Aide-Memoire for
Scaling-up Renewable Energy Program in Low Income Countries (SREP)
Scoping Mission to Yemen
October 22-24, 2012

I. Introduction

1. A World Bank Mission Team[1] visited Yemen on October 22-24, 2012 to conduct the Scoping Mission for the Scaling up Renewable Energy Program in Low Income Countries (SREP). The objective of the SREP program is to pilot and demonstrate 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 in low-income countries.

2. An initial group of pilot countries was selected to receive funding under the SREP program (i.e., Kenya, Ethiopia, Mali, Nepal, Honduras, Maldives). A second group of 'waitlisted' countries, including Yemen, was selected to receive SREP funding provided additional resources become available. In March 2012, the SREP Sub-Committee agreed upon the upper amount of funding and order of priority in which funding would be allocated to these 'waitlisted' countries. As a result, Yemen would receive up to $40 million of SREP funding, after resources become available for Tanzania and Liberia, in that order. As of October 2012, only Tanzania has secured SREP funding.

3. SREP resources are available through Multilateral Development Bank (MDBs), with the World Bank (WB) and International Finance Corporation (IFC) jointly managing the SREP program in Yemen. During Phase I of the implementation of the SREP program, the WB and IFC will be supporting the Government and other relevant stakeholders –United Nations Organization, bilateral partners, private sector companies, non-governmental organizations, and civil society organizations in developing the SREP Investment Plan (IP). The endorsement of the IP by the SREP Sub-Committee indicates the beginning of implementation (Phase II).

4. The objective of the Scoping Mission was to assist the Government of Yemen in planning and preparing for the development of the Investment Plan and the first Joint Mission, including: (i) identify and agree with the Government the task-force responsible for preparing the SREP Phase I; (ii) identify relevant government counterparts, development partners, and stakeholders for SREP activities; (iii) introduce objectives of the SREP program; (iv) undertake stocktaking of existing activities and documentation available; (v) agree on the scope and outline of the IP; (vi) agree on the timeline and resources required for the preparation of the IP; and (vii) agree on the terms of reference for the next Joint Mission.

[1] The Team comprised: Jianping Zhao (Senior Energy Specialist, World Bank), Gevorg Sargsyan (SREP Program Coordinator, World Bank), and Federico Qüerio (Operations Officer, World Bank).

II. Mission Activities and Outputs

5. The Mission held discussions with the Ministry of Electricity and Energy (MOEE), Ministry of Finance (MOF), Ministry of Water and Environment (MOE), Ministry of Planning and International Cooperation (MOPIC), and Public Electricity Corporation. During the meetings, the Mission introduced the objectives, scope, and type of investments supported under the SREP program, as well as the activities involved in the country-led SREP process. A detailed list of stakeholders met by the Mission is provided in Annex 1.

6. The Mission clarified the key features of SREP, including: (i) barrier reduction, (ii) leveraging investments, (iii) increasing renewable energy capacity, (iv) transformational impact, and (v) scaling-up through private sector participation. SREP may also support capacity building and creation of enabling environment for scaling up renewable energy. The Mission also clarified that SREP funding is expected to be used mainly for actual investments, though small amounts can be used to cover technical assistance activities (e.g., capacity building for engineers specializing in well drilling).

7. The Mission identified counterpart agencies and agreed on the time schedule and resources needed for the preparation of the Investment Plan. The details of these outputs are provided further in the document.

III. Mission Findings and Agreements:

8. The main findings from the discussions that the Mission held with representatives from Government are presented below.

9. **Designated Lead Agency:** the Assistance Deputy Minister of the Ministry of Electricity and Energy (MOEE) confirmed Mr. Mohammed Hameed Al-Shaabi, Director General, Renewable Energy Department of MOEE, as the focal point for the preparation of the SREP Investment Plan. He will be supported by a task-force which will be hosted in MOEE. The Government also indicated that a new multi-ministerial Steering Committee will be put in place to overlook the overall preparation of the Plan and ensure that all initiatives are aligned with Government's objectives. The Steering Committee will review and validate the Plan before it is submitted for endorsement by the SREP Sub-Committee.

