

SDIP ADVOCACY BRIEF No.6

Sustainable Development Investment Portfolio (SDIP)

April 2016

Promoting Renewable Energy Technology Transfer, Trade and Knowledge Sharing in South Asia

Executive Statement

While the South Asia region remains a hub of energy poverty and a significant part of potential demand is yet to be catered, there is a growing dependency on fossil fuel to meet the energy appetite. Except Bhutan, remaining four countries draw more than 70 per cent of consumable electricity from fossil fuel fired power plants. In the business as usual scenario, it is expected that the share of fossil fuel will grow in South Asia's energy mix. Owing to domestic unavailability, a significant part of the fossil fuel is being imported by countries, leaving them vulnerable to geopolitical risks.

While there is an ongoing dialogue to tap the hydro power potential in Nepal and Bhutan to achieve energy security in the region, renewable energy (RE) appears as another alternative that can supplement the initiative as well as contribute to the transition to clean and sustainable energy in the region. There is no doubt that RE is the ultimate solution for electrifying unreachable terrains where the grid cannot reach. All the five countries in consideration have a high potential for various RE sources, especially solar, wind and micro-hydro.

Given India's growing expertise in RE technologies and experience with various business models (both on-grid and off-grid), India is in a position to spearhead the transition in South Asia. Moreover, keeping with its aspiration to be a global RE technology manufacturing hub, India could find a significant market for its RE products in the region. Given the context, following steps have been proposed to ensure a RE cooperation across the South Asia region:

- a) harnessing the RE market in South Asia and facilitating RE technology transfer and trade;
- b) sharing knowledge and experience on various business models for RE deployment; and
- c) enabling a discourse on synergising and streamlining of RE policies and regulations, to facilitate private investment in RE in Eastern South Asia.

Domain of Change

- a) Enabling policy and regulatory environment: Improving energy access
- b) Effective (business) models: Renewable energy deployment

Context

Economic development is associated with an increase in demand for energy. With its large and increasing population, demand for energy is continuously increasing in South Asian. Barring Bhutan all of the countries depend heavily on the conventional sources of energy for electrification. Though, India has announced an ambitious target of 175 GW installed capacity to be achieved by 2022 from various RE sources, little has been achieved so far. Bangladesh and Nepal fail to meet the power demand and a considerable share of their demands are met by import of power. Bhutan, which has excess power during the peak rainy seasons, also has to counter the threat of power shortage during the lean seasons like winter when almost all the rivers get frozen, as most of its power comes from the Run of the River Hydro plants.

Looking at India, the biggest country of the region, the increasing gross domestic product (GDP) has led to an increase in the appetite for energy. India ranks third behind China and US when it comes to total energy consumption.¹ However, despite the enormous increase in demand of electricity a significant population is yet to get access to electricity. Last mile connectivity and providing continuous and quality power to consumers have also remained a challenge.

Till date, the country is heavily dependent on conventional sources of primary energy to generate power. The total installed power generating capacity in the country is 2,80,328 MW, of which the installed generating capacity of the Thermal Power Plants (TPPs) is 1,95,604 MW. Of the TPPs, coal-based TPPs account for about 87 per cent of the installed power generating capacity (having a gross installed capacity of 170,138 MW). RE plants account for a meagre 13 per cent (36,471 MW) share of the installed power generating capacity in the country.²

The overdependence on coal for power generation and the poor quality of the available coal (high ash content in the coal) in the country has led to increased import dependence. The net import of coal has thus steadily increased from 36.60 MTs during 2005-06 to 166.29 MTs during 2013-14.³ This has been putting a huge economical burden on India. Realising the threat of over dependence on coal, the government has been taking steps towards a higher share of RE and recently drafted the National Renewable Energy Act, 2015 to put special emphasis on the RE segment. India has also set a very ambitious target of generating 175 GW power from the renewable resources by 2022. Of these 100 GW is targeted to be achieved from Solar Power Plants (PPs); 60 GW from the Wind PPs; 10 GW from Biomass power plants and 5 GW from Small Hydro Plants (SHPs).

Bhutan is the only country in the South Asian region to depend completely on the clean energy sources (hydro) for meeting its power demand. 1,488 MW of power is generated from various hydro power generating plants, most of which are big hydro plants. Bangladesh has an installed generation capacity of 11,877 MW most of which comes from natural gas power stations (7434 MW, i.e. 62.59 per cent). While hydro contributes to a meagre 1.94 per cent (230 MW) in the power share, Bangladesh generates 2507 MW power from furnace oil-based PPs, 250 MW from coal based TPPs, 956 MW from diesel-based PPs and imports the rest 500 MW.⁴

RE plays almost an insignificant role in the energy mix of the country. According to the National Census of Nepal, about 75 per cent of the total population in Nepal have access to electricity with around 50 per cent having access to grid and 25 per cent to off-grid electricity. Nepal suffered and still continues to suffer from long hours of power outage. Such outages had reached a as high as 410 MW during November 2013, when peak demand reached 1,201 MW, resulting in load shedding of up to 14 hours a day. Such shortages translates into alternatives like diesel generators with costs as high as US\$0.35 to US\$1.20 per kWh.⁵

Nepal's economically viable hydropower potential is estimated at about 43,000 MW and commercial potential of solar power for grid connection is about 2,100 MW. In the face of such energy crisis, it is an absolute necessity for Nepal to tap its high hydropower potential to cater to its domestic needs and also take a leaf out of Bhutan's experience of utilising its hydro potential to leverage economic growth by exporting power to other countries in the region.

