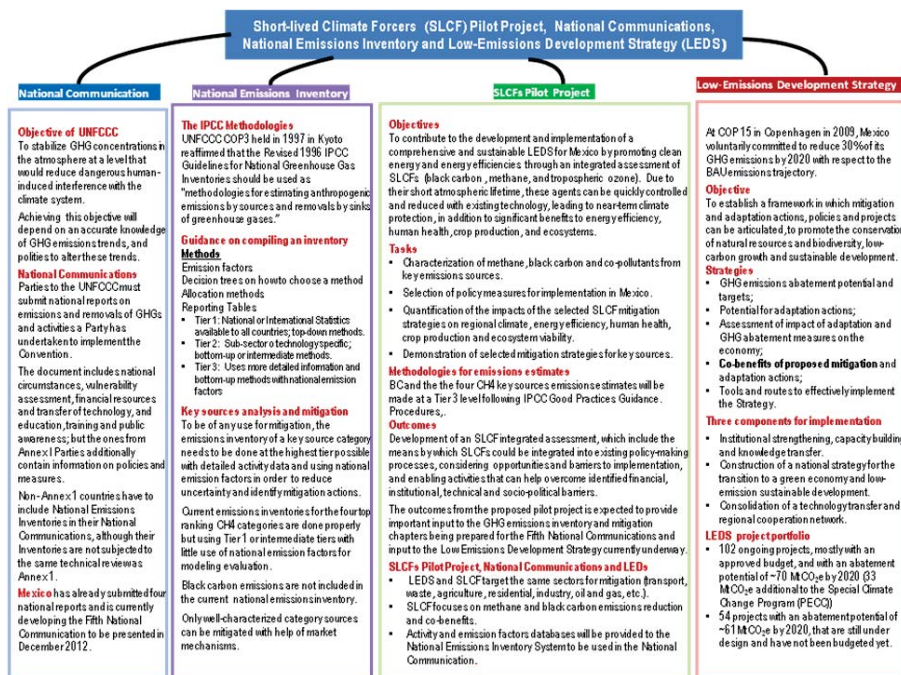
The National Institute of Ecology (INE), with the support of diverse funding agencies, has been working in the coordination and design process of the new national low-emissions development strategy (LEDS).

The objective is to establish a framework in which mitigation actions, policies and projects can be articulated to promote the sustainable use and conservation of natural resources and biodiversity, low-carbon economic growth and sustainable development.

The overall process activities and products are shown in the following diagram:



## Appendix 14: Linkages between project, LEDS and Mexico's emission inventories





Appendix 15: UNEP SLCP related activity inventory

INVENTORY OF ACTIVE UNEP SLCP INITIATIVES

INITIATIVE	TARGETED SLOPS /SECTORS /REGIONS OR COUNTRIES	DESCRIPTION [1. Main goals; 2. Main activities; 3. Main Achievements; -optional- 4. Planned further developments]	PARTNERS	LINK TO FURTHER INFORMATION	DIVISION /CONTACT
Atmospheric Brown Cloud	Aerosol particles, tropospheric ozone and precursors /All relevant sectors /Asia, Africa and Latin America and Caribbean	<ol style="list-style-type: none"> <li>1. UNEP coordinated the Atmospheric Brown Cloud (ABC) project to assess the impacts of ABC on human health, hydrology and agriculture under an integrated framework.</li> <li>2. Main activities under the project include: <ul style="list-style-type: none"> <li>- Capacity building for scientific community through training and establishment of observatories</li> <li>- Capacity building of network of institutions to carry out impact assessment studies</li> <li>- Policy level discussion on any action that may be needed to reduce and mitigate impacts.</li> </ul> </li> <li>3. A network of ABC observatories has been established as well as ABC Impact assessment groups. As a result, over 250 scientists working with the ABC International Science Team have gathered time series data on aerosols including BC for the last 7 years. A first comprehensive impact assessment report has been completed.</li> </ol>	Scientists; ABC International Science Team; ABC Asia, Africa Science Teams; Policy team and Governments	<a href="http://www.unep.org/abc/">http://www.unep.org/abc/</a>	DELIC Nagarajan.M yvelaniam@unep.org
Integrated Assessment of Black Carbon and Tropospheric Ozone	Black carbon and tropospheric ozone /All relevant sectors /Global	<ol style="list-style-type: none"> <li>1. UNEP in cooperation with WMO and other partners organized an integrated global assessment of black carbon and tropospheric ozone.</li> <li>2. The Assessment provides a comprehensive analysis of drivers of emissions, trends in concentrations, and impacts on climate, human health and ecosystems of black carbon, tropospheric ozone and its precursors. It also provides an outlook until 2030 depending on decisions taken today and a carefully selected set of policy options.</li> <li>3. The report shows that if fully implemented, the proposed policies and measures will help keep the mean global temperature increase below the 2 °C threshold. The assessment report catalyzed decision making at the global, regional and national levels.</li> </ol>	WMO	<a href="http://www.unep.org/dewa/Programs/BlackCarbon.pdf">http://www.unep.org/dewa/Programs/BlackCarbon.pdf</a>	DEWA Volodymyr.Denkha@unep.org
HFCs: A Critical Link in Protecting Climate and the Ozone Layer	HFCs /All relevant sectors /Global	<ol style="list-style-type: none"> <li>1. This report aims at promoting action to address hydrofluorocarbons (HFCs) as part of the suite of options for action that can assist in meeting and keeping the 2 degree C target.</li> <li>2. The report provides a scientific assessment of the climate benefits of the Montreal Protocol, current and projected contribution of HFCs to climate change and alternative to high global warming potential HFCs.</li> <li>3. It projects that by 2050 HFCs could be responsible for emissions equivalent to 3.5 to 8.8 GtCO<sub>2</sub>e and shows that options exist to fast-track the introduction of alternatives to climate-damaging HFCs which would ensure that HFCs climate impact remains small. The report targeted at climate policymakers was launched a week ahead of COP17.</li> </ol>		<a href="http://www.unep.org/publications/coordinates/publications/sub_data_h_year_h_wa2014G24">http://www.unep.org/publications/coordinates/sub_data_h_year_h_wa2014G24</a>	Chief Scientist Joseph Alcamo @unep.org
Near-term Climate Protection and Clean Air Benefits: Actions for controlling short lived climate forcers	Methane, black carbon, tropospheric ozone /Agriculture and livestock, residential and industrial sectors, waste, transport. /Global	<ol style="list-style-type: none"> <li>1. UNEP commissioned and coordinated the production of this report to address the issue of mitigation of short-lived climate forcers (SLCFs) and its key role in air pollution reduction, climate protection and sustainable development.</li> <li>2. The focus of the report is on three SLCFs: black carbon, tropospheric ozone and methane. Building on findings from the Integrated Assessment of Black Carbon and Tropospheric Ozone, this report assesses potential climate, health and crop yield benefits of implementing SLCF mitigation. It then analyses opportunities for action on SLCFs at the national, regional and global level.</li> <li>3. The report shows that a range of 35 measures targeting SLCFs will bring considerable health, crop yield and climate benefits in the coming decades. It is directed primarily at policy makers and other stakeholders who can potentially influence policy decisions concerning air quality and near-term climate protection and was launched a week ahead of COP17.</li> </ol>	The Stockholm Environment Institute (SEI)	<a href="http://www.unep.org/publications/abosla/abosl/">http://www.unep.org/publications/abosla/abosl/</a>	Chief Scientist Joseph Alcamo @unep.org With editorial team from DTIE, DELIC, DO, DEWA

