

**SOCIO-ECONOMIC AND ENVIRONMENTAL IMPACT OF
MICRO-HYDROPOWER PROJECT**

**A Case Study of Siudigadh Micro-Hydropower Project Patadewa VDC,
Bajhang District, Nepal**

**A Thesis Submitted to
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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

of 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.

TABLE OF CONTENTS

	Page No.
Approval Letter	iii
Acknowledgements	i v
Abstract	v-vi
Table of Contents	viii
List of Tables	ix
Abbreviation	x
Declaration	i
Recommendation Letter	ii
CHAPTER ONE:INTRODUCTION	1-6
1.1 Background	1-3
1.2 Statement of the problem	3-4
1.3 Objectives of the study	4
1.4 Significance of the study	4-5
1.5 Limitation of the study	5
1.6 Organization of the study	5-6
CHAPTER TWO:LITERATUREREVIEW	7-22

CHAPTER THREE: METHODOLOGY 23-25

3.1 Research Design	23
3.2 Nature and Sources of Data	23
a. Primary Sources of Data	23
b. Secondary source of Data	23-24
3.3 Sampling Procedures	24
3.4 Method of Data collection	24
3.4.1 Questionnaire Survey and Schedule	24
3.4.2 Key Informant interview	25
3.4.3 Field observation	25
3.5 Data processing and Analysis	25

CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION 26-43

Description of study area	26
4.1 Socio-economic and Environmental Impacts	27
4.1.1 Change in living standard	27
4.1.2 Status of family Income	28
4.1.3 Change in Health	29
4.1.4 Irrigation facility	30
4.1.5 Effects in Drinking Water	30-31
4.1.6 Status of Education	31
4.1.7 Environmental Degradation	32
4.2 Attitude of Community People towards MHP	33

4.2.1 Effects in Social and Cultural Aspects	33
4.2.2 Effects in Livelihood	34
4.2.3 Satisfaction of the Community People	35
4.2.4 Effects in Health	36
4.2.4 Attitude of women	37
4.2.5 Effects on Bio-diversity	38
4.3 Sustainability of MHP	38
4.3.1 Responsibility of Community People for the Sustainability	38-39
4.3.2 Access of Community People towards MHP	39
4.3.3 Ownership of MHP	40
4.3.4 Availability of Skilled Manpower	40-41
4.3.5 Equal Participation	41
4.3.6 Stakeholder of the MHP	42
4.3.7 Proper Use of Electricity	42-43

CHAPTER FIVE:SUMMARY, CONCLUSION AND RECOMMENDATIONS **44-46**

5.1 Summary	44
5.2Conclusion	45
5.3Recommendations	46

References

Appendices

List of Tables

Table no 4.1 Change in Living Standard	27
Table no 4.2 Status of Family Income	28
Figure no 4.2 Status of family income	28
Table no 4.3 Change in Health after electricity	29
Table no 4.4 Irrigation Facility	30
Table no 4.5 Effects in Drinking Water	31
Table no 4.6 Status of Education	31
Table no 4.7 Environmental Degradation	32
Table no 4.8 Effects in Social and Cultural Aspects	33
Table no4.9 Effects in Livelihood	34
Table no 4.10 Satisfaction of The Community People	35
Table no 4.11 Effects in Health	36
Figure no 4.11 Effects of project on human health	36
Table no 4.12 Attitude of women	37
Table no 4.13 Effects on Bio-diversity	38
Table no 4.14 Responsibility of Community People	39
Table no 4.15 Access of Community People	39
Table no 4.16 Ownership of the MHP	40
Table no 4.17 Availability of skilled manpower	41
Table no 4.18 Equal Participation	41
Table no 4.19 Stakeholders of the MHP	42
Table no 4.20 Proper Use of Electricity	43

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-Jhimruk 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