SOCIO-ECONOMIC AND ENVIRONMENTAL IMPACT OF MICRO-HYDROPOWER PROJECT

A Case Study of SiudigadhMicro-Hydropower ProjectPatadewalVDC, Bajhang District, Nepal

A Thesis Submitted to
The Central Department of Rural Development,
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In partial fulfillment of the requirement for the
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In
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By
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Recommendation

The thesis entitled **Socio-economic and Environmental Impact of Micro-Hydropower Project** has been prepared by**SurendraBahadurKhadka** under my guidance and supervision. I hereby forward this thesis to the evaluation committee for final evaluation and approval.

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This thesis entitled **Socio-economic and Environmental Impact of Micro-Hydropower Project** submitted by **SurendraBahadurKhadka**in partial fulfillment of the requirements for the Master's Degree (M.A) in Rural Development has been approved by the evaluation committee.

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Declaration

I hereby declare that the thesis entitled **"Socio-economic and Environmental Impact of Micro-Hydropower Project"** submitted to the Central Department of Rural Development,Tribhuvan University. This thesis is original which is written under the supervision of my supervisor; no part of it was earlier submitted for the candidature of research degree to any university.

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ABSTRACT

The present study entitled **"Socio-economic and Environmental Impact of Micro-Hydropower Project**"is an attempt to find out the socio-economic and environmental impacts of Micro-hydropower project in Rural Area of Patadewal V.D.C. of Bajhang district.This study especially reports to the evaluation of Socio-economic and Environmental Impact and socially acceptance and economic viability of Siudigadh Micro-hydro Power Project in Patadewal VDC of Bajhang district. It encompasses many studies area o

6f micro-hydropower. But it especially focuses on the investigation of such questions like who are the beneficiaries and to what extent do they get benefit. This study is focused on studying the constraints prevailed in rural energy of Nepal. It also keeps the interest to find out the answer of the questions who gets the access to the rural lighting and why?

As Bajhang district lies in Hilly region, the environmental condition is moderate and suitable for human beings. As electricity is regarded as a major infrastructure of development, every place should be facilitated with it. But majority parts of our country have to spend their life in darkness because of which they are facing so many problems related to their daily life situations. Such problems like not proper access to modern science and technology, education and other occupations in which they are involved.

The main objective of the study is to evaluate the impact of the micro hydropower projects (MHPs) in rural development on environmental and socio-economic aspects through income and employment generation, health and sanitation, education and information technology and suggest solution for sustainable development of MHPs.

The study has employed both primary and secondary sources for data collection. Under the primary source, the study has been based on questionnaire, interview and direct observation of the project site and affected areas.To meet the objectives of this research, 30 respondents of the study area i.e. Patadewal VDC of Bajhang district were selected as the primary sources of data.Likewise, different reports and official publications regarding hydropower plants have been taken into consideration for the statistical data.In order to conduct this research, procedure was used to select 30 respondents of Patadewal VDC of Bajhang district as a research methodology. A questionnaire was used as the tool for data collection and finding

out the socio-economic and environmental impact of micro-hydropower project in Rural Area.In addition to it, direct observation and interview methods are also adopted to collect information regarding knowing about socio economic impact of MHP.

The study found mixed socio-economic impact of the project on the project affected areas. About 80% of respondents are seems to be satisfied with this MHP and about 20% of respondents are seems to be dissatisfied with this MHP. The study further finds out that the population has not completely substituting electricity for firewood. In the study area 70% student's performance at school is improved after MHP installation because children have been studying at the night time using electricity. People are suffering from asthma, bronchitis, eye infection and heart diseases due to indoor air pollution. Hydroelectricity has a prominent role in reduce indoor air pollution by decreasing the use of firewood and kerosene. Electricity from a micro hydro plant makes it possible to use overhead projectors, computers, TV, radio, refrigerator, washing machine, chargeable battery, mobile and internet. This increases the living standard of the people in the study area.

To sum up, installation of small hydropower projects like Siudigadh Micro-hydro Power Project is significant from several angles like, to fulfill national demand for electricity, protect environment, uplift living standard of rural people.

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ABBREVIATIONS

AEPC-Alternative Energy Promotion Centre

ADB- Asian Development Bank

BPC-Butwal Power Company

CDRD-Central Department of Rural Development

CBS-Center Bureau of Statites

CEA-Consumer Electronic Association

DC-Development Consultancy

DANIDA-Danish International Development Assistance

ESAP-Energy Sector Assistance Program

EIA-Environmental Impact Assessment

EASSD- Environment and Social Studies Department

ICS-Improved Cooking Stove

JDMP-Jhimrukh Downstream Mitigation Project

KW-Kilo Watt

MHPS-Micro Hydropower Plants

MW- Megawatt

NAST-Nepal Academy of Science and Technology

RETRUD- Renewable Energy Technology for Rural Development

PV- PHOTO Voltaic

REC-Rural Electrification Cooperation

RETS-Renewable Energy Technology Station

RADC-Remote Area Development Committee

REDP- Rural Energy Development Program

SEB-State Electricity Boards

SEMAN- Solar Electric manufactures Association Nepal

SAARC- South Asian Association for Regional Cooperation

T&D-Transmission and Distribution

UNDP-United National Development Program

VDC- Village Development Committee

VCDP-Vulnerable Committee Development Program

WECS-Water Energy Commission Secretariat

TL-Transmission Line

MHP-Micro hydro project

PDF- Power Development Fund

PPA-Power Purchasing Agreement

RET- Renewable Energy Technologies

NHE- Nepal Hydro Electric

PAF- Project Affected Family

MOWR- Ministry of Water Resource