



# Assessment of Gender Role in Agriculture Activities and Natural Resource Management

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**Abstract:** The study was conducted in Buffer Zone area of Chitwan National Park selecting Ghailaghari CFUGs of Bharatpur Municipality and Bagmara CFUGs of Ratnanagar Municipality, Chitwan District in the year April 2019 to get information about the role of gender in natural resources management. Total sampling household were 60. The primary data were collected through semi structured questionnaire and collected information were tabulated in SPSS Version 21. Descriptive and Multivariate Analysis were performed by SPSS version 21. The result showed that forest visit by male and female were 17% and 83%. Involvement in marketing of forest product by male, female and both were 40%, 58% and 2% respectively but found non-significant ( $p>0.05$ ) relation between male and female. 71% male respondents and 56% female respondents were engaged on afforestation programme. Involvement on river embankment construction and drinking water collection by male and female were 83% and 17%, 3% and 97% respectively. 83% household engaged male only for tillage operation, 65% household engaged male only for seed broadcasting and 63% household engaged male only for pesticide application. Similarly, 77% household engaged female only for intercultural operation and 80% household engaged both male and female on harvesting of agriculture crops. Knowledge about organic agriculture is 1.284 times more in male as compare to female. Similarly, marginalized people are 24.3% less likely known about the knowledge of compost making from household waste but not found significant difference within gender about knowledge of compost making. 92% were male involved in decision making regarding natural resource management.

**Keywords:** Female, Involvement, Knowledge, Male

## 1. Introduction

Natural resources are resources that exist without the action of humankind. It includes sunlight, atmosphere, water, land (including all minerals) along with all vegetation, crops and animal life that naturally subsists upon or within the previously identified characteristics and substances. Natural resources are those commodities that are considered valuable in their natural form [1] which includes air, water, wood, oil, wind energy and natural gas plays vital role in human and animal's life. Natural resources are what people can use which comes from natural environment.

Nearly 45% of land mass (6.61 million ha) in Nepal is covered with forest including other wooded land [2]. It provides wood, fuel herbs, timber etc. Nepal has tropical

evergreen forest in the south and deciduous and coniferous forest in the north. Nepal is second richest country in water resources. Nepal is a landlocked country so, Nepal does not have access to sea but there are lots of river that flows from Himalayans. Rivers are the reliable source of water and provide potential opportunities for hydro power generation and irrigation in the downstream. Land is the other natural resources of Nepal. Most people depend on land they do farming and earn their living from land.

Natural resource management refers to the management of resources such as land, water, soil, plants and animals with a particular focus on how management affects the quality of life for both present and future generations. It brings together

the land use planning, water management, biodiversity conservation and future sustainability of industries like agriculture, tourism and forestry. It recognized that people and their livelihood rely on the productivity of our landscapes. It specifically focuses on scientific and technical understanding of resources and life supporting activities.

Men and women has crucial role on natural resources management. They perform different tasks and roles in management activities. Women have accumulated a lot of environmental wisdom that could be useful to bring humanity out of the current environmental crisis [3]. Women are the managers of natural resources [4] and they can be mobilized in natural resource management sector especially in community forestry, watershed management, agriculture and livestock sector due to their huge indigenous technical knowledge on forest management [5]. Socioeconomic development can't be effective till women aren't given priority to play their role on economic activities [6] and inclusion of women through gender mainstreaming helps on sustainable management of natural resources [7]. Gender equity is crucial for achieving equal control over available resources and policy makers, planners and development workers must have better knowledge regarding roles of men and women in natural resource management to ensure the sustainable use of natural resources [8]. NRM advocates equal opportunities for men and women in natural resource management. Involving women in natural resource management programmes leads to positive outcomes, as women have a key influence on the environment [9].

