

**USES OF BIOGAS AND ITS RELATION TO ENVIRONMENTAL CONSERVATION: A CASE
STUDY OF GANDAKI RURAL MUNICIPALITY OF
GORKHA DISTRICT, NEPAL**

A Thesis

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By

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LETTER OF RECOMMENDATION

This is to certify that the thesis report entitled, “Uses of Biogas and Its Relation to Environmental Conservation: A Case Study of Gandaki Rural Municipality of Gorkha District” has been prepared by Ms. RubinaThapa under my supervision. I hereby recommend it for acceptance.

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LETTER OF APPROVAL

This is to certify that the thesis report entitled, "Uses of Biogas and Its Relation to Environmental Conservation: A case study of Gandaki Rural Municipality of Gorkha District" has been prepared by Ms. Rubina Thapa in partial fulfillment of the requirements for the degree of Masters of Arts in Rural Development. The thesis has been approved by this Department in the prescribed format of Faculty of Humanities and Social Science.

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DECLARATION

I hereby declare that the thesis entitled ‘**Uses of Biogas and Its Relation to Environmental Conservation**’ submitted to the Central Department of Rural Development, Tribhuvan University, is entirely my original work prepared under the guidance and supervision of my supervisor. I have made due acknowledgement to all ideas and information borrowed from different sources in the course of writing this thesis. The result of this thesis has not been presented or submitted anywhere else for the award of any degree or for any other purposes. No any part of the content of this dissertation has been published in any form before. I shall be solely responsible if any evidence is found against my declaration.

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ABSTRACT

Biogas technology adoption has been advanced around the world as a renewable source of energy by various organizations such as government agencies and Non- government Organizations. The advancement of the technology is due to its health and environmental benefits. In its effort to achieve its vision, the government aspires to encourage wider adoption and use of biogas technology as one of the renewable energy sources. The focus of this study is on status of biogas and its relation to environmental conservation. In the study area, the objectives of the study were: to find out the various uses and economic benefit of biogas as well as its role in the improvement of health, sanitation and environmental protection.

The present study was carried out in Gandaki Rural Municipality of Gorkha District, which is located in the Province No. 4 of Gandaki. The economic status was average and agriculture was the main occupation. Since nobody did any kind of research in this area. Descriptive survey research design was used. The sample size comprised of 60 respondents who were purposively sampled to fulfill the objectives of the study. The study has been based on both secondary and primary data and information.

The total 60 respondents are from local community of Gandaki Rural Municipality, irrespective of gender, caste and age. Among them 55 percent are female and remaining males.

The findings from the study revealed that the significant adoption of the biogas technology were its various uses, economic benefits, and improvements in the health, sanitation and environmental protection. Most of the households were satisfied through the installation while some of them argued about its negative impacts like increment of the mosquitoes, flies and other unwanted insects.

Almost 73.33 percent of the respondents were engaged in agriculture and remaining were in other types of occupation such as business, social work, teacher, service, etc.

The average number of livestock (cattle and buffalo) per household was 9.36 percent of cow/ox, 16.96 percent of buffalo and 73.67 percent of goats. Goats were more admired by the households as more creation of gas and less costly as well as owns them more.

About 70 percent households have biogas and remaining 20 percent use firewood and kerosene and other 10 percent have L.P.G subsidies too. 90 percent use biogas plant in daily basis and remaining 10 percent use it manually as biogas plant was collapsed due to earthquake 2072.

The size of biogas plant is mostly determined by the number of family members and the number of cattle. 90 percent of the respondents have constructed biogas plant of 6 ghana meter and the remaining 10 percent have constructed the biogas of 8 ghana meter.

In the matter of connecting toilet, 81.66 percent households have connected toilet with biogas plant and remaining 18.33 percent have no connection of toilet with the plant due to cultural belief and enough number of cattle.

Finally the study recommends that for the long lasting period of the biogas technology adoption in the sampled area, the government should re-shape its plans and policies and process as per mentioned in the recommendation.

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ABBREVIATION AND ACRONYMS

ADB/ N	Agriculture Development Bank Nepal
AD	Anno Domini
AEPC	Alternative Energy Promotion Centre
ARI	Acute Respiratory Infection
BGC	Biogas Companies
BSP	Biogas Support Program
CBS	Central Bureau of Statistics
CDM	Clean Development Mechanism
CDMA	Code Division Multiple Access
CER	Certified Emission Reduction
CES	Centre for Energy Studies
CF	Community Forest
CFUG	Community Forest User Group
CMS	Consolidated Management Service Nepal
DCS	Development and Consulting Service
Dev.Part.	Development Partners Consultancy
EDR	Eastern Development Region
ERPA	Emission Reduction Purchase Agreement
ESAP	Energy Sector Assistance Program

FGDs Focus Group Discussions

GGC Gover Gas Company

GHG Greenhouse Gas

GoN Government of Nepal

IEIA Integrated Environment Impact Assessment

IoE Institute of Engineering

INGO International Non- Governmental Organization

KII Key Informant Interview

LDCs Least development Countries

LPG Liquid Pertoleum Gas

MDG Millennium Development Goal

MoF Ministry of Finance

MoST Ministry of Science and Technology

NLSS Nepal Living Standard Survey

NP National Planning Commission

PAF Poverty Alleviation Fund

PRSP Poverty Reduction Strategy Paper

REDP Rural Energy Development Program

REPON Renewable Energy Perspective Plan of Nepal

RUDESA Rural Development Study Associates

RWEP	Rural World Energy Program
SEP	Slurry Extension program
SWAP	Sector Wide Approach
VDC	Village Development Committee
WB	World Bank