10. **Potential Areas of Engagement:** the Government indicated that their priority is to expand access to electricity in rural areas. The potential areas of engagement under the SREP program might include solar PV, wind, and geothermal, whose potential would be assessed throughout the process to develop the IP. The potential of implementing hybrid systems will also be explored, bearing in mind that the SREP funding can only be used to finance the renewable energy technology (e.g., diesel component to be financed from other sources of co-financing).

11. **Preparation of the Investment Plan:** the Government will prepare the Investment Plan with the support of the WB. The Government will request up to US$300,000 grant for the preparation of the Investment Plan (see template in Annex 3). The Government indicated that these funds will be used to hire a consultant to help preparing the Investment Plan, as well as cover other preparatory activities (e.g., consultations, workshops). The Mission agreed to work

closely with the Government to draft the TOR for the consultant to assist in the preparation of the Investment Plan. The Government requested the grant be executed by the World Bank on behalf of the Government.

12. **Government strategy.** Renewable energy can play a significant role in helping resolve the energy supply constraints. Yemen is endowed with significant renewable energy resources such as wind, solar and geothermal energies. These resources are found to sustain large-scale commercial power development as well as small-scale decentralized system to meet the energy needs of rural and remote communities. Supported by a GEF grant implemented by the World Bank, a detailed assessment was made on the potential of renewable energy resources in Yemen that could be exploited for grid and off-grid electrification. Resources assessed include wind, solar, geothermal, small hydropower and biomass energy resources.

The GoY fully recognizes the important role renewable energy can play in meeting the country's increasing energy needs, and has therefore formulated a renewable energy development strategy that aims to increase the proportion of renewable energy in the country's electricity generation supply mix over the next 15 years. The Government and Parliament of Yemen approved a *National Strategy for Renewable Energy and Energy Efficiency* in 2009. The wind power development program presented in this paper is based on the national strategy, which foresees the development of 400 MW of wind energy, 160 MW of geothermal and 60 MW of landfill gas by 2025 to amount to an equivalent of about 15% of the Yemeni electricity generation mix.

The *National Strategy for Rural Electrification* approved in 2008 foresees a renewable energy program for larger off-grid communities served by local mini-grids. Wind-diesel systems are clearly an option for communities with an installed power base of 1.5-2 MW.

13. **Renewable energy situation.** Over the past few years, the Government has taken various steps to initiate the development and utilization of its vast renewable energy resources. The main past and ongoing activities include:

Geothermal: Some of the geothermal sites appear to be promising. In the mid-2000, the Government of Iceland intended to finance the initial exploration activities. But the planned support was never materialized as the government of Iceland got into serious financial trouble thereafter. In 2010, the GoE obtained $ 1 million GEF grant and $2 million PGR grant to finance the exploration drilling activities. Although the contract for the exploration drilling was signed in 2010, the activity has stalled.

Solar PV: In recent years, the GoE has been promoting application of solar home system for households in isolated areas with no prospect to be connected to the grid. As March 2012, a total of 1030 households have been installed with solar home system. The solar home systems consist of 20 w, 50 w and 100 w systems. All the capital costs are financed by government budget with technical assistance provided by GTZ, Germany.

Solar Thermal: Economically, solar water heater is likely the least cost option to meet the hot water needs of both residential and commercial consumers. In 2006, the GoE tried to promote the use of solar water heaters by promoting local manufacturing. Two local solar water heater factories were established. However, no real financial incentives were

available to promote the use of solar water heaters while the prices of petroleum products and electricity were heavily subsidized. Both factories were closed after a short while.

