

CLIMATE INVESTMENT FUNDS

June 4, 2010

Meeting of the SREP Sub-Committee
Washington, D.C.
June 22, 2010

REPORT OF THE SREP EXPERT GROUP

CLIMATE INVESTMENT FUNDS

**Program for Scaling Up Renewable Energy
in Low Income Countries
[SREP]**

Recommendation on the Selection of Pilots

Report of the Expert Group to SREP Sub Committee

3rd June 2010

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ACKNOWLEDGEMENTS

The SREP Expert Group wishes to acknowledge with thanks the substantial volume of information collated and made available by the Multilateral Development Banks and the CIF Administrative Unit.

We also wish to acknowledge the support of the CIF Administrative Unit and the very valuable inputs from the technical and regional units of the World Bank, the IFC, the African Development Bank, the Asian Development Bank, the Inter-American Development Bank and the European Bank for Reconstruction and Development. The background and insights provided by all the aforementioned enhanced and contributed much to our discussions as an Expert Group.

The Expert Group also wishes to commend the quality of the documentation prepared by the CIF Administrative Unit prior to the meeting. The documentation was well presented and thorough in content and an essential element of the deliberations by the Expert Group.

EXECUTIVE SUMMARY

There is increasing consensus that addressing climate change is central to the sustainable development, economic growth and poverty reduction agenda. Increasing the resilience to climate change needs to combine both mitigation and adaptation measures. A delay in reducing greenhouse gas (GHG) emissions would significantly constrain opportunities to achieve lower stabilization levels and is likely to increase the risk of more severe climate change impacts. Climate change impacts have the potential to reverse hard-earned development gains and progress towards achieving the Millennium Development Goals.

Low income countries face a dual challenge of increasing the availability of electricity and other commercial fuels needed for economic development and increasing access to the 1.5 billion people who have no access to electricity and are dependent almost wholly on biomass fuels for energy services. In a vast majority of these countries fossil energy, and biomass, play an important role in the residential and commercial sectors.

The need to ramp up modern energy use in low income countries, coupled with the availability of exceptional renewable energy resources, provide a fertile opportunity to help countries develop a renewable energy base that will allow them to leap-frog into a new pattern of energy generation and use. Increased financing is vital to catalyze such a transformative use of renewable energy.

The aim of the Strategic Climate Fund's Program for Scaling up Renewable Energy in Low Income Countries (SREP) is to pilot and demonstrate, as a response to the challenges of climate change, the economic, social and environmental viability of low carbon development pathways in the energy sector by creating new economic opportunities and increasing energy access through the use of renewable energy.

As the foundation of economic growth, the private sector has a significant role to play in promoting renewable energy. In pursuing a strategy that will combine public sector and private sector actions, the SREP seeks to overcome economic and non-economic barriers in order to scale-up private sector investments that will contribute to the objectives of the SREP.

The CIF Administrative Unit informed eligible countries, through the country offices of the Multilateral Development Banks (MDBs), of the SREP program and invited interested governments to submit a brief expression of interest (EOI) to be considered as a pilot country. The EOI received by the CIF Administrative Unit by the deadline were made available to the Expert Group for its consideration.

The SREP design document calls for the coordination with the MDBs, through whom the SREP would be implemented. Arrangements were therefore made for the Expert Group to interact with the representatives of the MDBs to discuss, on a regional basis, countries and their potential to be included as a SREP pilot.

In performing its task, the EG was guided by the SREP design document and Criteria for Selecting Country and Regional Pilots which stipulates that the following criteria should be used to select the country or regional pilots. The criteria should be considered from two perspectives: (i) a country's willingness to meet the criteria and to achieve the objectives of the SREP, and (ii) a country's potential and capacity to implement a SREP program. These criteria include:

- a) Willingness to undertake a program for renewable energy development that could eventually move the country towards a low carbon development path in the energy sector. Conditions needed for such transformation should include:
 - i) The existence of, or a willingness to adopt, within an appropriate time frame, supportive regulatory structures and institutions (including agencies to promote/utilize renewable energy). This could include policies and regulations promoting renewable energy, such as feed-in tariffs, tax incentives, subsidies, concessional financing or renewable portfolio standards.
 - ii) An enabling regulatory environment that promotes business, such as that contained in the *Doing Business Report*. For the renewable energy sector, this can include policies that support private sector participation, public-private partnerships, and availability of financing for renewable energy technologies. This can also include availability, or willingness to develop, local capacity along the renewable energy supply chain, including manufacturing, training, and operations and maintenance.
 - iii) Sector-wide energy development strategies that are open to integrating renewable energy into energy access and supply enhancement programs or targets for large-scale renewable energy deployment. Countries can be assessed on national and local strategies and targets for electrification, and current or projected share of renewables in the energy portfolio.
 - iv) Good governance within the sector. An assessment of sector governance might include commercial performance of relevant institutions, pricing and tariff practices, and competitive procurement of goods and services, the transparency and accountability of these practices and the degree to which they are subject to public oversight.
- b) Potential capacity for implementation, including a business friendly environment and sufficient institutional capacity. This can include a track record of renewable energy projects completed or initiated with participation of private sector, previous experience implementing and using renewable energy technologies, capacity for operating and maintaining renewable energy systems. In specific cases, the existence of a track record may not be a strict criterion and a willingness to advance in the area of renewable energy could be sufficient. The government's ability to effectively absorb additional funds should also be considered.

- c) Regional balance as well as balance among diverse contexts for scaling up renewable energy, such as urbanization, industrialization, dispersed rural populations and stage of renewable energy development. With respect to regional balance, it is not expected that each of the World Bank regions would be represented in the recommended list of countries, but the Expert Group is requested to recommend countries from at least three different regions.
- d) Natural conditions for developing renewable energy.

Priority consideration should be given to countries that have submitted an expression of interest to be considered as a pilot. The Expert Group should also give preference, if other considerations are equal, to least developed countries. While regional programs are not seen as a priority, it is agreed that there should be flexibility for the Expert Group to recommend a regional grouping of a small number of states if a strong case can be made from an operational perspective.

In presenting its recommendations to the SREP Sub-Committee, the Expert Group has been requested to elaborate upon how we incorporated the above criteria and took other considerations into account.

The Expressions of Interest (EOI) were received from 32 national governments. Overall, though some EOIs were quite informative and detailed, some were very brief. Since the CIF Administrative Unit had requested only brief indications of interest and not full proposals, this is to be expected. These relatively brief submissions then required assessment based on context and the recommendations to be based on additional background material. The EG did not use the EOIs alone for evaluating the comprehensiveness or quality of each country's actual or potential approach under the SREP. This evaluation was based as well on extensive country reports prepared by the MDBs and provided to the EG ahead of its deliberations.

The EG undertook a systematic process to review the 32 requests for support; 10 from Africa, 9 from East Asia and the Pacific, 4 from Europe and Central Asia, 3 from Latin America and the Caribbean, 2 from the Middle East and North Africa and 4 from South Asia.

The review involved an intensive analysis of detailed background information on each of the countries. This allowed an initial filtering of countries that were considered would qualify under the agreed criteria.

A two day period of meetings with MDBs provided significant additional insight into each of the requests and provided the EG with the opportunity to gain current, first-hand knowledge about the renewable markets in each of the countries being considered together with an in-depth understanding of the issues that would have most influence on the likely outcome of any support provided under the SREP.

Armed with this background information, the input from the discussions with the MDB and a range of professional experience in the countries under consideration, the EG reviewed their initial list and developed a final recommendation.

As noted, the Expert Group was invited to recommend six country or regional pilots that meet the criteria and other considerations agreed by the Sub-Committee. In addition, the EG was also invited to propose a list of up to three additional pilots to be considered by the Sub-Committee.

Based on the above described methodology and after comparative analyses, the EG recommends the following six countries as pilots for the consideration of the SREP-SC (in alphabetical order):

Ethiopia
Honduras
Kenya
Maldives
Mali
Mongolia

while the three proposed “additional” pilots are

Armenia
Liberia
Nepal

While the EG believes that there are other countries, and perhaps a potential grouping of countries, that could be considered for future support if additional funding were available, the current list is seen to represent those that most closely fit the selection criteria and offer the best opportunities for successful outcomes in the near future.

1.0 INTRODUCTION

An Expert Group (EG) has been established by the SREP Sub-Committee (SREP-SC) to advise the Sub-Committee on the selection of country or regional pilots for the SREP. Consistent with the criteria for the selection of country and regional pilots (**Appendix A**), and following the working modalities approved by the Sub-Committee, the Expert Group was invited to recommend six country or regional pilots that meet the criteria and other considerations agreed by the Sub-Committee. The Expert Group was also invited to propose a list of up to three additional pilots to be considered by the Sub-Committee as it sees fit, including in the circumstances where additional funds become available to finance more pilots or should some of the selected pilots prove not to be feasible.

In selecting the Expert Group, the SC was guided by the following criteria:

“It is important to emphasize that this group is being appointed to serve as an expert advisory group. Therefore, the experts should be internationally recognized senior professionals, acting in their personal capacities, chosen on the basis of their expertise, technical and operational experience. The group as a whole should include a diversity of perspectives, a diverse knowledge of renewable energy technologies, knowledge of engineering and technology, economics and financing, environment and climate change, economic and social development, the private sector, market development, and governance and institutional issues including policy and regulatory frameworks.

The Expert Group should be an inter-disciplinary team in order to reflect the wealth of knowledge and experience on climate change and renewable energy practices in developing countries with a focus on areas such as renewable energy policy and regulatory issues, energy technologies, rural and urban electrification, and power systems. The terms of reference and modalities for the Expert Group are described in sections VII and VIII.

The Expert Group should include experts from both developed and developing countries, with experience in different regions.”

Through a decision by mail, the SREP Sub-Committee approved the composition of the SREP Expert Group tasked with making recommendations on the selection of country or regional pilots to be financed under the SREP (see **APPENDIX B: Criteria for Selecting Expert Group members under the program for Scaling Up Renewable Energy in Low Income Countries**).

A list of the membership of the Expert Group and their areas of expertise is given in **APPENDIX C**.

Once the *Criteria for Selecting Country and Regional Pilots* had been approved by the SREP Sub-Committee, the CIF Administrative Unit informed eligible countries, through the country offices of the Multilateral Development Banks (MDBs), of the SREP program and invited

interested governments to submit a brief Expression of Interest (EOI) to be considered as a pilot country. Countries were invited to submit expression of interest in advance of the working meeting of the Expert Group. At its meeting on March 17th 2010 the SREP Subcommittee set a April 30th 2010 deadline for EOI submissions to be received at the CIF Administrative Unit. All expressions of interest received by the CIF Administrative Unit which met the deadline were submitted to the Expert Group for its consideration. According to the SREP Design Document, countries submitting an expression of interest would be given priority consideration by the Expert Group when formulating their recommendations for country and regional pilots. In total, 32 EOIs were received before the deadline – see Section 3.5.

The work of the Expert Group began with a conference call with the CIF Administrative Unit on May 10th. The EG then met May 17th to 21st, 2010 in Washington, D.C. (The Agenda is given in **APPENDIX D**) to carry out its tasks which included the development of methodologies and carrying out technical analyses and reviewing countries and regional entities that have expressed an interest in participating in the program. The Terms of Reference (ToR) set by the SREP Sub-Committee (SREP-SC) (see **APPENDIX E**) also invited the Expert Group (EG) to discuss and take note of the country and regional portfolios of the MDBs (Multi-lateral Development Banks), and to formulate its recommendations to the SREP Sub-Committee on the selection of country or regional pilots.

The Expert Group meeting was assisted by the CIF Administrative Unit during the course of its work. Arrangements were made for the Expert Group to meet with the MDB representatives to discuss, on a regional basis, countries and their potential to be included in the SREP. In particular, the MDBs have shared their experience and knowledge with respect to the criteria for *“willingness to undertake a program for renewable energy development that could eventually move the country towards a low carbon development path in the energy sector, and potential capacity for implementation, including a business friendly environment and sufficient institutional capacity”*

In presenting its recommendations to the SREP Sub-Committee, the Expert Group was requested to elaborate upon how it has taken the above criteria and other considerations into account in preparing its recommendations for country or regional pilots. The Expert Group report should include, inter alia, information on:

- a) methodology and analysis leading to the group’s recommendations regarding proposed country and regional pilots;
- b) an assessment of key issues and challenges for the recommended pilots; and
- c) conclusions and recommended list of country or regional pilots that meet the agreed number, criteria and other considerations agreed by the Sub-Committee.

At the conclusion of the meetings, EG members agreed on a consultative process for drafting, reviewing and finalizing its draft report and recommendations to be submitted to the SREP Sub-Committee. The report with recommendations of the Expert Group was submitted to the CIF Administrative Unit on June 4th, 2010 for transmittal to the SREP

Sub-Committee. The Co-Chairs of the Expert Group have been invited to present the report to the Sub-Committee and to respond to questions from its members. The report and recommendations should be made publicly available at the same time as it is submitted to the SREP Sub Committee for consideration.

After a short introduction and background based on the SREP Design document, Guidance from the SREP Sub-Committee on the establishment of the Expert Group, and the composition of the EG and its Terms of Reference, this report outlines in some detail the methodology adopted by the EG and procedures for the analysis undertaken in proposing the Pilots. The selection of pilot countries is presented in Section 4 of this report.

2.0 BACKGROUND

The aim of the Strategic Climate Fund's Program for Scaling up Renewable Energy in Low Income Countries (SREP) is to pilot and demonstrate, as a response to the challenges of climate change, the economic, social and environmental viability of low carbon development pathways in the energy sector by creating new economic opportunities and increasing energy access through the use of renewable energy.

As the foundation of economic growth, the private sector has a significant role to play in promoting renewable energy. In pursuing a strategy that will combine public sector and private sector actions, the SREP should seek to overcome economic and non-economic barriers in order to scale-up private sector investments contributing to the objectives of the SREP.

SREP should assist low income countries to initiate a process leading towards transformational change to low carbon energy pathways by exploiting their renewable energy potential in place of fossil-based energy supply and inefficient use of biomass.

Transformational change could occur through improved market and financial conditions and increased investor confidence. It leads to greater public and private sector investments in renewable energy necessary for large scale replication. This requires a better understanding of existing impediments and a focus on concrete actions to remove barriers. SREP should demonstrate that renewable energy provides a feasible pathway for economic growth and development.

