



# The impacts of deforestation on rural households of Zezani Communal Land in Beitbridge district of Zimbabwe

Noel Dube<sup>1\*</sup> and Samuel Chinjese<sup>2</sup>

<sup>1</sup>Department of Geography and Environmental Studies, Zimbabwe Open University, Box 346, Gwanda, Zimbabwe

<sup>2</sup>Whunga Primary School, P.O. Box 21, Zezani, Beitbridge, Zimbabwe  
noel.e.l.dube@gmail.com

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## Abstract

*This study sought to investigate the impact of deforestation on the rural households of Zezani Communal Land in Beitbridge district of Zimbabwe. The researchers opted for a case study using a mixed methods approach where both quantitative and qualitative approaches were used. Observations, questionnaires, interviews and focus group discussions were used to collect the data. This was a case study in which 51 household representatives were interviewed out of 498 households. The study revealed that most households use the forest as their major source of livelihood and that the major impact of deforestation in the area were increased distances travelled to collect firewood, increased erosion resulting in siltation of water points, reduced amounts of mopane worms, reduced number of wildlife, unavailability of herbs for the treatment of various ailments and loss of soil productivity due to erosion. Deforestation has a negative impact on the livelihoods of the Zezani community.*

**Keywords:** Impact of deforestation, livelihood, forest resources, soil productivity.

## Introduction

**Background to the study:** The negative impacts of deforestation have been felt all over the world. Deforestation is the process of removing forest and then replacing them with non-forested land use such as agriculture, grazing or urban development<sup>1</sup>. Quite a number of human activities have led to massive deforestation in many parts of the world. An estimated 3.9 billion hectares of the earth's surface is covered by forest which comprises about thirty percent of the earth's surface<sup>2</sup>. However, human activities are rapidly destroying these forests. The waves of out migration to new lands which occurred in European history as a result of the scarcity of land is being repeated in many developing countries<sup>3</sup>.

In Africa, deforestation is still a complex problem as man try to make a living through clearing land for agriculture and urban development. Deforestation in Sub-Saharan Africa has reached unprecedented levels exceeding the global annual average rate of deforestation of 0, 8 percent<sup>4</sup>. Deforestation in these countries, is being triggered by commercial logging, cattle ranching and all this is associated with human activities. Rural smallholders are important. The key stakeholders in natural resource use and landscape change in the tropical rainforests in Central Africa and Central South America (Amazonia) are rural smallholder farmers<sup>5</sup>. Deforestation has changed the lives of many rural Africans as the disappearance of the vegetation leads to a changed everyday lifestyle.

In Zimbabwe, deforestation is also prevalent in many parts of the country. It has left the land bare and very susceptible to

various forms of erosion. The major causes of deforestation in Zimbabwe include tobacco curing, energy provision and land clearing for various uses which include agriculture. This is also typical of the activities happening in the researcher's study area of Zezani Communal Area. The shortage of electricity in the area has also been a catalyst in the cutting down of forests as the rural people hunt for firewood.

Deforestation is linked to a number of negative environmental issue such as soil erosion, extinction of plant and animal species, siltation, climate change, desertification, displacement of populations, and drought<sup>6</sup>. All these tend to affect everyone including urban and rural people. In Zezani Communal Area, the lives of the people have gradually been affected by the absence of the forests. The normal day to day living that the people were used to has now been changed.

The absence of the forests seems to have affected the rural people as they depended on the forests. This research seeks to investigate the consequences of deforestation on the livelihoods of the rural people. Many areas in Zezani are now bare and this has led to consequences that are unbearable to men, women and children. This research will show the direct and indirect consequences of deforestation on the rural households of Zezani.

**Statement of the Problem:** Deforestation has caused much damage which includes loss of biodiversity and desertification. Rural people are the ones who are mostly affected by this deforestation as rural life depends on the forests. Deforestation

has caused direct and indirect consequences to the lives of the rural population. This research investigates on the consequences of deforestation on the local community of Zezani.

**Purpose of the study:** The purpose of the study was to identify the impact of deforestation on rural households in Zezani Communal Land.

**Objectives of the Study:** i. To identify the consequences of deforestation on the livelihood of the local community of Zezani area. ii. To describe the negative impacts of deforestation on rural life.

**Assumptions of the Study:** The researchers assumed that farmers would cooperate whenever their input was needed and that problems highlighted are general across the area under study. It was also assumed that the respondents would give correct accurate information. The researchers also assumed that the recommendations of the study would help in alleviating the adverse impacts of deforestation in Zezani.

