



### Micro Hydro Lights up a Village

#### **Grant-9042 PHI: Renewable Energy and Livelihood Development Project for the Poor in Negros Occidental**

This project promotes the development of renewable energy resources and the management of these resources by the direct beneficiaries - poor communities who gain greater livelihood opportunities through access to modern power.

#### **Challenge:**

In the Philippines, where many island and upland communities are not served by the power grid, tapping renewable energy sources for off-grid electrification is an attractive option to achieve government targets for rural electrification.

However, these areas are also among the poorest localities, and lack the capacity to ensure technical, managerial and financial sustainability. The challenge is to build this capacity to ensure that energy delivery and associated economic, human, and social benefits are sustained.

#### **Overall Project Design:**

##### Project Funding

- A \$1.5 million Japan Fund for Poverty Reduction (JFPR) grant was designed to provide renewable energy (RE) systems and promote sustainable livelihood development in 8 poor communities in Negros Occidental.
- RE systems were provided on a grant basis. Two revolving funds were established to provide loans for household electricity connections and individual and community RE-based livelihood investments. These funds will be turned over to the community for management upon project completion.

##### Organizations and the Community

- Winrock International (WI) was identified early in the design stage as the implementing agency because of its strong experience implementing community-based RE projects in the Philippines.
- The JFPR project design emphasizes community participation. WI formed community-based organizations (CBOs) to mobilize, educate, and train community members to manage the RE and livelihood projects. In some project sites, WI community organizers spent several days a week living among the community to engage with them and build trust.
- Strong social preparation was intended to stimulate community ownership in the RE systems. Ownership encompasses the capacity to manage, maintain and operate the RE systems and livelihood investments.

## Balea Micro Hydro System

*Sitio Balea, a small hamlet of 67 households, was one of the 8 project sites.*

### Project Design:

#### Micro-Hydropower

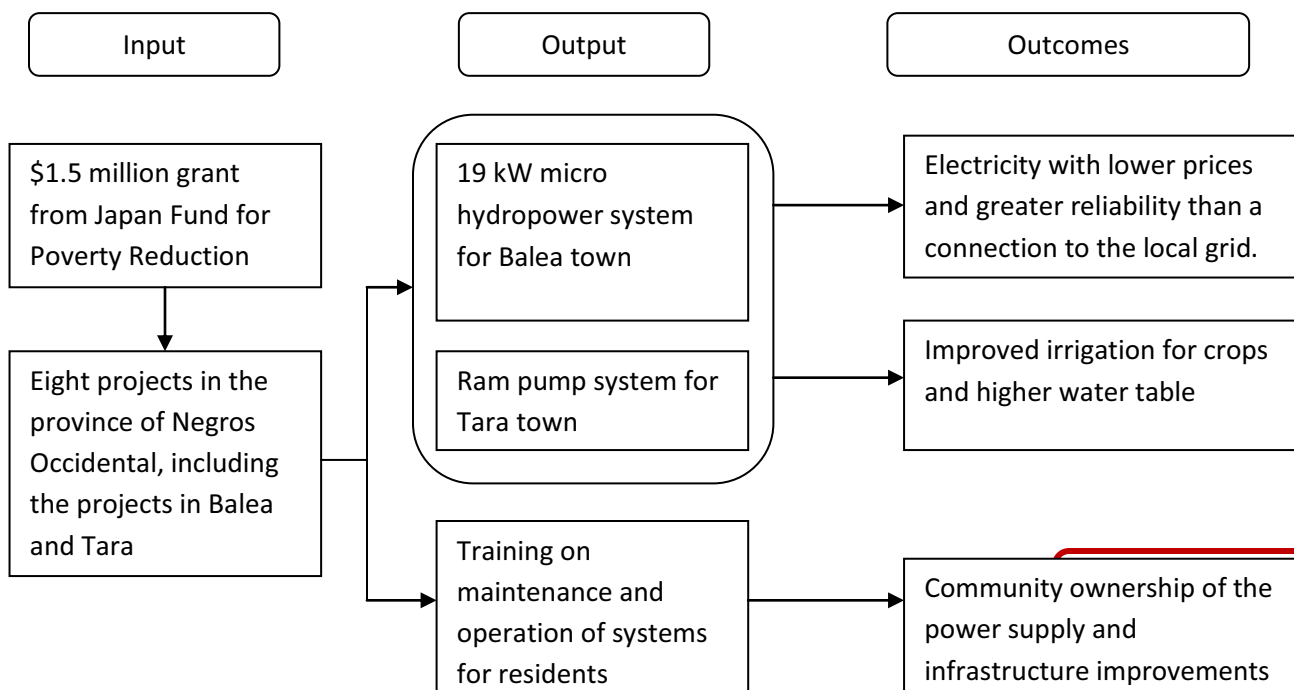
- The RE component of the project consisted of a 19 kW run of river micro-hydro system erected at the base of a small waterfall 3 km from Balea with distribution lines to deliver electricity to individual households.
- The installation cost of 7.6 million peso (P) or \$170,000 was financed through the project grant.