INITIATIVE	TARGETED SLOPs /SECTORS /REGIONS OR COUNTRIES	DESCRIPTION (1. Main goal; 2.Main activities; 3.Main Achievements; -optional- 4. Planned further developments)	PARTNERS	LINK TO FURTHER INFORMATION	DIVISION /CONTACT
<b>Air Pollution Networks</b>	All SLOPs /All sectors /Africa, Asia and Latin America	<ol style="list-style-type: none"> <li>1. UNEP in collaboration with sub-regional and regional institutions has facilitated the formation of inter-governmental regional and sub-regional initiatives on air pollution issues. The aim of the forum is to bring together regional networks, international organisations and other stakeholders to develop effective policies and programmes to protect public health and the environment from the harmful effects of atmospheric pollution.</li> <li>2. The Forum encourages the convergence of technical and scientific approaches, facilitates cooperation, and helps find consensus on effective ways of addressing air pollution.</li> <li>3. In addition to the activities of the Forum, UNEP is now supporting intergovernmental networks on air pollution in all the developing regions (Africa, Asia, and Latin America). Regional level intergovernmental meetings are held on an annual basis.</li> <li>4. Assist development of national level policy recommendations</li> </ol>	UN ECT, Convention on Long-Range Transboundary Air Pollution (UN ECT/LRTAP); Clean Air Initiative (CAI); International Union of Air Pollution Prevention and Environmental Protection Associations (IUAPPA); Stockholm Environment Institute (SEI); Air Pollution Information Network for Africa (APINA); The Inter-American Network for Atmospheric/Biospheric Studies (IANABIS); Governments and national level expert institutions	<a href="http://www.unep.internationalairqualityforum/">http://www.unep.internationalairqualityforum/</a>	DELIC Surentra.Shrestha@unep.org
<b>Integrated responses to short lived climate forcers promoting clean energy and energy efficiency in Mexico</b>	All SLOPs /All relevant sectors /Mexico	<ol style="list-style-type: none"> <li>1. Through this project, UNEP seeks to support Mexico in its efforts to assess SLCF emissions and foster SLOPs mitigation measures (partly under its national communications).</li> <li>2. The project will contribute to the development and implementation of a comprehensive and sustainable Low Emissions Development Strategy (LEDS) for Mexico by promoting clean energy and energy efficiency through an integrated assessment of short-lived climate forcers (SLCF), and the development and demonstration of targeted SLCF mitigation policies.</li> <li>3. In addition to leading to climate, health and environment benefits in Mexico, the project will contribute to the development and testing of integrated approaches in assessing SLCF, and will generate SLCF data. This project could serve as a template for similar national policy action plans for SLCFs.</li> </ol>	Univ. Nacional Autónoma de México, Univ. Autónoma del Estado de México, Aerodyne Research Inc., MASA, IIASA, Secretaría del Medio Ambiente del Distrito Federal, Instituto de Ecología del Estado de Guanajuato, Secretaría de Desarrollo Sustentable del Estado de Nuevo León, Puebla, Aguascalientes, Univ. Andrie Bello, Chile, CONAGUA, CONAFOR, SAGARPA, PEMEX, Help International, GIRA, Pronatura, Instituto Mexicano Petrolero.	none	DTIE Seraphine.Iliassou@unep.org
<b>Partnership for Clean Fuels and Vehicles</b>	Black carbon and other aerosol particles /Transport /Global	<ol style="list-style-type: none"> <li>1. UNEP's through the PCFV is working to reduce air pollution including black carbon.</li> <li>2. The PCFV activities are targeting high sulphur diesel fuels and obsolete diesel technology globally. The PCFV supports the reduction of the level of sulphur in fuels (particularly diesel) to 50 parts per million and below, worldwide. In addition, the PCFV also helps countries adopt commensurate vehicle emission standards (both light and heavy duty) to fully utilize better fuel quality for lower emissions.</li> <li>3. Most developing and transitional countries now have plans to implement low sulphur fuels and adopt more stringent vehicle emission standards.</li> </ol>	130+ partners through the PCFV, plus the International Energy Agency, the International Transport Forum, the FIA Foundation and the International Council on Clean Transportation	<a href="http://www.unep.org/transport/pcfiv/">http://www.unep.org/transport/pcfiv/</a>	DTIE Rob.Jones@unep.org
<b>Clean Development Mechanism projects</b>	Black carbon and methane /Waste, agriculture, residential sector /Africa	<ol style="list-style-type: none"> <li>1. UNEP Race Centre has supported a few CDM projects in the initial 2010 portfolio that reduce methane and/or black carbon.</li> <li>2. Projects include: <ul style="list-style-type: none"> <li>- Two different composting/landfill gas projects in Nigeria (Lagos State).</li> <li>- A "green" charcoal production project in Mali using agro-waste</li> <li>- A LPG fuel switching project to displace unsustainable fuel wood for cooking in Nigerian households.</li> <li>- The African Carbon Asset Development project (ACAD) is expected to support at least one clean cook stove dissemination project under CDM FQA. Good prospects in Senegal, Madagascar, and Zambia.</li> </ul> </li> </ol>		<a href="http://unepgho.org/">http://unepgho.org/</a>	DTIE John Christensen: joch@gho.unep.org