Women are unrepresented within local, national and international decision making bodies in NRM, which reduces their power to influence the allocation and use of resources. Likewise, men are the main decision maker within national and international policy making process. The gender imbalance within this platform is significant. Women are envisaged as materially poor and excluded from decision making structures [10]. The role and responsibilities in natural resource management as stipulated by traditional gender division of labor and cultural norms [11]. The study conducted in CFUGs of eastern Koshi hills reported that women appear to be fully involved in collecting forest products but their role in decision making within the CFUGs is very low. It has been found that due to domination of men in meeting and decision-making process women's involvement in overall planning and forest management is found to be low [12]. Australian natural resource management organizations are dominated by men in terms of overall employee numbers and leadership participation. This gendered imbalance has implications for social justice. Women's opportunities and choices are quite often limited to positions of relatively low status in the organization and have little influence on decision making. Consequently, women's voices and interests are less likely to be considered in these public forums [13].

Equal distribution of natural resource benefits to resource users motivates them to manage their resources sustainably. In Washington, the CBNRM initiative is a success because of

the benefits from the natural resources that are distributed equally, which is evident from the lower number of conflicts that are registered in the case study [14]. Similarly, accessing equal opportunity to male and female on community forestry helped in managing forest resources in an efficient way [15].

Women have far-reaching knowledge of where to find natural resources to support household food security and nutrition, but these are often ignored or underestimated in NRM policy and programs. Women are lagging behind while considering the management of natural resources in both general and institutional factor. The main objectives of the research is assessment of gender role in agriculture activities and natural resource management in buffer zone area of Chitwan National Park.

## 2. Methodology

The study was conducted in Buffer Zone area of Chitwan National Park selecting Ghailaghari CFUGs of Bharatpur Municipality and Bagmara CFUGs of Ratnanagar Municipality, Chitwan District in the year April 2019. Households were selected by using random sampling method. Primary data for this research were collected through semi structured questionnaire and secondary data were obtained from official documents such as Ministry of Forest & Environment (MOFE), District Forest Office (DFO), District Agriculture Development Office (DADO), Municipalities, Community Forestry User Groups (CFUGs), published journals and other reports. Total households were 60. The Statistical Packages for Social Science (SPSS) were used to analyse the data. Descriptive analysis and multivariate analysis was done. Multivariate analysis includes chi square test and binary logistics.

## 3. Result and Discussion

### 3.1. Gender of the Respondents

The result showed that 28% respondents were male and 72% respondents were female. Due to low income in rural communities, mostly male have gone to abroad for job.

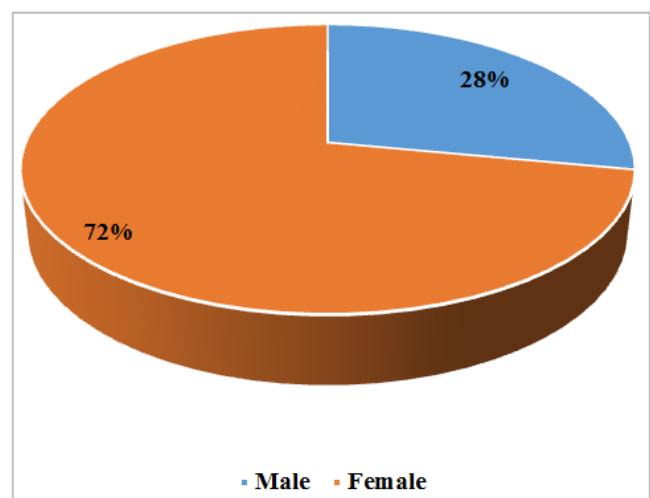


Figure 1. Gender of Respondents.

### 3.2. Ethnicity of Respondents

The result showed that the population of Janajati is higher (53%), followed by Brahmin (25%), Chhetri (12%), Dalit (8%) & others (2%).

