

<b>SREP PROGRAM</b>			
<b>Program Approval Request</b>			
<b>1. Country/Region:</b>	<i>Nepal/South Asia</i>	<b>2. CIF Project ID#:</b>	(Trustee will assign ID)
<b>3. Program Title:</b>	<i>Nepal SREP Small Hydropower Finance Program</i>		
<b>4. Type of SREP Investment</b>	<i>Private: X</i>	<i>Public:</i>	<i>Mixed:</i>
<b>5. Funding Request (in US million total) for Program:</b>	<i>Grant (for advisory services only): USD 1,000,000 (USD 500,000 for ADB's account and USD 500,000 for IFC's account)</i>	<i>Loan (for investments): USD 19,000,000 (USD 9,500,000 for ADB's account and USD 9,500,000 for IFC's account)</i>	
<b>6. Approved Preparation Grant</b>	<i>Amount (USD): n/a</i>	<i>Date: n/a</i>	
<b>7. Implementing MDB:</b>	<i>Asian Development Bank (ADB) and International Finance Corporation (IFC)</i>		
<b>8. Other MDB Involvement</b>	<i>MDB:</i>	<i>Type of Involvement:</i>	
<b>9. National Project Focal Point:</b>	<i>Mr. Bhuban Karki, Under Secretary, Ministry of Finance Mr. Batu Krishna Uprety, Joint-Secretary (Technical) and Chief, Ministry of Environment</i>		
<b>10. National Implementing Agency<sup>1</sup> for program:</b>	<i>Ministry of Environment</i>		
<b>11. MDB SREP Focal Point and Program Task Team Leader (TTL):</b>	<i>HQ-SREP Focal Point for IFC: Ms. Joyita Mukherjee (<a href="mailto:jmukherjee1@ifc.org">jmukherjee1@ifc.org</a>)</i>	<i>TTL for IFC: Mr. Pavol Vajda (<a href="mailto:pvajda@ifc.org">pvajda@ifc.org</a>)</i>	
	<i>HQ-SREP Private Sector Focal Point for ADB: Mr. Don Purka (<a href="mailto:dpurka@adb.org">dpurka@adb.org</a>)</i>	<i>TTL for ADB: Mr. Martin Jensen (<a href="mailto:mjensen@adb.org">mjensen@adb.org</a>) Mr. Biao Huang (<a href="mailto:bhuang@adb.org">bhuang@adb.org</a>)</i>	

<sup>1</sup> Can be Government agency or private sector firm

## 12. Program Description:

### **Summary of the Program**

This proposal is consistent with the Component I (Small Hydropower development) of Nepal's Investment Plan, which was endorsed by the SREP sub-committee on November 1, 2011. ADB Private Sector Operations Department ("ADB-PSOD") and IFC's strategies in Nepal have a strong focus on support for climate mitigation projects, which will not only support sustainable economic development but will also result in reduced greenhouse gas emissions (GHG). Furthermore, the World Bank and ADB's public sector operations, along with the Norwegian Government and OPEC Fund for International Development are consistent with above mentioned strategies, funding viable projects in the fields of rural electrification (e.g., solar home systems, micro hydro and other off-grid solutions), transmission and distribution systems and other renewable/small hydro generation in the country. Separately, several complementary advisory services' activities are also under active consideration and/or implementation within Nepal's power sector.

This Program is part of a joint effort by ADB-PSOD and IFC to scale-up investments in small hydropower (SHP)<sup>2</sup> projects. The Program seeks to contribute to market transformation by building the capacity of local financial institutions (FIs) and providing appropriate financial products, thereby fostering mobilization of private financial investment in SHPs while simultaneously increasing demand through end-user knowledge management and support. The Program's advisory services component will help advance the investment component by supporting market development activities (promoting knowledge and technical expertise) and capacity building with participating FIs. This would lead to additional electricity provided to the grid to reduce extensive load shedding, improved energy security and economic development in Nepal. Lessons learned and experience of SHP project financing will be shared with relevant stakeholders, particularly the local financial sector.

### **Electricity Market in Nepal**

Nepal faces an energy crisis of unprecedented proportions. Over 90% of grid electricity in Nepal is generated by hydroelectric facilities. Currently, installed hydropower capacity is about 600 MW (according to estimates from the Independent Power Producers Association Nepal or IPPAN) which amounts to less than 2% of the total economically feasible hydro potential in Nepal. In 2011, peak demand was 946 MW, compared to 885 MW in the prior year. In 2011, annual energy demand increased by 10% over the previous year to 4,833 GWh, of which about 20% was curtailed through load shedding.<sup>3</sup> Domestic generation accounted for 3,157 GWh, and net imports from India<sup>4</sup> amounted to 694 GWh. System losses were over 28% in 2011, an increase from 26.2% in 2009.

