



WINROCK
INTERNATIONAL



Environment: Forestry, Energy & Ecosystem Services

Hydropower

Using Hydropower to Increase Productivity & Economic Security

For over 10 years, Winrock has progressively supported development of community and private sector managed micro- to small-hydropower projects in Nepal, the Philippines, Afghanistan, Georgia, Pakistan, Liberia and other developing countries.

Resource Assessment, Feasibility Studies, Project Design – Conducting desk studies and preliminary surveys for resource and site identification; conducting detailed surveys and preparation of technical reports; designing project/program structure and implementation modalities.

Capacity Building – Providing technical training to build local capacity in manufacturing, designing, financing, installing, maintaining, and monitoring hydropower plants.

Finance Facilitation – Facilitating dialogue and fostering developer-financial institution partnerships; enabling carbon financing.

Social Mobilization – Designing and implementing social mobilization strategies to actively involve communities in hydropower development.

Impacts Assessment – Monitoring and evaluation of hydropower programs for performance as well as impacts on local economy, health, and environment.

Productive-use Promotion – Increasing awareness, facilitating technology transfer, and building

local capacity for productive uses of electricity for economic growth.

Policy Advice – Providing advisory services to policy makers on legislative and regulatory issues involving the hydro sector; conducting comprehensive reviews of hydro programs.

Winrock's partners in implementing small- and micro-hydropower activities around the world include the U.S. Agency for International Development, GTZ, the United Nations Development Programme, the Asian Development Bank, and the World Bank.

In Nepal, Winrock and its partners catalyzed the investment of approximately \$100 million in private equity and debt into small hydropower projects in the 1-10 MW range. Project developers were trained to carry out bankable feasibility studies, negotiate Power Purchase Agreements, and overcome legal and managerial hurdles. Banks were trained on risk mitigation when lending to energy projects. Private equity investment was mobilized for the establishment of a new Clean Energy Development Bank that specializes in lending to hydropower and other renewable energy projects.

In the Republic of Georgia, Winrock is adding 15 MW to the country's electricity generation capacity through commercialization of the small hydropower (SHP) sector. In 2006 alone, Winrock helped facilitate \$5 million in loans, equity and grants for commercial investment in SHPs. Winrock carried out project identification, feasibility studies, financing assistance,





procurement, project construction oversight, and post-project commissioned trainings to build new and rehabilitate existing hydropower plants.

In the first phase of the Alliance for Mindanao Off-Grid Renewable Energy Program (AMORE) Program in southern Philippines, Winrock supported the electrification of 160 rural communities using micro

hydro and solar energy technologies for lighting, productive uses and social infrastructure. The target for the ongoing second phase is to electrify 200 more communities utilizing micro hydro and solar. Winrock is also working to strengthen the micro hydro sector by transferring experience from Nepal and other countries in Asia to develop an indigenous micro-hydropower sector in the Philippines with strengthened ability to fabricate components and construct and maintain plants.



In Badakshan, Afghanistan, Winrock mobilized a team of experts to carry out detailed surveys and design for refurbishment of two existing micro hydropower plants in Faizabad and Baharak districts and for a new 700kW mini hydropower plant in Kishem district. Activities included topographic surveys, geological and hydrological assessments, socio-economic assessments, inspection of existing civil structures and electro-mechanical equipment, preparation of detailed technical reports, and tender documents. Winrock experts also carried out resource assessment for construction of mini and micro hydropower projects in a dozen communities in Jurm District.

Winrock conducted a three-week micro-hydropower technical training course in Afghanistan to enhance the skills of 40 Afghan engineers working for the facilitating partners under the National Solidarity Program to design and implement small hydropower projects. Participants were trained in resource assessment, surveying, engineering design, construction and plant operation.

Winrock International is a nonprofit organization that works with people in the United States and around the world to empower the disadvantaged, increase economic opportunity, and sustain natural resources.



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Principal Offices

2101 Riverfront Drive | Little Rock, AR 72202-1748 | T 501.280.3000 F 501.280.3090

2121 Crystal Drive, Suite 500 | Arlington, VA 22202-3706 | T 703.302.6500 F 703.302.6512

www.winrock.org | information@winrock.org