INITIATIVE	TARGETED SLOPS /SECTORS /REGIONS OR COUNTRIES	DESCRIPTION (1. Main goal; 2. Main activities; 3. Main Achievements; -optional- 4. Planned further developments)	PARTNERS	LINK TO FURTHER INFORMATION	DIVISION /CONTACT
		<p>Similar examples can be found in many of the other countries where UNEP/URC provides support to project development.</p> <p><b>3. Achievements</b></p>			
Project Surya	Black carbon /Residential sector, /India, Kenya	<p>2. Project Surya aims to mitigate the regional and global impacts of anthropogenic climate change by immediately and demonstrably reducing atmospheric concentrations of black carbon (BC), methane and ozone.</p> <p>3. The project provides sustainable, pro-environment, pro-poverty, pro-health, pro-women action plan, infrastructure and technologies to switch to cleaner technologies such as efficient cooking stoves in rural areas of developing countries. It is also documenting the impact on climate forcing, regional air quality, and indoor and outdoor human exposure to toxics.</p> <p>4. The project successfully completed two pilot phases in India and Kenya. It also initiated pilot in 5 other developing countries and an up-scaling process in India and Kenya.</p>	ABC Science Team, national governments, local government agencies, and community based organizations	<a href="https://www.projectsurya.org/">https://www.projectsurya.org/</a>	DEIC Suresh.Shrestha@unep.org
HFC	HFCs /Refrigeration, Air Conditioning, Foam, Solvents, Fire extinguishers, Metered dose inhalers /Global	<p>1. UNEP is working to promote climate and ozone friendly alternatives to HCFCs, including zero- and low-GWP, energy efficient substances, as per Montreal Protocol Meeting of the Parties Decision XIX/6.</p> <p>2. Main activities include: a) Information Clearinghouse that promotes the overall visibility of the Montreal Protocol and the Multilateral Fund achievements and supports the development and implementation of regional and national information, education and communication strategies. b) Regional Networks of Ozone Offices that promote the exchange of information, experience and know-how required to meet the Montreal Protocol commitments, report data, set and enforce policies, adopt technologies and effectively manage the NODU. c) Capacity building activities that help developing countries and CDTs build national capacity and create enabling environment for the implementation of national ozone depleting substances (ODS) phase-out programmes e) Sector-specific direct assistance related to policy, enforcement and customs, and management of refrigerants, halon and methyl bromide.</p> <p>3. Main achievements: Substantial track record since 1991 in assisting developing countries to phase out CFCs and other ozone depleting substances; now assisting countries with the HCFC phase out including the consideration of technologies and policies in line with Decision XIX/6.</p>	National Ozone Units and Climate Change focal points in developing countries, standards organizations, refrigeration and air conditioning industry, UNDP, UNIDO, World Bank, International Energy Agency (IEA)	<a href="http://www.unep.org/ozonaction/AboutTheFacility/tabid/6182/Default.aspx">http://www.unep.org/ozonaction/AboutTheFacility/tabid/6182/Default.aspx</a>	DTIE (OzoneAction) Jim.Carling@unep.org
African Rural Energy Enterprise Development (AREED) and AREED II programmes	Black carbon /Residential sector /Africa	<p>1. Since 2000, UNEP's African Rural Energy Enterprise Development (AREED) provides a combination of enterprise development services and capital to local entrepreneurs, enabling them start up or expand energy enterprises that meet the energy needs of under-served populations.</p> <p>2. Funds have supported enterprises that provide energy services for water pumping, water heating and cooking and in distribution of liquefied petroleum gas (LPG), efficient cook-stoves and solar crop dryers. In 2008, AREED added end-user financing— primarily micro lending—to the package of capacity building and seed capital support.</p> <p>3. More than 500 entrepreneurs have received enterprise development training to create or improve their clean energy business ventures. Enterprises supported which address black carbon include the Toyota Energy company (Ghana) has supplied 50,000 homes in six regions of Ghana</p>	Swedish International Development Agency (Sida), UN Foundation, UNEP Black Centre (URC)	<a href="http://www.ared.org/">http://www.ared.org/</a>	DTIE <a href="mailto:Amaraica.Ajib@unep.org">Amaraica.Ajib@unep.org</a>