Wind Power: As wind energy offers the largest potential in Yemen, the GoY has devoted most efforts to promote its development. The GoY's approach to wind development is in the second phase of the following four phases:

- **Phase I:** Conduct a feasibility study with modern satellite data-based wind mapping and preliminary ground-based wind measurements and feasibility studies, which started in 2006.

- **Phase II:** A demonstration phase consisting of two equal-sized wind farms built in parallel on two adjacent sites:

  a) A 60 MW EPC (engineering, procurement, construction) wind plant built and operated by the GoY financed by the World Bank and Arab donor agencies, to be commissioned in 2014.

  b) A 60 MW commercial full-service leasing contract for a wind plant built and operated by a private developer to be commissioned in 2014.

- **Phase III:** A preparatory phase to establish a commercial wind IPP/BOO policy, institutional and regulatory framework, to initiate regional long-term wind climate measurements, to develop the technical capacity for wind measurement, project preparation and operation, to pre-develop the wind farm sites and to ensure adequate electricity transmission infrastructure.

- **Phase IV:** One or more publically financed wind projects and a commercial IPP/BOO (independent power producer, build-own-operate) wind program to be tendered competitively on predetermined, pre-developed sites with prior long-term wind reference measurements with a view to commissioning the first IPP/BOO wind farm in Yemen in 2016/17.

14. **Private sector role:** The Mission was unable to meet directly with private sector companies that might be interested in renewable energy investments in Yemen. Due to the capital intensive nature and technology complexity of renewable energy development, local private sector has not yet involved in the sector. Conditions for engagement of foreign private sector are not favorable due to perceived country risk. The government explored potential interest of private sector engagement in renewable energy prior to the political crisis and negotiated some potential projects with private sector. But the process was disputed and has stalled since. As the country's security situation improves, the government will resume the exploration of potential interests of private sector throughout the preparation of the Investment Plan.

IV. Next Steps

The Mission agreed on the following tentative timeline with the Government of Yemen.

Actions	By whom	By when (tentative)
Processing of Investment Plan (IP) Preparation Grant	MOEE	January 31, 2012
Joint Mission and workshop to review the results of the first draft IP with key stakeholders	MOEE	April 15, 2013
Finalization of the draft IP	MOEE	June 15, 2013
Joint Mission to finalize the IP	WB	July 15, 2013
Disclosure of IP for public consultations (two weeks for review and provision of comments)	MOEE	August 15, 2013
Independent technical review of the IP	MOEE	August 15, 2013
Internal quality review of the IP	WB	September 15, 2013
Submission of the IP to the SREP Sub-Committee	MOEE	October 1, 2013
Endorsement by SREP Sub-Committee	SREP	November 1, 2013

ANNEX 1

LIST OF STAKEHOLDERS MET

GOVERNMENT

Ministry of Electricity & Energy
Eng. Fuad Hamood Alkawsi, Deputy Minister
Eng. Adel A. Domran, Deputy Minister
Eng. Ahmed Salem Abdullah Hasan, Head of Wind Energy
Eng. Rami Ali Al-Shaibani, Director of Solar & Geothermal Energy Department

Ministry of Oil & Minerals
Eng. Ashraf S.A. Al-Jailani, Chairman Adviser for Technical & International Affairs

Ministry of Planning & International Cooperation
Dr. Abdulla Abdulaziz Abdulmajeed, Deputy Minister for Projects Programming
Khaled Mohamed Saeed, Head of World Bank Portfolio Monitoring Unit

Ministry of Finance
H.E. Sakher Al-Wajih, Minister
Jalal omar Yaquob, Deputy Minister
Eng. Hani Enan, Head of International Finance