#### Community Participation

- Extensive social preparation was carried out to establish and nurture the cooperative. Beyond technical training, co-op members were trained on cooperative governance and management and tariff setting, and participated in site visits to other successful community power schemes.
- A CBO—the Balea Integrated Rural Development Cooperative (BIRD Co-op)—was formed by WI to manage and operate the generating unit and distribution lines, set tariffs, manage billing and collection, and manage livelihood investment.
  - Households pay a one-time fee to join the cooperative.
  - Co-op membership is mandatory for households seeking access to electricity through the project.
  - Co-op members are eligible to receive loans through the revolving fund to finance household electricity connections.
- Eighty percent of Balea’s households are members of the cooperative. They are joined by 60% of the households of the neighboring village of Calapnusan, which stands to benefit from the extension of distribution lines.

#### Livelihood Opportunities

- Co-op members pay a flat rate of P5.60 (\$0.12) per kilowatt-hour (kWh) of electricity consumed, compared to the tariff of P7/kWh (\$0.15) for electricity delivered through the nearby grid. The average households pays between P100 (\$2.14) and P150 (\$3.21) per month.
- The co-op and its members are also eligible to apply through the revolving fund for loans for livelihood investments. The co-op borrowed P307,000 (\$6,578) to purchase a rice mill to process locally-grown rice.



## Lessons Learned:

- Engagement with the community and local government must be early and comprehensive to avoid delays and misunderstandings.
  - Some delays in the project arose from bureaucracy, especially when seeking approval permits from the local government such as in technology design and environmental issues.
  - Residents were also skeptical of whether the project would be able to provide electricity as promised.
  - Both of these were solved through long-term engagement with the community and transparency of WI's staff.
- Separately managed funds provide a way for the project to continue and expand past its original parameters but disbursement must be well planned.
  - The two revolving funds were handed over to the Renewable Energy and Livelihood Development Foundation in October 2009. The foundation was established with the support of Winrock International so that the communities may continue to benefit from the funds past the project's completion date.
  - This foundation will also serve as a vehicle in accessing outside additional funding to continue and even expand the implementation of the project beyond its original area of coverage.
  - It has been noted that the disbursement system has to be up and running much earlier in the project cycle in order to properly get the funds out.
- Enthusiasm for project benefits can lead to replication opportunities.
  - The success of the project prompted neighbors to express interest in sharing the power through extension of power lines.
  - Some villagers from Calapnusan, which is 3 kilometers away, have already joined the cooperative.
  - Winrock International has already negotiated with provincial and municipal authorities for funding towards the P2.4 million cost of the expansion.

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Energy for All Initiative: <http://www.adb.org/Clean-Energy/energyforall-initiative.asp>

Read "Powering the Poor" the book that inspired this showcase at:

<http://www.adb.org/documents/books/powering-the-poor/default.asp>