INITIATIVE	TARGETED SLOPS /SECTORS /REGIONS OR COUNTRIES	DESCRIPTION (1. Main goals; 2. Main activities; 3. Main Achievements; -optional- 4. Planned further developments)	PARTNERS	LINK TO FURTHER INFORMATION	DIVISION /CONTACT
		with energy-efficient cooking stoves that have helped offset an estimated 15,000 tonnes of carbon dioxide emissions.			
Efficient cookstoves in Rwanda	Black carbon /Residential sector /Rwanda	<ol style="list-style-type: none"> <li>1. UNEP is working with the Gorilla Organization and African NGO, AIDE-Kivu, in Rwanda to help the survival of Gorilla's forest habitat by supporting fast and wide dissemination of efficient cookstoves.</li> <li>2. Through the efficient cookstove project, fuel efficient stoves are sold to population for less than their production costs and funds generated are reinvested in the project.</li> <li>4. As a result, more than 3500 people have already benefited from this initiative. By the end of 2009 about 750 stoves had been produced. As a result of its work on energy efficient and clean cookstoves, UNEP has been listed as an "Implementer" of the Global Alliance for Clean Cook Stoves.</li> </ol>	the Gorilla Organization and AIDE-Kivu	<a href="http://www.unep.org/unhe/20e/syt">http://www.unep.org/unhe/20e/syt</a>	DCPI/PCDMB
Improved cookstoves in Haiti	Black Carbon /Residential sector /Haiti	<ol style="list-style-type: none"> <li>1. UNEP is working with the Government of Haiti to support fast and wide dissemination of efficient cookstoves.</li> <li>2. In close collaboration with the government of Haiti, the UNEP Haiti team set up and facilitated/coordinated an Improved stove working group - a low cost forum for coordinating and promoting improved stove initiatives, involving a range of technologies, public and private partners. In addition, the UNEP Cote Sud Initiative (CSI) funds activities at the field level in Haiti, including the purchase of stoves for distribution in schools and a regional marketing campaign for efficient cookstoves.</li> <li>3. One of the outputs of the working group was the elaboration of a 10 years National Improved Stoves/ Stove Strategy. Activities on the field have led to the distribution of 12 Pralati Orka institutional stoves to schools, what translates to 3900 additional meals cooked per day at wood savings of at least 50%. Through the marketing strategy, a revolving inventory fund was established to source efficient cookstoves in the regions. A local marketing and sales specialist was hired to develop the local market for efficient cookstoves. After identifying a shortage of supply, UNEP partner is investing in a local stove artisan to scale his capacity to meet the demand for efficient stoves. As a result of its work on energy efficient and clean cookstoves, UNEP has been listed as an "Implementer" of the Global Alliance for Clean Cook Stoves.</li> </ol>	Government of Haiti (Ministry of Public Works and Energy), WFP, IFP, Earthspark, Earth Institute, Mercy Corps, CRS, Water Trees and People, Haitian manufacturers,	??	Andrew.morton@unep.org

INITIATIVE	TARGETED SLOPS /SECTORS /REGIONS OR COUNTRIES	DESCRIPTION (1. Main goals; 2. Main activities; 3. Main Achievements; -optional- 4. Planned further developments)	PARTNERS	LINK TO FURTHER INFORMATION	DIVISION /CONTACT
Efficient cook stoves in Nigeria	Black carbon /Residential sector /Nigeria	<ol style="list-style-type: none"> <li>1. UNEP is working with the Nigerian Developmental Association for Renewable Energies to support fast and wide dissemination of efficient cook stoves.</li> <li>2. Through the Nigerian Developmental Association for Renewable Energies, UNEP is helping people in the Guinea Savannah Zone of Nigeria to replace their traditional fireplaces with efficient stoves.</li> <li>3. In Nigeria demand for forest resources has fallen. As a result of its work on energy efficient and clean cook stoves, UNEP has been listed as an "Implementer" of the Global Alliance for Clean Cook Stoves</li> </ol>	Nigerian Developmental Association for Renewable Energies,	<a href="http://www.unep.org/unthe30weeb">http://www.unep.org/unthe30weeb</a>	DEP/PCDMB
Alghanistan Clean Cookstoves Initiative	Black Carbon /Residential sector /Alghanistan	UNEP is working with the National Environment Protection Agency of Alghanistan, the Governments of USA and Finland to inaugurate projects on clean energy and technology, including clean cookstoves and clean fuel, combined with poverty alleviation and nature conservation.	US Government, Embassy of Finland, Alghanistan Environmental Protection Agency, My Alghan Mountains.	<a href="http://www.mountainmountains.org">www.mountainmountains.org</a>	PCDMS, DEPI Andrew Scanlon, andrew.scanlon@unep.org
Fuel Efficient Stoves in Sudan	Black Carbon /Residential sector /Sudan	<ol style="list-style-type: none"> <li>1. The UNEP Integrated Environment Programme in Sudan is working towards the promotion of Fuel Efficient Stoves and towards the uptake of LPG in place of woodfuel in urban areas.</li> <li>2. Main activities include: the production of a study on FES programming co-funded by UNEP; research on options to replace woodfuel with LPG usage; facilitation of discussions between forestry, energy and environmental government ministries and corporations to develop ways of replacing woodfuel with LPG usage.</li> <li>3. UNEP's support to political discussion on options for switching to LPG resulted in changes in LPG prices. As a result of its work on energy efficient and clean cookstoves, UNEP has been listed as an "implementer" of the Global Alliance for Clean Cook Stoves</li> </ol>	Forestry, energy and environmental government ministries, UNDP, DFD		Brendan.brown@unep.org

## Appendix 16: Tracking tool for climate change mitigation projects



### Tracking Tool for Climate Change Mitigation Projects (For CEO Endorsement)

**Special Notes: reporting on lifetime emissions avoided**

**Lifetime direct GHG emissions avoided:** Lifetime direct GHG emissions avoided are the emissions reductions attributable to the investments made during the project's supervised implementation period, totaled over the respective lifetime of the investments.

**Lifetime direct post-project emissions avoided:** Lifetime direct post-project emissions avoided are the emissions reductions attributable to the investments made outside the project's supervised implementation period, but supported by financial facilities put in place by the GEF project, totaled over the respective lifetime of the investments. These financial facilities will still be operational after the project ends, such as partial credit guarantee facilities, risk mitigation facilities, or revolving funds.

**Lifetime indirect GHG emissions avoided (top-down and bottom-up):** Indirect emissions reductions are those attributable to the long-term outcomes of the GEF activities that remove barriers, such as capacity building, innovation, catalytic action for replication.

Please refer to the Manual for Calculating GHG Benefits of GEF Projects.

[Manual for Energy Efficiency and Renewable Energy Projects](#)  
[Manual for Transportation Projects](#)

For LULUCF projects, the definitions of "lifetime direct and indirect" apply. Lifetime length is defined to be 20 years, unless a different number of years is deemed appropriate. For emission or removal factors (tonnes of CO<sub>2</sub>eq per hectare per year), use IPCC defaults or country specific factors.