Public Electricity Corporation
Eng. Abdullrhman Saif, Managing Director

ANNEX 2

MISSION SCHEDULE

Date	Time	Activity	Place
Monday 10/22/2012	8:30 AM	WB Internal Meeting	Hotel
	10:00 AM	Meeting with the Deputy of Ministry of Electricity and Energy – as the Minister is out of the country – Eng. Adel Dhmran	Confirmed: At the Ministry – Contact Person: Khalid AlHimyari
	1:00 PM	Meeting with Dr. Abdulla Abdulaziz Abdulmajid, Deputy Minister for Project Planning & Programming	Confirmed - At the Ministry – Contact Person: Khalid AlHimyari
	3:00 PM	Meet with representatives of donors **JICA - Mr.Shadi HAIDARAH, Administrative and technical cooperation assistant** in charge of power sector is going to attend the meeting on Monday, October 22nd, 2012 at 3:00 pm at Movenpick Hotel.	Confirmed - 8th Floor - Executive Lounge
Tuesday 10/23/2012	9:30 AM	Mr. Ashraf AlJailani International Cooperation officer at the Geological Survey Association	Confirmed - 8th Floor - Executive Lounge
	11:00 AM	Meeting with the Public Electricity Corporation	Confirmed - 8th Floor - Executive Lounge
	8:00 AM	Meeting with the Minister of Ministry of Finance	Confirmed - 7th Floor – World Bank's Meeting Room

ANNEX 3

Template – Request for Investment Plan Preparation Grant

Scaling Up Renewable Energy Program (SREP) in Low Income Countries **Summary – Preparation Grant Proposal for the Development of the Investment Plan**			
1. **Country/Region**:		2. **CIF Project ID#**:	(Trustee will assign ID)
3. **Date of the Scoping Mission (if applicable)**			
4. **Date of the First Joint Mission (if applicable):**			
5. **Funding Request (USD):**		MDB:	
6. **Type of Request**	Advance preparation grant: Yes/No		
	Full preparation grant: Yes/No If yes, please indicate the amount and date of the previous requests for the preparation grant:		
7. **MDB SREP Focal Point and Project/Program Task Team Leader (TTL)**:	Headquarters-SREP Focal Point:	TTL:	
8. **National Implementing Agency:**			
9. **Description of activities covered by the preparation grant:**			
10. **Expected outcomes:**			
11. **Deliverables and timeframe:**			
12. **Budget (indicative):**			

Expenditures[2]	**Amount (USD)** - estimates
Consultants	
Equipment	
Workshops/seminars	
Travel/transportation	
Others (admin costs/operational costs)	
Contingencies (max. 10%)	
Total Cost	
Other contributions:	
• Government	
• MDB	
• Private Sector	
Total – Other contributions	

13. **Timeframe** (tentative) –milestones

Tentative Date for Final Joint Mission:
Investment Plan for SREP Sub-Committee Endorsement:

[2] These expenditure categories may be adjusted during project preparation according to emerging needs.

14. **Other Partners involved in the Investment Plan design and implementation**[3]:
15. **If applicable, explanation for why the grant is MDB executed:**
16. **Implementation Arrangements** (incl. procurement of goods and services):