SREP should provide experience and lessons in scaling up renewable energy, should promote sharing of lessons at the national, regional and international levels, and should increase public awareness of the opportunities for renewable energy.

SREP should also lead to economic, social and environmental co-benefits. Using renewable energy in place of conventional fuels could simultaneously address local air pollution reductions while reducing greenhouse gas emissions, contributing to climate resilience, and enhancing energy security.

SREP financing should be blended with co-financing from multilateral development bank lending programs and other national and international, public and private funding to invest in renewable energy technologies for electricity use and thermal energy generation in low income countries.

3.0 METHODOLOGICAL APPROACH AND ANALYTICAL PROCEDURE

3.1 General methodology

At its meeting on March 17th 2010, the SREP Sub-Committee approved the criteria for the selection of country and regional pilots as described in document *Criteria for Selecting Country and Regional Pilots under the Program for Scaling Up Renewable Energy in Low Income Countries* and requested the Expert Group to apply the criteria in formulating their recommendations of country and regional pilots.

In performing its task, the EG was guided by Paragraph 18 of the SREP selection criteria. It was noted that in reaching its recommendations on the selection of country and regional pilots, the EG was to take into account (i) a country's willingness to meet the criteria and to achieve the objectives of the SREP, and (ii) a country's potential and capacity to implement a SREP program. The selection criteria included:

- Willingness to undertake a program for renewable energy development that could eventually move the country towards a low carbon development path in the energy sector. Conditions needed for such transformation should include:
 - i) The existence of, or a willingness to adopt, within an appropriate time frame, supportive regulatory structures and institutions (including agencies to promote/utilize renewable energy). This could include policies and regulations promoting renewable energy, such as feed-in tariffs, tax incentives, subsidies, concessional financing or renewable portfolio standards.
 - ii) An enabling regulatory environment that promotes business, such as that contained in the *Doing Business Report*. For the renewable energy sector, this can include policies that support private sector participation, public-private partnerships, and availability of financing for renewable energy technologies. This can also include availability, or willingness to develop, local capacity along the renewable energy supply chain, including manufacturing, training, and operations and maintenance.
 - iii) Sector-wide energy development strategies that are open to integrating renewable energy into energy access and supply enhancement programs or targets for large-scale renewable energy deployment. Countries can be assessed on national and local strategies and targets for electrification, and current or projected share of renewables in the energy portfolio.
 - iv) Good governance within the sector. An assessment of sector governance might include commercial performance of relevant institutions, pricing and tariff practices, and competitive procurement of goods and services, the transparency and accountability of these practices and the degree to which they are subject to public oversight.

- Potential capacity for implementation, including a business friendly environment and sufficient institutional capacity. This can include a track record of renewable energy projects completed or initiated with participation of private sector, previous experience implementing and using renewable energy technologies, capacity for operating and maintaining renewable energy systems. In specific cases, the existence of a track record may not be a strict criterion and a willingness to advance in the area of renewable energy could be sufficient. The government's ability to effectively absorb additional funds should also be considered.
- Regional balance as well as balance among diverse contexts for scaling up renewable energy, such as urbanization, industrialization, dispersed rural populations and stage of renewable energy development. With respect to regional balance, it is not expected that each of the World Bank regions would be represented in the recommended list of countries, but the Expert Group is requested to recommend countries from at least three different regions.
- Natural conditions for developing renewable energy.

It was also noted that priority consideration should be given to countries that have submitted an expression of interest to be considered as a pilot. The Expert Group should also give preference, if other considerations are equal, to least developed countries¹. While regional programs are not seen as a priority, it is agreed that there should be flexibility for the Expert Group to recommend a regional grouping of a small number of states if a strong case can be made from an operational perspective.²

In presenting its recommendations to the SREP Sub-Committee, the Expert Group has been requested to elaborate upon how the group incorporated the above criteria and other considerations in preparing its recommendations.

3.2 Working Modalities

The first organizational meeting of the Expert Group took place through a teleconference on May 10th 2010. The group decided on the following items:

- a) Selection of two co-chairs: According to the SREP Design Document, one of the co-chairs of the Expert Group should be from developing country and the other co-chair from a donor country. No decision was made on specific appointments during this call but it was agreed that this would be confirmed at the outset of the meetings in Washington, DC
- b) Confirmation of arrangements for the Expert Group to meet for a week in Washington, DC to undertake its analysis and work; and
- c) Agreement on the preparatory work, including collection of relevant information, to be undertaken by Expert Group members, MDBs and the CIF Administrative Unit in advance of the meeting.

¹Least developed countries may include fragile states.

² A regional or sub-regional program should be considered as one pilot under the SREP.

3.3 Background Material

Based upon the request of the Expert Group, the CIF Admin Unit has provided, with the support of the MDB Committee, analytical background material on each of the countries that submitted an EOI in the following categories:

- i) **Basic Information**
 - a. Population; rural-urban distribution
 - b. Geographical features
 - c. Natural resource base (forests, agriculture, water)
 - d. Economic indicators and trends (per capita income, GDP, national debt, etc.)
 - e. Trade (imports, exports) (including net burden due to energy imports)
 - f. International credit rating (aid effectiveness, ease of investment)
- ii) **GHG Emissions / Climate Change Policy**
 - a. Emission levels
 - b. Government policies on Climate Change
- iii) **Energy Sector**
 - a. General description – Overall issues, level of access, role of energy in the national economy
 - b. Energy mix
- iv) **Electricity**
 - a. Generation energy mix and consumption
 - b. Governance structures and institutional capacity (Policy / Regulation / Operation)
 - c. Regulatory Frameworks and policies
 - d. Pricing / incentives
 - e. Planning
 - f. Sector finances
 - g. Demand estimation
 - h. Private sector participation
- v) **Renewable Energy Sector**
 - a. Current contribution of RE to energy mix, if any (electricity and non-electricity)
 - b. Renewable energy resource assessment (wind, solar, small hydro, biomass, geothermal)
 - c. Governance structures and institutional capacity
 - d. Government policies and programs and incentive schemes
 - e. Private sector and NGO involvement (technical assistance, system assembly, investment in deployment, maintenance, etc.)
 - f. Implementation performance of RE programs
- vi) **Donor Assistance in Energy Sector**
 - a. Different donor programs in sub-sectors in energy sector (current and planned)
 - b. Programs of Multilateral Development Banks
 - c. Types of assistance (power sector reform, technology diffusion, energy infrastructure, etc.)

The Expert Group was also able to draw upon reference materials brought into the discussions by Expert Group members themselves, ranging from analyses of the status of renewable energy, the energy access situation in developing countries and assessments on the ease of doing business in the countries under review.

On the 18th and 19th May 2010 the Expert Group convened meetings with the MDBs (refer **APPENDIX E**) to discuss, on a regional basis, the potential and capacities of countries and regions to be included in the SREP. In particular, the MDBs shared their experience and knowledge with respect to the criteria for country preparedness and ability – institutional or otherwise – to undertake SREP pilots as envisaged. In addition they explained the current programs which each have in the countries who had submitted an EOI, the nature of these programs and how the SREP could reinforce on-going or planned activities. This

input was valuable in that it provided the EG with direct contact with those who are administering grant and investment portfolios with both the government and private sectors in the countries under consideration for the SREP. In addition to the information exchange with MDBs, the Expert Group was briefed on the PPCR, in particular with regard to the capacity of governments to respond to the preparation phase (for SREP the investment plan preparations), which will be the next step after the Sub Committee approves the country selection for the SREP.

3.4 Review of Background Material

Core Task of the EG

The EG began by reviewing the documents forwarded to its members by the CIF Administrative Unit before arriving to Washington, DC. Among those were: The Design Document for the Program for Scaling Up Renewable Energy in Low Income Countries, the Criteria for Selecting Country and Regional Pilots under the Program for Scaling Up Renewable Energy in Low Income Countries, the Criteria for Selecting Expert Group members and the Terms of Reference for the Expert Group. Access was also provided via an internet link to the extensive country background documents that had been prepared by the CIF Administrative Unit.

On arrival in Washington DC, the CIF Administrative Unit provided the 33 Expressions of Interest (EOIs) that had been submitted by national entities and hard copies of the country background documents that had been available via the internet. In subsequent discussions it was noted that Senegal had indicated that it would submit an EOI but that this had not been received by the agreed cut-off date. During a meeting with the IDB and WBG, it was also noted that Haiti had sought to provide an EOI but current conditions in the country preventing it being transmitted to the CIF.³

Note on Expression of Interests (EOIs) and Available Background Information

Overall, though some EOIs were quite informative and detailed, others were very brief. Because the CIF Administrative Unit had requested only brief indications of interest and not full proposals, the submissions needed to be considered in context. While the signatories and content of the EOIs were noted, the EOIs were not the basis on which assessments were undertaken. In some cases the information provided with the EOI gave more current background and this was valuable given that in a number of instances the data collated by the CIF Administrative Unit was inevitably dated.

In undertaking its assessment of the suitability of specific countries for participation in the SREP programs, the EG would like it noted that its recommendations have been made without access to any investment plans from those lodging an EOI. While the procedures being followed under the SREP preparations are acknowledged, the recommendations are made based on some implicit assumptions as to how SREP funds might be applied. While the actual utilisation of funds will be subject to the preparation of investment plans that reflect the needs identified by individual governments, and will require approval by the SREP Sub Committee, caution should

³ An Expression of Interest was received from the government of Haiti on May 28, 2010. While the Expert Group was unable to consider this request due to its late submission, Haiti requested that its interest be noted in case additional countries are selected in the future.

be exercised to identify any significant divergence from the assumptions upon which the EG’s recommendations have been formulated.

3.5 The Review Process

Initial Information Analysis

On the first day of meetings, ahead of any discussions with the MDBs, the EG began its deliberations by a review of the EOIs and background data for the countries within the regions as defined below:

<i>Africa</i>	<i>East Asia & Pacific</i>	<i>Europe & Central Asia</i>	<i>Latin America & Caribbean</i>	<i>Middle East & North Africa</i>	<i>South Asia</i>
<ul style="list-style-type: none"> • Democratic Republic of Congo • Ethiopia • Ghana • Kenya • Liberia • Malawi • Mali • Rwanda • Tanzania • Zambia 	<ul style="list-style-type: none"> • Cambodia • Kiribati • Lao PDR • Mongolia • Samoa • Solomon Islands • Timor-Leste • Tonga • Vanuatu 	<ul style="list-style-type: none"> • Armenia • Georgia • Moldova • Tajikistan 	<ul style="list-style-type: none"> • Honduras • Guyana • Nicaragua 	<ul style="list-style-type: none"> • Djibouti • Yemen 	<ul style="list-style-type: none"> • Bangladesh • Maldives • Nepal • Sri Lanka

In reviewing each country, the analyses followed a number of steps:

- The underlying willingness of each applicant was assumed, given that they had provided an EOI, though the position / seniority of the signatory of the EOI was noted.
- Confirmation as to whether the country is an LDC and also a note as to its participation in either the PPCR or FIP programs
- The existing energy situation in each country was reviewed to provide a setting for consideration of the contribution that renewable energy could provide or is already providing. Particular note was taken of the level of rural and urban access to affordable energy and the current use of traditional biomass and its impact on health.

- The specific renewable energy strategies and policies that have been implemented were reviewed to determine:
 - Whether supporting laws have been promulgated and if so how long have they been in effect
 - What targets, if any have been set
 - Has an independent energy regulator been established
 - Whether programs exist to promote access to energy, particularly off grid
 - What has been achieved under existing policies
- The market conditions for renewable energy development were reviewed to determine:
 - The strength of public institutions engaged in renewable energy promotion and implementation
 - The presence, strength and capacity of the private sector
 - The presence of incentives, preferential tariffs for renewable energy
 - The strength of local financial institutions and their engagement in the RE market
 - Current and planned MDB or donor programs focused on renewable energy
- The existing renewable energy developments were reviewed to gauge
 - Their level of success
 - The nature and scale of completed projects
 - The track record that exists in the RE markets, both on grid and off grid and whether there is confidence that this can be continued / replicated
- The specific impacts of possible SREP support were considered;
 - The ability of the country to effectively absorb a significant funding contribution under SREP
 - The potential market changes that SREP could engender
 - The likelihood that the SREP contribution could provide a transformational change in the market
 - The time required for any such transformation change
 - The impact that SREP support could have in building the private sector engagement in the market

This information was summarised for each country and on the basis of this analysis a first assessment was made as to whether, under the prescribed criteria for selection, a particular country would qualify for SREP support. A first list separating those who could qualify from those who would not qualify was then drawn up.

Interaction with MDBs

During the second and third day of meetings the opportunity was taken to discuss with MDB representatives (see **APPENDIX E**), in detail, each of the countries and their potential for participation within the SREP. These meetings were face-to-face with MDB representatives based in Washington, supported by video conference links to colleagues based elsewhere. Summary notes were taken of all discussions for later reference and internal use by the EG.

With the immediate access to the MDB representatives the EG had the opportunity to draw on their local knowledge of each of the countries, covering amongst other points, their governance; leadership in clean energy / climate change; institutional strength; current energy market and business climates; commitment to providing comprehensive energy access; ability to deliver successful project outcomes; attitude towards private sector

participation in the energy markets; current and planned investment programs with the MDB or others; the ability of the country, institutions and/or the private sector to absorb the level of funding being considered under SREP.

These discussions were open and frank and provided valuable insight for the EG as it continued its deliberations.

Interim Review

As the meetings with each of the regional MDB groups were completed the EG took the opportunity to review their own initial considerations in the light of the information that arose through these discussions.

Final Review

In the final two days of deliberations the EG went back over its original independent assessment; reviewed revisions that had been considered after the interactions with the MBDs; prepared a shortlist of possible candidate countries and then, as described below, arrived at its final list of proposed pilot countries.

4.0 Selection of Countries

4.1 Terms of Reference

Under the Terms of Reference for the Expert Group it is required that they identify up to six pilots to be developed under SREP, together with three additional countries to be considered by the Sub-Committee should additional funds become available to finance additional pilots or if some of the selected pilots prove not to be feasible.