General Data	Target	Notes
<b>at CEO Endorsement</b>		
Project Title	Integrated responses to short lived climate forcers promoting clean energy and energy efficiency	
GEF ID		
Agency Project ID	828	
Country	Mexico	
Region	LCR	
GEF Agency	UNEP	
Date of Council/CEO Approval		Month DD, YYYY (e.g., May 12, 2010)
GEF Grant (US\$)	909,090	
Date of submission of the tracking tool		Month DD, YYYY (e.g., May 12, 2010)
Is the project consistent with the priorities identified in National Communications, Technology Needs Assessment, or other Enabling Activities under the UNFCCC?	1	Yes = 1, No = 0
Is the project linked to carbon finance?	0	Yes = 1, No = 0
Cofinancing expected (US\$)	22,494,123	

<b>Objective 1: Transfer of Innovative Technologies</b>		
<b>Please specify the type of enabling environment created for technology transfer through this project</b>		
National innovation and technology transfer policy	1	Yes = 1, No = 0
Innovation and technology centre and network	0	Yes = 1, No = 0
Applied R&D support	1	Yes = 1, No = 0
South-South technology cooperation	1	Yes = 1, No = 0
North-South technology cooperation	1	Yes = 1, No = 0
Intellectual property rights (IPR)	0	Yes = 1, No = 0
Information dissemination	1	Yes = 1, No = 0
Institutional and technical capacity building	1	Yes = 1, No = 0
Other (please specify)		
Number of innovative technologies demonstrated or deployed	4	
<b>Please specify three key technologies for demonstration or deployment</b>		
Area of technology 1	Energy_Efficiency	
Type of technology 1		specify type of technology
Area of technology 2	Transport_Urban	
Type of technology 2		specify type of technology
Area of technology 3	Renewable_Energy	
Type of technology 3		specify type of technology
Status of technology demonstration/deployment	1	0: no suitable technologies are in place 1: technologies have been identified and assessed 2: technologies have been demonstrated on a pilot basis 3: technologies have been deployed 4: technologies have been diffused widely with investments 5: technologies have reached market potential
Lifetime direct GHG emissions avoided		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)		tonnes CO <sub>2</sub> eq (see Special Notes above)

Objective 2: Energy Efficiency		
Please specify if the project targets any of the following areas		
Lighting		Yes = 1, No = 0
Appliances (white goods)		Yes = 1, No = 0
Equipment		Yes = 1, No = 0
Cook stoves	1	Yes = 1, No = 0
Existing building		Yes = 1, No = 0
New building		Yes = 1, No = 0
Industrial processes	1	Yes = 1, No = 0
Synergy with phase-out of ozone depleting substances		Yes = 1, No = 0
Other (please specify)	transport	
Policy and regulatory framework	1	0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)	0	0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building	1	0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Lifetime energy saved		MJ (Million Joule, IEA unit converter: <a href="http://www.iea.org/stats/unit.asp">http://www.iea.org/stats/unit.asp</a> ) Fuel savings should be converted to energy savings by using the net calorific value of the specific fuel. End-use electricity savings should be converted to energy savings by using the conversion factor for the specific supply and distribution system. These energy savings are then totaled over the respective lifetimes of the investments
Lifetime direct GHG emissions avoided		tonnes CO2eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)		tonnes CO2eq (see Special Notes above)

Objective 3: Renewable Energy		
Please specify if the project includes any of the following areas		
Heat/thermal energy production		Yes = 1, No = 0
On-grid electricity production	1	Yes = 1, No = 0
Off-grid electricity production		Yes = 1, No = 0
Policy and regulatory framework	1	0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)	0	0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building	2	0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Installed capacity per technology directly resulting from the project		
Wind		MW
Biomass		MW el (for electricity production)
Biomass		MW th (for thermal energy production)
Geothermal		MW el (for electricity production)
Geothermal		MW th (for thermal energy production)
Hydro		MW
Photovoltaic (solar lighting included)		MW
Solar thermal heat (heating, water, cooling, process)		MW th (for thermal energy production, 1m <sup>2</sup> = 0.7kW)
Solar thermal power		MW el (for electricity production)
Marine power (wave, tidal, marine current, osmotic, ocean thermal)		MW
Lifetime energy production per technology directly resulting from the project (IEA unit converter: <a href="http://www.iea.org/stats/unit.asp">http://www.iea.org/stats/unit.asp</a> )		
Wind		MWh
Biomass		MWh el (for electricity production)
Biomass		MWh th (for thermal energy production)
Geothermal		MWh el (for electricity production)
Geothermal		MWh th (for thermal energy production)
Hydro		MWh
Photovoltaic (solar lighting included)		MWh
Solar thermal heat (heating, water, cooling, process)		MWh th (for thermal energy production)
Solar thermal power		MWh el (for electricity production)
Marine energy (wave, tidal, marine current, osmotic, ocean thermal)		MWh
Lifetime direct GHG emissions avoided		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)		tonnes CO <sub>2</sub> eq (see Special Notes above)



Objective 4: Transport and Urban Systems		
Please specify if the project targets any of the following areas		
Bus rapid transit		Yes = 1, No = 0
Other mass transit (e.g., light rail, heavy rail, water or other mass transit; excluding regular bus or minibus)		Yes = 1, No = 0
Logistics management		Yes = 1, No = 0
Transport efficiency (e.g., vehicle, fuel, network efficiency)		Yes = 1, No = 0
Non-motorized transport (NMT)		Yes = 1, No = 0
Travel demand management		Yes = 1, No = 0
Comprehensive transport initiatives (Involving the coordination of multiple strategies from different transportation sub-sectors)		Yes = 1, No = 0
Sustainable urban initiatives		Yes = 1, No = 0
Policy and regulatory framework		0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)		0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building		0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Length of public rapid transit (PRT)		km
Length of non-motorized transport (NMT)		km
Number of lower GHG emission vehicles		
Number of people benefiting from the improved transport and urban systems		
Lifetime direct GHG emissions avoided		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)		tonnes CO <sub>2</sub> eq (see Special Notes above)

