

IPCC Special Report on Renewable Energy and Climate Change Mitigation: challenges for Asian countries

A review for the Climate and Development Knowledge Network

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Summary: While SRREN focuses on Renewable Energy (RE) technology development, it has already been an integral part of national targets in developing countries of Asia. For instance, Thailand has set the target to increase the share of alternative energy to fossil fuels to 20% in the total primary energy demand by 2022. Vietnam is aiming to increase the share of ethanol and biodiesel in gasoline and diesel to 5.0% in 2025 from 0.4% in 2010. Similar ambitions have been laid out by Cambodia, Lao PDR and Myanmar in their respective national plans. China has been at forefront in actively promoting the development of RE technologies and industries, and thus achieving the ability to domestically produce main RE equipment it uses.

SRREN has positioned RE technologies as feasible, market-oriented and demand-generating as well as fulfilling the goal of sustainable development. However, Hydropower technology development in Asia should avoid or mitigate negative environmental, social and economic impacts. Similarly, the role of legal instruments, such as those pertaining to protected areas, as an element of policy framework deserves special attention. Also important in this realm is South-South collaboration programs established with support of multilateral mechanisms, e.g. Global Environment Facility (GEF), facilitating and promoting deployment and development of appropriate RE technologies of such kinds.

Importantly, effectiveness of a legal instrument in promoting RE technology is largely country specific, and therefore deserving thorough policy research before any country's experience or success is replicated. Equally important are the challenges Asian countries will have to face while implementing SRREN recommendations. These are lack of financing mechanism for RE technology deployment and inadequate capacity for its management and deployment. The need of the hour is to enhance capacity of managing and adopting RE technologies of developing countries of Asia so that appropriate RE technologies could have their comparative advantages.

1. Has there been any response from governments in the region

SRREN focuses on renewable energy (RE) technology development. However, development of RE has been an integral part of national target, together with improving energy supplies (which is more prioritized) and energy efficiency, in the national energy strategies adopted widely in developing countries of Asia. Take the Greater Mekong Sub-region (GMS) as an example.

The *Thailand Energy Conservation Plan* was formulated in 1994. The 4th Energy Conservation Plan (2008-2011) sets the two main targets: increase energy efficiency by 10.8% and increase the share of renewable energy to 12.2% of total energy demand in heat production, transportation and electricity generation by the end of the plan period (EPPO 2007). In addition, the target set in the national *Alternative Energy Development Plan 2008-2022* aims to increase the share of alternative energy to fossil fuels to 20% in the total primary energy demand by 2022 (MoE 2009); this figure was 0.5% in 2005.

In Vietnam, in 2007 the government approved the *National Energy Development Strategies for up to 2020*, targeting to increase the share of renewable energy in the total commercial primary energy to 3.0% by 2010, 5.0% by 2020 and 11.0% by 2050. In the same year, the government passed the decision No. 177/2007/QĐ-TTg on Bio-fuel Development, setting the targets of increasing the share of ethanol and biodiesel in gasoline and diesel demand to 0.4% by 2010, 1.0% by 2015 and 5.0% by 2025.

For Cambodia and Lao PDR, energy supply is a major concern of the national strategies, where the traditional biomass makes 84% and 69.4% respectively in the total primary energy demand. For Lao PDR, the government aims to electrify 90% of households by 2020, increase the share of renewable energy to 30% by 2025 and make bio-fuel substitute 10% of oil import by 2025. Cambodia has set as the country target achieving 100%

electrification in rural communities by 2020, using renewable sources. However, lack of technical capacity, funds, data or information system and policy barriers are identified as main obstacle to the achievement of RE goals.

For Myanmar, renewable energy and energy efficiency are in concerns of the government and there are ongoing efforts to increase the usage of renewable energy. Nonetheless, there are no specific goals or measures set up yet.

In 2007, the government of China adopted “Medium and Long-Term Development Plan for Renewable Energy in China”, targeting to raise the share of renewable energy in total primary energy consumption substantially. The specific renewable energy development targets are summarized in the following table. China has actively promoted the development of renewable energy technologies and industries, and achieved the ability to domestically produce main renewable energy equipment it uses.