4.2 Considerations in Making Final Selection

In determining those countries that should be recommended for inclusion as the first SREP pilots, the underlying criteria can be summarised as follows:

- The existence of, or a willingness to adopt within an appropriate time frame, supportive regulatory structures and institutions.
- An enabling regulatory environment that promotes business, that supports private sector participation, public-private partnerships, and availability of financing for renewable energy technologies.
- Sector-wide energy development strategies that are open to integrating renewable energy into energy access and supply enhancement programs or targets for large-scale renewable energy deployment.
- Good governance within the sector.
- Potential capacity for implementation, including a business friendly environment and sufficient institutional capacity.
- The presence of suitable renewable resources

All of these criteria (as outlined above and included in more detail in *the Criteria for Selecting Country and Regional Pilots under SREP*) were taken into consideration in selecting the countries recommended below. It is of importance however to note that there was

naturally a difference in emphasis on some criteria as each country was considered, reflecting their current situation. This emphasis is reflected in the notes on each of the selected countries.

4.3 Recommended Country List

The recommended list of six countries for approval by the SREP Sub-Committee is as follows:

<i>Recommended Country</i>	<i>Notes</i>
Ethiopia	2% rural access to electricity, a very large unserved population and potential for hydro, geothermal and solar PV. Hydro development is reasonably well supported; geothermal exploitation can draw on the experience in Kenya beginning with fields already proven under earlier programs; the off grid solar PV potential has been demonstrated and could be unlocked with access to financing and minor regulatory improvements.
Honduras	An active private sector in small scale hydro development supported by a large number of recent concessions; the opportunity with adequate (appropriate) funding to move from public sector PV programs to heavier private sector engagement; potential to provide a strong regional model for renewable energy utilization in LAC.
Kenya	A vibrant private sector in all the renewable energy sectors; growing IPP experience with geothermal a strong focus; the largest unsubsidized solar PV market but only 5% access to electricity in rural areas; the potential that the Kenyan experience provides a strong regional model for others to follow.
Maldives	A unique opportunity to move to a carbon neutral economy; well defined strategy and plan; clearly enunciated goals and commitment; strong private sector in energy sector; significant advance possible with moderate funding; a model for small island states.
Mali	Less than 4% rural access to electricity; a sound institutional base for renewable(solar PV) implementation; positive track record in developments to date; potential for productive use of energy in agriculture and small commercial entities; sustainable biomass and biodiesel programs in place.

Mongolia	RE policies in place; considerable off grid potential for solar PV and wind and local manufacturing and production; emerging large wind industry; private sector engagement; local financial institutions involved with micro-finance and potential to build activity if risk mitigation facilities developed. Example of RE development in country with extreme climate.
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In addition to the above recommendations an additional list of three countries is proposed. These are proposed on the basis that their inclusion in the first round of SREP funding might be considered if additional funds become available. As noted above, they are not necessarily seen as direct substitutes for any on the list of six countries.

<i>Additional Recommended Country</i>	<i>Notes</i>
Armenia	Attractive market conditions for renewables; clear policies and regulatory framework; heavy dependence on imported fossil fuels; good resources; potential model for others within CARAC
Liberia	Post conflict environment; fresh start for establishment of energy supply / choice of resources; ability to influence policy from outset; significant and urgent need for electricity supply
Nepal	Established policy and regulatory background; long term private sector involvement in sector; extensive opportunities with small and medium scale hydro to provide power in rural areas; good experience with community owned installations

4.4 Specific Considerations

In considering the opportunities that exist in each of the recommended countries, there are a number of issues which the EG believes should be highlighted to assist in ensuring the success of the SREP. These include:

Scale of funding support

That the countries under consideration are in the majority LDCs and often at an early stage of renewable development raises the question as to the level of financial support that they can reasonably absorb. The current SREP assessment implies that a figure of some \$50m per country is being considered. Though EOIs have not been specific on the level of funding that a country might utilise (with the exception of that received from the Maldives) the EG has in its deliberations made its own macro assessment but has not used the (assessed) level of funding as an exclusionary criteria. There are countries recommended where it is believed a significant step forward in the adoption of renewables could be accomplished with a lower level of funding. The EG has only considered the gross funding that might be required and taken no account as to how this might be split amongst the MDBs active with any country.

Access to energy

In assessing the opportunities within most of the countries reviewed and recommended, the EG has had a strong focus on the ability to resolve the issue of access to energy, and in particular the off grid potential. In general the opportunity for larger grid connected renewables are limited in the countries recommended. Where they do exist, such as the geothermal potential in Kenya and Ethiopia, the assumption has been made that the focus would see a balance in the use of funds between these and off grid developments.

Regional benefits

There are specific opportunities where a country selection has been reinforced by the fact that it could provide a model for others within the region. It is believed, and discussions with the MDBs supported this thesis, that it is often not easy to transfer experiences from one region to another and easily gain their acceptance as appropriate models. While it is not the intention to provide alternatives within regions, the EG would like it noted that should an individual recommendation be rejected, immediately substituting one of the three countries in the additional list would not necessarily be favoured. A specific example is Honduras. The experience that Honduran participation in SREP could offer to the LAC region is seen as an important element in justifying its selection.

The role and vulnerability of the private sector

There is no question that the private sector has a critical role to play in the development of renewable resources, whether grid connected or off grid. For example, the real growth of the solar PV markets within the emerging economies is testament to the importance of the private sector. However, with a few exceptions, these companies involved are generally small and often have limited financial resources. The EG would be concerned if the SREP funding created market distortions through large scale (non-commercial) public sector involvement that undermined the growth of the existing private sector participants. Rather the expectation is that the additional financing would be used constructively to expand the market through more effective engagement of the existing entities and an improvement in market access to finance, whether this is for service providers or end users.

5.0 Summary Information on Recommended Countries

What follows is a brief summary on each of the recommended countries. It should be noted that a significant volume of background information was provided and reviewed (as described in Section 3.3) and it is not the intention to reproduce this material, more to provide a short background setting for each country recommended.

5.1 Ethiopia

Brief Country Statistics

Population (Millions)	Access to Electricity %			Target for Electrification Access		% using Modern Fuel for Cooking	% relying on Solid Fuel using Improved Cook Stoves	Annual Deaths attributable to Solid Fuel Use	Remarks
	National	Urban	Rural	%	Year				
79.22	15.3	80	2	20	2012	4.2	2.8	72400	LDC

Policy and Regulatory Environment

Ethiopia is a large, populous (85m 2009 est.) country dominated by the agricultural sector that accounts for 85% of employment. By far the largest proportion of the population lives in rural areas (83% 2008).

The Ministry of Mines and Energy is responsible for energy policy. Through the ministry, the Government has embraced increasing electricity access linked to income generating activities. Amongst other things Ethiopia is set to develop its hydro potential, liberalise the power sector, explore both centralized and decentralized power provision, commercialise and decentralise the national utility operations and strengthen regulation. The Government's strategy is based on increasing access to electricity and biomass energy, and to affect this, the establishment of a Universal Electricity Access Program which has been and continues to be capitalized. In 2006 it aimed to increase access from 17 to 50% over 5 years.

The National Economic Policy (NEP) introduced in 1991 sought to attract increased private sector participation in the economic development of the country and led to the subsequent establishment of the Ethiopian Electricity Agency (EEA) as an autonomous body accountable to the Ministry of Infrastructure, with specific responsibility for regulating the activities of all organizations concerned with the generation, transmission and distribution of electricity. To date there have been no private power developments in Ethiopia.

Status of Renewable Energy

At a domestic level, most of the country's inhabitants make use of biomass/charcoal. With large areas of the country deforested as a result of fuel requirements amongst other, it is unlikely that biomass would be considered renewable in parts of Ethiopia, notably the highlands which have been deforested rapidly over the last 30 years.

Traditionally the Ethiopian power system has always relied heavily on hydropower, which currently accounts for about 85% of the total installed capacity on the interconnected system (ICS). The remaining capacity is primarily diesel based upon imported fuel (14 %) and geothermal (1%).

There are eight hydro projects with an aggregate capacity of 662 MW currently on line, and another three projects totally some 1,180MW being completed.

Though ignored to date within the long range power plan, geothermal is now recognised as offering an important (potential) input to the Ethiopian grid as it is base-load and climate

independent. Irrespective of future hydro developments, geothermal's contribution to energy security at times of drought could be increasingly important if sufficient geothermal capacity can be brought on line.

To date the geothermal potential has received no significant attention. The Aluto Langano development (7.3MW installed but currently generating at about half this capacity), remains the only geothermal production in Ethiopia. In addition to Aluto, the Tendaho resource in the north east of the country has been drilled (in 1998) and a promising resource identified, estimated at some 100MW. A number of other sites have been identified and subjected to preliminary investigations.

The first wind generation installations are reported to be underway with a phased development of 120MW in northern Ethiopia.

A new focus on the development of renewable energy resources for power generation is also being encouraged through the establishment of feed-in-tariffs for such sources.

[Public and Private Capacity for SREP implementation](#)

Institutional restructuring is happening within the Ethiopian Electric Power Corporation (EEPCO) to deal with the electricity access programme. The EEPCO focus however still remains on hydroelectric developments and grid connected opportunities.

The Ministry of Mines and Energy has been the institution promoting geothermal but with little success given limited donor interest and EEPCO's reluctance to consider geothermal as a key resource, given its considerably smaller scale than the nominal capacity of the hydro projects they are pursuing.

There has been an interest and activity in promoting solar PV use in rural areas and there are opportunities for this program to be expanded if current import duties on solar products and access to adequate financing can be addressed.

The opportunity exists to enhance local technical, financial and managerial capacity in both the public or private sectors to undertake scale-up.

[Special considerations](#)

Ethiopia is an LDC that has a large population who are underserved with respect to energy. The economy is growing and diversifying. There is clear potential for renewables including (large and small) hydro, wind and geothermal. The major hydro potential is being exploited by EEPCO. SREP involvement could support a program that encourages a serious focus on accelerating the development of grid connected renewables while reinforcing and expanding the off grid solar PV opportunities. Regional support from (geothermal and solar PV) experience in Kenya in particular would be of considerable value.

5.2 Honduras

Brief Country Statistics

Population (Millions)	Access to Electricity %			Target for Electrification Access		% using Modern Fuel for Cooking	% relying on Solid Fuel using Improved Cook Stoves	Annual Deaths attributable to Solid Fuel Use	Remarks
	National	Urban	Rural	%	Year				
7.47	70.3	97.9	45	80	2015	45.2	47.9	800	

Policy and Regulatory Environment

The energy sector indicators of Honduras indicate the relative dependency on biomass use in the energy matrix as well as the large dependency on imported fossil fuels both for the transportation and the electricity sectors. Currently the average country electrification index reaches around 70% but there is a gap in the access to electricity in the rural areas where the average index only reaches around 45%. Energy policy developments in Honduras are geared at increasing the electrification index of the country to an average of 80% by 2015 and at reducing the burden of fossil fuel dependencies represented by the fraction of GDP allocated to the imports of fuels by using renewable energy for the electricity sector.

The electricity mix of the country is heavily dominated by fossil fuel providing nearly 62% of the generation.

Over the last few years the country has been striving to streamline the policies, regulations and institutional framework in order to assist in the intended policy goals and improving the governance in the energy sector with particular emphasis in the use of renewable energies as well as reducing the inefficient use of biomass. For that purpose, the following have been enacted: The Law on the Electricity Sub Sector (1994), The Decree for the Establishment of the Energy Regulatory Agency (1998), The Law for the Promotion of Renewable Energy Generation (2007). Through the latter one, a series of incentives have been put in place including the reduction of different types of taxes, provision for longer term PPAs, assurance of receiving a premium on the purchase power tariff, as well a preferred dispatch conditions; all of which are clearly contributing to an improved climate for renewable energy project development.

Recently, the country has conducted a bidding process for the provision of renewable energy including both small scale renewable energy projects (250 MW including up to 41 projects) and larger scale projects (461 MW including up to 7 projects). Expected targeted contributions from renewable energy projects are expected to increase from the current 38%, to 48% in 2015; which will be of significant importance to the country.

Status of Renewable Energy

There is a good potential for renewable energy development in the country. Currently, renewable energy sources provide a total installed capacity of 600 MW, some 38% of the electricity generated in the country. Of those, large hydro represents 462 MW of installed capacity (clearly on line with traditional historical paths for energy provision in the country and the Central American region). A 90 MW wind plant is under development and there are 9 biomass cogeneration projects providing 87 MW of installed renewable energy capacity.

The penetration of renewable energy in the off grid rural electrification programs is still lacking, although the Government is working actively in establishing a policy and also in developing appropriate rural infrastructure projects for the provision of off grid energy

services, which include innovative business models for the delivery of modern energy services to rural populations.

Opportunities

There are ample opportunities and perceived gaps for the scaling up of renewable energies in Honduras both in the off grid and on grid segments. At the off-grid level, there is an interesting potential for solar PV as well as for micro hydro systems for productive applications, and family based biogas systems for achieving traditional biomass or LPG substitution. At the on-grid level there are opportunities for supporting scaling up the private sector participation in contributing to achieve targets related to the decarbonization of the electricity sector.

Public and Private Capacity for SREP implementation

The most recent regulatory developments have provided stability in the perceived signals for developing small scale renewable energy projects; in addition there is a generation of willing and able private project developers with growing experience in the different aspects of project development. The local banking community currently has limited capacity to undertake the necessary lending, creating an opportunity for support to be provided in terms of structured capitalizations and complementary financing facilities required to close the existing gaps.

At the off grid level, there are limitations with the business models that have been adopted for the dissemination of RE and therefore the country could benefit from learning from experiences elsewhere and implementing innovative approaches for scaling the delivery of renewable energy solutions to rural populations.

Other Considerations

Scaling up renewable energy in Honduras can assist in a multi-dimensional form to the development of the country. Not only the objective of a low carbon economy can be assisted, but the contributions to sustainable development at the level of the social aspects of the energy dilemma can be tackled. Undoubtedly, scaling up renewable energy will have a contribution in increasing human development indicators in the rural areas, if the issue of access to energy services is carefully integrated into any program development in the country. Taking into account the interconnectivity of Honduras to the rest of the central American region, scaling up renewable energies in Honduras will have a positive impact on energy sector development in the overall region, making the attainment of regional energy sector sustainability policies more feasible; and also contributing to the sharing of experiences and barrier removals for the dissemination of small scale renewable energy in the context of the emerging electricity markets in the region. In the same way, learning from experiences that can emerge from implementation on actions related to the off-grid energy provision, supported by the existing interlink relationships of most actors working in this area (micro-financing, development agencies and local entrepreneurs) can create opportunities for cross fertilization and program development that can reach beyond the geographical frontiers of the country with a spill-over effect into the whole isthmus.