Objective 5: LULUCF		
Area of activity directly resulting from the project		
Conservation and enhancement of carbon in forests, including agroforestry		ha
Conservation and enhancement of carbon in nonforest lands, including peat land		ha
Avoided deforestation and forest degradation		ha
Afforestation/reforestation		ha
Good management practices developed and adopted		0: not an objective/component 1: no action 2: developing prescriptions for sustainable management 3: development of national standards for certification 4: some of area in project certified 5: over 80% of area in project certified
Carbon stock monitoring system established		0: not an objective/component 1: no action 2: mapping of forests and other land areas 3: compilation and analysis of carbon stock information 4: implementation of science based inventory/monitoring system 5: monitoring information database publicly available
Lifetime direct GHG emission avoided		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime indirect GHG emission avoided		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime direct carbon sequestration		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime indirect carbon sequestration		tonnes CO <sub>2</sub> eq (see Special Notes above)

Objective 6: Enabling Activities		
Please specify the number of Enabling Activities for the project (for a multiple country project, please put the number of countries/assessments)		
National Communication		
Technology Needs Assessment		
Nationally Appropriate Mitigation Actions		
Other		
Does the project include Measurement, Reporting and Verification (MRV) activities?		Yes = 1, No = 0



## Tracking Tool for Climate Change Mitigation Projects (For Mid-term Evaluation)

**Special Notes: reporting on lifetime emissions avoided**

Lifetime direct GHG emissions avoided: Lifetime direct GHG emissions avoided are the emissions reductions attributable to the investments made until the mid-term evaluation, totaled over the respective lifetime of the investments.  
Please refer to the Manual for Calculating GHG Benefits of GEF Projects.

[Manual for Energy Efficiency and Renewable Energy Projects](#)  
[Manual for Transportation Projects](#)

For LULUCF projects, the definition of "lifetime direct" applies. Lifetime length is defined to be 20 years, unless a different number of years is deemed appropriate. For emission or removal factors (tonnes of CO<sub>2</sub>e/ha per year), use IPCC defaults or country specific factors.

General Data	Results at Mid-term Evaluation	Notes
Project Title	Integrated responses to short lived climate forcers promoting clean energy and energy efficiency	
GEF ID		
Agency Project ID	828	
Country	Mexico	
Region	LCR	
GEF Agency	UNEP	
Date of Council/CEO Approval		Month DD, YYYY (e.g., May 12, 2010)
GEF Grant (US\$)	909,090	
Date of submission of the tracking tool		Month DD, YYYY (e.g., May 12, 2010)
Is the project consistent with the priorities identified in National Communications, Technology Needs Assessment, or other Enabling Activities under the UNFCCC?	1	Yes = 1, No = 0
Is the project linked to carbon finance?	0	Yes = 1, No = 0
Cumulative cofinancing realized (US\$)	22,494,123	
Cumulative additional resources mobilized (US\$)		additional resources means beyond the cofinancing committed at CEO endorsement

Objective 1: Transfer of Innovative Technologies		
<b>Please specify the type of enabling environment created for technology transfer through this project</b>		
National innovation and technology transfer policy	1	Yes = 1, No = 0
Innovation and technology centre and network	0	Yes = 1, No = 0
Applied R&D support	1	Yes = 1, No = 0
South-South technology cooperation	1	Yes = 1, No = 0
North-South technology cooperation	1	Yes = 1, No = 0
Intellectual property rights (IPR)	0	Yes = 1, No = 0
Information dissemination	1	Yes = 1, No = 0
Institutional and technical capacity building	1	Yes = 1, No = 0
Other (please specify)		
Number of innovative technologies demonstrated or deployed	4	
<b>Please specify three key technologies for demonstration or deployment</b>		
Area of technology 1	Energy_Efficiency	
Type of technology 1		specify type of technology
Area of technology 2	Renewable_Energy	
Type of technology 2		specify type of technology
Area of technology 3	Transport_Urban	
Type of technology 3		specify type of technology
Status of technology demonstration/deployment	2	0: no suitable technologies are in place 1: technologies have been identified and assessed 2: technologies have been demonstrated on a pilot basis 3: technologies have been deployed 4: technologies have been diffused widely with investments 5: technologies have reached market potential
Lifetime direct GHG emissions avoided		tonnes CO <sub>2</sub> e/ha (see Special Notes above)

Objective 2: Energy Efficiency		
Please specify if the project targets any of the following areas		
Lighting		Yes = 1, No = 0
Appliances (white goods)		Yes = 1, No = 0
Equipment		Yes = 1, No = 0
Cook stoves	1	Yes = 1, No = 0
Existing building		Yes = 1, No = 0
New building		Yes = 1, No = 0
Industrial processes	1	Yes = 1, No = 0
Synergy with phase-out of ozone depleting substances		Yes = 1, No = 0
Other (please specify)		
Policy and regulatory framework	2	0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)	0	0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building	3	0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Lifetime energy saved		MJ (Million Joule, IEA unit converter: <a href="http://www.iea.org/stats/unit.asp">http://www.iea.org/stats/unit.asp</a> ) Fuel savings should be converted to energy savings by using the net calorific value of the specific fuel. End-use electricity savings should be converted to energy savings by using the conversion factor for the specific supply and distribution system. These energy savings are then totaled over the respective lifetime of the investments.
Lifetime direct GHG emissions avoided		tonnes CO <sub>2</sub> e (see Special Notes above)

Objective 3: Renewable Energy		
Please specify if the project includes any of the following areas		
Heat/thermal energy production		Yes = 1, No = 0
On-grid electricity production	1	Yes = 1, No = 0
Off-grid electricity production		Yes = 1, No = 0
Policy and regulatory framework	2	0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)	0	0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building	3	0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Installed capacity per technology directly resulting from the project		
Wind		MW
Biomass		MW el (for electricity production)
Biomass		MW th (for thermal energy production)
Geothermal		MW el (for electricity production)
Geothermal		MW th (for thermal energy production)
Hydro		MW
Photovoltaic (solar lighting included)		MW
Solar thermal heat (heating, water, cooling, process)		MW th (for thermal energy production, 1m <sup>2</sup> = 0.7kW)
Solar thermal power		MW el (for electricity production)
Marine power (wave, tidal, marine current, osmotic, ocean thermal)		MW
Lifetime energy production per technology directly resulting from the project (IEA unit converter: <a href="http://www.iea.org/stats/unit.asp">http://www.iea.org/stats/unit.asp</a> )		
Wind		MWh
Biomass		MWh el (for electricity production)
Biomass		MWh th (for thermal energy production)
Geothermal		MWh el (for electricity production)
Geothermal		MWh th (for thermal energy production)
Hydro		MWh
Photovoltaic (solar lighting included)		MWh
Solar thermal heat (heating, water, cooling, process)		MWh th (for thermal energy production)
Solar thermal power		MWh el (for electricity production)
Marine energy (wave, tidal, marine current, osmotic, ocean thermal)		MWh
Lifetime direct GHG emissions avoided		tonnes CO <sub>2</sub> e (see Special Notes above)