China’s Targets for Renewable Energy Power Generation (GW)

	2005	2010	2020
Hydropower	117	190	300
Biomass power	2	5.5	30
Wind power	1.26	5	30
Solar PV	0.07	0.3	1.8

2. What is the key message for policymakers in the region – do they need to amend their current strategies.

The key message delivered by SRREN is that the RE technologies are feasible, market-oriented and generate demand as well as fulfills the goal of sustainable development while government policies play a crucial role in accelerating the their deployment. My comments on this message are as follows:

- a. Hydropower technology development policy should consider the following features of Asia to avoid or mitigate negative environmental, social and economic impacts – rich in biodiversity, many cross-border rivers, and the largest population heavily dependent on ecosystem services for livelihoods. Hydropower involves large scaled infrastructure development that has altered and will continue altering (if the development goes on) ecosystems.
- b. The role of legal instruments as an element of policy framework deserves special attention. Examples of effectiveness of legal instruments include the protected areas (or conservation areas) legally set up for natural conservation purpose in many countries, and national or local laws on rain water harvesting adopted in Australia, India and Bangladesh. The RE development law adopted in China in 2006 explained to a great extent the fast development of RE technologies. Another example, which may be a bit too extreme, is the family planning law adopted in China, which played a critical role in reducing their rate of population growth.
- c. Appropriate RE technologies vs. RE high tech also play a crucial role and deserve policy attention at national and international levels. These technologies, for example, such as small hydro, small wind mills hybrid with solar power, small geothermal among others have been found very useful for small island states. They are small, cheap, easily transferred and commanded, and can create lots of jobs and thus are more suitable. South-South collaboration programs should be established with support of multilateral mechanisms, e.g. Global Environment Facility (GEF), to facilitate and promote deployment and development of appropriate RE technologies of such kinds.

3. What can the ‘success’ stories in the region on renewable energy which can provide lessons for others.

In 2004, the Commission of Natural Resources and Environment of the Chinese National People’s Congress organized an open law debate in order to adopt the law of RE development. Research institutes, NGOs, government agencies and large energy companies were invited to join the debate. Those days as a participant of the debate representing NGO sector, I obviously could sense hesitation and reservation of the large energy companies about this law worrying about the company’s interests. However, after the law was adopted by the

National Congress, these companies have soon become the major “owners” of RE industry forcefully promoting its technological development.

Although how effective the legal instrument is in promoting RE technology is country specific, deserving thorough policy research before replicating this China experience, successful stories of the protected areas in many countries through their respective legal procedures reflect its crucial positive role.

If legal instruments are not suitable for other countries as they do in China, at least specified national targets of RE development will a strong incentive policy signal as done in GMS countries mentioned above. These quantified targets also have helped countries to leverage financial resources from different sources – international and domestic.

Revolving funds successfully practiced in India, China and Turkey among others is a good reference for innovatively financing RE technology deployment, which is a main challenged described below.

4. What challenges will governments face (particular to the Asia region) in taking on board the recommendations of the report.

There are two major challenges among others: lack of financing mechanism for RE technology deployment and inadequate capacity for its management and deployment.

In terms of financing, innovation is needed to finance the deployment and transfer of RE technologies. Large markets of RE technologies are in developing countries, i.e. forming “bottom of pyramid” while supplies are largely in developed countries. Often a time, the former cannot afford the high upfront cost of RE technologies. How to finance cross-border technology transfer and deployment has long been recognized as an urgent issue or obstacle, not only for RE technology deployment but also for stabilizing CO₂ level in atmosphere.

Revolving fund has been established through assistance of GEF in several countries to overcome the obstacle of large initial cost or investment required installing renewable energy technologies, Turkey (World Bank 1999, Revolving Funds: Lessons Learned in Turkey), India and China (World Bank 2008, Financing energy efficiency – Lessons from Brazil, China, India and Beyond(among others). Based on the analysis of these successful experiences, SRREN can suggest a design of new mechanism as a solution.

Capacity of managing and adopting RE technologies needs to be improved in developing countries of Asia. In this respect appropriate RE technologies have their comparative advantages.