ANNEX 4

SREP PRESENTATION

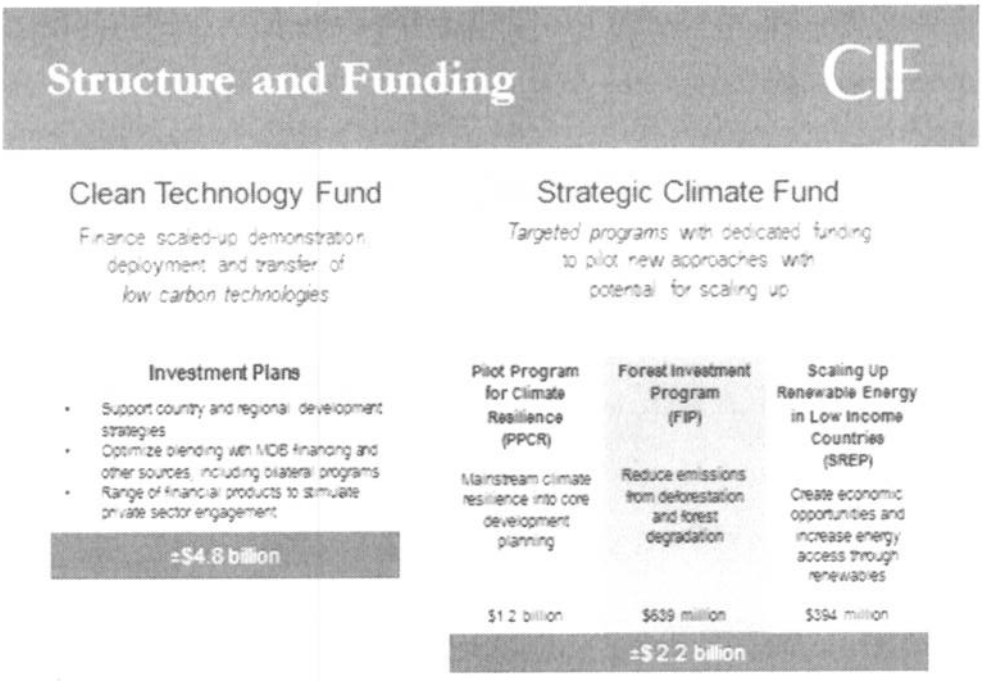
[3] Other local, national and international partners expected to be involved in design and implementation of the Investment Plan.

Climate Investment Funds

Scaling Up Renewable Energy Program in Low Income Countries (SREP)

Scoping Mission

Yemen
October 2012



Scaling Up Renewable Energy Program in Low Income Countries (SREP)

CIF

Purpose

To pilot and demonstrate 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

Scale

$394 million in pledges for significant programs of capacity building and investments in renewable energy

Governance

SREP Sub-Committee:

- 6 donors countries: Japan/Republic of Korea, Netherlands, Norway/Spain, Switzerland/Denmark, United Kingdom/Australia, United States
- 6 recipient countries: Armenia, Ethiopia, Honduras, Kenya, Nepal, Yemen

Observers: civil society (x4), Indigenous Peoples (x2), private sector (x2), GEF, UNDP, UNEP, UNFCCC

Contributor	Contribution Type	Contribution in million USD eq. as of March 31, 2012
Australia	Grant	10
Denmark	Grant	11
Japan	Grant	45
Korea	Grant	6
Netherlands	Grant	76
Norway	Grant	51
Spain	Grant	4
Switzerland	Grant	20
United Kingdom	Capital	119
United States	Grant	50
		394

'First Batch' Pilot Countries

CIF

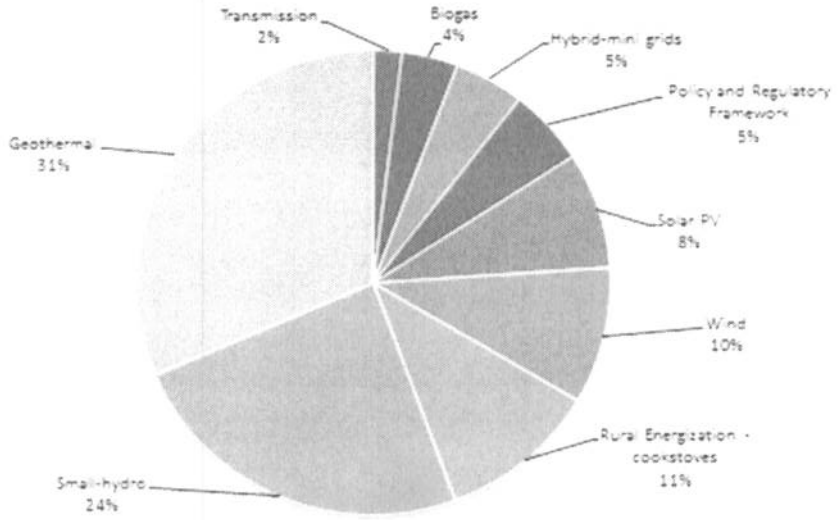
Investment Plans – 'Original' Pilot Countries