**Significance (or Importance) of the Study:** The study seeks to make a thorough investigation into the consequences of deforestation on the rural households of Zezani Communal Area. The study focuses on the challenges in life the rural people are facing as a result of deforestation. The study will be important to various stakeholders such as the government, local community and the academic staff. The government will use the study to formulate awareness programmes for the rural people. This study provides a scientific knowledge that can be used to inform policy makers on the inter-relationships between deforestation and livelihood systems to the local communities of Zezani Communal Area. The government will even use this study to budget for feeding programmes meant for the rural people. The local leadership will also use this study to make future plans for the sustainability of their resources. The local leadership will also use this research to identify the person who needs help more than others. The study will also motivate the local people and make them start using the natural resources sustainably.

**Scope (Delimitation) of the Study:** This research will investigate the consequences of deforestation on the rural livelihoods of Zezani Communal Area in Beitbridge District. Zezani Communal Area is in Ward Ten under Chief Sitaudze. The research will focus on the consequences of deforestation on the lives of the rural men, women and children of the area stated.

**Limitations of the Study:** This was a case study and as such findings from the study may not necessarily apply to all situations in the country. The case study design like most qualitative research methods lack experimental and statistical controls which makes it hard to establish internal validity<sup>7</sup>. Even though it is also difficult to generalize findings of case studies to other cases such findings can be generalized to similar

situations<sup>7,8</sup>. The conditions in the study area are similar to conditions in other areas in Zimbabwe therefore the findings can be generalized to those settings. The study will also be based on voluntary cooperation and lack of cooperation can weaken the study. Some of the local community members were skeptical of the motives of the researchers and were therefore unwilling to participate in the interviews and in the completion of questionnaires. There were also some community members who were illiterate, and these had to be assisted in filling questionnaires. The researchers managed to create good rapport with respondents and provided user friendly questionnaires which were unambiguous and easy to understand. There was a possibility that some respondents might be afraid to divulge some information with the fear of protecting their economic interests. In order to overcome this researchers assured the respondents that the study was only for academic purposes.

**Ethical and Legal Considerations:** The researcher was guided by ethical principles that protect the dignity of the researched which include voluntary consent, guarantee of absence of risk or harm, ensuring anonymity of participants, respect of privacy and confidentiality of participants and recognizing the rights of participants. No identity of names of individuals or institutions was revealed in the report or on oral forms. In this research the researcher removed identifying information from all the records.

## Methodology

**Introduction:** This chapter focuses on the methods that will be used to collect the data for the study. The chapter begins with a description of the research design and then identifies the population and sample of the study, followed by a description of the research instruments used and the data collection process. The chapter ends with a discussion of the data presentation and analysis procedures.

**Research Design/plan:** A research design is the overall plan of action for collecting and analyzing data and is sometimes referred to as the blueprint or framework of the study. The design outlines the information to be collected, the source of the information and the procedures to be used in collecting the data<sup>9</sup>. It has also been described as the basis or strategy of the research and the logic behind which makes it possible and valid to draw more general conclusions from it<sup>10</sup>. The case study approach was adopted with a mixed method approach involving triangulation of qualitative and quantitative designs. The case study approach involves the investigation of phenomena in their real-life context using a variety of sources<sup>11</sup>.

**Population and sample for the study:** Sampling is the process of selecting units from a population of interest<sup>12</sup>. It is basically a method studying from a few selected items instead of the entire population. The sample comprised 10% of the population and was chosen using stratified random sampling as shown in Table-1.

**Table-1:** Sample size 10% of population.

Name of Village	Number of Households	Sample Size (10% of population)
Dombo	157	16
Japi	109	11
Whunga	88	9
Mopani	78	8
Mamuthuthuri	66	7
Total	498	51

**Research Instruments:** In this research, observations, questionnaires, interviews and focus group discussions were used to collect data on the impacts of deforestation on the Zezani Community.

**Observation:** An observation is a field work-based method in which the researcher goes out into the case study area observes, receives first-hand information and records data. The researchers carried out direct observations in the field, noting variations in sediment yield as displayed along the river channel to come out with generalizations and assumptions that are very supportive to draw conclusions. Observations were chosen because they are a direct technique which is factual and does not rely on personal opinion and also complements other methods<sup>13</sup>. Observation is however time consuming as it involves travelling from one area to another and also some events may go on simultaneously and thus making it impossible for the researcher to see everything that is going on. Observation can be used to increase the validity of the study, as observations help the researcher to have a better understanding of the context and phenomenon under study<sup>14</sup>. Being on site over a period of time familiarises the researcher to the community, thereby facilitating involvement in sensitive activities to which the researcher would not be invited<sup>15</sup>.

