People’s Republic of China: Switching on to Clean Energy

Three ADB-funded hydropower plants in the People’s Republic of China’s north are providing clean, reliable electricity to millions.

Farmer Qiao Shuai and his 53-year-old father Qiao Keqin had long nurtured a dream of bettering their family’s lives by opening a bed-and-breakfast guesthouse for tourists in Linze County in the People’s Republic of China (PRC).

The popular Danxia Landform Geological Park was nearby, so the location was right. But a key ingredient was missing - a reliable supply of power. They realized that sooner or later the area's erratic electricity service would likely doom their enterprise.

“Blackouts were very frequent,” says Shuai, now 28.

The opening of an ADB-supported hydropower project on the Heihe River in 2007 gave them the confidence to go ahead. The project linked their part of the country’s north to the grid and ensured their guesthouse would always have electricity.

Reliable electricity has stimulated economic growth and increased people’s incomes. The average annual income of rural farmers and herders in one project area, Sunan County, grew by 11.1% each year during 2006-2011.

The guesthouse now has 13 rooms equipped with electric lighting, televisions, and kettles. Its kitchen has refrigerators, a freezer, disinfecting cabinets for dishes, and rice cookers. One hundred people can be served at any one time - reliably. The family now expects to earn $16,000 each year, compared with the $4,900 they made from farming corn and producing seeds.

This is a direct result of two ADB hydropower development operations on the Heihe River. The Gansu Clean Energy Development Project helped finance the Xiaogushan plant, completed in 2007. The Gansu Heihe Rural Hydropower Development Investment Program funded the Erlongshan plant, which began operating the following year, and the Dagushan plant, finished in 2009.
Rising rural energy use

The PRC needs clean energy, and demand for electricity has grown faster than supply, especially in rural areas. In 2009, the PRC’s Ministry of Water Resources announced that hydropower would be a key component of rural infrastructure development.

“Providing energy to rural farming and herding families from plants like these is vital to reducing poverty in power-deficient areas,” says Xinjian Liu, a senior project officer in ADB.

Set processes and standards helped complete a high-quality project ahead of schedule and within budget. The project company gained experience from ADB’s support and later began providing advisory services to other hydropower companies in Gansu and the rest of the PRC.

Reducing carbon emissions

Because the hydropower projects replaced coal-fired plants and helped reduce carbon emissions, all three were registered under the Clean Development Mechanism (CDM). The CDM is an incentive scheme under the United Nations Framework Convention on Climate Change to promote clean power in developing countries. CDM-registered projects can sell their certified emission reduction units to generate additional revenue. By the end of 2013, the plants had earned $28 million through this scheme.

This revenue and the efficiencies of hydropower have allowed big savings to be passed on to end users. For example, the family of Zhang Huiping in the Tibetan ethnic minority village of Bajiaowan now pays about $97 a year for electricity, less than half their previous bill. At the same time, average annual income in the community soared from $490 to $4,900 during 2006-2012 after dependable hydropower enabled villagers to make more use of highly productive electric tools.

The project has had major environmental impact. The plants have prevented an estimated 630,000 tons of carbon dioxide emissions a year, reducing the need for people to collect and burn wood for fuel and provided an alternative to the use of coal for cooking and heating.

Improving livelihoods

Reliable electricity has also stimulated economic growth and increased people’s incomes. The average annual income of rural farmers and herders in one project area, rural Sunan County, grew by 11.1% each year during 2006-2011.

“Through the project and with ADB’s help, the project management capacity of our company really improved,” says Zhu Xingjie, president of the Zhangye Heihe Hydropower Development Company, the firm set up to develop the three hydropower projects. “We not only received financial support but we also learned advanced project management.”

With a stable supply of clean energy, people across the region have better prospects, and businesses have a greater chance of success.

Chen Leixin, a director of the Gansu Zhangye Julong Building Materials Company, says power from the plants has ensured his firm’s productivity and the quality of its products.

One of its 400 employees, Gao Chao, 38, who previously worked for a smaller manufacturer, is grateful to have a steady job. “My income has increased by one-fourth and I earn over $485 here,” he says. “My parents live with us, so now my wife and I can easily take care of them.”

This article was originally published in Together We Deliver, a publication highlighting successful ADB projects across Asia and the Pacific that demonstrated development impacts, best practice, and innovation.

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