Country	Endorsed by SREP Sub-Committee	SREP Funding ($ million)	Total Funding (SREP+Others) ($ million)	Type of Activities
Kenya	Sep 11	50 *	468	Geothermal, Hybrid Mini-Grid Systems (Solar, Wind)
Honduras	Nov 11	30 *	273	Strengthening RE Policy and Institutional Framework, RET (TBD) - cook stoves
Mali	Nov 11	40 **	258	Solar PV, Hybrid Systems (Biofuel, Solar), Mini/Micro Hydro
Nepal	Nov 11	40 **	514	Small Hydro, Mini and Micro Hydro, Solar, Biogas
Ethiopia	Mar 12	50 **	496	Geothermal, Wind
Maldives	Nov 12 (tentative)	30 **	TBD	Solar PV, Wind, Waste-to-Energy, TA/Capacity Building

* Up to 70% Grants, remaining 30% from Capital contributions

** Up to 100% Grants, except for Private Sector projects which could draw at least $5 million from Capital contributions

SREP: Distribution by Technologies CIF



'Second Batch' Pilot Countries CIF

Prioritization and Tentative Funding for 'Waitlisted' Pilot Countries

Priority Order	Country/Regional Investment Plan	Tentative SREP Funding
1	Tanzania (funding already secured)	Up to $50 million
2	Liberia	Up to $50 million
3	Yemen	Up to $40 million
4	Armenia	Up to $40 million
5	Pacific Regional Program (Solomon Islands, Vanuatu)	Up to $30 million
6	Mongolia	Up to $30 million

Types of Activities

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Investments

- Eligible Investments:
  - ❑ Solar, wind, bio energy, geothermal, small-hydro (<10MW)
  - ❑ Electricity and thermal
  - ❑ On-grid, Off-grid, Mini-grid

Capacity Building & Advisory Services

- Development of energy policies and legislation
- Assessment of technical resources potential
- Strengthening governance and institutional capacity
- Creation of incentive scheme to improve financial viability of RETs

Phase 1: Pre-Investment

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- MDB scoping mission at invitation of Government
- Investment Plan preparation grant *(optional)* to be approved by MDB Committee
- MDB joint mission(s)
- Develop Investment Plan
- External expert review of Investment Plan
- Endorsement of Investment Plan by Sub-Committee

Key Elements Investment Plan

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- Country context (sector description, needs assessment, barrier analysis)
- Renewable energy sector context (Government plans, ongoing activities, analysis of options, institutional structure and capacity)
- Proposed program description (justification of specific investment, technical assistance requirements)
- Co-financing, leverage, partnership
- Primary and co-benefits
- Transformational impact
- Budget envelop, recipients, implementation arrangements
- Risk assessment
- Results framework
- Investment concept brief for each component to be financed by SREP

Investment Criteria

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Projects and investments should address the following criteria

- Increased installed capacity from renewable energy sources
- Increased access to energy through renewable energy sources
- Low Emission Development
- Affordability and competitiveness of renewable sources
- Productive use of energy
- Economic, social and environmental development impact
- Economic and financial viability
- Leveraging additional resources
- Gender
- Co-benefits of renewable energy scale up

SREP Quality Assurance

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- Draft Investment Plan disclosed for public consultations during the preparation stage
- External expert review
- Approval by SREP Sub-Committee

Scoping Mission Objective

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- Identify relevant government counterparts, identify how the SREP can be included into the national energy strategy and the planning process, agree on the task force responsible for preparing the SREP "Phase I"
- Identify key development partners and other stakeholders; this exercise should also lead to identification of potential co-financiers of the SREP
- Undertake a stocktaking of existing activities and documentation
- Agree on the Terms of Reference for the next Joint Mission
- Agree on timeline as well as financial and human resources required to prepare the Investment Plan
- Agree on the scope and outline of the Investment Plan

THANK YOU