Agricultural Development Bank Contribution to the Development of Micro-Hydropower Achievements, Problems and Prospects

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Introduction

The Agricultural Development Bank of Nepal (ADB/N) started financing *ghatta*(s) — traditional water mills used for agroprocessing — and their improved versions from 1968, and modern water turbine installations from the mid-seventies as a way of meeting the increased agro-processing needs of the rural population. Since 1981, the ADB/N has provided financial support for water turbine installations with electrification components.

The ADB/N's policies on micro-hydropower are guided by the following objectives.

(a) Increasing agricultural productivity
(b) Improving the standards of living of the population
(c) Reducing the drudgery of women
(d) Substitution of imported fuel and fuelwood

The ADB/N supports micro-hydropower development through the following measures.

(a) Providing loans, technology, and information
(b) Channelising subsidies (applicable to electrification components) from government or donor agencies
(c) Research and development activities
(d) Organising training programmes

Terms and Conditions for Financing

(a) Technical and financial viability
(b) Sound management capabilities of the entrepreneur
(c) Social acceptability
(d) Environmental sustainability
(e) Entrepreneur's ownership of plant site
(f) Equity participation of about 20 per cent
(g) Loan repayment period of 5 to 10 years

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6 Loan Officer, ADB/N

The Micro Hydropower Project and Project Cycle

The ADB/N finances private sector micro-hydropower plants and these private plants are either entrepreneur-owned or community-owned.

The main components of the project cycle are described below.

(a) *Project Identification:* The projects are identified by the local people with external help.

(b) *Project Preparation:* Project preparation consists of site surveys by a manufacturing company, a loan request by the entrepreneur, and a feasibility study by the ADB/N.

(c) *Project Appraisal:* The Bank appraises the project implementation.

(d) *Implementation:* This phase consists of the bank placing an equipment supply order with the manufacturer transportation of equipment by the client, construction of a canal and powerhouse by the client, and equipment installation by the manufacturer.

(e) *Evaluation/Followup:*This is carried out mainly by the ADB/N and, occasionally, by the manufacturer.

Achievements in the Field of Micro-Hydropower

Until 1992, the ADB/N had invested over NRs 85 million[7] in 685 micro-hydropower installations, which included improved *ghatta*(s) (traditional water mills), multipurpose power units, and water turbines. The ADB/N, until 1993/94, had invested about NRs 23 million on 187 micro-hydroelectric installations with a total capacity of about 1,600kW. The subsidies channelised through the ADB/N for these plants amounted to 22 million rupees. Of the above micro-hydroelectric plants, 13 plants,[8] with a total capacity of 302kW, are dedicated to electricity generation.

A Strategic Development Approach to the Strengths, Weaknesses, Opportunities of Micro-hydropower, and the Threats to the Project

A widespread network of offices throughout the country, availability of staff experienced in micro-hydropower, focus on rural development, and provision of credit to industrial and agricultural sectors are the strengths of the ADB/N. The goodwill of clients earned by the bank, channelisation of subsidies through the bank, and the position of ADB/N as the sole agency promoting micro-hydropower are the opportunities for the bank.

The micro-hydropower programme has limited significance to the Bank in terms of loan flow, deficiency in technical manpower, inadequate resources for research and development, over-enthusiastic nature of the programme, and poor coordination and communication between offices; these are the weak features of the programme. The significant cost escalation of plants, low rate of return on investments, low rate of loan

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7 1 US$ = 50 Nepalese Rupees.

8 Does not include plants below a 6kW range.

repayment, low load factor, and poor state of plant operation and maintenance are the problems faced by micro- hydropower development.

Conclusions/Recommendations

1. The organisations concerned in the micro-hydro programmes should seriously take into consideration the price hikes in electro-mechanical equipment.
2. The technical problems being faced by entrepreneurs should be taken into account by manufacturers and other development agencies. INGOs and donors associated with the micro-hydro programmes should put their efforts on training, maintenance, and rehabilitation of sick plants.
3. Capital subsidies alone cannot make the programme economically viable. Therefore, the provision of subsidies in end-use development must be taken into consideration.
4. Generation of power above 25kW and below 100kW might not be economical unless it is used by cottage industries.
5. Tea processing and cardamom drying could be two important end uses for micro-hydropower plants.