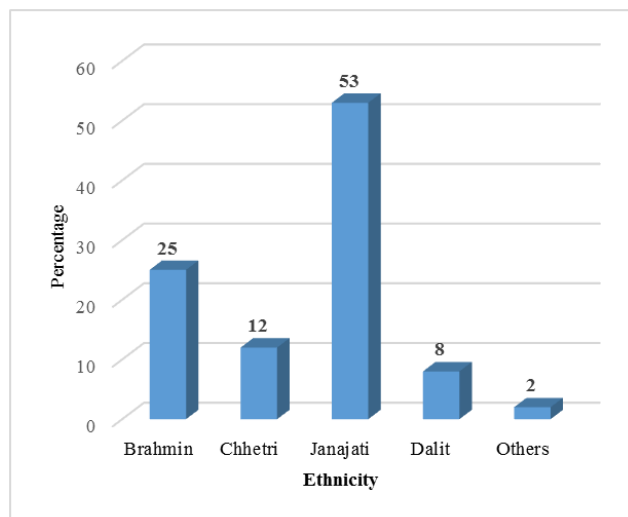


Figure 2. Ethnicity of Respondents.

### 3.3. Forest Visit in Response to Gender

The result showed that female (83%) goes mostly to forest as compared to male (17%) for fulfilling the necessary commodities as well as natural resource management. This may be due to more number of male working in abroad as well as involvement on job who stays in Nepal.

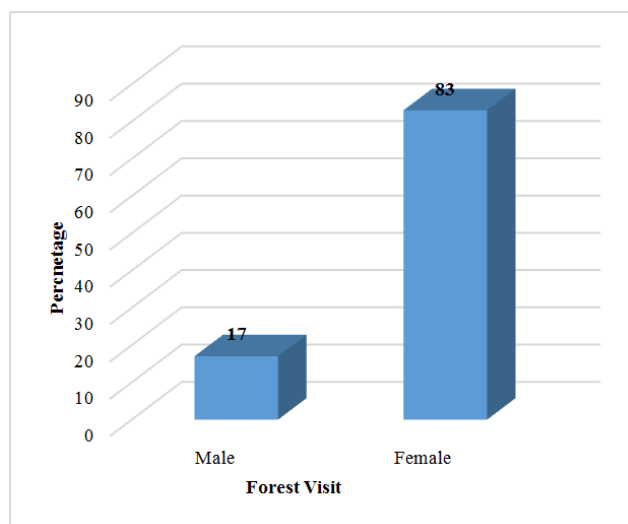


Figure 3. Forest visit in response to gender.

### 3.4. Involvement in Marketing of Forest Products

The result showed that female (58%) were involved in marketing of forest product as compared to male but found non-significant result ( $p > 0.05$ ) which means female were slightly more involved in marketing of forest products like wood, grass, herbs etc.

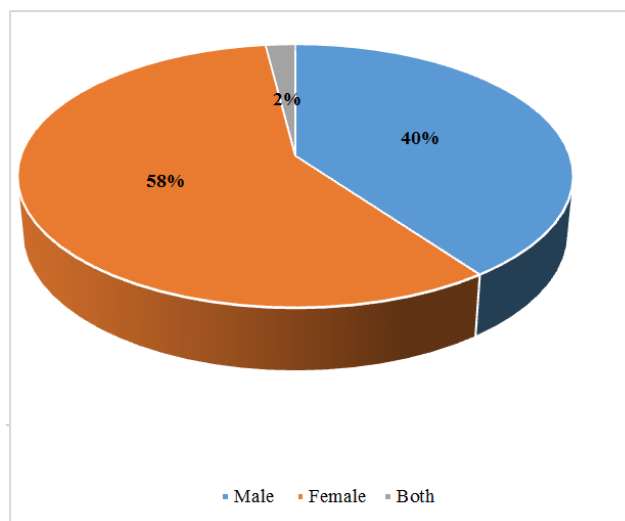


Figure 4. Involvement in marketing of forest products.

### 3.5. Involvement in an Afforestation Program

The result showed that more male 71% (12 out of 17 respondents) and less female 56% (24 out of 43 respondents) were engaged in afforestation programme.

