



CASE STUDY

# Nepal: Building water infrastructure as part of Khimti I Hydropower Project



## Summary

The Khimti 1 Hydropower Project was initiated to increase hydropower supply in Nepal. Action was taken to carry out an Environmental Impact Assessment to identify promotion of livelihood, economic enhancement and social well being of project area communities. The project formulated an Environmental Monitoring Plan as well as environmental mitigation and monitoring programme. The key lesson to learn is the importance of assessment prior to the development of any project.

## Background

Khimti 1 Hydropower Project (KHP-I) is located in Dolakha and Ramechhap districts, Eastern Nepal. The power source for the hydropower plant is the Khimti river, a tributary of Tamakoshi River in the Saptkoshi river basin. The average flow at the intake is  $31.5 \text{ m}^3/\text{s}$ . The installed capacity of the power station is 60 MW. KHP-I is the first private sector financed project, promoted by Himal Power Limited (HPL) under a Build Own Operate and Transfer (BOOT) concession in Nepal. The capital cost of the project was 140 million USD with 75% loan from Asian Development Bank (ADB), International Finance Corporation (IFC), Eksportfinans AS (Norway), Nordic Development Fund (Finland) and Norwegian Agency for Development Co-operation (NORAD). The shareholders of HPL include both Nepalese and multi-national companies. Construction works of KHP-I started in June 1996 and was commissioned in July 2000. The ownership of the plant will be transferred from HPL to the Nepalese government after 50 years of operation. The project's development aims are to develop Nepal's hydropower potential, to generate electricity for national energy needs, to operate the project in an environmentally friendly way, to mitigate impacts on the

inhabitants in the project area and to provide a mini-hydropower plant for the local community at the end of the construction period.

### **Actions taken**

Electricity supply to the national grid was done on a commercial basis. Power Purchase Agreement (PPA) was concluded between the state owned Nepal Electricity Authority (NEA) and HPL at the initiation of the project. As the KHP-I is a run-of-the river project, "water rights" is not an issue downstream of the project area, i.e., the river receives its natural flow downstream of the powerhouse. Prior to KHP-I, there was only one irrigation canal that used the Khimti river to service a small farmland in Khimti Bensi, about 8 km downstream of the hydropower intake site, mainly for dry season irrigation. As part of the project, HPL has been assisting farmer communities within the project area in constructing and refurbishing irrigation canals that use flows from the tributaries of the Khimti River. In addition, an Environmental Impact Assessment (EIA) was carried out in order to identify promotion of livelihood, economic enhancement and social well being of the project area communities. The project formulated an Environmental Mitigation and Monitoring Plan (EMMP) as well as bio-physical environmental mitigation and monitoring programme. Development activities for local communities were also executed along with the construction of the project:

- Improvement of existing irrigation canal and guaranteed minimum flows.
- Improvement of educational and health services and sanitation facilities.
- Conservation of local resources by promoting and empowering user's group.
- Negotiation with the affected parties regarding project affected matters such as land use.
- Rural electrification and promotion of small-scale cottage industries.

### **Outcomes**

The Environmental Mitigation and Monitoring Plan (EMMP) for the construction phase of the project was approved by the national authorities as well as the funding agencies. The EMMP served as a basis for the community development activities that were undertaken during the construction phase of KHP-I. Of the 77 ha of land that was acquired by the project, 31% (24 ha) belonged to 154 individual landowners (the remaining 54 ha land was under government ownership). Among them, three families were fully displaced, but they were looking forward for migration towards the Terai (southern plains of Nepal). Another seven families had to partially resettle within the village. All landholders were given prior notice and were compensated by the project for the individual parcel of land that was acquired.

### **Lessons Learned**

Successful planning and implementation of EMMP is beneficial for local communities.

Good public relations through out the project life cycle can avoid unnecessary delays (e.g., strikes, non-cooperation from local community and arbitrations) and the costs associated with such delays.

Ensuring benefits for local communities in terms of reserved rights to employment in the

project and provision of electricity supply as a run-off effect of the project helps generate support for the project.

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**Related IWRM Tools**

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