Due to the shortfall in power capacity, load shedding has now reached 14-16 hours per day in 2012 in the dry season. This trend will only worsen without significant and meaningful intervention, as demand is projected to grow 7% annually until 2020 and capacity additions may not be able to fill the supply gap. Given power supply shortages and low electricity access rates (only 43% of the population has access to electricity), the country depends primarily on biofuels, mainly wood, to meet its energy needs. This has serious consequences for Nepal's environment, as the consumption of fuel wood accelerates deforestation

<sup>2</sup> In the context of SREP Nepal, small hydropower is defined as projects with capacity ratings between 1 MW to 10 MW, as described in the SREP Nepal Investment Plan.

<sup>3</sup> Load shedding, or rolling black-out, is an intentionally engineered electrical power shutdown used as a last-resort measure by electric utility companies to avoid a systematic failure of the electricity grid.

<sup>4</sup> Nepal Electricity Authority. 2010. A Year in Review – Fiscal Year 2009/10; NEA Transmission and System Operation Year Book Fiscal Year 2009/10.

and soil erosion.

Inadequate supply of electricity has been a major constraint for economic development and poverty alleviation in Nepal. This demonstrates a significant need and clear opportunity for the development of Nepal's immense hydropower resources. However, meeting current and projected demand presents several challenges. Investment in generation, transmission and distribution is insufficient, and private (domestic and foreign) investors and development partners have been reluctant to invest in the power sector because of several factors, including weak governance and institutional structures, lack of institutional arrangements to mobilize the private sector, limited availability of domestic/foreign funds, relatively low consumer tariffs, technical and commercial losses, a financially stressed public sector utility and inadequate human resource capacity.

The Government of Nepal (GoN) has taken recent significant steps to foster hydro power development in the country. For example, Nepal Rastra Bank (the Central Bank) requires all banks to dedicate at least 10% of their total loan portfolio to hydro and/or certain types of agricultural loans. In addition, the GoN has increased the electricity end-user tariff by 20%, which is expected to improve the net cash position of the Nepal Electricity Authority (NEA). There is a substantial pipeline of large hydropower projects, of which the majority of the power is intended for export to India, with only residual capacity for local consumption. The feasibility and timing of these projects is subject to negotiation of commercially acceptable power purchase agreements (PPAs) by all parties and the development of high voltage transmission lines between India and Nepal. SHPs, therefore, are more suitable for consumption in the local market.

According to the Department of Electricity Development of Nepal, there are more than 635 unique SHP projects in Nepal (approximately 3,300 MW of capacity) that are potentially in need of private sector financing. Identifying and supporting a subset of financially viable SHPs from this list requires significant resources and risk underwriting skills. Furthermore, the capital intensity and duration of such SHPs require long-term, local currency project financing solutions, which increase the risks faced by capital providers.

To date, Nepal has developed 24 SHP projects, totaling 64.6 MW in capacity. Of this, private independent power producers (IPPs) account for about 49 MW; the rest are owned and operated by NEA. There are 14 known SHP projects totaling some 63 MW under development as IPPs. NEA has signed 19 additional PPAs (107 MW), which have yet to achieve financial closure.

### **Market Barriers in Small Hydropower**

Through this program, ADB-PSOD and IFC will work to address some of the market barriers that are specifically limiting investment in small hydropower in Nepal. Although short-term domestic credit provided by the commercial banking sector is available at present, the source of financing is far from optimal owing to the following reasons:

#### *Long-term Financing*

Commercial banks in Nepal are primarily funded on short term deposits, and therefore are more inclined, for risk management and commercial reasons, to provide shorter term facilities with one to three year durations to industrial and commercial enterprises, with higher turnover and shorter term receivables as collateral. However, SHP loan underwriting indicates that longer term, amortizing loan structures are needed to fully repay debt presenting a large financing gap for banks.

#### *Interest Rate Repricing*

As local commercial banks cannot offer long-term fixed rate debt, longer-dated term loans are subject to

periodic interest rate resetting, making return analysis and debt sizing challenging. The risks on such change in costs are borne by SHP project sponsors through variable rate loans and undermine the ability to determine a minimum return on their investment.

*Foreign Exchange Risk/Local Currency Financing*

Small-scale hydro power projects in Nepal are intended for domestic energy consumption. Energy output from these projects is therefore sold to the NEA under contracts fully-denominated in local currency with no pass-through of foreign exchange fluctuations. In Nepal, only PPAs for hydro projects larger than 25 MW can be negotiated in USD.