5.3 Kenya

Brief Country Statistics

Population (Millions)	Access to Electricity %			Target for Electrification Access		% using Modern Fuel for Cooking	% relying on Solid Fuel using Improved Cook Stoves	Annual Deaths attributable to Solid Fuel Use	Remarks
	National	Urban	Rural	%	Year				
39.8	15	51.3	5	40 (rural)	2020	17.3	2.8	14300	

Policy and Regulatory Environment

Despite of all progress, in 2008 only 15% of Kenya's population had access to electricity, (5% in rural areas and 51.3 % in urban areas).⁴

The 1997 Electric Power Act introduced private sector participation and independent regulation in the energy sector. The unbundling of the sector in 1998 eliminated the Government monopoly on the power industry and led to the creation of separate entities for power generation (KenGen) and transmission and distribution (KPLC), opening up for competition in electricity supply. More recently, the Ministry of Energy has developed feed-in tariffs for renewable energy-based power generation as well as guidelines for development of renewable energy-based power investments. The feed-in tariffs provide an important incentive to private sector development of renewable energy-based power investments.

To meet the growing electricity demand, which might double in 10 -12 years, Kenya has initiated several programs to improve capacity and accessibility. These include the Rural Electrification Program, the Energy Sector Recovery Project, the Electricity Access Scale-up Program, and a proposed Electricity Expansion Project.

The Energy Regulatory Commission (ERC), established in 2007 as Regulator under the 2006 Energy Act, is a single sector regulatory agent, responsible for economic and technical regulation of electric power, renewable energy, and downstream petroleum sub-sectors, including tariff setting and review, licensing, enforcement, dispute settlement and approval of power purchase and network service contracts.

Status of Renewable Energy

Kenya's alternative energy sources include hydropower, geothermal, wind, solar, biomass, power alcohol, bagasse-based power generation, biogas and municipal waste energy. Biomass accounts for 68 % of the total national, primary energy supply. The biomass energy and supply and demand imbalance exerts considerable pressure on the remaining forest and vegetation stocks.

KenGen produces 80 percent of the electricity consumed in Kenya. The company utilizes various sources to generate electricity ranging from hydro, geothermal, fossil fuel and wind. Hydro is the leading source with 60 per cent of installed capacity.

Solar electricity is widely used in rural Kenya to power wireless communication, and the Kenyan PV market demonstrates rural population willingness to pay for solar electricity. More than 3.2 MW of amorphous and crystalline silicon have been installed and the PV industry is presently worth USD 6 million new installations per year (500 kW/year).

A limited number of wind generators are in use in remote missions, farms and rural health centers. A number of companies import and sell small wind generators ranging from 300 – 1000W.

Opportunities

Private investors are expected to play a major role in boosting geothermal power development in Kenya. The estimated power generation potential for geothermal is 7,000 MW according to the Kenyan Ministry of Energy. The state-run Geothermal Development

⁴ WHO/UNDP: "The Energy Access Situation in Developing Countries", Nov. 2009

Company GDC plans to install 200 new MW per year in the next ten years, provided funding will be available.⁵

The feed-in tariffs for renewable energy power have generated significant private sector interest from both clean biomass power projects and from wind power projects. Wind energy studies have shown a substantial potential for expanding wind energy. For micro and small hydroelectric power there are endowment sites suitable for standalone systems which are suitable to rural energy demand patterns.

Biomass/bagasse power generation in Kenya's sugar industry might cover a substantial part of Kenya's future electricity demand.

Applications of solar PV electricity in Kenya, especially in rural areas with no grid connection include its use in: Solar Home Systems, small industries and institutions, telecommunications, health center vaccine refrigeration and lighting. The innovative use of mobile phones in Kenya, including mobile banking, may facilitate the scaling-up of the use of these renewable energy sources.

Public and Private Capacity for SREP implementation

Kenya has a dynamic private sector, active also in renewable energy, which is likely to respond positively to new incentives geared towards scaling-up of RE. Kenya's financial system includes a banking sector with more than 40 commercial banks. The Kenyan Government institutions also should, basically, be geared towards supporting a substantial scaling-up.

Other considerations

Kenya is advanced in renewable energy compared to many other countries. Kenyan experiences of institutional and technical aspects of scaling-up might be useful, not only for neighbouring countries, but also for other SREP pilot countries. Since the overall setting for scaling-up of RE in Kenya, basically, is in place, Kenya would qualify as pilot country in the SREP.

If Ethiopia is selected by the sub-committee as a pilot country for the SREP, it is suggested that there would be value in exploring the potential for close collaboration between Kenya and Ethiopia in geothermal energy production.

5.4 Maldives

Brief Country Statistics

Population (Millions)	Access to Electricity %			Target for Electrification Access		% using Modern Fuel for Cooking	% relying on Solid Fuel using Improved Cook Stoves	Annual Deaths attributable to Solid Fuel Use	Remarks
	National	Urban	Rural	%	Year				
0.31	100	100	100	-	-	81.9	-	<100	LDC

Policy and Regulatory Environment

The Maldives in 2009 enacted a plan to make the country the world's first carbon neutral country by 2020, with a mandate to the Ministry of Communication, Science and Technology to explore the contribution that renewable energy can make to the energy mix of the islands. It also adopted an aggressive target to increase amount of energy from renewable energy from a target of 15% formulated in 2005 to 50% of total energy production in 2015 formulated in 2009.

⁵ Think Geoenergy, December 23, 2009

It has formulated a range of new policies including:

1. The provision of affordable and reliable energy to the entire population
2. The Achievement of carbon neutrality by 2020
3. Energy efficiency promotion and energy conservation to reduce costs
4. Diversification of energy sources to secure national energy security
5. The promotion of renewable energy technologies
6. Strengthening of the legal and institutional framework for the energy sector.

There has been clear commitment from the President and his cabinet to bring to the world's attention the highly vulnerable situation of the country with respect to climate change and the country is developing its road map to carbon neutrality. It has already established six utilities in six provinces of the country to provide basic utilities including electricity, sewage and water, and encourage private sector participation through public-private partnerships (PPPs).

Status of Renewable Energy

Solar power has been used for a variety of purposes, with the telecommunications sector the largest user of solar energy totalling some 130kW of installed capacity for its 177 base station sites. There are a number of private solar installations in the country, and solar water heaters have been in use for a number of years. Renewable energy is also used for powering navigational lights to mark the reefs and for communications on fishing boats.

Opportunities

There are three main areas for development in terms of renewable energy in the Maldives. These consist of solar power (both photovoltaic and small solar thermal), wind generation and landfill gas.

A 75 MW wind farm program has been prepared and was announced by its utility, STELCO in late 2009.

Although the Maldives is heavily dependent on fossil fuel powered generation, there exist significant opportunities to work inter alia with the private sector tourism resort operators to enhance their generation potential through the installation of solar photovoltaic power.

The Maldives has already identified an initial set of some 8 pilot renewable energy projects that include wind and solar hybrids to facilitate the process of backing out costly diesel generation, totalling some 47.8kWp of solar and 93.4kW of wind. SREP funding could be used to support this process of moving away from a heavy dependence on fossil fuel generation. In the Maldives, electrical generation using fossil fuels is the largest contributor to greenhouse gases. The opportunity also exists to strengthen the maintenance infrastructure to ensure that installed renewable energy capacity is well maintained over the life of the system.

Public and Private Capacity for SREP implementation

An Initiative, the Renewable Energy Technology Development and Application Project (RETDAP) funded by the GEF and executed by the Ministry of Communication, Science and technology has already been underway since 2009 focused on the removal of barriers to the increased usage of renewable energy in the Maldives as part of their total energy mix.

A number of small wind energy companies and private sector solar companies already operate in the Maldives with some capacity. The Maldives has many island resorts which

provide the bulk of the country’s economic activity. Some of these have already installed limited solar capacity, and the opportunity exists to leverage SREP funds with private investment to increasingly look to the use of renewable energy for generation within the resorts, as well as in the other islands.

Other considerations

The Maldives is a fragmented country consisting of some 200 inhabited islands (out of 1,190 in total), it cannot maintain a centralized grid structure for the delivery of electricity to its population. Although basic energy access is already 100%, only 24 of the islands have regular and continuous power generation provided by the government utility, the State Electric Company Ltd (STELCO). Other islands are dependent on private providers, with delivery available for anything from 5-24 hours per day, depending on the particular island. Most of this generation is through the use of diesel or fuel oil. Tariffs are the highest in the region due to the dependence on fuel oils, and the country is vulnerable to oil shocks.

As a small island state it is highly vulnerable to the consequences of climate change. It has already shown clear leadership among the Small Island Developing States (SIDS) countries in terms of its plans to reduce its dependence on fossil fuels and move to a more sustainable future. By utilizing SREP funding to support the Maldives in its development of additional renewable energy generation capacity there exists a significant demonstration effect for other island nations that are also highly vulnerable to the effects of climate change and are interested in shifting their fossil fuel dependence in the direction of renewables. Given its high global visibility, this may serve to leverage additional resources into the SIDs countries more generally to support increased renewable energy generation and a reduction of vulnerability to the effects of climate change.

5.5 Mali

Brief Country Statistics

Population (Millions)	Access to Electricity %			Target for Electrification Access		% using Modern Fuel for Cooking	% relying on Solid Fuel using Improved Cook Stoves	Annual deaths attributable to Solid Fuel Use	Remarks
	National	Urban	Rural	%	year				
14.52	17.4	48.7	3.7	20.09	2011	0.2	6.00	15300	LDC

Policy and Regulatory Environment

Mali already has well defined policies in place for the increased use of renewable energy within its energy mix. It has enacted an action plan for renewable energy promotion, with a target of increasing the share of renewables in terms of total productive energy from less than 1% in 2002 to 15% by 2020. The plan incorporates five specific objectives:

- Improving access to energy particularly from renewables
- The rational use of existing energy sources
- The efficient use of existing natural resources to produce energy
- Sustainable use of biomass resources through the conservation and protection of forests
- Strengthening government capacity and streamlining administrative procedures within the energy sector

Mali’s National Center for Renewable Energy operates under the Directorate of the Ministry of Mines, Energy and Water. It has a well established agency specifically focusing on energy access, the Malian Agency for the Development of Household Energy and Rural Electrification (AMADER) which was created in 2003. This agency has the objective to

provide access to electricity to some 12% of the rural population by 2010 and 55% of the rural population by 2020, through in-depth sector reform to allow greater operations from private operators either through the award of concessions or licensing arrangements. The enactment of public private partnership schemes will also help to attract private investment.

Status of Renewable Energy

Hydroelectricity in 2005 provided 80% of Mali's generation capacity, with annual fluctuations that have severely limited capacity during times of drought. This capacity comes from load head hydro plants on the Niger and Senegal rivers and their tributaries. Only 25% of estimated potential capacity of 1500 MW is currently exploited and on-going rehabilitation work and equipment is required in this sector to help increase its capacity. There has been some utilization of solar photovoltaic power, particularly for off grid energy access and other small commercial applications, as well as small scale gasification and biogas digester development. The use of biomass is central to Mali's energy consumption, with more than 90% of the population relying on traditional fuels particularly for cooking purposes and there have been projects in the past focusing on the sustainable production of biomass for energy purposes, with local programs for the cultivation of jatropha, which has been fuelling some 700 biodiesel generators in the country.

Opportunities

By early 2009 the government had reached 11.2% electrification, close to its target for 2010, with some 40 new financing agreements for projects signed by May 2009. Those focused on two approaches:

1. Forty one locally initiated projects (PECASER projects, formulated through a bottom up approach of initiation by communities, NGOs or private operators) either operational or in construction phase would provide electricity to more than 58,000 customers.
2. Additionally, projects can be supported via a PREP or top down approach through the awarding of concessions across 10 concession zones, with a minimum of 5,000 potential customers each. By late 2009 two contracts had been signed for the awarding of concessions totalling an additional approximately 10,000 rural customers to gain access to electricity within three years.

The forecast from AMADER was that a total of 780,000 persons in 175 villages would have access to electricity by the end of 2009.

Clear opportunities exist in Mali for the increased use of solar photovoltaic technologies for rural electrification as well as agricultural and small commercial and community use, for example for rural medical clinics ensuring access to refrigeration. Opportunities also exist to develop the capacity for sustainable biomass usage, given the strong agricultural base of the economy for building up cogeneration capacity, as well as small scale gasification. Given the renewed interest in jatropha globally as a sustainable non-food crop with significant biodiesel potential (as well as localized erosion control), there are opportunities to scale up these projects further not only for household electrification, but also to power grinders and de-huskers for small scale agricultural processing applications.

There is foreign private sector investment interest in jatropha cultivation and refining, with some existing investment activity, with the government focus currently being on cultivation for domestic consumption purposes. Some local private sector capacity already exists in this space. Mali has been an early cultivator of jatropha, and it can continue to have a strong demonstration effect in the uses of jatropha biodiesel as a means both to back out the use

of diesel and to provide new generation capacity for off grid areas - as well as being a first line of defence to counteract desertification.

Improved cook stoves have been introduced in Mali, and opportunities exist to work with the private microfinance institutions on structuring appropriate financial products and mechanisms to allow for increased uptake of these stoves. There is also a demand for finance for off grid solar electrification applications, in small scale domestic applications, water pumping and other agriculture usage such as solar drip irrigation.

Public and Private Capacity for SREP implementation

Representatives from the MDBs provided input to the expert group indicating that Mali has a very solid track record of delivery on projects through the Malian agency for the Development of Household Energy and Rural Electrification (AMADER). At the same time there is a recognized need to expand more and continue to strengthen its solar based activities, particularly in the area of the provision of energy access as already articulated, since the country is operating from such a low level of access in the rural areas. The opportunity exists to use SREP funds to leverage other funding resources to help Mali build up a stronger base in renewable energy to help it meet its planned objectives over the next decade, with a strong focus on energy access, given that only 6% of PECASER customers receive their electricity through solar home systems, and that there are experiments with the use of jatropha as a generator fuel to back out diesel oil currently supplied to the decentralized grid.