**The interviews:** Interviews were conducted on the selected villagers and the interviews were done because they provide a chance to clarify questions leading to more and correct information being gathered whilst at the same time affording a high degree of flexibility<sup>13</sup>. The interview also offers the opportunity to ask more questions and come out with facts that were initially left out in the interview guide. There is also an opportunity to observe the non-verbal cues which might bring more meaning to the responses. Interviews can however be costly and time consuming especially in cases where respondents are many and scattered.

**Focus group discussions:** Focus group discussions were also done because they allow participants to agree and disagree with each other which provide an insight into how the group thinks about an issue. The other important issue about focus group

discussions is that they complement other methods of collecting data and provide a more public opinion from a group of respondents from a similar background<sup>16</sup>. However, there is a danger of the interviewer losing focus if a lot of arguments occur and the possibility of some respondents dominating the discussions<sup>10</sup>.

**The questionnaire:** Questionnaires with both closed and open-ended questions were used for this survey. The questionnaires were used because of the convenience of being able to collect data beyond the physical reach of the researchers and affording anonymity<sup>13</sup>. The advantage of using questionnaires is that the results from questionnaires can usually be quickly and easily quantified<sup>17</sup>. Questionnaires save on time and money as a relatively large amount of data can be collected within a short period of time. The ability of the data to be quantified makes it easy to compare and contrast with other areas or other variables to measure change.

**Data Presentation and Analysis Procedures:** Data presentation and analysis is a process of summarizing data and making deductions through the application of statistical techniques. Data analysis involves the interpretation of the research findings in relation to the research questions and in the process, checking whether the findings are consistent with the research hypotheses. The findings to this study were presented in tables, charts and graphs as these conserve space and present the data in a manner that aids the analysis<sup>13</sup>. The diagrams make it easier to understand and remember such data and offer good visual presentation.

## Results and Discussion

**Introduction:** The results and discussion focuses at presenting, analyzing and discussing the results of the investigation of the impacts of deforestation on the rural communities of Zezani. Findings on the investigation shall be presented, analyzed and discussed.

**Socio-demographic data of respondents:** The data that was presented and analysed was collected from fifty-one questionnaires given to villagers from different villages in the area. Figure-1 shows the gender distribution by age.

A total of 19 males and 32 females were used in the data collection exercise. The predominance of females might be due to the fact that many men move out of the communal area in search of jobs. Most men move to towns in Zimbabwe however majority of peoples in Matabeleland South Province move to South Africa and Botswana in search of jobs and better living standards.

**Age of respondents:** The fifty-one respondents who filled in the questionnaire were of varying age levels as illustrated in Table-2.

**Table-2:** Age of respondents.

Age Range	Number of People	Percentage %
0-20 Years	04	7.84%
21-40 Years	15	29.41%
41-60 Years	23	45.10%
61+ Years	09	17.65%
Total	51	

As the table illustrates, most of the people in the sample were between 41 and 60 years old followed by those between 21 and 40 years. Many people in the age group of 41 to 60 years who were present in the area were women who were at home looking after the family while their husbands were away mainly in South Africa and Botswana with a few in one of the Zimbabwean towns, looking for jobs or employed there. Many who were between the ages of 21 to 40 years were young adults recently married and who had built new homes. Most of these new homes had a single parent again due to the rural to urban migration of mostly men.

