

RURAL ENERGY RESOURCES: A Case Study in Kotdarbar VDC of Tanahun District

A Thesis

**Submitted in Partial Fulfillment of the
Requirements**

**for the Award of the Degree of Masters of Arts
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LETTER OF RECOMMENDATION

This thesis entitled **RURAL ENERGY RESOURCES: A Case Study in Kotdarbar VDC of Tanahun District** has been prepared by **Mr. Basanta Raj Lamichhane** under my supervision. I hereby recommended this thesis for the final approval by the Evaluation Committee as a partial fulfillment of the requirement for the Degree of Masters of Arts in Rural Development.

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APPROVAL CERTIFICATE

This is to certify that the thesis entitled **RURAL ENERGY RESOURCES: A Case Study in Kotdarbar VDC of Tanahun District** Written and submitted by **Mr. Basanta Raj Lamichhane** has been examined. It has been declared successful for fulfillment of the academic requirements towards the completion of Masters in Arts in Rural Development.

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ABSTRACT

Energy, the ability to do work, is essential for meeting basic human needs, extending life expectancy and providing a rising living standard. Nepal's energy supply is overwhelmingly dependent on biomass resources- fuel wood, agriculture residues and animal wastes. There is a dire need to substitute as well as supplement the traditional energy supply system by modern forms of sustainable energy in terms of resources and technology. Attempts to promote rural development to eradicate poverty must include efforts to ensure energy supply in rural area, not an end in itself but as an integral component. However there are the major challenges in Nepal to integrate energy and rural development which are; lack of adequate data on energy requirements & supplies, majority of people still rely on biomass, lack of organized records, inequitable access to energy resources etc.

The present research study has been designed to identify the potentiality of energy resources, energy consumption pattern and energy balance in rural area. The specific objectives are: to find out the present energy use scenario of rural area, to evaluate the socio-economic impact of rural energy technologies. In this research study, two hypotheses have been set up and tested statistically using z- test. The first hypothesis is: "In the context the rural area of Nepal, per capita energy consumption is less than 14.6 GJ." and the second hypothesis is "The annual income of RETs users is greater than the non-users of RETs". To collect the primary data, the following methodologies have been adopted: Desk Study, Household Survey and Participatory Rural Appraisal. Being a social in nature, an exploratory as well as descriptive research design has been applied. The data collected through various instruments and sources were descriptively analyzed and presented.

The conclusions, which are drawn from the research work in to the study area are: Government forest is the main sources of fuel wood supply which means there is more pressure in forest. The per capita per year energy supply in study area is only 6.17 GJ. Out of total energy supply, 97 % of energy supply from the fuel wood, 1% energy supply from agriculture residue, 1% from the Petroleum products and 1% from renewable energy sources. The average per capita per year energy consumption is only 6.03 GJ where as in national average it is 14.6 GJ. The sustainable fuel wood supply in Kotdarbar VDC is only 1662 ton where as annual consumption is 2816.37 ton. With regard to the supply and consumption balance of fuel wood, there is deficit of 1154.37-ton fuel wood annually. The major RETs, which are practicable in rural area, are Micro hydropower, Bio-gas, solar home system and improved cook stove. There is no reason to say that the income status of RET users is greater than non users of RETs. The major positive impacts of RETs are help to better education, time save, reduce the workload of women, firewood saving and health improve.

The major recommendations are: Government and concern agencies should pay attention towards rapidly growing deforestation. Renewable Energy Technology should be massively disseminated in rural area, which helps to sustainable rural development and poverty alleviation. Development and Promotion of RET should be made an integral part of overall rural development.

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LIST OF ABBREVIATIONS/ACRONYMS

AEPC	: Alternative Energy Promotion Center
CADEC	: Community Awareness Development Program
CBS	: Centre Bureau of Statistics
CRT/N	: Center for Rural Technology, Nepal
DDC	: District Development Committee
ESAP	: Energy Sector Assistance Program
GJ	: Giga Joule
GoN	: Government of Nepal
GOs	: Government Organizations
HH	: Household
HHs	: Households
ICS	: Improved Cook Stove
INGO	: International Non Government Organization
KW	: Kilo-watt
MHP	: Micro Hydro Plant
NEA	: Nepal Electricity Authority
NGO	: Non Government Organization
NPC	: National Planning Commission
PRA	: Participatory Rural Appraisal
REDP	: Rural Energy Development Program
RESDTN	: Rural Empowerment Society, Damauli, Tanahun, Nepal
RET	: Renewable Energy Technology
RETs	: Renewable Energy Technologies
SHS	: Solar Home System
ToE	: Ton of Oil Equivalent
UNDP	: United Nations Development Program
VDC	: Village Development Committee
WECS	: Water and Energy Commission Secretariat