



TERMS OF REFERENCE

Scaling-up Renewable Energy Program (SREP)

Scoping Mission

20 – 22 January 2015

Cambodia



Asian Development Bank

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1. BACKGROUND

1.1 The **Climate Investment Funds (CIF)** support developing countries as they move toward low emissions and climate resilient development. The CIF provides developing countries with grants, concessional loans, and risk mitigation instruments that leverage significant private sector, MDB, and other co-financing. Five Multilateral Development Banks (MDBs) - the African Development Bank (AfDB), Asian Development Bank (ADB), European Bank for Reconstruction and Development (EBRD), Inter-American Development Bank (IDB), and World Bank Group (WB), including the International Finance Corporation (IFC) - are the implementing agencies of CIF funded projects and programs.

1.2 The CIF's financial architecture rests on two trust funds: (i) the Clean Technology Fund (CTF); and (ii) the Strategic Climate Fund (SCF):

- The CTF finances the scaled-up demonstration, deployment, and transfer of clean technologies. The focus is on piloting investments in countries or regions that have the potential for significant greenhouse gas abatement.
- The SCF finances targeted programs that pilot new approaches with the potential for scaling up. The SCF includes the Forest Investment Program, the Pilot Program for Climate Resilience, and the **Scaling Up Renewable Energy Program in Low-income Countries (SREP)**.

1.3 The objective of the SREP 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. Thirteen pilot countries have already received SREP funding¹. In June 2014, the SREP Sub Committee approved the selection of additional fourteen new countries,² which include Cambodia – expanding SREP pilot countries to 27, including one regional program. Up to USD 300,000 will be provided to each new country to enable them to take a leadership role in working with the MDBs to develop their full investment plans.

1.4 There are two phases in implementing SREP. Phase I is the preparation of of SREP Country Investment Plan. During this phase MDBs and other relevant stakeholders - United Nations Organizations, bilateral partners, private sector companies, non-governmental organizations and civil society organizations - will be supporting the Government of Cambodia in developing their country investment plan. The finalization and endorsement of the investment plan by the SREP Sub-Committee marks the beginning of Phase II which is the implementation period.

¹ Six initial pilot countries: Kenya, Ethiopia, Mali, Nepal, Honduras, Maldives; and 7 waitlisted countries: Tanzania, Liberia, Yemen, Armenia, Pacific Regional (Vanuatu, Solomon Islands), and Mongolia

² 14 additional new countries: Bangladesh, Benin, Cambodia, Ghana, Haiti, Kiribati, Lesotho, Madagascar, Malawi, Nicaragua, Rwanda, Sierra Leone, Uganda, and Zambia

2. COUNTRY CONTEXT

2.1 The Kingdom of Cambodia is located in Southeast Asia bordered by Vietnam, Laos and Thailand. The population is 14.86 million and population density is 83 people per square kilometer. Cambodia is an agrarian economy. The country is urbanizing gradually, but from a very low level. In 2011, 79% of the population still lived in rural areas. The population grew very rapidly in the 1980s and 1990s and continues to grow by around 1.5% (200,000 people) per year. More than half of the population is under age 25 and almost one-third is under 15.

2.2 As a post-conflict country, Cambodia faces an array of development challenges. As of 2010, 20.5% of the country's population is living in poverty. The country has scored low on the human development index, ranking 138th out of 187 countries and ranked 142nd out of 184 countries of IMF poorest countries.

2.3 About 45% of the country's population has access to electricity, one of the lowest in Southeast Asia. While urban areas enjoy 100% electrification, the rural population suffers from energy poverty with only 40% having access to the grid and about 50% having access to alternative off-grid electricity sources. In 2011, the per capita electricity consumption is 298 kWh per year.

2.4 Imported petroleum products are the main source of commercial energy for power generation, industry, transport, and the residential and commercial sectors. Fossil fuels are projected to become the largest energy source, and demand for petroleum products will be driven mainly by demand for diesel and gasoline, as the country becomes more motorized and passenger cars more common. Cambodia has an estimated 1.8 million registered vehicles, of which most are motorcycles, with only about 300,000 passenger cars. The passenger car motorization rate is about 20 per 1,000 people versus around 500 per 1,000 in the developed countries.

2.5 In 2011, 45% of the total national electricity demand was covered by imports from Thailand, Vietnam and Lao PDR. Other energy sources include: 52.2% heavy fuel oil, 2.4% hydropower, 0.5% coal and others. The total installed capacity is 635.5 megawatts (MW) and electricity supply of 2,674 gigawatt-hours (GWh) per year. From 2002 to 2011, the annual electricity demand growth averaged 16.3% at the national level and 17% in Phnom Penh. In the projections prepared by KEPCO of South Korea and EGAT of Thailand, Cambodia's power demand would reach 9 terawatt-hours (TWh) per year by 2020 - more than triple from 2011. These projections assume an 11% annual increase in demand which is well below the 16% annual increases over the past 10 years.