*Lack of technical capacity and project finance experience*

Currently, term loans are made against collateral and personal guarantees limiting developer ability to finance projects against cash flows. As a result, true limited recourse or project finance structuring is largely absent. All commercial banks consulted indicated that technical support was critically needed to expand their lending to SHP under this proposed Program.

**The Investment Component**

Through the Program, ADB-PSOD and IFC will provide a combination of their own and SREP financing to develop a portfolio of SHP financing in Nepal. The terms of financing will be designed in a way to help address the barriers described above and to catalyze the scale-up of SHP investments in Nepal with a minimum level of concessionality required.

**The Advisory Component**

The SHP funding program in Nepal, funded as a grant from SREP, will be designed based on the MDBs' previous experience in SHP programs in the Balkans, Armenia, India and Sri Lanka, and will complement other ongoing activities in the SHP market. The advisory component will ensure the long-term impact of market transformation by strengthening capacities of local financial intermediaries and technical service providers and increase market awareness by:

- Building capacity at local FIs to create profitable portfolios of SHP projects. This will comprise training on renewable energy finance techniques; technical and financial evaluation; risk identification, allocation, and mitigation; credit analysis; marketing; support with financial product development, and portfolio reporting.
- Conducting sector studies that will help FIs identify relevant target segments and guidance in marketing efforts to relevant end-users.
- Supporting awareness raising, dissemination of information and lessons through conferences, seminars and workshops, as well as media promotional campaigns. Business associations will be also involved.
- Building capacity of local technical service providers including energy service companies and training institutions that serve SMEs.

**13. Objective**

To help mobilize private sector investments in Nepal's SHP sector by supporting local financial institutions and addressing market barriers on a programmatic basis.

**14. Expected Outcomes:**

- Increase in renewable energy produced by SHP projects
- Increase in number of people with access to clean/renewable electricity
- Increase in private financing of SHP projects

**15. Key Results and Indicators for Success (consistent with SREP results framework):**  
*The performance indicators outlined below are derived from the SREP Results Measurement Framework. These indicators will be tracked at least annually. Suggested performance indicators for the project include:*

<b>Result</b>	<b>Indicator</b>
(a) Increase in renewable energy produced	MWh energy produced from SHP projects financed through Partner FIs
(b) Increase in availability of private financing for SHP projects (volume)	Value of private financing mobilized for SHP
(c) Increase in number of FIs providing finance for SHP	Number of Partner FIs providing SHP financing
(d) Increase in access to clean energy	Number of people with increased access to electricity from SHP

**16. Budget:**

<b>Expenditures<sup>5</sup></b>	<b>Amount (USD) - estimates</b>
1. Advisory Services (grant component)	1,000,000
2. Investment (concessional credit)	19,000,000
<b>Total Cost</b>	<b>20,000,000</b>

**17. Program Timeframe**

For IFC

Expected Board/MDB Management approval date: April 2013

Expected Mid-Term review date: Not applicable

Expected Program closure<sup>6</sup> date: March 2025

For ADB-PSOD

Expected Board/MDB Management<sup>7</sup> approval date: February 2013

Expected Mid-Term review date: Not applicable

Expected Program closure<sup>8</sup> date: March 2025

**18. Role of other Partners involved in program<sup>9</sup>:**

Investment activities with partner financial institutions will be made in parallel by ADB-PSOD and IFC, while advisory services will be done jointly with IFC as leading agency. Both MDBs will work closely with relevant departments within government ministries, such as the Ministry of Environment as well as with work with industrial associations (such as the Independent Power Producers Association Nepal and the Small Hydro Developers Association) to ensure local ownership and knowledge management/sharing.

<sup>5</sup> These expenditure categories may be adjusted during project implementation according to emerging needs.

<sup>6</sup> Financial closure date.

<sup>7</sup> In some cases activities will not require MDB Board approval.

<sup>8</sup> Financial closure date.

<sup>9</sup> Other local, national and international partners to be involved in implementation of the program.

19. **Implementation Arrangements** (incl. procurement of goods and services):

IFC will follow World Bank Group procurement guidelines. For more information, please see [http://siteresources.worldbank.org/INTPROCUREMENT/Resources/278019-1308067833011/Procurement\\_GLs\\_English\\_Final\\_Jan2011.pdf](http://siteresources.worldbank.org/INTPROCUREMENT/Resources/278019-1308067833011/Procurement_GLs_English_Final_Jan2011.pdf)

ADB-PSOD will follow ADB's policy on procurement for private sector projects. For more information, please refer to: <http://www.adb.org/sites/default/files/Guidelines-Procurement.pdf>