

ECONOMIC IMPACTS OF BIOGAS PLANTS

A Case Study of Budhabare VDC in Jhapa District, Nepal

ECONOMIC IMPACTS OF BIOGAS PLANTS

**A Thesis Submitted to
The Central Department of Rural Development,
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in
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DECLARATION

I hereby declare that the thesis entitled “**ECONOMIC IMPACTS OF BIOGAS PLANTS**” 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 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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RECOMMENDATION LETTER

The thesis entitled **ECONOMIC IMPACTS OF BIOGAS PLANTS: A Case Study** Budhabare VDC in Jhapa District, Nepal has been prepared by **Srishti Guragai** under my guidance and supervision. I hereby forward this thesis to the evaluation committee for final evaluation and approval.

(Lec. Prajwal Man pradhan)

Thesis Supervisor

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Date: 04-04- 2017

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APPROVAL LETTER

This is to certify that the thesis report has completed the thesis entitled “**ECONOMIC IMPACTS OF BIOGAS PLANTS**” submitted by **SrishtiGuragain** in partial fulfillment of the requirements for the Master’s Degree in Rural Development has been approved by the evaluation committee.

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It is of full hope that this report tried to portray accurately the economic impacts, the potential benefits of Biogas in the study area and shall be useful in the promotion and development of Biogas sustainability and practices in the future.

SrishtiGuragain

July 20, 2017

ABSTRACT

This thesis entitled “**ECONOMIC IMPACTS OF BIOGAS PLANTS**” (Case Study of Budhabare VDC in Jhapa District, Nepal) focuses on status of Biogas plants and its impacts on economic aspects. The general objective of the study is to examine and analyze the role biogas plants for changing economic status of local people. It has the following specific objective; to examine the economic benefits of biogas by calculating average income saving due to non-burning of fuel wood and kerosene as well as suggest relevant way outs for the betterment of biogas plants. The present study was carried out in Budhabare VDC of Jhapa district, which is located in the Eastern development region in Mechi Zone. The economic status of this village is average. Agriculture is the main occupation of this VDC. Since nobody did any kind of research in this VDC.

There were 5270 household on V.D.C. among them 40 households were selected by using random sampling method; the study is used in descriptive research design. This study focuses on economic study and using descriptive research design method has fulfilled the objectives of the study. The study has been based on both secondary and primary data and information.

Secondary data were used to present the background of the study and supplement and complement the findings of the study. Secondary data were collected from various sources such as books, journals, previous thesis on the subject and government publications. The household survey has been conducted in order to collect qualitative and quantitative facts about economic status of people living in the study, financial situation and the role of biogas in upliftment of economic condition. Certain information has been collected by focus discussion, key interview and observation method. Researcher has observed biogas usage along with firewood and kerosene usage, house pattern etc to guess the situation of economic status. Collected data and information were presented and analysis by using simple mathematical and statistical tools such as table graph, pie chart, percentage etc.

The total respondents are from local community of Budhabare, irrespective of gender, caste and age. Among them 59% respondents are female and remaining males.

Almost 62.50% of the respondents engaged in agriculture and remaining are in other types of occupation such as business, wageworker activity, social work etc.

The average number of livestock (cattle and buffalo) per household was 3.7 average number of cow/ox was 0.65 and average number of buffalo was 1.57 Buffaloes were more admired by the respondents as 70.79% owns them.

65 % respondent raise cattle and 75% have biogas plants as only medium of fuel and remaining 20% also use firewood and kerosene and other 5% have L.P.G subsidies too. 95% use biogas in daily basis and remaining use it manually.

The size of bio-gas plant is mostly determined by the number of family members and the number of cattle. 37.5 percent of the respondents have constructed the bio-gas of 4 m³size. Similarly 25 percent of the respondents have constructed 6 m³ sized bio-gas whereas 37.5 percent of respondents have the bio-gas plant of 8 m³.