Most of the existing entities operating the PECASERs are small or medium sized enterprises (SMEs) registered in Mali. They are often contractors or suppliers to the power sector. Other entities working in this sector include the Mali Folke Center, that has extensive experience in the use of small scale renewable applications across the country and can provide technical support.

Other considerations

Mali, with a population of some 13.5 million is among the least developed countries (LDC). It has a very low level of electrification, among the lowest in the world. In 2000 electricity constituted only 1% of its overall energy mix. The use of traditional biomass is central in its national energy consumption. It has consequently faced challenges with increasing desertification resulting from loss of biomass producing area, with resultant soil erosion. The provision of modern energy sources has a clear tie in to poverty alleviation and the promotion of gender equality particularly through the provision of improved cooking options requiring less time for the collection of wood and other biomass, as well as electrical lighting and use of electricity for agricultural processing purposes. These interventions have clear health and educational benefits as well as productive income generation potential.

The need for increased access to renewable energy sources for electrification, improved cooking and agricultural processing purposes would indicate a substantial program. The overall capacity of Mali is such, however, that the development of investment plans for a relatively modest program would be recommended as a rational approach for SREP consideration.

5.6 Mongolia

Brief Country Statistics

Population (Millions)	Access to Electricity %			Target for Electrification Access		% using Modern Fuel for Cooking	% relying on Solid Fuel using Improved Cook Stoves	Annual Deaths attributable to Solid Fuel Use	Remarks
	National	Urban	Rural	%	Year				
2.76	67	90	36	100	2020	23.2	99.1	300	

Policy and Regulatory Environment

Mongolia has an area of 1,565,000 sq km and a population of 2.6 million, of which 43 % live in rural areas and are mainly livestock herders. 36 % of the rural population and 90 % of the urban population has access to electricity. The overall electrification rate is 65%.⁶

The utilization of renewable energy has been emphasized as one of the priority areas in a number of important Government Plans. In 2005, the Parliament enacted the National Renewable Energy Program 2005 – 2020, with a goal of increasing installed capacity generated by renewable energy sources from 3-5 percent in 2010 to 20-25 percent by 2020. In 2007 the Renewable Energy Law of Mongolia came into force, with the purpose of regulating relations concerning generation of power using renewable energy sources and its delivery.

In general, Mongolia has low energy efficiency and investment needs are urgent. Power and heating demand has increased rapidly due to the influx of the rural population into urban areas and new business development, particularly in the mining sector. The current 2001 Energy Sector Plan thus needs to be updated.

The large investment needs in Ulaanbaatar are due to rapid growth in electricity and heating demand as well as the ageing of coal-based heat and power plants. Considerable progress has been achieved in providing provincial and district centers with access to electricity, however a substantial part of these centers lack proper access to heating services. Most village centers still need to be electrified.

In 2001 - by virtue of the law on Energy and Tariffs - the then Energy Agency was divided into autonomous state companies (presently 17 companies) operating within heat and power, transmission and distribution. Mongolia has a single buyer model for power.

The Energy Regulatory Authority of Mongolia is mandated to regulate tariffs, issues licenses, monitor operational and financial performance of licensees and dispute complaints from licensees and consumers. An assessment of regulatory agencies in the Central Asia Regional Economic Cooperation (CAREC) member countries in 2005 indicated that the Mongolian regulator was considered transparent, independent and capable.

Status of Renewable Energy

Mongolia has abundant resources of renewable energy. There is a high awareness of solar PV and wind turbine systems for individual use, and about 40,000 solar home systems and 3,000 wind turbine systems have been sold, especially for household and communication facilities. Some public investments have been made in PV, wind or hybrid systems.

⁶ WHO/UNDP: "The Energy Access Situation in Developing Countries", Nov. 2009

Opportunities

Solar: Mongolia has favorable solar energy regime, ranging from low insolation of 4.5 kWh/m² per day and less than 2,600 sunshine hours in the mountainous ranges, to a high of 5.5-6.0 kWh/m² per day with a sunshine duration of 2,900 – 3,000 hours in the Post-Altai Gobi area, the Steppe and the Gobi dessert. The high insolation areas cover some 70% of the territory.

Hydropower: At present some small hydro plants are operating. Resources have yet to be fully investigated. 3,800 small rivers have a calculated total potential of 6,200 MW.

Wind: More than 160,000 km² have good-to-excellent wind potential, with 13 provinces having at least 20 GW potential; South Gobi alone is estimated to have over 300 GW of potential.

Geothermal: Activities exist in Mongolia, although not widely developed. No detailed scientific research has yet been done into the ability of these springs to provide geothermal power, but geothermal has potential to extend heating supply in many provincial centers with heating demand of about 2 MW.

Biomass/biogas energy generation/biofuels: Commercial and domestic exploitation of forest resources is primarily for timber and firewood. The 4 million m³ of solid wastes (industrial and domestic) per year are not suitable for biogas development because of weather and wastes composition.

Public and Private Capacity for SREP implementation

The Government capacity for implementing a RE scaling-up program has been assessed positively by representatives from MDBs operating in Mongolia. The capacity of the private sector is emerging, albeit still limited. An ADB evaluation in 2008 concluded that the banking subsector was performing well while the capital markets subsector is lagging behind.

Special considerations

Mongolia would be a relevant case for testing the options for scaling-up RE in general and also in relation to providing increased access to energy for a widely dispersed population in rural areas. It climatic extremes also provide an opportunity to demonstrate the application of renewable resources in such environments.

5.7 Armenia Summary

Brief Country Statistics

Population (Millions)	Access to Electricity %			Target for Electrification Access		% using Modern Fuel for Cooking	% relying on Solid Fuel using Improved Cook Stoves	Annual Deaths attributable to Solid Fuel Use	Remarks
	National	Urban	Rural	%	Year				
3.24	100	100	100	-	-	100	100		

Policy and Regulatory Environment

Armenia is highly dependent on imported fossil fuel resources. The governance structure in the energy sector includes the Ministry of Energy and Natural Resources, the Public Services Regulatory Commission, and several levels of participants at the level of generation, transmission and distribution as well as the associated dispatch services.

Renewable Energy has been specified as one of the priorities in several official documents of the Republic of Armenia, which include: the Energy Law of the Republic of Armenia (adopted in 2001), the Law on Energy Saving and Renewable Energy (2004), The Energy Sector Development Strategy (June 2005), The National Plan on Energy Savings and

Renewable Energy (2007), The Action Plan of the Ministry of Energy and Natural Resources (2007), and The Public Services Regulatory Commission definition on sale tariffs for electricity delivered from renewable energy generating plants.

The country has a target of 30% renewable energy contribution to electricity generation by 2025, a figure that can be expanded to a higher percentage by incorporating the development of diversified renewable energy resources like geothermal, biogas and wind energy on top of the hydroelectric development. The existing planning documents call for important targets related to the introduction of up to 635 MW of renewable energy capacity additions including up to 130 MW of small hydro and 300 MW of wind generation.

Status of Renewable Energy

Renewable energy accounts for 1,049 MW, representing 32% of the electricity mix in the country. The existing renewable energy plants are all hydro, with large hydro representing 960 MW and the remainder small scale hydro.

The expected contribution of new hydro facilities in the country includes up to 301 MW of large hydro and up to 299 MW of small hydro (69 plants under construction and a further 115 plants under initial development).

There is a small wind plant operating in the country with a capacity of 2.6 MW. A wind energy atlas of the country has been produced, indicating that a potential of up to 500 MW exists. Wind monitoring has confirmed at least 195 MW of wind power plant development in 4 areas of the country and a further potential of 215 MW has been identified in another 3 areas (though not confirmed via detailed monitoring).

There are opportunities for geothermal development in the country with identified activity in at least one site with a capacity of 25-50 MW. Biomass potential has been identified as well as solar inventories have been carried out.

Opportunities

Taking into account that Armenia has reached 100% electricity coverage, most of the identified opportunities for renewable energy lie within the scope of contribution to attaining a low carbon development in the energy sector, a factor that is very important for a fossil fuel dependent country. There are opportunities also in introducing and scaling up distributed generation opportunities from solar and biomass cogeneration, which together with the hydro and wind development can assist to demonstrate the possibility of increasing resilience to climate change in the energy sector via the introduction of diversity in an existing (fossil fuel dependent) grid.

Public and Private Capacity for SREP implementation

Armenia has created and supported an enabling environment for the deployment of renewable energies in the country over the last few years. The energy policy, sector reforms and enacted regulations in the area of purchasing tariffs as well as procedures for the signing of PPA's provide an enabling environment for renewable energy developments. There is an emerging consolidation of private sector energy developers willing to participate in the development of power projects. There are existing funding structures for the financing of renewable energy (German-Armenian Fund, revolving lending mechanisms and renewable energy credit programs by Ameriabank), but there are perceived financing gap needs that can be assisted with the types of funds available under the CIF funding. Armenia indicators in terms of the "Doing Business 2009" indicate that the country ranks at number 44 in the world, which coupled with the already existence of a good number of independent

power producers, indicates that the business environment for the scaling up of renewable energy is certainly becoming mature for the participation of the private sector and therefore at a good stage to achieve a transformational result in the energy situation of the country.

Other Considerations

Scaling up support for the development of a low carbon economy in Armenia through the incorporation of more diverse renewable energy forms can serve important regional objectives for the dissemination of renewable energy sector regulations, business models and exchange of important lessons learned that can contribute to fostering agendas for other countries in the Central Asia Region.

5.8 Liberia

Brief Country Statistics

Population (Millions)	Access to Electricity %			Target for Electrification Access		% using Modern Fuel for Cooking	% relying on Solid Fuel using Improved Cook Stoves	Annual Deaths attributable to Solid Fuel Use	Remarks
	National	Urban	Rural	%	Year				
3.48	3.3	7	1	10	2011	0	0	3900	LDC

Policy and Regulatory Environment

The two wars of independence 1989 to 1996 and 1999 to 2003 have left little of the country's infrastructure intact. Until recently efforts were underway to provide a 20MW grid to power part of the Capital, the first grid power in 15 years before mid 2006. However, under the leadership of the first African woman president, policies have been formulated to guide the flow of finance from donors to rebuild the country. Liberia has an Energy Policy adopted in 2009 which sets out access goals by 2015 and emissions reduction targets aiming for neutrality by 2050.

The Government of Liberia has further intensified its commitment to the provision of energy services through the adoption of the National Energy Policy (NEP) in 2009, which calls for universal and sustainable access to affordable and reliable energy supplies in order to foster the economic, political, and social development of Liberia. The four pillars of the NEP are (i) universal energy access including the development of an energy master plan; (ii) least-cost production of energy and protection of most vulnerable households; (iii) adopting international best practices in the electricity sector; and (iv) accelerating public and private partnership in the sector.

Renewable energy has been addressed in a recent REEEP funded policy research paper. This states that "Liberia, with most of its soil stripped of fossil fuel power and heat, must be one of the planet's strongest candidates for an economy powered using major renewable energy resources."

The development of a Renewable Energy Policy is now part of the country's plans. The strategy is to establish PPPs that could locate investment in the renewable energy sector with the stated effect of using indigenous energy sources to reduce the balance of payment impacts of importing fuel.

Liberia has a small population of 3.4 million and currently an inexperienced but as yet unencumbered governance at a higher management level. Vested interests that may have a policy implementation retarding effect have yet to be rooted. The mid level of the civil service remains.

Status of Renewable Energy

Liberia had no installed capacity from renewable energy in 2003, with the hydro plant having been destroyed during the war. There is an estimated 100MW of hydro capacity, and there are interests in harnessing biomass that is readily available (including agricultural residues), for power generation. An estimated 90% of the population provide for their thermal energy services through the use of charcoal. There are some traders using 1-5kW electricity generators.

Opportunities

There is clearly an opportunity to harness both hydro and biomass for the generation of power for grid supply. Many of the vested interests of fossil fuel that may obstruct the use of renewable energy use are absent, leaving opportunities for clean energy generation. The clean slate, eagerness to rebuild the country, enabling policies, all provide a role for technological leapfrogging in grid and off-grid clean technology applications particularly if linked to livelihood activities. Wind along the coast, solar PV and solar thermal all have potential applications and are under consideration.

Public and Private Capacity for SREP implementation

In general, there is little capacity remaining after years of war with many of the educated and experienced citizens having sought refuge outside of the country. The Government is attempting to attract some of the human capacity back to their country of origin, but this is only likely to occur once opportunities in the public and private sector appear in the economy. If SREP were to engage in Liberia, the capacity and skills required to implement and manage such a programme would have to be brought in a turn-key arrangement. In general, capacity follows resources which follow leadership and there appears to be some leadership in the energy sector.

Some work has been undertaken by bilateral donors to establish the groundwork for both a legal and institutional framework for the development of renewable energy capacity in Liberia.

Special considerations

While Liberia is not an obvious candidate for SREP funding starting from such a low base (and being one of the Least Developed Countries), the opportunity to start afresh with clean energy is appealing. This is in part to avoid the potential for lock-in to a fossil fueled economy as is the case with many of its neighbours. Scaling-up from almost nothing is still scaling-up, but an opportunity exists to make a large local and regional impact and build an energy economy around renewable biomass which would provide livelihood and gender development opportunities. The establishment of a renewable energy policy and the goal of carbon neutrality, provide an ambitious target that deserves support in a country that has the will, if not the resources, to achieve them.

There remains an opportunity to blend SREP resources with other multi-lateral and bi-lateral assistance supporting the implementation of the new energy policy agenda. Later this could be extended to private investors.

5.8 Nepal

Brief Country Statistics

Population (Millions)	Access to Electricity %			Target for Electrification Access		% using Modern Fuel for Cooking	% relying on Solid Fuel using Improved Cook Stoves	Annual Deaths attributable to Solid Fuel Use	Remarks
	National	Urban	Rural	%	Year				
29.33	43.6	89.7	34	100	2027	16.2	6	8700	LDC

Nepal, a land locked country, has a large potential for hydropower (about 83,000 MW), solar and wind resources. However, Nepal’s average per capita energy consumption is about 15 MJ against world average of 68 MJ. More than 87% people amongst 28 million people are still using traditional biomass and around 43% have access to electricity. GDP growth rate is low and among several reasons, unavailability of adequate energy for industrial and productive sector is the major one. Nepal has no known resources of fossil fuel except 12,000 tons of low quality coal produced per year. It has currently about 650 MW of installed capacity for electricity generation of which 93% comes from hydropower.

