Project Summary

Project Background
During the last decades, several hundreds of MHPs were constructed in the mountainous remote regions of northern Pakistan, where no public electricity supply is foreseeable, mostly funded through grants from bi- and multilateral finance institutions. NGOs working on numerous poverty alleviation and social development programmes introduced the MHP technology as an energy infrastructure for rural development. Approximately three quarters of the plants suffer from severe operation restrictions that lead to voltage and frequency fluctuations, high downtimes and often early breakdown of the schemes altogether.

Project Objectives
The objective was to develop a strategy on how to achieve improved quality of MHP installations covering planning & design, turbine and accessories technology as well as operation and management. In addition it was intended to capitalise on the socio-economic development potential of quality MHP electrification, and to attempt rectifying the situation and to improve the quality of future MHP projects.

Project Results
Building on the strengths and challenges in the sector and after intensive dialogue with the stakeholders, the following measures were proposed during a workshop in Islamabad:
• Improvement and intensification of the pre-implementation studies;
• Change from budget-driven to a lifetime cost-benefit perspective and demand-based project designs;
• Mandatory consumption-based metering and billing;
• More emphasis on business and operation models in form of nested enterprises;
• Enhanced operators’ training and establishment of an O&M infrastructure accessible to the village communities after plant commissioning;
• Reduced in-kind community contributions especially in “larger” MHPs and potentially, introduction of a small loan share in the total investment as an alternative;
• General use of contractors for sound implementation (e.g. civil structures, electro-mechanical equipment and distribution networks) to boost quality and accountability;
• Clear-cut specifications and competitive tendering that reward quality and provide incentives for improved quality, in particular to E&M manufacturers;
• Technical improvements such as standardisation, other turbine types, replacement of belt drives, and others;
• Integration of capacity building for domestic consumers (electricity literacy) and the promotion of productive use (PURE) for businesses early in the project cycle.

Services Provided
• Desk Research
• Meetings with relevant partner organizations and the private sector
• SWOT analysis of key partner organizations
• Identification of challenges and shortcomings
• Formulation of a strategy and development of an Action Plan for implementation
• Workshop with stakeholders discussing the developed strategies and action plans

Pakistan
Development of Strategy for Improved Quality and Management of Mini-Micro Hydropower Plant (MHP) Installations

Client
German International Cooperation (GIZ)

Duration
04/2013 - 06/2013

Personnel
• 2 internat. STE (2 PM, Electrical Engineer/Power Economist, Socio-economist)