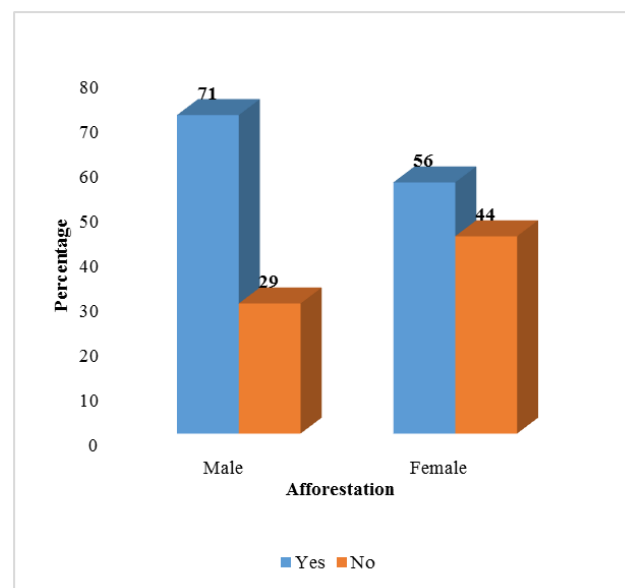


Figure 5. Involvement in afforestation program.

### 3.6. Involvement in Water Resource Management

The result showed that more engagement of male (83%) as compared to female (17%) on river embankment construction and less engagement of male (3%) as compared to female (97%) on drinking water collection.

### 3.7. Involvement in an Agricultural Operation

The result showed that 83% household engaged male only for tillage operation, 65% household engaged male only for seed broadcasting and 63% household engaged male only for pesticide application. Similarly, 77% household engaged

female only for intercultural operation and 80% household engaged both male and female on harvesting of agriculture crops.

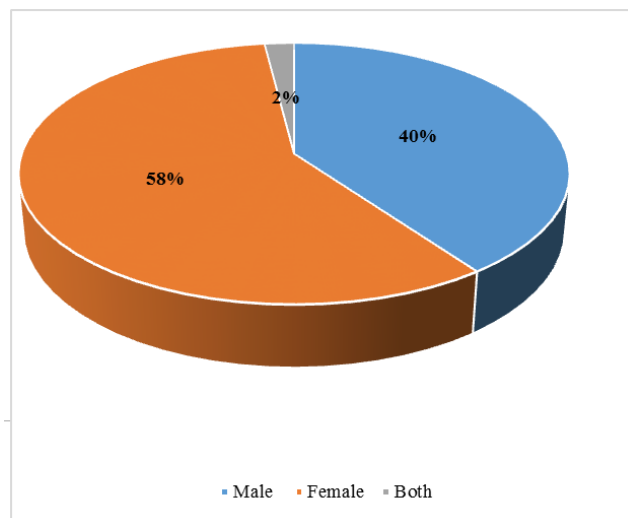


Figure 6. Involvement in water resource management.

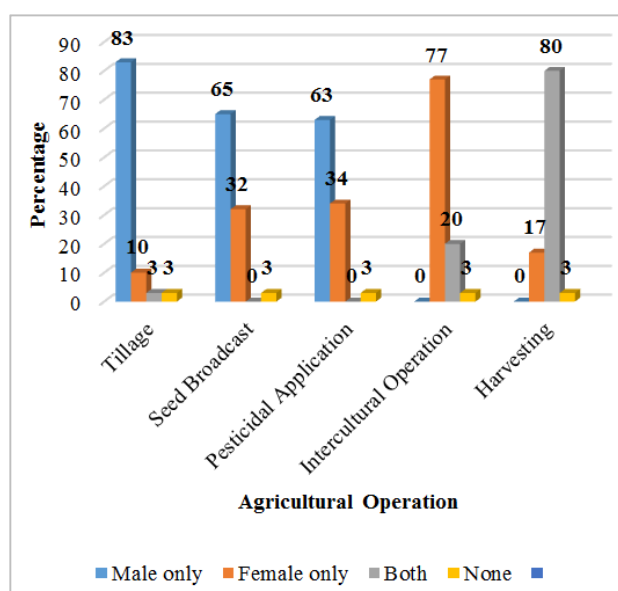


Figure 7. Involvement in an agricultural operation.

