

TRIBHUVAN UNIVERSITY
SOCIO- ECONOMIC IMPACT OF SURNAYA MICRO
HYDRO- POWER PROJECT IN SHANKARPUR V.D.C.

**(A case study of Micro- Hydropower of Shankarpur
V.D.C of Baitadi District)**

A Thesis
SUBMITTED TO THE FACULTY OF HUMANITIES
AND SOCIAL SCIENCES
In partial fulfillment of requirements for the
Master's Degree

IN
RURAL DEVELOPMENT

By
Surendra Bahadur Chand
T.U. Regd. No. 6-1-327-529-99
Roll No. 2679

Faculty of Humanities and Social Science
Central Department of Rural Development
Tribhuvan University, Kirtipur
Kathamandu, Nepal
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LETTER OF RECOMMENDATION

This thesis entitled “ Socio-Economic impact of Surnaya micro Hydropower project in Shankarpur V.D.C.: A Case Study of Micro-Hydropower of Shankarpur V.D.C. of Baitadi District” has been prepared by Mr. Surendra Banadur Chand under my supervision as a partial fulfillment of the requirement for the degree of Master of Arts in Rural Development.

To the best of my knowledge the study is original and carries useful information. I recommend it for evaluation to the thesis committee.

.....

Associate Professor Dr. Mangala Shrestha

Thesis supervisor

Central Department of Rural Development

Kirtipur

APPROVAL LETTER

This thesis has been evaluated and approved by the following Thesis Evaluation Committee.

Approved by

Head of the Department

Internal

External

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November 2008.

Surendra Bahadur Chand.

ABSTRACT

Energy plays a vital role in national development because it is essential not only for meeting necessities like cooking and lighting but is also vital for productive sector of the economy. The total energy consumption in Nepal was 8.205 million TOE hi 2002 (about 15 GJ per capita) of which traditional energy provided 85.27 percent, commercial energy provided about 14.24 percent and renewable energy provided only 0.48 percent of the total energy consumption. About 48.5 percent of the total population has benefited from electricity.

It is estimated that in Nepal more than 6,000 rivers flows, whose total length is about 45,000 km. The theoretical and commercial potential of hydropower in Nepal are about 83,000 MW and 42,000 MW respectively. However, only about 560 MW has been generated by the various hydropower stations. Micro-hydropower is the ideal answer to the present energy crisis of Nepal. It is the most proven, most reliable and potentially cost effective. The present study is focused in the socio-economic impact of Surndyagad MHP in Shankapur V.D.C. of Baitadi. It was conducted with following objectives:

- *To identify the role of MHP in rural electrification.*
- *To assess the present energy situation in Shankapur V.D.C. of Baitadi district.*
- *To find out the people's participation for the development and promotion of MHP in Shankapur V.D.C.*

Shankarpur V.D.C. of Baitadi district was selected as the study area. For the fulfilment of the above objectives, the study guided by sample frame from

where the sample population 20 percent and the total sample is to be 46 households. Structured, unstructured questionnaire and focused interview techniques are used for data collection. Survey found that more than 55 percent of the total households benefited from MHP in the study area. After the installation of MHP, more than 36 percent of the sample households-, utilized their surplus time on households activities. Literacy class was introduced and students could study one hour more every day during evening by using electric bulbs. Only about 21.74 percent of sample households were involved in productive work by using MHP and the income level was increased considerably. It was recommended that, simple and transparent procedures for loan sanctioning should be developed and institutionalized. 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.

