Small Hybrid Renewable Energy Systems Light Up Rural Communities

**Project Name:** Improving Lives of Rural Communities Through Developing Small Hybrid Renewable Energy Systems

**Country/Region:** Regional/Bangladesh, Maldives, Mongolia, Nepal, Pakistan, Sri Lanka, Tajikistan

**Sector and Themes:** Energy

**Year:** 2009–2017

**Project Leader:** Liping Zheng

The success of these pilots has led to similar projects being replicated in other rural areas and isolated islands in the region.
Development challenge

Almost 1 billion people in Asia and the Pacific still do not have continuous access to electricity. The varied terrain of countries in the region makes it technically and financially difficult to set up single interconnected power grids. Currently, most isolated rural areas rely on diesel power generation, which is frequently disrupted by fuel shortages, volatile oil prices, and inadequate maintenance of equipment. This creates a potential opportunity in these areas for renewable energy.

Solution

ADB’s Private Sector Operations Department, South Asia Energy Division, East Asia Department, and the Regional and Sustainable Development Department worked together to pilot six small hybrid renewable energy projects. Of the six, three were implemented in remote island communities in Maldives and Sri Lanka, one in a remote mountain village in Nepal, one in a local school in Bangladesh, and one in a village in Pakistan.

Six pilot projects brought substantial tangible benefits to local communities, improved their livelihood, and resulted in lessons learned from implementation of these projects.
ADB provided technical expertise and financial support for the design, procurement, installation, and commissioning of the energy systems. ADB also trained and improved the capacity of the country’s government officials, power sector engineers, and private sector to carry out efficient operations. ADB also provided institutional support in renewable energy policy development and capacity building in Mongolia and Tajikistan.

**Knowledge products and services delivered**

For each of the pilot projects, ADB provided a diagnostic study, which included a needs assessment, selection of locations, analysis of electricity demand patterns and load management requirements, assessment of renewable resources, technical and financial evaluation of the project, and environmental impact assessments. ADB helped conduct national and international workshops, conferences, and hands-on training programs on small renewable power systems.


The project engaged rural communities, financial institutions, private sector partners, and nongovernment organizations for deployment of small hybrid renewable energy systems in rural areas.
Impact and results

With the additional supply of electricity, living conditions and quality of life greatly improved. The knowledge publications increased ADB’s capacity and service offering in setting up solar photovoltaic and hybrid energy systems. The success of these pilots has led to similar projects being replicated in other Asian rural areas and isolated islands in the region. In Maldives, similar projects are being implemented under the Preparing the Outer Islands for Sustainable Energy Development Project. Energy projects in Bangladesh and Sri Lanka also have components that focus on setting up small hybrid wind turbines.

Lessons for replication

Lessons learned from the six pilot projects provide guidelines and best practices in setting up small wind, solar, and hybrid (wind, solar photovoltaic, and battery storage) renewable energy systems in varying terrains, and remote areas like islands and mountains.

Hashtags:
#RenewableEnergy, #WindEnergy, #SmallWindTurbines, #Maldives, #SriLanka, #Nepal, #Bangladesh, #Pakistan, #Mongolia, #Tajikistan

Find out more:
- https://bit.ly/3aBQZ1c

The success of these pilots has led to similar projects being replicated in other Asian rural areas and isolated islands in the region.