### 3.8. Gender Involvement in Decision Making

The result showed that male (92%) were more involved in decision making as compared to female regarding natural resource management.

### 3.9. Multivariate Analysis

#### 3.9.1. Binary Logistic Factors (Gender, Ethnicity and Education) Effect on Knowledge About Organic Agriculture

The result showed that knowledge about organic agriculture is 1.284 times more in male as compared to female. Nagelkerke R square value, 0.299 means only 29.9% variation is governed by gender, ethnicity & education on

knowledge on organic agriculture.

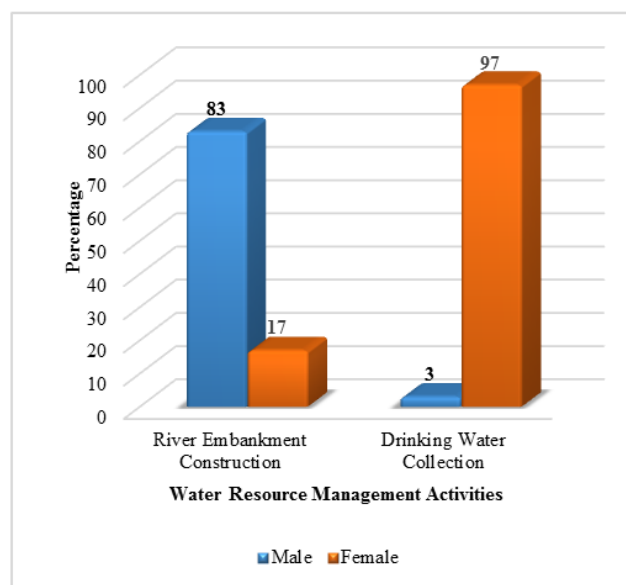


Figure 8. Gender involvement in decision making.

Table 1. Binary logistic of factors (gender, ethnicity and education) effect on knowledge about organic agriculture.

Factors affecting	Knowledge about organic agriculture
Gender (1=male)	1.284*
Ethnicity (1=elite)	0.373
Education (1=literate)	0.04
Model X <sup>2</sup>	1.01
Df	3
Nagelkerke R square	0.299
Percentage correctly predicted	66.1%

#### 3.9.2. Binary Logistic Factors (Gender, Ethnicity and Education) Effect on Knowledge About Compost Making from Household Waste

The result showed that marginalized people are 24.3% less likely known about the knowledge of compost making from household waste but not found significant difference within gender about knowledge of compost making. Only 11% variation is governed by gender, ethnicity & education on knowledge on compost making.

Table 2. Binary logistic of factors (gender, ethnicity and education) effect on Knowledge about Compost making.

Factors affecting	Knowledge about compost making from household waste
Gender (1=male)	0.786
Ethnicity (1=elite)	0.757*
Education (1=literate)	0.609
Model X <sup>2</sup>	0.926
Df	3
Nagelkerke R square	0.11
Percentage correctly predicted	55.9%

## 4. Summary & Conclusion

The study was conducted in Buffer Zone area of Chitwan National Park selecting Ghailaghari CFUGs of Bharatpur

Municipality and Bagmara CFUGs of Ratnanagar Municipality, Chitwan District in the year April 2019 to get information about the role of gender in agriculture activities & natural resources management. Households were selected by using random sampling method. Primary data for this research were collected through semi structured questionnaire and secondary data were obtained from official documents and internet. The result showed the more engagement of female on forest visit, marketing of forest product, agriculture activities like drinking water collection & intercultural operation. Similarly more engagement of male found in afforestation, water resource conservation activities like river embankment construction, agriculture activities like tillage, seed broadcasting & pesticide application. Both male and female were equally participated in harvesting of agriculture crops. Knowledge about organic agriculture is 1.284 times more in male as compare to female which may due to high literacy rate. However, knowledge of compost making from household waste within male and female were same. Male were more involved in decision making as compared to female regarding natural resource management.

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