TABLE OF CONTENT

| | Page No |
|---|----------------|
| CHAPTER I | |
| 1. INTRODUCTION | |
| 1.1 Background | 1 |
| 1.2 Statement of the Problem | 6 |
| 1.3 Objective of the Study | 8 |
| 1.4 Limitation of the Study | 8 |
| CHAPTER II | |
| REVIEW OF THE LITERATURE | |
| CHAPTER III | |
| RESEARCH METHODOLOGY | |
| 3.1 Study Area | 17 |
| 3.2 Simple size | 19 |
| 3.3 Method of data Collection | 19 |
| 3.4 Method of data Generation | 20 |
| 3.5 Data processing. | 20 |
| 3.6 Tools of analysis. | 20 |
| CHAPTER IV | |
| MICRO HYDRO POWER IN NEPAL | |
| 4.1 Introduction of MHP | 21 |
| 4.2 MHP Development in Nepal | 23 |
| 4.3 Present status and Potentiality | 25 |
| 4.4 Government Policy and Major Institutions | 27 |
| CHAPTER V | |
| DATA ANALYSIS AND PRESENTATION | |
| 5.1 Socio-Economic Characteristics of the sample population | 31 |
| 5.1.1 Age, sex composition and education structure of sample HHs. | 31 |
| 5.1.2 Ethnic composition of the Respondents | 35 |
| 5.1.3 Occupational status of the sample HHs. | 37 |
| 5.1.4 Livestock Situation in sample households | 39 |
| 5.1.6 Annual Income Level of Sample Population | 41 |
| 5.2 Energy Using Situation in Study Area. | 43 |

| | | |
|---------|---|----|
| 5.2.1 | Main Energy for Cooking | 43 |
| 5.2.1.1 | Type of cooking store. | 45 |
| 5.2.1.2 | Time spent for collecting fuel- wood (by sex) | 46 |
| 5.2.1.3 | Cooking food by using Biogas. | 48 |
| 5.3 | Socio- Economic Impact of MHP. | 50 |
| 5.3.1. | Time Spent for the purchase of Kerosene before the installation of MHP (by sex) | 50 |
| 5.3.2 | Surplus Time Utilization by the Sample Households. | 52 |
| 5.3.3 | Advantages of MHP in the study Area. | 54 |
| 5.3.4. | Involvement on Productive work by using MHP system | 56 |
| 5.3.4.1 | Increase in Income in Income Level of the Involved Household. | 58 |
| 5.3.5 | Improvement in Health Condition After the Use of Electric Bulbs. | 59 |
| 5.3.6 | Increase in Better Education and Awareness level. | 62 |
| 5.3.7 | Problems of Micro-hydro power | 63 |
| 5.3.8 | participation and contribution of People | 63 |
| 5.3.9 | End use of Micro-hydro power | 63 |

CHAPTER VI

SUMMARY, CONCLUSION AND RECOMMENDATIONS

| | | |
|-----|-----------------|----|
| 6.1 | Summary | 64 |
| 6.2 | Conclusion | 65 |
| 6.3 | Recommendations | 67 |

REFERENCES

APPENDIXES

List of Table

| Table No. | Page No |
|---|----------------|
| 3.1 Installation of MHP | 18 |
| 4.1 Energy situation of the District | 27 |
| 5.1 Population Distribution by age and sex | 32 |
| 5.2 Educational status of sample households | 34 |
| 5.3 Distribution of Respondents According to ethnicity. | 36 |
| 5.4 Occupation structure of the sample households | 38 |
| 5.5 Livestock rearing situation in sample households | 40 |
| 5.6 Distribution of Respondents by annual income. | 42 |
| 5.7 Main energy for cooking food. | 44 |
| 5.8 Type of cooking Stove of the sample Households. | 45 |
| 5.9 Main source of fuel wood. | 46 |
| 5.10 Time Spent for collecting Fuel- wood (by sex) | 47 |
| 5.11 Biogas Type in Sample HHS. | 48 |
| 5.12 Status of Biogas is Sample Households | 49 |
| 5.13 Time Spent for the purchase of Kerosene before the installation of MHP (by sex) | 51 |
| 5.14: Surplus time utilization in sample HHs | 53 |
| 5.15: Impact of MHP system in sample House holds | 55 |
| 5.16: Involvement of sample HHS on productive work by using MHP system. | 57 |
| 5.17: Increase in Income Level | 59 |
| 5.18 Improvement in Health of the sample HHS. | 61 |

