Role of Lower Parewa Khola
Micro-Hydropower Project in Dangapa VDC
Terhathum District

A Thesis
Submitted to
Central Department of Rural Development
In Partial Fulfillment of the
Requirements
for the Award of the Degree of Master of Arts
in Rural Development

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LETTER OF RECOMMENDATION

No.: Date:

This entitled **"Role of Lower Parewa Khola Micro-Hydropower Project in Dangapa VDC, Terhathum District"** has been prepared by Mr. Laxmi Prasad Kharel under my supervision as a partial fulfillment of the academic requirements for the award of the degree of Master of Arts in Rural Development. I recommend it for evaluation to the Thesis Committee.

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This is to certify that the thesis entitled **"Role of lower Parewa Khola Micro-Hydropower Project in Dangapa VDC, Terhathum District"** written and submitted by Mr. Laxmi Prasad Kharel has been examined. It has been declared successful for fulfillment of the academic requirements toward the completion of Masters of Arts in Rural Development.

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ABSTRACT

Energy is major determining factor for the rural development as well as national development. Development is the function of energy D = F (E). It is basic need for all sectors such as agriculture, social services, transportation, communication, industry, trade and commerce. It plays the role of a catalyst in rural development by providing a modern form of energy. It can effectively help in reducing the drudgery of the rural population and cutting down the time required to collect and use traditional forms of energy. It is used for lighting, heating, cooking in specially hilly areas. Nepal's per capita final energy consumption of about 15 GJ. Only four other countries in the world have a per capita consumption lower than Nepal. Traditional energy provided 85.85 percent, commercial energy provided 13.54 percent and only 0.61 percent received from renewable energy in total energy consumption. About 40 percent of total population has been benefited from electricity where as 33 percent consume from national grid and 7 percent from alternative energy.

The total potential power of water in Nepal has been estimated to be 83,000 MW of which 42,750 MW is economically feasible. However, only about 548 MW has been generated by the various hydropower stations. There are approximately 600 rivers totaling about 45,000 KM in length and innumerable rivulets flowing from the mountains in the country. Micro-hydropower plays crucial role to reduce energy crisis of Nepal. The present study is emphasized in the role of Lower Parewa Khola micro-hydro in Dangapa VDC, Terhathum District. It was conducted with following objectives:

- *To find out the energy utilization pattern of Dangapa VDC of Terhathum District.*
- *To examine contribution of Micro-hydropower in rural electrification.*
- *To assess the socio-economic impact of MHP in Dangapa VDC of Terhathum district.*

Dangapa VDC of Terhathum district was selected as the study area. To achieve of the above objectives, the study guided by simple size from where the sample population 10 percent and the total sample is to be 31 households. Survey

found that more than 67 percent of the total households benefited from MHP in the study area. After the initialization of MHP, more than 35.48 percent of the sample respondents utilized their surplus time on households activities. After using electric bulbs students paid one hour more to study every day during evening. Only about 9.68 percent of the sample respondents were involved in productive work by using MHP and income level was increased considerably. It was recommended that simple and transparent procedures for Loan sanctioning should be developed and institutionalised. Capabilities should be built up at village level for operation, maintenance and repairing. There is a need to integrate MHP system promotion with income generating and social development activities in order to justify the subsidy scheme. Community owned and managed micro-hydropower plants should be promoted.

Laxmi Prasad Kharel ***December 2008***

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ABBREVIATIONS AND ACRONYMS

ADB/N	Agriculture Development Bank/Nepal
AEPC	Alternative Energy Promotion Centre
AETs	Alternative Energy Technologies
CBOs	Community Based Organizations
CBS	Central Bureau of Statistics
CCO	Canadian Cooperation Office
CDM	Clean Development Mechanism
CM	Community Mobilizer
CRT/N	Centre for Rural Technology/Nepal
DDC	District Development Committee
ESAP	Energy Support Assistance Program
FY	Fiscal Year
GDP	Gross Domestic Product
GJ	Gigajoule
HHs	Households
HKH	Hindu Kush Himalayan
HMG	His Majesty's Government
Hrs	Hours
ICIMOD	International Centre for Integrated Mountain Development
ICS	Improved Cooking Stove
IREF	Interim Rural Energy Fund
IWM	Improved Water Mill
KM	Kilometre

KW	Kilo Watt
Ltrs	Litres
MGSP	Mini-Grid Support Program
MHP	Micro-Hydro Power
MHUG	Micro-Hydro User Group
MHVEP	Micro-Hydro Village Electrification Project
MMHP	Mini and Micro-Hydro Power
MOF	Ministry of Finance
MPPU	Multi Purpose Power Unit
MW	Megawatt
NEA	Nepal Electricity authority
NGOs	Non Government Organizations
NPC	National Planning Commission
RADC	Remote Area Development Committee
REDP	Rural Energy Development Program
REDST	Rural Energy Development Section Terhathum
RET	Renewable Energy Technology
RETRUD	Renewable Energy Technology for Rural Development
Sq.km.	Square Kilometre
TOE	Tone of Oil Equivalents
UNDP	United Nations Development Program
VDC	Village Development Committee
WECs	Water and Energy Commission Secretariat