Nepal consumes about 0.856 ToE of fossil fuel per day. Currently Nepal has a severe shortage of energy especially biomass for the rural population but also electricity for all sectors. Even the capital city Kathmandu has 12 hours of load shedding. While the sustainable annual yield of fuel wood in Nepal is 5.448 million ton, a figure of 10.972 million ton is the estimated consumption per year

Policy and Regulatory Environment

Nepal, after the re-establishment of democracy in 1990, brought several acts, policies and regulations to develop hydropower and other sources of renewable energy in the country. Hydropower Development Policy 1992 and 2001, Water Resources Strategy (WRS) January 2002, National Water Plan (NWP) 2002, Water Resources Act, 2049 (1992), Electricity Act 2049 (1992), Electricity Regulation 2050 (1993), Electricity Leakage Control Act 2058 (2001) are some of policy instruments brought up by the Nepalese government mainly to attract the investment and to liberalize the sector. However, because of political instability the implementation activities were not realized as envisaged by policies and acts. Currently the government of Nepal, Revised Electricity Act and Proposed Nepal Electricity Regulatory Commission Act, have been prepared for the approval from the parliament. These newly brought acts will address the remaining issues which were hurdles for the development of the sector. In 1993 an Electricity Development Department (DOED) was created to promote and facilitate the private sector's participation in power sector by providing a "One Window" service and license to power projects.

The Nepalese government promulgated the Rural (Renewable) Energy Policy 2006. It has also regularly updated the Renewable Energy Subsidy Arrangement and Subsidy Delivery Mechanism mainly to promote renewable energy, especially targeting rural and remote areas of the country.

To promote grid based rural electrification mainly providing community ownership to manage, operate and maintain the distribution systems, government has created a community rural electrification department within the Nepal electricity Authority (NEA).

Status of Renewable Energy

Nepal has developed it renewable energy sector quite well and serving around 10% of rural population already. Public Private Partnership approach has been applied in the sector for a decade already. The following table illustrates the current status of RE development.

Current statistics on small scale renewable energy			
Energy Technology/Resources	Current installed capacity	Benefiting households	Remarks

Solar Home System	5 MW	200,000	Plus around 50 Solar PV water pumping,
Domestic Biogas	450 MWth	223118	More than 95% are working
Micro Hydro	15 MW	225,000	Mainly for lighting, agro-processing and small and cottage industries
Improved water mills	5 MW		
Improved cooking stoves		330,819	Majority are fixed mud based
Wind Energy	Few pilot plants of about 1 Kw are installed		

Source: information from AEPC (2010)

Opportunities

Nepal has abundant renewable energy resources. Based on the type of applications, type of resources and locations, different types and ranges of energy generating systems or fuels can be developed. The lack of local investment was one of the reasons that these opportunities have not been developed. The country has appropriate policies in place, abundant resources are available and once triggering initiatives/mechanism are developed scaling up will take place.

Potential of Renewable Energy in Nepal								
Small and Large Hydropower	Mini-Micro Hydro MW	Traditional water mills (pico Hydro which are of 1-3 KW)	Biomass (sustainable fuel wood yield)	Biogas	Solar Energy kWh/m2	Geothermal	Wind	Bio-fuels
83,000 MW	1000	25,000 (about 6,000 now improved)	5.448 million ton	1.9 Million Units of small scale domestic size	4.5	More than 73 Hot-Springs are located but no resource mapping has been done	3-9 m/sec (about 3,000 MW is available with the 10 KM range of current national grid)	1 million KL production potential

(Source: based on 20 Year Strategy Paper, prepared by Ministry of Energy, draft)

Public and Private Capacity for SREP implementation

In the public sector the state owned utility, Nepal Electricity Authority, is the sole buyer of IPPs electricity. Nepal has more than 16 commercial banks, an equal number of development banks and a few insurance companies with some experience in hydropower project financing. Few hydropower plants are built solely with Nepalese investment, local human resources and companies.

A separate semi-autonomous institution, the Alternative Energy Promotion Centre, is working as a nodal agency for renewable and alternative energy. All 75 districts level local government institutions have their own energy and environment unit to look after energy and environment related activities. More than 500 private companies are already involved in RET business and about 15,000 people are working in the RET sector. Except for PV modules themselves, solar components are locally produced/assembled. Turbines and

several other electro-mechanical components of micro-hydro plants are locally produced. The Federation of Nepalese Chambers of Commerce and Industry has its own energy division and there is a very active and vibrant association of companies working in the fields of solar thermal, solar PV, biogas and micro-hydro development

Special considerations

Though hydro developments in Nepal are vulnerable to variations in snow melts and potential glacial collapses, there are some 50 hydro projects of less than 10MW capacity already identified and ready for development. A further 4 projects of less than 10MW are currently being offered through competitive bidding. Certainty is offered through a fixed rate PPA for developments up to 25MW and IPPS are already providing almost 30% of the countries electrical demand. Progress is however hampered by the lack of access to appropriate funding to take these many opportunities forward.

APPENDIX A:

**CRITERIA FOR SELECTING COUNTRY AND REGIONAL PILOTS UNDER
THE PROGRAM FOR SCALING UP RENEWABLE ENERGY IN LOW
INCOME COUNTRIES**

CLIMATE INVESTMENT FUNDS

March 26, 2010

**CRITERIA FOR SELECTING COUNTRY AND REGIONAL PILOTS
UNDER THE PROGRAM FOR SCALING UP RENEWABLE ENERGY IN
LOW INCOME COUNTRIES**

I. BACKGROUND

1. There is increasing consensus that addressing climate change is central to the sustainable development, economic growth and poverty reduction agenda. Increasing the resilience to climate change needs to combine both mitigation and adaptation measures. A delay in reducing greenhouse gas (GHG) emissions would significantly constrain opportunities to achieve lower stabilization levels and is likely to increase the risk of more severe climate change impacts. Climate change impacts have the potential to reverse hard-earned development gains and progress towards achieving the Millennium Development Goals.

2. Low income countries face a dual challenge of increasing the availability of electricity and other commercial fuels needed for economic development and increasing access to the 1.5 billion people who have no access to electricity and are dependent almost wholly on biomass fuels for energy services. The majority of the low income countries and populations are in Sub-Saharan Africa and Asia, and electricity access is about 25 percent in Africa and 52 percent in Asia. In Latin America low income countries have access rates typically of around 60 percent. In a vast majority of these countries fossil energy use is highest in the residential and commercial sectors.

3. The need to ramp up modern energy use in low income countries, coupled with the availability of exceptional renewable energy resources, provide a fertile opportunity to help countries develop a renewable energy base that will allow them to leap-frog into a new pattern of energy generation and use. Increased financing is vital to catalyze such a transformative use of renewable energy. Such resources are needed to overcome the challenges to achieving this potential, including:

- a) weak enabling environments: few low income countries have in place an enabling environment necessary to promote renewable energy. It is necessary, therefore, to create an enabling environment by establishing the necessary policy, legal, regulatory and economic frameworks, reduce barriers to investment, improve access to knowledge and financing, and strengthen institutional capacities. These steps help reduce risks and transactions costs, and thereby encourage renewable energy investment.
- b) lack of access to capital: there is a funding gap for renewable energy as commercial lenders perceive such investments as too risky. The capital costs of renewable energy investments further exacerbates the problem. When there are capital constraints, the tendency is to favor projects that may have lower upfront capital intensity.
- c) need to engage public and private sector: the private sector is a critical partner, and it can be most effective in scaling up renewable energy investments if an enabling environment exists. This underscores the important role of the public sector in setting the policy and regulatory framework for private sector interventions and contributing to investments in the early stages of a transformative program.
- d) lack of affordability: even with increased access to investment resources, many potential customers may have limited financial resources to make energy purchases at a scale needed to make renewable energy businesses financially viable. Long-term commercial viability is a prerequisite for sustainable and affordable energy services.

II. OBJECTIVES AND PURPOSE OF SREP

4. The aim of the Strategic Climate Fund's Program for Scaling up Renewable Energy in Low Income Countries (SREP) is to pilot and demonstrate, as a response to the challenges of climate change, the economic, social and environmental viability of low carbon development pathways in

the energy sector by creating new economic opportunities and increasing energy access through the use of renewable energy.

5. As the foundation of economic growth, the private sector has a significant role to play in promoting renewable energy. In pursuing a strategy that will combine public sector and private sector actions, the SREP should seek to overcome economic and non-economic barriers in order to scale-up private sector investments contributing to the objectives of the SREP.
6. SREP should assist low income countries to initiate a process leading towards transformational change to low carbon energy pathways by exploiting their renewable energy potential in place of fossil-based energy supply and inefficient use of biomass.
7. Transformational change could occur through improved market and financial conditions and increased investor confidence. It leads to greater public and private sector investments in renewable energy necessary for large scale replication. This requires a better understanding of existing impediments and a focus on concrete actions to remove barriers. SREP should demonstrate that renewable energy provides a feasible pathway for economic growth and development.
8. SREP should provide experience and lessons in scaling up renewable energy, should promote sharing of lessons at the national, regional and international levels, and should increase public awareness of the opportunities for renewable energy.
9. SREP should also lead to economic, social and environmental co-benefits. Using renewable energy in place of conventional fuels could simultaneously address local air pollution reductions while reducing greenhouse gas emissions, contributing to climate resilience, and enhancing energy security.
10. SREP financing should be blended with co-financing from multilateral development bank (MDB) lending programs and other national and international, public and private funding to invest in renewable energy technologies for electricity use and thermal energy generation in low income countries.

III. SREP DESIGN PRINCIPLES

11. Building on the aim and the objectives above, SREP should:
 - (a) be country-led and build on, and draw benefit from, national policies so that renewable energy is fully integrated into national energy plans. SREP should assist countries in developing or strengthening policies for renewable energy;
 - (b) take a programmatic and outcome-focused approach for investing in renewable energy as an alternative to conventional sources, such as fossil fuels and inefficient use of biomass. An SREP program should consist of both renewable energy investments (including infrastructure to supply and deliver renewable energy), and technical assistance, together with support for policy changes to greatly increase the use of renewable energy;
 - (c) give priority to renewable energy investments that create “value added” in local economies. SREP should target proven renewable energy technologies that allow for the generation and productive use of energy, as well as community services such as health, education and communication;
 - (d) commit sufficient funding and leverage significant additional financing from MDBs, bilateral agencies/banks and from other public and private sources to achieve large scale renewable energy impacts;
 - (e) work in a small number of low income countries selected on the basis of objective criteria, to maximize its impact and the demonstrative effect;

- (f) encourage private sector investments to significantly increase renewable energy capacity in a country's energy supply;
- (g) target the entire value chain, by utilizing the transformational potential of the private sector and civil society groups (including financial intermediaries) to achieve economic development and support long-term social and environmental sustainability;
- (h) seek wider economic, social and environmental co-benefits, such as reduced local pollution, increased energy security, enterprise creation, and increased social capital, particularly greater involvement and empowerment of women and other vulnerable groups;
- (i) be designed and implemented with the full and effective participation and involvement of, and with respect for the rights of, indigenous peoples and local communities, building on existing mechanisms for collaboration and consultation; and
- (j) proactively seek to build on synergies with other programs in the field of renewable energy, including those of the MDBs, GEF and other development partners.

IV. SCOPE OF SREP PROGRAMS

12. SREP should provide financing for renewable energy generation and use of energy using proven "new" renewable energy technologies. For purposes of SREP, new renewable energy technologies include solar, wind, bioenergy, and geothermal, as well as hydropower with capacities normally not to exceed 10 MW per facility.

13. SREP should support complementary technical assistance as this is essential for transformative and enduring change and country engagement and ownership. This could include support for planning and pre-investment studies, policy development, legal and regulatory reform, business development and capacity building (including for knowledge management and monitoring and evaluation) as an integral and complementary part of renewable energy investment operations.

V. EXPERT GROUP FOR THE SELECTION OF PILOT COUNTRIES

14. An Expert Group is to be appointed by the SREP Sub-Committee to make recommendations on the selection of country or regional pilots to be financed by the SREP (see *Criteria for Selecting Expert Group Members under SREP*). This document proposes criteria and additional considerations to guide the Expert Group in advising on the selection of country or regional pilots.

VI. NUMBER OF PILOTS

15. The SREP Sub-Committee is to determine the number of country or regional pilots to be financed through the SREP, taking into account, among other things, the resources available for the program and the objective of providing scaled-up resources through the SREP pilots. In determining the number of country and regional pilots, it is important to ensure that the scale of investment for each pilot is sufficient to meet the objectives of the program. Based on the current level of pledged funding (USD 292 million), the SREP Sub-Committee has agreed that there should initially be up to six pilots.

16. The Sub-Committee is invited to keep under review the funding available to the program and to consider, if the funding increases, whether to include additional pilots.

17. The Expert Group is invited to propose a list of up to six pilots to the Sub-Committee together with a list of up to three additional countries to be considered should funds become available to finance additional pilots or should some of the selected pilots prove not to be feasible. The Expert Group is invited to inform the Sub-Committee of its views on the number of pilots for further consideration by the Sub-Committee, taking into consideration: a) estimated leverage factor, and b) absorptive capacity of the countries.

