Bio-gas and its impact in Rural Development
(A case study of Kanyam VDC, Ilam District, Nepal)

A Thesis Submitted to
Mahendra Ratna Multiple Campus, Ilam
Department of Rural Development
Tribhuvan University.
in partial fulfillment of the requirements for the Degree of the
Master of Arts (M.A.)
in
Rural Development

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Recommendation Letter

The thesis entitled "**Bio-gas and its Impact in Rural Development (A case study of Kanyam VDC, Ilam Distirict, Nepal)"** has been prepared by **Mr. Dinesh Kumar Pokharel** under my guidance and supervision. I hereby forward this thesis to the evaluation committee for final evaluation and approval.

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Approval Letter

The thesis entitled **Bio-gas and its Impact in Rural Development (**A case study of Kanyam VDC, Ilam District) Nepal submitted by **Dinesh Kumar Pokharel** 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 **" Bio-gas and its Impact in Rural Development" (A case study of Kanyam VDC, Ilam District, Nepal)** submitted to the Department of Rural Devlopment, Tribhuvan University, Mahendra Ratna Multiple Campus, Ilam entirely my original work prepared under the guidance and supervision of my supervisor. I have made due acknowledgements to all ideas and information borrowed from different sources in the course of preparing this thesis. The results of this thesis have not been presented or submitted anywhere else for the award of any degree or for any other purposes. I assure that no part of the content of this thesis has been published in any form before.

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Dinesh Kumar Pokharel

Abstract

Biogas is a gaseous matter produced from the organic wastes such as animal dung, human excreta and plant residues by the action of bacteria in anaerobic condition i. e. in absence of oxygen. The biogas is composed of mixture of different gases. The chief component being methane gas. It is the mixture of gas produced by methaoneogenic bacteria while acting upon biodegradable materials in an anaerobic condition. It is mainly composed of 60-70 percent methane, 30-40 percent carbon dioxide and some other gases. It burns with clear blue flame similar to that of LSG. The biogas is colorless, odorless and buns with a clear blue flame (BSP 2010).

Nepal is one of the poorest and least developed country in the world with lowest per-capita income $1 per day. Nepal is a small country with an area of 1,47,181 sq.km inhabited by 2,31,514,23 people (population census 2001). The land area can be roughly divided into three physiographic region like: the mountain, the hills and the plains, out of total population 86 percent live in rural areas as well as 14 percent live in urban areas (census, 2001).

The economy of Nepal is primarily based on agriculture and other sectors of the economy are quite small. National account data shows that at factor cost, the share of agriculture in the total G.D.P was around 40 percent (2003/004 MOF/HMG, 2004), Most of the rural population has the tradition of raising cattle as an integral part of their farm people are depended mainly on firewood for their energy requirement. They use it for cooking, space heating and other purposes. The general objective of the study is to find out the socio economic impacts of biogas in Nepal. However, the specific objectives are to investigate the social impacts of biogas in rural community, to find out the impacts of biogas in environment of the study area, to suggest biogas as the alternative solution to gender disparity. The study conducted in Kanyam VDC wards 1 to 9, Ilam. There are around 7000 thousand populations in this VDC with consisting 1408 households. Among them, 30 households out of the 105 bio gas users of this VDC. The major findings of the study area are the result of the study indicated that Brahmans and Chhetri 63 percent dominate the installation. In this study area data has shown that size of 6cu.m Biogas plant is more popular. The data shows that one family consumes average 5

bhari (150 kg) firewood per month before installati on of Biogas. The study revealed that a family saved on 2.50 hrs per day after the installation of biogas plant. The major recommendation of the study area has been seen that farmers do not know proper utilization of slurry from Biogas plants therefore method of preparing compost and utilization in their land crops increase the production. Effective awareness programme should be lunched for the capacity utilization of biogas plant such as slurry management, utilization and so on. Special plans, policies, strategies and programs at the local level to built up for Biogas energy development in the rural areas. Biogas Company should provide regular supervision and monitoring of the biogas plants. Training should be given to people on the techniques and methods of slurry management of compost preparation.

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Acronyms

ADB/N	:	Agricultural Development Bank of Nepal
AEPC	:	Alternative Energy Promotion Centre
BDC	:	Biogas Development Committee
BSP	:	Biogas Support Program
BYS	:	Balaju Yantra Shala
CBS	:	Centre Bureau of Statistic
CO2	:	Carbon Dioxide
DCS	:	Development and Consulting Service
ERDG	:	Energy Research and Development Group
FYM	:	Farm Yard Manure
GGC	:	Gobar Gas Company
GHC	:	Green House Commitment
HH	:	Household
HHH	:	Household Head
KM	:	Kilometer
MOA	:	Ministry of Agriculture
MOPE	:	Ministry of Population and Environment
NO	:	Number
P.Ltd.	:	Private Limited
RET	:	Renewable Energy Technology
RUPP	:	Rural Urban Partnership Program
SNV	:	The Netherlands Development Organization
VDC	:	Village Development Committee
WECS	:	Water and Energy Commission Secretarial