Overall the energy situation in the region coupled with increasing climate change threats squarely indicates the need for higher engagement on regional energy cooperation.

Over last one and half decade, there has been serious deliberation on regional energy cooperation focusing on conventional power sources, especially the large hydro power potential in Nepal and Bhutan. Amidst political uncertainties, security concerns and risks of social opposition, there has not been much progress so far, except few bilateral initiatives between India and neighbours. However, the debate on regional cooperation seem to ignore the potentials of RE in the region. All countries in the region are endowed with significant amount of renewable resources, which is yet to be tapped.

On the other hand, India is maturing as RE technology producer and aspires to be a global leader in manufacturing. There is potential synergy between the countries, where India is manufacturer of the technology and other countries offer a potential market. Moreover, countries, especially India, Nepal and Bangladesh, have significant experience in RE business models, which makes a case for cross-country learning for better and faster deployment of RE. However, such cooperation is neither happening nor being debated. In this backdrop, CUTS proposes following interventions.

Policy Recommendations

Promoting RE Market in South Asia and Facilitating RE Technology Transfer and Trade

Strategy	<ul style="list-style-type: none"> • Bilateral meeting with the nodal agencies (Solar Energy Corporation of India) to test the viability and interest on RE technology transfer and trade • Private-to-Public dialogues to discuss issues and encourage investments in RE, 1 sub-regional Dialogue between India-Bhutan-Bangladesh (This will be the same sub-regional workshop that is to be organised in Guwahati) • Regional workshop on food, water and energy in Delhi • Op-eds in leading newspapers
Change Agents	<ul style="list-style-type: none"> • Ministry of Power, Government of India; Ministry of New and Renewable Energy, Government of India; Ministry of Power, Government of West Bengal; Energy & Power Department, The Energy and Resources Institute (TERI) & other research institutions like Gujarat Energy Research and Management Institute (GERMI), SECI etc. • Bilateral/Multilateral Funding Agencies • Resource institutions (CUTS Calcutta Resource Centre is the resource institution in West Bengal; South Asia Watch on Trade, Economics & Environment in Nepal and US in Bangladesh) • Grid technology experts (which includes mini/micro grid experts as well), RE technology developers, service providers, discoms, banks and other non banking financial institutions
Tangible outcome	<ul style="list-style-type: none"> • Increased interest from private actors in investment in RE technology and trade

Sharing of Knowledge and Exchange of Ideas on Successful Business Models with Focus on Micro/Small Hydro, Rooftop Solar and Small Biomass

Strategy	<ul style="list-style-type: none"> • Publish Briefing Papers on successful business models • Case studies on small biomass power plants in rice mills for captive generation, roof Top solar and micro-small hydros, particularly relevant for knowledge exchange between West Bengal in India and Bangladesh, both of which share very similar geography, culture and language • Op-eds in leading newspapers • National workshop in Bhutan to share success story of biogas • Dissemination workshop in Rajshahi and Dhaka • Interface with govt./private entrepreneurs in Assam and Bihar • Regional workshop on food, water and energy in Delhi
Change Agents	<ul style="list-style-type: none"> • Ministries/Departments of Power at the state and national levels, Ministry/Department of Renewable Energy at state and national levels, Ministry/Department of Industries and Commerce at state and national levels. These will include those from India, Bangladesh and Bhutan • Private power developers and traders • Civil Society organisations and research institutions • Bilateral/Multilateral funding agencies • Media
Tangible outcome	<ul style="list-style-type: none"> • Creation of better knowledge repositories for the region to promote higher energy access through RE via learning from other countries and players in the region

Promoting a Streamlined Regulatory Framework on RE Policies in Eastern South Asia Sub-Region

Strategy

- Sub Regional Policy Dialogue in Guwahati, Assam to deliberate on various policies, regulations in North Eastern states of India, Bhutan and Bangladesh, and the need and scope for synergy amongst them (done by Calcutta Resource Centre)
- Regional workshop on food, water and energy in Delhi
- Op-eds in leading newspapers

Change Agents

- Ministries/Departments of Power at the state and national levels, Ministry/Department of Renewable Energy at state and national levels, Ministry/Department of Industries and Commerce at state and national levels. These will include those from India, Bangladesh and Bhutan
- Private power developers and traders
- Civil Society and research institutions (e.g. TERI)
- Bilateral/Multilateral funding agencies
- Media

Tangible outcome

- The advocacy exercise is expected to create platforms for discourses on the need and scope for a synergised and streamlined RE policy framework in the Eastern South Asia sub-region, ultimately promoting investment on RE in the region

Endnotes

- 1 Global Energy Statistical Yearbook 2015
- 2 <http://powermin.nic.in/power-sector-glance-all-india>
- 3 Energy Statistics 2015
- 4 Bangladesh Power Development Board
- 5 <http://documents.worldbank.org/curated/en/2015/10/25016939/nepal-power-sector-reform-sustainable-hydropower-development-project>



This document is the output of the study undertaken by CUTS International which contributes to the South Asia Sustainable Development Investment Portfolio (SDIP) and is supported by Department of Foreign Affairs and Trade (DFAT), Government of Australia. The views expressed here are those of CUTS International and can therefore in no way be taken to reflect the position of DFAT.

CUTS Advocacy Briefs are meant to inform, educate and present the advocacy strategies of CUTS and provoke debate on specific issues. Readers are encouraged to quote or reproduce material from this document for their own use, but as the copyright holder, CUTS requests due acknowledgement and a copy of the publication.