

**SOCIO-ECONOMIC IMPACT OF MICRO-HYDRO POWER
PROJECT**

**(A Case Study of Modi Khola Hydropower Project on Deupur
VDC, Prabat District)**

A Thesis

**Submitted to the Department of Economics
Faculty of Humanities and Social Sciences of Tribhuvan University
in Partial Fulfilment of the Requirements for the Degree of
MASTER OF ARTS
in
ECONOMICS**

**Submitted by
Binod Acharya
Department of Economics
Prithvi Narayan Campus, Pokhara
Tribhuvan University**

April 2014

Department of Economics

LETTER OF RECOMMENDATION

This thesis entitled "**Socio-economic Impact of Micro-hydro Power Project (A Case Study of Modikhola Hydropower Project on Deuper VDC, Prabat District)**" was prepared by Binod Acharya under my supervision. I hereby recommend this thesis for approval by the thesis committee.

Deo Narayan Sutihar
Associate Prof.
Thesis Supervisor

Date: 1st April, 2014

Department of Economics

APPROVAL LETTER

We certify that this thesis entitled "**Socio-economic Impact of Micro-hydro Power Project (A Case Study of Modikhola Hydropower Project on Deuper VDC, Prabat District)**" submitted by Binod Acharya to the Department of Economics, Prithvi Natrayan Campus Pokhara, Faculty of Humanities and Social Sciences, Tribhuvan University, for partial fulfillment of the requirements for the degree of MASTER OF ARTS in ECOMOMICS has been found satisfactory in scope and quality. Therefore, we accept this thesis as a part of the Degree.

Thesis Evaluation Committee

Prof. Dr. Yadav Sharma Gaudel
Head, Department of Economics
Prithvi Narayan Campus, Pokhara

Prof. Dr. Bed Nath Sharma
External Examiner

Deo Narayan Sutihar
Associate Prof.
Thesis Supervisor

Date: 10th April 2014

ACKNOWLEDGEMENT

This research report is prepared as a thesis for the partial fulfillment of the requirement for the master's degree in economics. The basic objective of the study is to identify the socio- economic impact of the Modi Khola Hydro power project (MHP) of Prabat district. This thesis would never have been completed without the generous help of many individuals. First of all, I would like to express my hearty gratitude to my supervisor Deo Narayan Sutihar , Associate professor, Prithvi Narayan Campus for his considerable care, exhortative and substantial time extended to me during the whole course of this research. I am highly indebted to Prof. Dr. Yadav Sharma Gaudel, Head, Department of Economics, for his encouragement and valuable suggestions to undertake the present Study. I would, therefore, like to express my sincere gratitude to Modi Khola Hydro power for its support of study area. My thank goes to friend Baman Chalishe for his help. I have no words to express my sincere gratitude to my family members father Rameshwor Acharya , Mother Kamal Kumari Acharya , I am always thankful to my wife Sushma Acharya who was always ready to help me to my task. She is very grateful to me to inspire me toward my study. She is the person who helped me reach in this position and complete my study till the Master Degree. I am equally thankful to my daughter Susbi Acharya . At last, it would be patiently observed that this little contribution would help in filling up the gap in this sector providing as tonic to the researcher and policy maker.

Lastly, my thank goes to Mr Teeka Ram Koirala former Head of the Dept. of English, P.N Campus for going through the thesis and correcting the grammatical mistakes occurred in my writing.

.....

Binod Acharya

Camus Roll No.: 96/065

20th March, 2014

T.U. Regd. No.: 9-1-48-1502-2001

TABLE OF CONTENTS

<i>Acknowledgement</i>	<i>iv</i>
<i>Table of Contents</i>	<i>v</i>
<i>List of Tables</i>	<i>vii</i>
<i>List of Figures</i>	<i>viii</i>
<i>List of Acronyms</i>	<i>ix</i>
<i>Abstract</i>	<i>x</i>
CHAPTER – I: INTRODUCTION	1-8
1.1 Background	1
1.2 Statement of the Problem	6
1.3 Objectives of the Study	7
1.4 Significance of the Study	7
1.5 Limitation of the Study	8
1.6 Organization of the Study	8
CHAPTER – II: REVIEW OF LITERATURE	9-21
2.1 Review of Studies at International Level	9
2.2 Review of Studies at National Level	10
CHAPTER – III: METHODOLOGY	22-24
3.1 Introduction to Study Site	22
3.2 Research Design	23
3.3 Nature of Data	23
3.4 Method of Data Collection	24
3.5 Data Processing	24
3.6 Data Analysis	24