Objective 4: Transport and Urban Systems		
Please specify if the project targets any of the following areas		
Bus rapid transit		Yes = 1, No = 0
Other mass transit (e.g., light rail, heavy rail, water or other mass transit; excluding regular bus or minibus)		Yes = 1, No = 0
Logistics management		Yes = 1, No = 0
Transport efficiency (e.g., vehicle, fuel, network efficiency)		Yes = 1, No = 0
Non-motorized transport (NMT)		Yes = 1, No = 0
Travel demand management		Yes = 1, No = 0
Comprehensive transport initiatives (Involving the coordination of multiple strategies from different transportation sub-sectors)		Yes = 1, No = 0
Sustainable urban initiatives		Yes = 1, No = 0
Policy and regulatory framework		0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)		0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building		0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Length of public rapid transit (PRT)		km
Length of non-motorized transport (NMT)		km
Number of lower GHG emission vehicles		
Number of people benefiting from the improved transport and urban systems		
Lifetime direct GHG emissions avoided		tonnes CO <sub>2</sub> eq (see Special Notes above)

Objective 5: LULUCF		
Area of activity directly resulting from the project		
Conservation and enhancement of carbon in forests, including agroforestry		ha
Conservation and enhancement of carbon in nonforest lands, including peat land		ha
Avoided deforestation and forest degradation		ha
Afforestation/reforestation		ha
Good management practices developed and adopted		0: not an objective/component 1: no action 2: developing prescriptions for sustainable management 3: development of national standards for certification 4: some of area in project certified 5: over 80% of area in project certified
Carbon stock monitoring system established		0: not an objective/component 1: no action 2: mapping of forests and other land areas 3: compilation and analysis of carbon stock information 4: implementation of science based inventory/monitoring system 5: monitoring information database publicly available
Lifetime direct GHG emission avoided		tonnes CO <sub>2</sub> eq
Lifetime direct carbon sequestration		tonnes CO <sub>2</sub> eq

Objective 6: Enabling Activities		
Please specify the number of Enabling Activities for the project (for a multiple country project, please put the number of countries/assessments)		
National Communication		
Technology Needs Assessment		
Nationally Appropriate Mitigation Actions		
Other		
Does the project include Measurement, Reporting and Verification (MRV) activities?		Yes = 1, No = 0



## Tracking Tool for Climate Change Mitigation Projects (For Terminal Evaluation)

**Special Notes: reporting on lifetime emissions avoided**

**Lifetime direct GHG emissions avoided:** Lifetime direct GHG emissions avoided are the emissions reductions attributable to the investments made during the project's supervised implementation period, totaled over the respective lifetime of the investments.

**Lifetime direct post-project emissions avoided:** Lifetime direct post-project emissions avoided are the emissions reductions attributable to the investments made outside the project's supervised implementation period, but supported by financial facilities put in place by the GEF project, totaled over the respective lifetime of the investments. These financial facilities will still be operational after the project ends, such as partial credit guarantee facilities, risk mitigation facilities, or revolving funds.

**Lifetime indirect GHG emissions avoided (top-down and bottom-up):** Indirect emissions reductions are those attributable to the long-term outcomes of the GEF activities that remove barriers, such as capacity building, innovation, catalytic action for replication.

Please refer to the Manual for Calculating GHG Benefits of GEF Projects.

[Manual for Energy Efficiency and Renewable Energy Projects](#)  
[Manual for Transportation Projects](#)

For LULUCF projects, the definitions of "lifetime direct and indirect" apply. Lifetime length is defined to be 20 years, unless a different number of years is deemed appropriate. For emission or removal factors (tonnes of CO<sub>2</sub>e per hectare per year), use IPCC defaults or country specific factors.

General Data	Results at Terminal Evaluation	Notes
Project Title	Integrated responses to short lived climate forcers promoting clean energy and energy efficiency	
GEF ID		
Agency Project ID	828	
Country	Mexico	
Region	LCR	
GEF Agency	UNEP	
Date of Council/CEO Approval		Month DD, YYYY (e.g., May 12, 2010)
GEF Grant (US\$)	909,090	
Date of submission of the tracking tool		Month DD, YYYY (e.g., May 12, 2010)
Is the project consistent with the priorities identified in National Communications, Technology Needs Assessment, or other Enabling Activities under the UNFCCC?	1	Yes = 1, No = 0
Is the project linked to carbon finance?	0	Yes = 1, No = 0
Cumulative cofinancing realized (US\$)	22,494,123	
Cumulative additional resources mobilized (US\$)		additional resources means beyond the cofinancing committed at CEO endorsement

Objective 1: Transfer of Innovative Technologies		
Please specify the type of enabling environment created for technology transfer through this project		
National innovation and technology transfer policy	1	Yes = 1, No = 0
Innovation and technology centre and network	0	Yes = 1, No = 0
Applied R&D support	1	Yes = 1, No = 0
South-South technology cooperation	1	Yes = 1, No = 0
North-South technology cooperation	1	Yes = 1, No = 0
Intellectual property rights (IPR)	0	Yes = 1, No = 0
Information dissemination	1	Yes = 1, No = 0
Institutional and technical capacity building	1	Yes = 1, No = 0
Other (please specify)		
Number of innovative technologies demonstrated or deployed	4	
Please specify three key technologies for demonstration or deployment		
Area of technology 1	Energy_Efficiency	
Type of technology 1		specify type of technology
Area of technology 2	Renewable_Energy	
Type of technology 2		specify type of technology
Area of technology 3	Transport_Urban	
Type of technology 3		specify type of technology
Status of technology demonstration/deployment	2	0: no suitable technologies are in place 1: technologies have been identified and assessed 2: technologies have been demonstrated on a pilot basis 3: technologies have been deployed 4: technologies have been diffused widely with investments 5: technologies have reached market potential
Lifetime direct GHG emissions avoided		tonnes CO <sub>2</sub> e (see Special Notes above)
Lifetime direct post-project GHG emissions avoided		tonnes CO <sub>2</sub> e (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)		tonnes CO <sub>2</sub> e (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)		tonnes CO <sub>2</sub> e (see Special Notes above)