LIST OF FIGURE

| | Page. No. |
|---|------------------|
| Figure No: 1 Population Distribution by Age and Sex | 33 |
| Figure No. 2 Educational status of sample households pic-chart. | 35 |
| Figure No. 3 Ethnic Composition of Respondents | 37 |
| Figure No 4 Occupation structure of the sample households. | 39 |
| Figure No 5 Animal rearing situation in the sample households | 41 |
| Figure No: 6 Distribution of sample population by annual income. | 43 |
| Figure No. 7: Main energy for cooking food of the sample Households. | 44 |
| Figure No. 9: Time spent for bringing fuel- wood (by sex) | 48 |
| Figure No. 10 Status of Biogas in Sample Households. | 50 |
| Figure No. 11 Time spent for the purchase of kerosene | 52 |
| Figure No. 12: Surplus time Utilization Pattern | 54 |
| Figure No. 13: Impact of MHP system in sample HHS. | 56 |
| Figure No. 14: Involvement on Productive work by using MHP System. | 58 |
| Figure No. 15 Improve in Health of the Sample HHs | 62 |

ABBREVIATIONS/ACRONYMS

| | | |
|------------|---|--|
| ACAP/KMTNC | : | Annapurna Conservation Area Project/King |
| ADB/N | : | Mahendra Trust for Nature Conservation Agriculture Development Bank/Nepal |
| AEPC | : | Alternative Energy Promotion Centre |
| AETs | : | Alternative Energy Technologies |
| AIT | : | Asian Institute of Technology |
| CBOs | : | Community Based Organizations |
| CBS | : | Central Bureau of Statistics |
| CCO | : | Canadian Cooperation Office |
| CO | : | Community Organization |
| CRT/N | : | Centre for Rural Technology/Nepal |
| DCS | : | Development Consultancy Services |
| DDC | : | District Development Committee |
| DGO | : | Director General's Office |
| EIA | : | Energy Information Administration |
| ESAP | : | Energy Support Assistance Program |
| FY | : | Fiscal Year |
| GDP | : | Gross Domestic Product |
| GHG | : | Green House Gas |
| GHG | : | Green House Gases |
| GJ | : | Gigajoule |
| Ha | : | Hectare |
| HHs | : | Households |
| HKH | : | Hindu Kush Himalayan |
| HMG | : | His Majesty's Government |

| | | |
|---------|---|--|
| Hrs | : | Hours |
| ICIMOD | : | International Centre for Integrated Mountain Development |
| ICS | : | Improved Cooking Stove |
| INGOs | : | International Non-Government Organizations |
| IOC | : | Inter-Organizational Communication |
| IOE | : | Institute of Engineering |
| IREF | : | Interim Rural Energy Fund |
| IREF | : | Interim Rural Energy Fund |
| ITDG/N | : | Intermediate Technology Development Group/Nepal |
| Km | : | Kilometre |
| Kw | : | Kilowatt |
| Ltrs | : | Litres |
| M | : | Meter |
| MHFG | : | Micro-Hydro Functional Group |
| MHP | : | 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 |
| PHP | : | Pico-Hydro Power |
| PS | : | Peltric Set |
| PV | : | Photovoltaic |
| R and D | : | Research and Development |

| | | |
|--------|---|---|
| RADC | : | Remote Area Development Committee |
| REDP | : | Rural Energy Development Program |
| REDSM | : | Rural Energy Development Section Myagdi |
| RET | : | Renewable Energyj Technology |
| TETRUD | : | Renewable Energy Technology for Rural Development |
| SATA | : | Swiss Association for Technical Assistance |
| SHS | : | Solar Home System |
| SIDA | : | Swedish International Development Cooperation Agency |
| Sq.Km. | : | Square Kilometre |
| SSHP | : | Small Scale Hydro-power Solar Water Heater |
| TCE | | Tonne of Coal Equivalent |
| TOE | : | Tons of Oil Equivalents |
| TSHPP | : | Tatopani Small-Hydro Power Project |
| UN | : | United Nations |
| UNDP | : | United Nations Development Program |
| UNV | : | United Nations Volunteers |
| V.D.C. | : | Village Development Committee |
| WECS | : | Water and Energy Commission Secretariat |
| WRA | : | Water Resources Act |