VII. CRITERIA

18. In reaching its recommendations on the selection of country and regional pilots, the Sub-Committee should consider the following criteria. The criteria should be considered from two perspectives: (i) a country's willingness to meet the criteria and to achieve the objectives of the SREP, and (ii) a country's potential and capacity to implement a SREP program. This criteria includes:

- e) willingness to undertake a program for renewable energy development that could eventually move the country towards a low carbon development path in the energy sector. Conditions needed for such transformation should include:
 - i) the existence of, or a willingness to, adopt, within an appropriate time frame, supportive regulatory structures and institutions (including agencies to promote/utilize renewable energy). This could include policies and regulations promoting renewable energy, such as feed-in tariffs, tax incentives, subsidies, concessional financing or renewable portfolio standards.
 - ii) an enabling regulatory environment that promotes business, such as that contained in the *Doing Business Report*. For the renewable energy sector, this can include policies that support private sector participation, public-private partnerships, and availability of financing for renewable energy technologies. This can also include availability, or willingness to develop, local capacity along the renewable energy supply chain, including manufacturing, training, and operations and maintenance.
 - iii) sector-wide energy development strategies that are open to integrating renewable energy into energy access and supply enhancement programs or targets for large-scale renewable energy deployment. Countries can be assessed on national and local strategies and targets for electrification, and current or projected share of renewables in the energy portfolio.
 - iv) good governance within the sector. An assessment of sector governance might include commercial performance of relevant institutions, pricing and tariff practices, and competitive procurement of goods and services, the transparency and accountability of these practices and the degree to which they are subject to public oversight.
- f) potential capacity for implementation, including a business friendly environment and sufficient institutional capacity. This can include a track record of renewable energy projects completed or initiated with participation of private sector, previous experience implementing and using renewable energy technologies, capacity for operating and maintaining renewable energy systems. In specific cases, the existence of a track record may not be a strict criterion and a willingness to advance in the area of renewable energy could be sufficient. The government's ability to effectively absorb additional funds should also be considered.
- g) regional balance as well as balance among diverse contexts for scaling up renewable energy, such as urbanization, industrialization, dispersed rural populations and stage of renewable energy development. With respect to regional balance, it is not expected that each of the World Bank regions would be represented in the recommended list of countries, but the Expert Group is requested to recommend countries from at least three different regions.
- h) natural conditions for developing renewable energy.

19. Priority consideration should be given to countries that have submitted an expression of interest to be considered as a pilot. The Expert Group should also give preference, if other considerations are equal, to least developed countries⁷. While regional programs are not seen as a priority, it is agreed that there should be flexibility for the Expert Group to recommend a regional grouping of a small number of states if a strong case can be made from an operational perspective.⁸

VIII. REPORT OF THE EXPERT GROUP

20. In presenting its recommendations to the SREP Sub-Committee, the Expert Group is requested to elaborate upon how it has taken the above criteria and other considerations into account in preparing its recommendations for country or regional pilots. The Expert Group report should include, inter alia, information on:

- c) methodology and analysis leading to the group's recommendations regarding proposed country and regional pilots;
- d) an assessment of key issues and challenges for the recommended pilots; and
- c) conclusions and recommended list of country or regional pilots that meet the agreed number, criteria and other considerations agreed by the Sub-Committee.

⁷Least developed countries may include fragile states.

⁸ A regional or sub-regional program should be considered as one pilot under the SREP.

ANNEX 1- COUNTRY ELIGIBILITY

1. A country eligible for participating in SREP programs should be:

- a) a low income country eligible for MDB concessional financing (i.e., IDA9 or a regional development bank’s equivalent); and,
- b) engaged in an active MDB country program. For this purpose, an “active” program means where an MDB has a lending program and/or on-going policy dialogue with the country.

2. It is expected that a country receiving financing from SREP will not receive financing from the Clean Technology Fund.

List of IDA only countries and/or similar RDB equivalents

<ul style="list-style-type: none"> • Afghanistan • Angola • Armenia • Bangladesh • Benin • Bhutan • Bolivia, Plurinational State of • Burkina Faso • Burundi • Cambodia • Cameroon • Central African Republic • Chad • Comoros • Congo, Democratic Republic of (formerly Zaire) • Congo, Republic of • Cote D'Ivoire • Djibouti • Ethiopia • Eritrea 	<ul style="list-style-type: none"> • Gambia • Georgia • Ghana • Guinea • Guinea-Bissau • Guyana • Haiti • Honduras • Kenya • Kiribati • Kosovo • Kyrgyz Republic • Laos, PDR • Lesotho • Liberia • Madagascar • Malawi • Maldives • Mali • Mauritania • Moldova • Mongolia • Mozambique • Nauru 	<ul style="list-style-type: none"> • Nepal • Nicaragua • Niger • Nigeria • Rwanda • Samoa • Sao Tome and Principe • Senegal • Solomon Islands • Sierra Leone • Sri Lanka • Tajikistan • Timor-Leste • Tanzania, United Republic of • Togo • Tonga • Tuvalu • Uganda • Uzbekistan • Vanuatu • Yemen, Republic of • Zambia
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9 SREP should be limited to IDA only countries and/or similar RDB equivalents.

APPENDIX B:

CRITERIA FOR SELECTING EXPERT GROUP MEMBERS UNDER THE PROGRAM FOR SCALING UP RENEWABLE ENERGY IN LOW INCOME COUNTRIES

CLIMATE INVESTMENT FUNDS

March 26, 2010

**CRITERIA FOR SELECTING EXPERT GROUP MEMBERS
UNDER THE PROGRAM FOR SCALING UP RENEWABLE ENERGY IN
LOW INCOME COUNTRIES**

II. BACKGROUND

1. The Climate Investment Funds (CIF) are a unique pair of financing instruments designed to support low-carbon and climate-resilient development through scaled-up financing channelled through the African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank, and World Bank Group.
2. The two CIF funds are the Clean Technology Fund (CTF), financing scaled-up demonstration, deployment and transfer of low-carbon technologies for significant greenhouse gas (GHG) reductions within country investment plans, and the Strategic Climate Fund (SCF), financing targeted programs in developing countries to pilot new climate or sectoral approaches with scaling-up potential. Three programs have been designed under the SCF: the Pilot Program for Climate Resilience (PPCR), the Forest Investment Program (FIP), and the Program for Scaling Up Renewable Energy in Low Income Countries (SREP).
3. Low income countries are well endowed with renewable energy resources, though they use a tiny fraction of their potential. To tap into this potential, the SREP has two primary objectives. First, it is designed to support low-income countries in their efforts to expand energy access and stimulate economic growth through the scaled-up deployment of renewable energy solutions. Second, it will contribute to transforming the renewable market through a programmatic approach that involves support for market creation, private sector implementation, and productive energy use.

II. OBJECTIVES AND PURPOSE OF SREP

4. The aim of the SCF Program for Scaling-up Renewable Energy in Low Income Countries (SREP) is to pilot and demonstrate, as a response to the challenges of climate change, the economic, social and environmental viability of low carbon development pathways in the energy sector by creating new economic opportunities and increasing energy access through the use of renewable energy.
5. As the foundation of economic growth, the private sector has a significant role to play in promoting renewable energy. In pursuing a strategy that will combine public sector and private sector actions, the SREP should seek to overcome economic and non-economic barriers in order to scale-up private sector investments contributing to the objectives of the SREP.
6. SREP should assist low income countries to initiate a process leading towards transformational change to low carbon energy pathways by exploiting their renewable energy potential in place of fossil-based energy supply and inefficient use of biomass.
7. Transformational change could occur through improved market and financial conditions and increased investor confidence. It leads to greater public and private sector investments in renewable energy necessary for large scale replication. This requires a better understanding of existing impediments and a focus on concrete actions to remove barriers. SREP should demonstrate that renewable energy provides a feasible pathway for economic growth and development.
8. SREP should provide experience and lessons in scaling up renewable energy, should promote sharing of lessons at the national, regional and international levels, and should increase public awareness of the opportunities for renewable energy.
9. SREP should also lead to economic, social and environmental co-benefits. Using renewable energy in place of conventional fuels could simultaneously address local air

pollution reductions while reducing greenhouse gas emissions, contributing to climate resilience, and enhancing energy security.

10. SREP financing should be blended with co-financing from multilateral development bank (MDB) lending programs and national and international, public and private funding to invest in renewable energy technologies for electricity use and thermal energy generation in low income countries.

IV. SREP DESIGN PRINCIPLES

11. Building on the aim and the objectives above, SREP should:

- (a) be country-led and build on, and draw benefit from, national policies so that renewable energy is fully integrated into national energy plans. SREP should assist countries in developing or strengthening policies for renewable energy;
- (b) take a programmatic and outcome-focused approach for investing in renewable energy as an alternative to conventional sources, such as fossil fuels and inefficient use of biomass. An SREP program should consist of both renewable energy investments (including infrastructure to supply and deliver renewable energy), and technical assistance, together with support for policy changes to greatly increase the use of renewable energy;
- (c) give priority to renewable energy investments that create “value added” in local economies. SREP should target proven renewable energy technologies that allow for the generation and productive use of energy, as well as community services such as health, education and communication;
- (d) commit sufficient funding and leverage significant additional financing from MDBs, bilateral agencies/banks and from other public and private sources to achieve large scale renewable energy impacts;
- (e) work in a small number of low income countries selected on the basis of objective criteria, to maximize its impact and the demonstrative effect;
- (f) encourage private sector investments to significantly increase renewable energy capacity in a country’s energy supply;
- (g) target the entire value chain, by utilizing the transformational potential of the private sector and civil society groups (including financial intermediaries) to achieve economic development and support long-term social and environmental sustainability;
- (h) seek wider economic, social and environmental co-benefits, such as reduced local pollution, increased energy security, enterprise creation, and increased social capital, particularly greater involvement and empowerment of women and other vulnerable groups;
- (i) be designed and implemented with the full and effective participation and involvement of, and with respect for the rights of, indigenous peoples and local communities, building on existing mechanisms for collaboration and consultation; and,

- (j) proactively seek to build on synergies with other programs in the field of renewable energy, including those of the MDBs, GEF and other development partners.

IV. EXPERT GROUP TASK AND COMPOSITION

12. An Expert Group is to be established by the SREP Sub-Committee to make recommendations on selection of country, and if appropriate, regional programs to the SREP Sub-Committee. The SREP Sub-Committee should provide to the Expert Group criteria and guidance (see, Criteria for selecting Country and Regional Pilots under SREP). The Expert Group should make recommendations to the SREP Sub-Committee on a list of country or regional pilots based on the agreed criteria.

V. GENERAL PRINCIPLES FOR SELECTING THE EXPERTS

13. It is important to emphasize that this group is being appointed to serve as an expert advisory group. Therefore, the experts should be internationally recognized senior professionals, acting in their personal capacities, chosen on the basis of their expertise, technical and operational experience. The group as a whole should include a diversity of perspectives, a diverse knowledge of renewable energy technologies, knowledge of engineering and technology, economics and financing, environment and climate change, economic and social development, the private sector, market development, and governance and institutional issues including policy and regulatory frameworks.

14. The Expert Group should be an inter-disciplinary team in order to reflect the wealth of knowledge and experience on climate change and renewable energy practices in developing countries with a focus on areas such as renewable energy policy and regulatory issues, energy technologies, rural and urban electrification, and power systems. The terms of reference and modalities for the Expert Group are described in sections VII and VIII.

15. The Expert Group should include experts from both developed and developing countries, with experience in different regions.

VI. SPECIALISTS TO BE INCLUDED IN THE EXPERT GROUP

16. While meeting the above general principles, it is proposed that the group include experts with in-depth knowledge in different disciplines and familiarity with field level implementation related to the renewable energy sector and development. It is recommended that the Expert Group consists of a maximum of eight members, and preference would be given to experts who could combine more than one profile as described below:

Development Economist

Expertise in macroeconomics and development with capabilities to assess a country's development potential and growth potential. He or she should have broad and diverse development experience. Familiarity with the economics of renewable energy is an advantage.

Energy Economist

Expertise in the public and private financing of renewable energy technologies and sustainable financing models and issues: analytical skills pertaining to economic and financial costs, carbon finance, fiscal/financial incentives including subsidies, and cross-

sectoral issues (e.g. biofuels); micro-enterprise development; micro-credit and financing models. Extensive Development experience in low income countries is preferred.

Environment and Climate Change

Expertise in environmental impact assessments of energy projects including those of renewable energy technologies (RETs); experience in assessing environmental co-benefits of clean energy projects including impacts on related sectors such as agriculture, water, natural resource management and infrastructure; familiarity with the latest methodologies and applications to promote RETs as part of climate action including Kyoto Flexible Mechanisms (CDM); familiarity with climate risk assessment. Other useful skills include knowledge of ongoing international, regional and national activities at policy and operational level and familiarity on capacity needs assessments and preparation of capacity building work programs in the renewable energy sector.

Development and Renewable Energy Policy Specialist

Expertise in: policies and regulations aimed at promoting renewable energy; institutional and organizational issues underlying climate change action and renewable energy promotion; and, institutional issues underlying delivery of development resources for clean energy. Knowledge of rules, procedures and practices as well as accountability structures that shape intergovernmental processes and relations between key sectors would be useful. The expert should be familiar with critical country policies and development processes that are aimed at poverty alleviation and increasing access to energy. Knowledge of donor financing, harmonization and coordination mechanisms, and country programming is preferred.

Private Sector Experience in Energy Sector

Experience with private sector and issues pertaining to promotion of renewable energy in low income countries; expertise in policies, incentives, enabling environment and institutions required for a conducive investment environment for private sector. Prior experience in private sector in generation of energy and delivery of energy services to the poor is preferable.

Renewable Energy Technologies

Technical expertise in grid-based as well as off-grid renewables such as small hydro, biomass, wind, CSP, solar PV and/or geothermal; expertise in renewable energy technologies that allow for the generation and productive use of energy as well as community services such as health, education, and communication; familiarity of technical issues involved in installation, inter-connections, operations, maintenance, capacity enhancement, and hybrid systems in developing country situations.

Rural and Urban Electrification

Familiarity with rural and urban electrification programs in developing countries including best practice in grid extension; connectivity and dispatch issues; utilization of RETs including mini-grids and off-grid systems; distributed generation; and policies and regulatory frameworks.

Social and Gender Development

Expertise in social and community issues, including indigenous peoples issues and rights, in promoting RETs especially in remote rural areas; strong understanding of the socio-economic and gender dimensions of energy access and sustainable energy development; experience in promoting RETs for socially and economically productive applications.

VII. TERMS OF REFERENCE

17. Once the Expert Group has been appointed by the SREP Sub-Committee, it is to prepare, for consideration by the SREP Sub-Committee, a list of recommended country or regional pilots to be developed under the SREP. Consistent with the criteria for the selection of country and regional pilots, and following the working modalities described below, the Expert Group is invited to recommend up to six country or regional pilots. Recommended pilots should meet the criteria and other considerations agreed by the Sub-Committee. The Expert Group is also invited to propose a list of up to three additional countries to be considered by the Sub-Committee should funds become available to finance additional pilots or should some of the selected pilots prove not to be feasible.

18. The Expert Group is to submit to the Sub-Committee, together with its recommendations, a report on the methodology and analysis that led to its recommendations.