Objective 2: Energy Efficiency		
Please specify if the project targets any of the following areas		
	Lighting	Yes = 1, No = 0
	Appliances (white goods)	Yes = 1, No = 0
	Equipment	Yes = 1, No = 0
	Cook stoves	Yes = 1, No = 0
	Existing building	Yes = 1, No = 0
	New building	Yes = 1, No = 0
	Industrial processes	Yes = 1, No = 0
	Synergy with phase-out of ozone depleting substances	Yes = 1, No = 0
	Other (please specify)	
	Policy and regulatory framework	3 0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
	Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)	0 0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
	Capacity building	5 0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
	Lifetime energy saved	MJ (Million Joule, IEA unit converter: <a href="http://www.iea.org/stats/unit.asp">http://www.iea.org/stats/unit.asp</a> ) Fuel savings should be converted to energy savings by using the net calorific value of the specific fuel. End-use electricity savings should be converted to energy savings by using the conversion factor for the specific supply and distribution system. These energy savings are then totaled over the respective lifetime of the investments.
	Lifetime direct GHG emissions avoided	tonnes CO <sub>2</sub> e (see Special Notes above)
	Lifetime direct post-project GHG emissions avoided	tonnes CO <sub>2</sub> e (see Special Notes above)
	Lifetime indirect GHG emissions avoided (bottom-up)	tonnes CO <sub>2</sub> e (see Special Notes above)
	Lifetime indirect GHG emissions avoided (top-down)	tonnes CO <sub>2</sub> e (see Special Notes above)

Objective 3: Renewable Energy		
Please specify if the project includes any of the following areas		
Heat/thermal energy production		Yes = 1, No = 0
On-grid electricity production	1	Yes = 1, No = 0
Off-grid electricity production		Yes = 1, No = 0
Policy and regulatory framework	3	0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)	0	0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building	5	0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Installed capacity per technology directly resulting from the project		
Wind		MW
Biomass		MW el (for electricity production)
Biomass		MW th (for thermal energy production)
Geothermal		MW el (for electricity production)
Geothermal		MW th (for thermal energy production)
Hydro		MW
Photovoltaic (solar lighting included)		MW
Solar thermal heat (heating, water, cooling, process)		MW th (for thermal energy production, 1m <sup>2</sup> = 0.7kW)
Solar thermal power		MW el (for electricity production)
Marine power (wave, tidal, marine current, osmotic, ocean thermal)		MW
Lifetime energy production per technology directly resulting from the project (IEA unit converter: <a href="http://www.iea.org/stats/unit.asp">http://www.iea.org/stats/unit.asp</a> )		
Wind		MWh
Biomass		MWh el (for electricity production)
Biomass		MWh th (for thermal energy production)
Geothermal		MWh el (for electricity production)
Geothermal		MWh th (for thermal energy production)
Hydro		MWh
Photovoltaic (solar lighting included)		MWh
Solar thermal heat (heating, water, cooling, process)		MWh th (for thermal energy production)
Solar thermal power		MWh el (for electricity production)
Marine energy (wave, tidal, marine current, osmotic, ocean thermal)		MWh
Lifetime direct GHG emissions avoided		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)		tonnes CO <sub>2</sub> eq (see Special Notes above)

Objective 4: Transport and Urban Systems		
Please specify if the project targets any of the following areas		
Bus rapid transit		Yes = 1, No = 0
Other mass transit (e.g., light rail, heavy rail, water or other mass transit, excluding regular bus or minibus)		Yes = 1, No = 0
Logistics management		Yes = 1, No = 0
Transport efficiency (e.g., vehicle, fuel, network efficiency)		Yes = 1, No = 0
Non-motorized transport (NMT)		Yes = 1, No = 0
Travel demand management		Yes = 1, No = 0
Comprehensive transport initiatives (Involving the coordination of multiple strategies from different transportation sub-sectors)		Yes = 1, No = 0
Sustainable urban initiatives		Yes = 1, No = 0
Policy and regulatory framework		0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)		0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building		0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Length of public rapid transit (PRT)		km
Length of non-motorized transport (NMT)		km
Number of lower GHG emission vehicles		
Number of people benefiting from the improved transport and urban systems		
Lifetime direct GHG emissions avoided		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)		tonnes CO <sub>2</sub> eq (see Special Notes above)

Objective 5: LULUCF		
Area of activity directly resulting from the project		
Conservation and enhancement of carbon in forests, including agroforestry		ha
Conservation and enhancement of carbon in nonforest lands, including peat land		ha
Avoided deforestation and forest degradation		ha
Afforestation/reforestation		ha
Good management practices developed and adopted		0: not an objective/component 1: no action 2: developing prescriptions for sustainable management 3: development of national standards for certification 4: some of area in project certified 5: over 80% of area in project certified
Carbon stock monitoring system established		0: not an objective/component 1: no action 2: mapping of forests and other land areas 3: compilation and analysis of carbon stock information 4: implementation of science based inventory/monitoring system 5: monitoring information database publicly available
Lifetime direct GHG emission avoided		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime indirect GHG emission avoided		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime direct carbon sequestration		tonnes CO <sub>2</sub> eq (see Special Notes above)
Lifetime indirect carbon sequestration		tonnes CO <sub>2</sub> eq (see Special Notes above)

Objective 6: Enabling Activities		
Please specify the number of Enabling Activities for the project (for a multiple country project, please put the number of countries/assessments)		
National Communication		
Technology Needs Assessment		
Nationally Appropriate Mitigation Actions		
Other		
Does the project include Measurement, Reporting and Verification (MRV) activities?		Yes = 1, No = 0