CHAPTER – IV: PRESENTATION AND ANALYSIS OF DATA **25-50**

4.	Socio-Economic Status of the Study Area	25
4.1	Household Information of Project Affected Area	25
4.2	Electricity	30
4.3	Major Findings	48

CHAPTER –V: SUMMARY, CONCLUSION AND SUGGESTIONS **51-55**

5.1	Summary	51
5.2	Conclusion	52
5.3	Suggestions	54

REFERENCES

APPENDIX

LIST OF TABLES

Table	Title	Page
4.1	Word Wise Households Participation	26
4.2	Age Group Respondents	27
4.3	Occupational Distribution of Respondents	30
4.4	Use of Electricity For Various Purpose	31
4.5	Electricity Consumption by Households	32
4.6	Change in Consumption of Energy	33
4.7	Access to Modern Technology	34
4.8	Impact of Electricity on Children Study Habits after MHP	35
4.9	The Improvements of Children Performance At School	36
4.10	Advantages of Project	37
4.11	Status of Student's Education after Electricity	38
4.12	Minimize/Improve the Disease after Establishment of MHP	39
4.13	Status of Environmental Pollution after the Project	40
4.14	Type of Pollution Occurred after the Project	40
4.15	Establishment of Industries after MHP	43
4.16	Change in Living Standard after MHP	43
4.17	People Perception about Increase the Income after MHP	44
4.18	Feeling of People towards MHP	47

LIST OF FIGURES

Figure	Title	Page
4.1	Participation Percentage of Respondents by Gender	24
4.2	Ethnic Groups of Project Area	28
4.3	Religion wise Distribution	29
4.4	Changes in Consumption of Energy	33
4.5	People's perception about Increase the Income after MHP	45
4.6	Agriculture Product Promotion due to MHP	46

LIST OF ACRONYMS

ADB	:	Asian Development Bank Nepal
AEPC	:	Alternative Energy Promotion Centre
CBS	:	Central Bureau of Statistics
CO ₂	:	Carbon dioxide
EYE	:	Eye Nose Throat
FY	:	Fiscal Year
KW	:	Kilowatt
MHP	:	Micro Hydro-Power
MW	:	Megawatt
MWE	:	Megawatt Energy
NGO	:	Non-Governmental Organization
NEA	:	Nepal Electricity Authority
PRA	:	Participatory Rural Appraisal
UNDP	:	United Nations Development Program
VDC	:	Village Development Committee
WTO	:	World Trade Organization

ABSTRACT

The role of hydropower in economic development in the context of least developed country like Nepal can never be underestimated. The electricity generated from the hydropower plant is not only essential for industrial growth but is equally inevitable for human being. The main objective of the study is to evaluate the impact of the micro hydropower projects (MHPs) in rural development on socio-economic aspects through income and employment generation, health and sanitation, education and information technology and suggest solution for sustainable development of MHPs.

The present study has attempted to bring these aspects of the small hydropower projects into the limelight through the study of socio-economic impact of Modhikhola Hydropower Project in the overall sector of the study area. The construction of project was started from the year 1996 with the eco-financing of His Majesty's Government of Nepal and Nepal Electricity Authority. The Government of Republic of Korea has provided a loan assistance to cover part of the technical support, electromechanical works and 132 kV transmission line constructions.

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. Likewise, different reports and official publications regarding hydropower plants have been taken into consideration for the statistical data.

The study found mixed socio-economic impact of the project on the project affected areas. Out of 48.08% population are still dependent on agriculture for livelihood. The study further finds out that the population has not completely substituting electricity for firewood. After the installation of MHP 27 small industries were installed in study where around 55 villagers have partially/fully

involved in job. In the study area 76.92% 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 Modhikhola hydropower is significant from several angles like, to fulfill national demand for electricity, protect environment, uplift living standard of rural people.