VIII. WORKING MODALITIES FOR COMPLETION OF THE WORK OF THE EXPERT GROUP

19. The following steps and working modalities are to be followed.

20. The first step in the process is for the SREP Sub-Committee to agree upon the number of pilots to be financed with the available resources, the criteria for selecting the Expert Group as well as the terms of reference and working modalities proposed in this paper. The SREP Sub-Committee is also to agree upon *Criteria for Selecting Country and Regional Pilots under the SREP*.

21. Once the criteria and terms of reference are approved, the CIF Administrative Unit will issue a call for nominations of experts. This call will be posted on the CIF website and direct outreach inviting nominations will be made to:

- a) SREP Sub-Committee members,
- b) SCF Trust Fund Committee members,
- c) Active observers to the SCF Trust Fund Committee and the SREP Sub-Committee, and,
- d) MDBs.

22. Nominations for experts submitted by any party should include an expression of interest, the expert's name, contact information, area of expertise (taking into account the areas of discipline outlined in paragraph 16) and a resume.

23. The CIF Administrative Unit and the MDB Committee will review all the nominations received for which information listed in paragraph 22 has been provided and prepare a proposal, using the criteria as guidance, to present to the SREP Sub-Committee for review and approval. The MDB Committee will endeavor to satisfy the requirements of the criteria.

The CIF Administrative Unit will confirm, prior to including an expert in the final proposal, that the expert would be available to work with the Expert Group as foreseen in the schedule below (paragraph 32).

24. Once the composition of the Expert Group is approved by the Sub-Committee, the CIF Administrative Unit will contract the experts and organize the first meeting of the expert group.

25. Once the *Criteria for Selecting Country and Regional Pilots* has been approved, the CIF Administrative Unit will inform eligible countries, through the country offices of the MDBs, of the SREP program and invite interested governments to submit a brief expression of interest to be considered as a pilot country. Countries will be invited to submit an expression of interest in advance of the working meeting of the Expert Group. All expressions of interest received by the Administrative Unit will be submitted to the Expert Group for its consideration.

26. The first organizational meeting of the Expert Group will be virtual. At the first meeting, the group will be requested to:

- a) select two co-chairs: one co-chair of the Expert Group should be a national from a developing country and one co-chair should be from a donor country.
- b) confirm arrangements for the Expert Group to meet for a week to undertake its analysis and work; and
- c) agree on the preparatory work, including collection of relevant information, to be undertaken by Expert Group members, MDBs or the CIF Administrative Unit in advance of the meeting.

27. Following the organizational meeting, the Expert Group will meet for five days to carry out its technical analysis and review of eligible countries and to formulate its recommendations to the SREP Sub-Committee on the selection of country or regional pilots.

28. The Expert Group will be assisted by the CIF Administrative Unit during the course of its work. Arrangements will be made for the Expert Group to meet with the MDBs to discuss, on a regional basis, countries and their potential to be included in the SREP and to review the country and regional energy portfolios of the MDBs. In particular, the MDBs will be expected to share their experience and knowledge with respect to the potential capacity of the country to implement a SREP pilot program.

29. At the end of its meeting, the Expert Group will agree on a consultative process for reviewing and reaching agreement on its report and recommendations to be submitted to the SREP Sub-Committee. The Expert Group should agree upon one of its members to serve as the lead author of its report. The report and recommendations should be prepared and agreed within two weeks of the conclusion of the meeting.

30. The report and recommendations of the Expert Group will be submitted to the CIF Administrative Unit for transmittal to the SREP Sub-Committee. The Co-Chairs of the Expert Group will be invited to present the report to the Sub-Committee and to respond to questions from Sub-Committee members. The report and recommendations should be made publicly available at the same time as the report is submitted to the SREP Sub Committee for consideration.

31. If necessary, the Sub-Committee may request the Expert Group to undertake further work before it reaches a final decision on the selection of country and regional pilots.

IX. TIMELINE

32. The following timeline for the work of the Expert Group is proposed:

a) Week of February 1, 2010:

SREP Sub-Committee approval of criteria for selecting Expert Group members, terms of reference and working modalities.

b) March 29-April 30, 2010:

CIF Administrative Unit will invite expression of interest from countries.

c) February 22-March 26, 2010:

Period for submissions of nominations of experts.

d) March 29-April 9, 2010:

Preparation of proposal for composition of Expert Group by MDB Committee and confirmation of availability of proposed experts.

e) April 12-26, 2010:

Circulation of proposal for approval by SREP Sub-Committee. Such approval will be by mail in accordance with the rules of procedure for the Sub-Committee.

f) April 26-May 5, 2010:

Recruitment of Expert Group members.

g) April 29, 2010:

Organizational meeting of Expert Group (virtual).

h) May 17-21, 2010:

Meeting of Expert Group (in person).

i) June 4, 2010:

Submission of the recommendations and report to the CIF Administrative Unit for distribution to the SREP Sub-Committee to assist its selection of country and regional pilots.

j) Week of June 21, 2010:

SREP Sub-Committee meeting to approve a provisional list of potential countries or regions to be considered for financing under the SREP.

k) June 28-July 23, 2010:

CIF Administrative Unit will invite countries selected to confirm their interest to participate in the program.

l) July 26-August 9, 2010:

Confirmation by the SREP Sub-Committee of final list of countries or regions. Such approval will be by mail in accordance with the rules of procedure for the Sub-Committee.

X. EXPECTED OUTPUTS

33. In reporting to the SREP Sub-Committee, the Expert Group should include information on:

- e) methodology and analysis leading to the group's recommendations regarding proposed country and regional pilots;
- f) an assessment of key issues and challenges for the recommended pilots; and
- g) conclusions and recommended list of country or regional pilots that meet the agreed number, criteria and other considerations agreed by the Sub-Committee. The Expert Group is also invited to propose a list of up to three additional countries to be considered by the SREP Sub-Committee should funds become available to finance additional pilots or should some of the selected pilots prove not to be feasible.

34. The recommendations and the report of the Expert Group will be submitted to the SREP Sub-Committee for consideration in advance of its meeting during the week of June 21, 2010.

APPENDIX C:

SREP EXPERT GROUP MAY 5, 2010

Expertise	Proposed Expert	Title, Organization	Country
Development Economist	Anders Serup Rasmussen	Partner, Nordic Consulting Group	Denmark
Environment and Climate Change Specialist	Stephen Thorne	Director, South South North Project	South Africa
Private Sector Specialist with Experience in Energy Sector	Michael Allen <i>(Rapporteur)</i>	Chairman, ReEx Capital Asia Ltd.	New Zealand
Renewable Energy Technologies Specialist	Oscar Coto <i>(Co-Chair)</i>	Principal, Energía, Medio Ambiente y Desarrollo, EMA S.A.	Costa Rica
Rural and Urban Electrification Specialist	Govind Raj Pokharel	Manager for Pakistan, Indonesia, and Bangladesh Programmes, SNV Netherlands Development Organisation	Nepal
Social and Gender Development Specialist	Richenda Van Leeuwen <i>(Co-Chair)</i>	Consultant	United States and United Kingdom

APPENDIX D:

SREP Expert Group Meeting: May 17-21, 2010

Washington, D.C.

PROVISIONAL WORK PROGRAM

Monday, May 17 (9:00 – 6:00)

- Organization of work of the Expert Group including discussion and agreement on methodology and working modalities
- Review and discussion of background information

Tuesday, May 18 (8:00 – 6:00)

- Meeting with MDB representatives on a regional basis to exchange views on potential pilot countries
 - 8:00 – 12:30 Africa Region
 - 12:30 – 1:30 Middle East and North Africa Region
- Afternoon – work within group

Wednesday, May 19 (7:30 – 6:00)

- Meeting with MDB representatives on a regional basis to exchange views on potential pilot countries
 - 7:30 – 11:00 East Asia and the Pacific Region
 - 11:00 – 1:00 South Asia Region
 - 2:00 – 3:30 Europe and Central Asia Region
 - 3:30 – 5:00 Latin America and Caribbean Region

Thursday, May 20 (9:00 – 6:00)

- Development of analysis and recommendations

Friday, May 21 (9:00 – 3:00)

- Development of analysis and recommendations
- Agreement on next steps

APPENDIX E:

List of MDB Participants: SREP Expert Group Meeting

May 18 and 19, 2010

Africa

AfDB

Mafalda Duarte, Principal Climate Change Specialist

Elizabeth Muguti, Power Engineer

Engedasew Negash, SREP Focal Point

Sebastian Veit, Senior Climate Economist

IBRD

Venkata Putti, Senior Energy Specialist

Fanny Missfeldt-Ringius, Senior Energy Economist

IFC

Noleen Dube, Operations Officer

East Asia and Pacific

ADB

Jiwan Acharya, SREP Focal Point, Climate Change Specialist

IBRD

Dejan R. Ostojic, Sector Leader

Venkata Ramana Putti, Senior Energy Specialist

EBRD

Andreas Biermann, Principal Policy Manager

Europe and Central Asia

ADB

Robert Schoellhammer, Deputy Resident Director

EBRD

Andreas Biermann, Principal Policy Manager

IBRD

Venkata Ramana Putti, Senior Energy Specialist

Latin America and Caribbean

IADB

Amal-Lee Amin, CIF Focal Point, Climate Change Specialist

Carla Tully, Private Sector Specialist

Wesly Ureña, Climate Change Specialist

IBRD

Venkata Putti, Senior Energy Specialist

Xiaoping Wang, Senior Energy Specialist

Todd Johnson, Lead Energy Specialist

IFC

Jeremy Levin, Senior Energy Specialist

Middle East and North Africa

AfDB

Same as morning session

IBRD

Pierre Audinet, Senior Energy Economist

South Asia

ADB

Jiwan Acharya, SREP Focal Point, Climate Change Specialist

IBRD

Gevorg Sargsyan, Senior Infrastructure Specialist

Venkata Ramana Putti, Senior Energy Specialist

Rohit Khanna, Senior Energy Specialist

IFC

Jeremy Levin, Senior Energy Specialist

APPENDIX F

Terms of Reference:

Expert Group for Program for Scaling Up Renewable Energy in Low Income Countries

Description/Background

The Climate Investment Funds (CIF), comprising two new funds, the Clean Technology Fund and the Strategic Climate Fund, were approved on July 1, 2008. The Program for Scaling Up Renewable Energy in Low Income Countries (SREP) is a targeted program under the Strategic Climate Fund. The SREP aims to pilot and demonstrate in low income countries, as a response to the challenges of climate change, the economic, social and environmental viability of low carbon development pathways in the energy sector by creating new economic opportunities and increasing energy access through the use of renewable energy. The program is designed to initiate a process leading towards transformational change in the energy sector by helping low income countries take renewable energy solutions to a national programmatic level.

Funding under the CIF is channeled through five Multilateral Development Bank (MDBs) including the African Development Bank, the Asian Development Bank, the European Bank for Reconstruction and Development, the Inter-American Development Bank, and the World Bank Group.

The SREP Sub-Committee has agreed to establish an Expert Group to advise on the selection of country or, if a strong case can be made from an operational perspective, regional pilots for the SREP. The SREP Sub-Committee has approved the *Criteria for Selecting Country and Regional Pilots under SREP*, which should guide the work of the group.

Duties

The SREP Sub-Committee has selected eight high level experts to serve on the SREP Expert Group. The experts will be hired as short term consultants by the CIF Administrative Unit.

The Expert Group is to work in conformity with the terms of reference and working modalities approved by the SREP Sub-Committee (see document, *Criteria for Selecting Expert Group Members under SREP*). In particular, the group will be responsible to:

- a) Familiarize themselves with the documents provided by the Administrative Unit that will be provided as background for the work of the group;
- b) Select two co-chairs of the group: one co-chair should be a national from a developing country and one co-chair should be a national from a donor country;
- c) Prepare, for consideration by the SREP Sub-Committee, a proposal identifying up to six pilots to be developed under SREP, together with up to three additional countries to be considered by the Sub-Committee should funds become available to finance additional pilots or should some of the selected pilots prove not to be feasible;
- d) Submit to the SREP Sub-Committee, together with its recommendations of country or regional pilots, a report on the methodology and analysis that led to the recommendations.

To avoid any potential conflicts of interest, Expert Group members who, in their personal capacity or affiliated with a firm, are working or seeking or anticipating to work in, or have any contractual arrangement with, or are seeking or anticipating a contractual arrangement with, as consultants or otherwise, a country under consideration for SREP funding, shall disclose this information to the SREP Sub-Committee Co-Chairs and head of the CIF Administrative Unit at least two weeks in advance of the first or any subsequent meeting of the expert group. On the initiative of the Expert Group member concerned or at the discretion of the Co-Chairs and/or the head of the Administrative Unit, Expert Group members may be recused from offering an opinion on the selection of any candidate country in which he or she had, has or may have a professional or financial interest, or had, has or may have significant involvement in any capacity; and from attending SREP Sub-Committee discussions, if a candidate country in which he or she has said interest is under consideration.

Any expert in possession of financial, business proprietary or other non-public information obtained in the course of this assignment shall not, without written authorization from the manager of the CIF Administrative Unit, disclose to any third party for any reason or otherwise use such information in furtherance of a private interest or the private interest of any other person or entity. These obligations continue after separation from the service provided as experts, unless and until permission is granted by the manager of the CIF Administrative Unit. "Non-public information" is defined as information generated and/or issued by any of the CIF Multilateral Development Bank (MDB) partners that has not been approved for release outside the MDB in accordance with the MDB's rules.

Deliverables

A final report on the results of the work of the Expert Group will include:

- a) a comprehensive explanation of the methodology and analysis underlying the group's recommendation;
- b) recommendation for six country or regional pilots that meet the criteria agreed by the Sub-Committee and a list of up to three additional countries to be considered by the SREP Sub-Committee; and

c) an assessment of each recommended pilot and the justification for its selection.

Time Frame

The start date for the STC is Wednesday, May 12.

May 10, 2010

Organization meeting of the Expert Group (virtual meeting)

May 17-21, 2010

Meeting of Expert Group in Washington, DC

June 4, 2010

Report to be submitted to SREP Sub-Committee for review at its meeting in mid-June.

The end date is December 31, 2010.

Remuneration

Experts will be remunerated in accordance with World Bank rules and regulations. Experts will be reimbursed for a total of 12 days for preparation and attendance of the Expert group meeting in May 2010.