2.6 The national utility, Electricité du Cambodge (EDC) mainly supplies the capital city, Phnom Penh, while many rural areas are supplied by rural electricity enterprises (REEs). The bulk of generation output is from fossil fuels, particularly heavy fuel oil, resulting in high electricity prices. Although electricity imports from neighboring countries have been on the rise, the supply of electricity still suffers shortage and reliability.

2.7 As energy demand and consumption have increased, CO₂ emissions have doubled over the past 10 years. In 2011, CO₂ emissions from energy consumption amounted to 4 million tons of CO₂-equivalent with large shares from transport and heat and electricity sources.

2.8 The Government sees that the high cost and inadequate supply of electricity significantly limit economic growth and discourage investments. In its National Strategic Development Plan (NSDP) 2009-2013, the Government recognizes the importance of energy sector development to ensure socioeconomic growth and poverty reduction, and needs continued support for energy sector development.

2.9 Threatened with high and rising oil prices and implications for the country's energy security, the government is exploring new sources of alternative energy. Renewable energy (RE) potential is high but resources remained untapped.

- Hydropower: potential than 10,000 MW; only 684 MW has been developed, with many projects under construction.
- Solar: high potential with average of 5 kWh/day and average sunshine duration of 6-9 hours per day.
- Wind: potential is estimated at 3,665 GWh/year, but only a small percentage of it is being tapped. The southern part of the Tonle Sap lake, mountainous districts in the southwest, and coastal regions such as Sihanoukville, Kampot, Kep and Koh Kong have annual average wind speed of 5m/s or greater.
- Biofuel: Jatropha plantations cover about 200 hectare (ha); palm oil about 4,000 ha with possible expansion to 10, 000 ha; and sugar cane with 20,000 ha.
- Biomass: Generation potential was estimated to be 18,852 GWh per year (approximately 35 times EDC generation in 2002). Significant sources are rice husk, sugar cane bagasse, cassava stems, etc.
- Biogas: Effectiveness of small scale biogas has been demonstrated by a number of different projects. The use of animal wastes to generate high quality gas for cooking has significant economic, health, social and environment benefits for poor rural households.

2.10 The Government is committed to promoting the development of renewable energy in the country and to that end expressed its interest to be one of the pilot countries under SREP.

3. PREPARATORY ACTIVITIES

3.1 The Government of Cambodia, with support of MDBs, is undertaking a number of preparatory activities: (a) confirmation of the interest to start with the development of the SREP investment plan; (b) collaboration with SREP/MDB technical mission to agree on key actions to initiate preparation of SREP investment plan, including preparation of the TOR for selection of the consultant to support the Government with development of investment plan; and (c) identification of key stakeholders.

3.2 On 4 November 2014, the Government confirmed its interest to start the preparation of the SREP investment plan and has assigned its national focal point.

4. SCOPING MISSION - OBJECTIVES

4.1 ADB organizing this Scoping Mission to assist the Government of Cambodia in planning and preparing the development of the SREP investment plan and the first MDB Mission.

4.2 The objectives of the Scoping Mission are:

- a. Identify and agree with Government of Cambodia, in particular with the Ministry of Mines and Energy, regarding the task force responsible for preparing the SREP Investment Plan;
- b. Identify relevant government counterparts, development partners, and stakeholders (especially private sector) to establish a committee for the proposed SREP activities;
- c. Hold discussions about the objectives of the SREP programme, its benefits and the modalities of its implementation in Cambodia to ensure a common understanding by all stakeholders;
- d. Understand RE development status, in particular gaps of technologies and finance for the design of SREP development;
- e. Confirm candidate RE resources and technologies appropriate for Cambodia's development context;
- f. Initiate discussions and consultations with the identified stakeholders and development partners;
- g. Review and stocktaking of existing investment activities and documentation available on a range of analytical, strategic and programming activities related to renewable energy, which are considered important aspects of preparing the investment plan;
- h. Agree on the scope and outline of the investment plan;
- i. Agree on the timeline as well as financial and human resources required to prepare the investment plan;
- j. Prepare the terms of reference for the selection of the consultant(s) to support the Government with the preparation of the SREP investment plan; and
- k. Agree on the terms of reference for the next MDB Joint Mission.

4.3 At the completion of the scoping mission, the MDB team will jointly prepare an aide memoire that describes the key issues discussed, agreements reached, and next steps.

5. DATES

5.1 The proposed dates for the Scoping Mission are 20 to 22 January 2015.

6. PARTICIPANTS AND PROPOSED AGENDA

6.1 The Scoping Mission will be coordinated by the Government through the Ministry of Mines and Energy which is the focal point for SREP in Cambodia. The government focal point is: Mr. Toch Savanna, Director of New and Renewable Energy (tsovanna@hotmail.com).

6.2 The MDBs focal points for SREP are: ADB: Jivan Acharya (jacharya@adb.org); WB: Gevorg Sargsyan (gsargsyan@worldbank.org); and IFC: Joyita M. Mukherjee (jmukherjee1@ifc.org).