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ABBREVIATIONS AND ACRONYMS

AD	Anno Domini
AEPC	Alternative Energy Promotion Centre
ARI	Acute Respiratory Infection
BGC	Biogas Companies
BSP	Biogas Support Programme
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 Services Nepal
DCS	Development and Consulting Services
Dev.Part.	Development Partners Consultancy
EDR	Eastern Development Region
ERPA	Emission Reduction Purchase Agreement
ESAP	Energy Sector Assistance Program
GGC	Gobar Gas Company
GHG	Greenhouse Gas
IEIA	Integrated Environment Impact Assessment
IoE	Institute of Engineering
LDCs	Least Developed Countries
MDG	Millennium Development Goal
MoST	Ministry of Science and Technology

NLSS	Nepal Living Standard Survey
NPC	National Planning Commission
PAF	Poverty Alleviation Fund
PRSP	Poverty Reduction Strategy Paper
REDP	Rural Energy Development Programme
REPPON	Renewable Energy Perspective Plan of Nepal
RUDESA	Rural Development Study Associates
RWEP	Rural World Energy Programme

Annexes

Annex-AQUESTIONNAIRE

Economic Impacts of Biogas plants

A case study of Budhabare VDC in Jhapa District

Field Survey

A. Questionnaire for Household Survey

Respondent No.: _____

Name of Enumerator:	
Date conducted:	

1. Respondent Information

Name of the Household Head/Interviewee:

Age:

Gender:

Caste:

VDC:

Ward:

Tole:

Occupation: Primary -

Secondary -

2. Brief Demographic Information

2.1 Household member's age group and disability

Age Group	0-5	6-16	17-40	41-69	70+	Total
Male (M)						

Female (F)						
Third Sex (TS)						
Disabled						
Total						

2.2 Literacy and education status of HHs members

Illiterate			Literate			Primary (1-5)			Lower Secondary (5-8)			Secondary (8-10)			Higher Secondary (10+2)			University level		
M	F	T S	M	F	T S	M	F	T S	M	F	T S	M	F	T S	M	F	T S	M	F	T S

2.3 How far is the nearest financial institution from the village?

3. Possession of Assets:

3.1 Land holding situation of Household

Do you have your own land? Yes No

If Yes,

Type of Land	Area (Kattha)	Possession of Land Ownership Certificate	
		Yes	No
Own Land			
Own unregistered Land			

3.2 Structure of house and energy sources

Do you have your own house?

If, Yes,

Type of House	Tick on the appropriate boxes	Household energy sources	Tick on the appropriate boxes
Thatch house(Hay and Mud)		Firewood	
Zinc plate roofed house (Brick and Mud)		L.P.G	
RCC house		Improved cooking	

		stove	
Others		Bio-Gas	

3.3 Holdings of Livestock

a. Yes b. No

If Yes,

Type of animals	Breed (improved/local or name if any)	Purpose of rearing	
		For commercial/income generation (number)	For subsistence (number)

4. Information gathering source for installation

S.N	Initial Informative Source

4.1. What is the main objective of installing the plant?

4.2. What are the Negative impacts after installation?

4.3. Has the workload been reduced?

4.4 Change in firewood or other fuelwood usage.

Yes No

4.5 Sizes of Biogas Plant installed

S. N	Size of the installed plant	Number

5. Who controls the incomes of your household?

(a) Father [] (b) Mother [] (c) Eldest son [] (d) Eldest daughter []

(e) Daughter in-law [] (d) Any others members of the family (Pls. specify)

6. Do women in your family are participating in economic activities? Tick in the appropriate.

- a. Active participation (more than 75%)
- b. Moderate participation (50-75%)
- c. Nominal participation (25-50%)
- d. No participation (less than 25%)

7. What are the major problems you are facing for biogas conduction?

- a.
- b.
- c.

8. Do you use the biogas slurry for farming?

Yes No

8.1 How much has it increased agricultural production?

a. Increased b. Decreased c. Remain same d. Can't Say

9. Do you think you have you been benefited in the part of your health problems?

Yes No

If Yes,

- a.
- b.
- c.

10. What has been the effect to insects and mosquito's increment and or decrement?

a. Increased b. Decreased c. Remain same