6.3 The SREP mission team will be composed of ADB representatives and other bilateral and multilateral agencies may join.

ADB:

- Rehan Kausar, Project Administration Unit Head
- Jivan Acharya, Senior Climate Change Specialist (Clean Energy)
- Shuji Hashizume, Investment Specialist
- Anthony Jude, Chief Energy Specialist, Senior Advisor, RSOD concurrently Practice Leader (Energy)

6.4 Table I presents a tentative agenda and timetable for the activities for the Scoping Mission.

Table I: Tentative Agenda and Timetable

Date	Morning	Afternoon
19 January	Arrival of Scoping Mission Team in Phnom Penh, Cambodia	
20 January	MDB team meeting	Kick-Off Meeting with Ministry of Mines and Energy
21 January	Meeting with Government Agencies and development partners	Meeting(s) with civil society organizations, private sector, and financial institutions
22 January	Wrap up meeting with Ministry of Mines and Energy	
23 January	Departure of Scoping Mission Team	

ANNEX 1. PRELIMINARY LIST OF STAKEHOLDERS

GOVERNMENT
<ul style="list-style-type: none">• Ministry of Foreign Affairs and International Cooperation• Ministry of Economy and Finance• Ministry of Environment• Ministry of Mines and Energy• Ministry of Planning• Ministry of Rural Development• Electricity Authority of Cambodia• General Department of Energy• General Department of Petroleum
DEVELOPMENT PARTNERS
<ul style="list-style-type: none">• Korea International Cooperation Agency (KOICA)• Japan International Cooperation Agency (JICA)• European Commission (EC)• United Nations Development Programme (UNDP)• United Nations Industrial Development Organization (UNIDO)• United States Agency for International Development (USAID)• Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)• Agence Française de Développement (French Development Agency)
CIVIL SOCIETY
<ul style="list-style-type: none">• Cambodian NTFP Development Organization (CANDO)• SNV Cambodia• Canadian Catholic Organization for Development and Peace• DanChurchAid• Oxfam• Trócaire• Pact Cambodia• Cord Peace through Partnership• The Asia Foundation• Forum Syd• Cafod
PRIVATE SECTOR
<ul style="list-style-type: none">• Bank for Investment and Development of Cambodia Plc• Angkor Capital Specialized Bank• First Investment Specialized Bank• PHSME Specialized Bank• Cam Capital Specialized Bank Plc• Chief (Cambodia) Specialized Bank PLC• Rural Development Bank (RDB)• National Bank of Cambodia• Foreign Trade Bank of Cambodia• AEON Microfinance (Cambodia) Private Company Limited• The Siam Commercial Bank• Kookmin Bank Cambodia PLC• Solar Energy Cambodia• Solar Partners Asia Cambodia Ltd• EcoSun Energy Cambodia• Khmer Solar Ltd• Kamworks Ltd

Annex 2: Criteria for the Sub-Committee to Assess the Investment Plan

- a) **Increased installed capacity from renewable energy sources:** A high priority for most low income countries is expanding their generation capacity in order to ramp up modern energy use and energy access. Therefore, SREP-funded investments should result in increased MW from renewable energy, as well as increased energy (GWh) per capita in the country.
- b) **Increased access to energy through renewable energy sources:** SREP may support grid extensions and decentralized energy systems with a view to expanding the percentage of the population with access to non-fossil-fueled electricity. Investment proposals should demonstrate how the investments are part of the Government's long term commitment to increasing energy access.
- c) **Low Emission Development:** SREP may support the use of renewable energy technologies for electricity generation and services to replace fossil fuel technologies that would be deployed in a business-as-usual scenario aimed at substantially increasing commercial energy use in low income countries. In particular, benefits from SREP investments will often arise from "leap-frogging" technologies, in which low income countries will be assisted to mainstream renewable energy technologies into the overall energy system.
- d) **Affordability and competitiveness of renewable sources:** Affordability is essential for increasing access and for ensuring the long term renewable energy market development. SREP funding should address clearly-defined cost barriers to adoption of renewable energy technologies, such as connection costs for rural consumers, higher capital costs of new technologies, transmission costs related to grid-connected renewables, and risk adjusted rates of return sought by investors.
- e) **Productive use of energy:** SREP programs should promote the generation and productive use of energy.
- f) **Economic, social and environmental development impact:** Investment proposals for SREP financing should demonstrate the generation of economic, social and environmental benefits.
- g) **Economic and financial viability:** Investment proposals should demonstrate the economic viability of investments and the financial viability with the inclusion of time bound SREP resources.
- h) **Leveraging of additional resources:** Activities should maximize the leverage of funds from other partners.
- i) **Gender:** SREP investments should seek to strengthen the capacity of women to be active participants in the economic sector and avoid negative impacts on women.
- j) **Co-benefits of renewable energy scale-up:** SREP investments should include decreased air pollutants from energy production and consumption as well as the potential to reduce stress on forest resources. Investments and activities should elaborate on the potential positive effects on air quality and natural resource management through the adoption of renewable energy technologies.