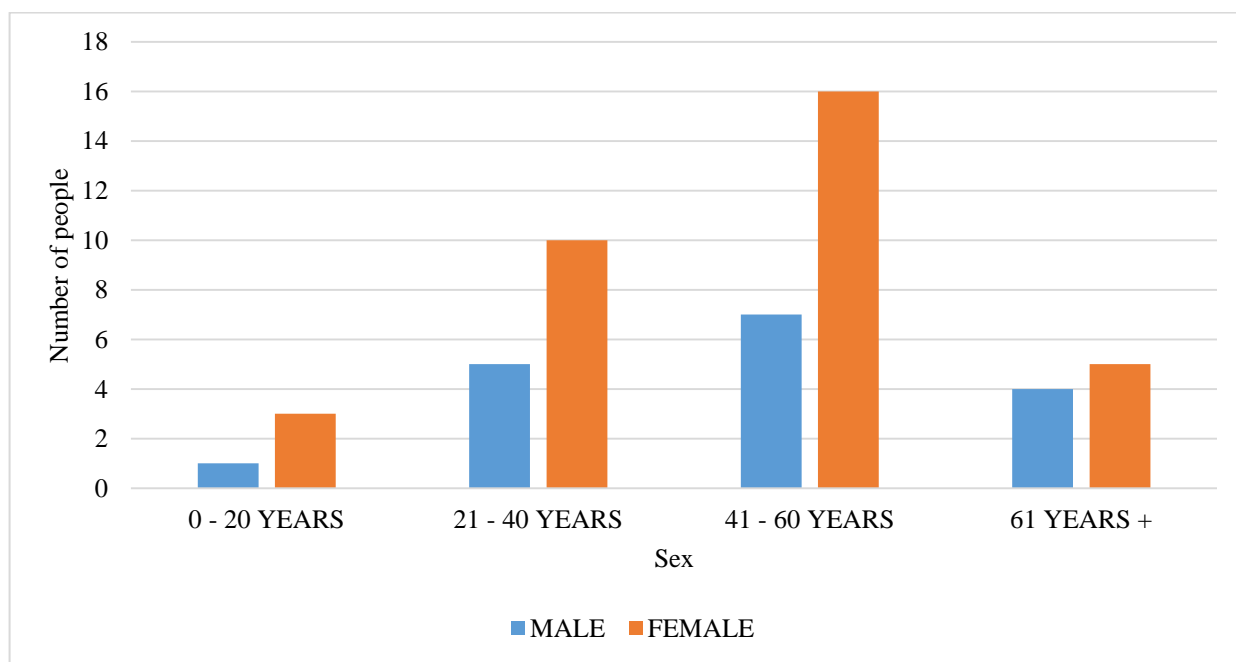
**Marital status of respondents:** The majority of the respondents in the sample were married; this constituted 49% of the total number according to Figure-2. Many of these married household owners were living as housewives since their husbands were away doing their jobs. The next group of respondents was single household owners who were mainly single mothers and comprised 33% of the sample. The single

mothers were mainly surviving on farming and livestock rearing.

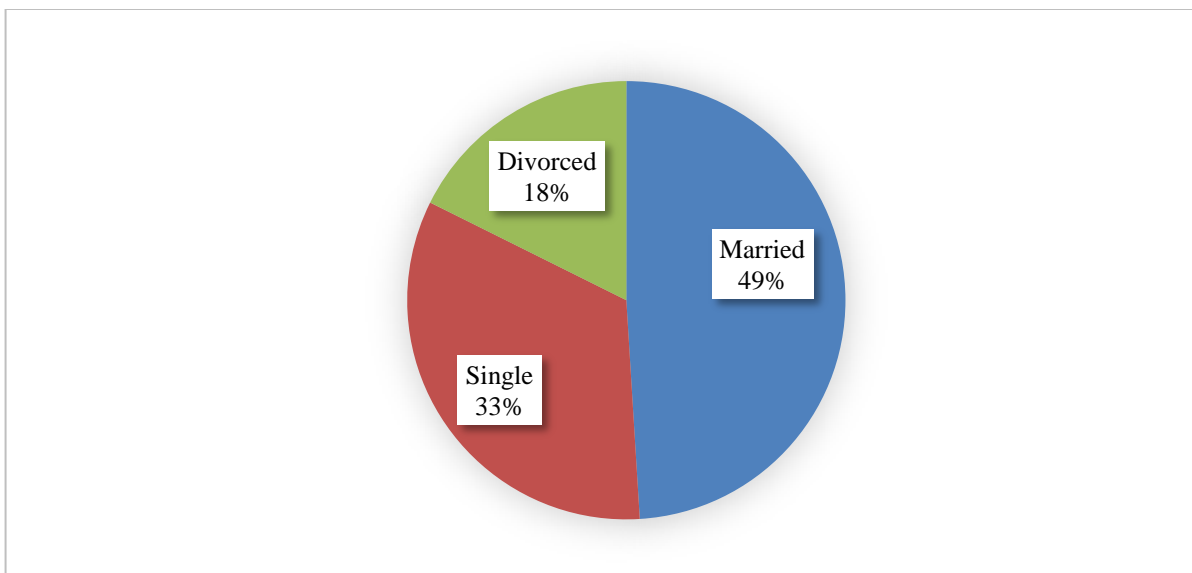
**Level of education:** Table-3 shows the levels of education attained by the local people in the sample. The majority of the people in the sample (49%) attained primary school education followed by those who attained secondary education (25.49%), then those who attained tertiary education (17.65%) and the least being those that had received Master Farmer certificates (7.84%). Most parents were of the opinion that primary education was enough especially for girls because at grade seven they were now able to read and write. The low levels of education will imply low opportunities of getting formal employment which gives them few options other than relying on agriculture and exploitation of forest resources for survival.

**Table-3:** Level of education.

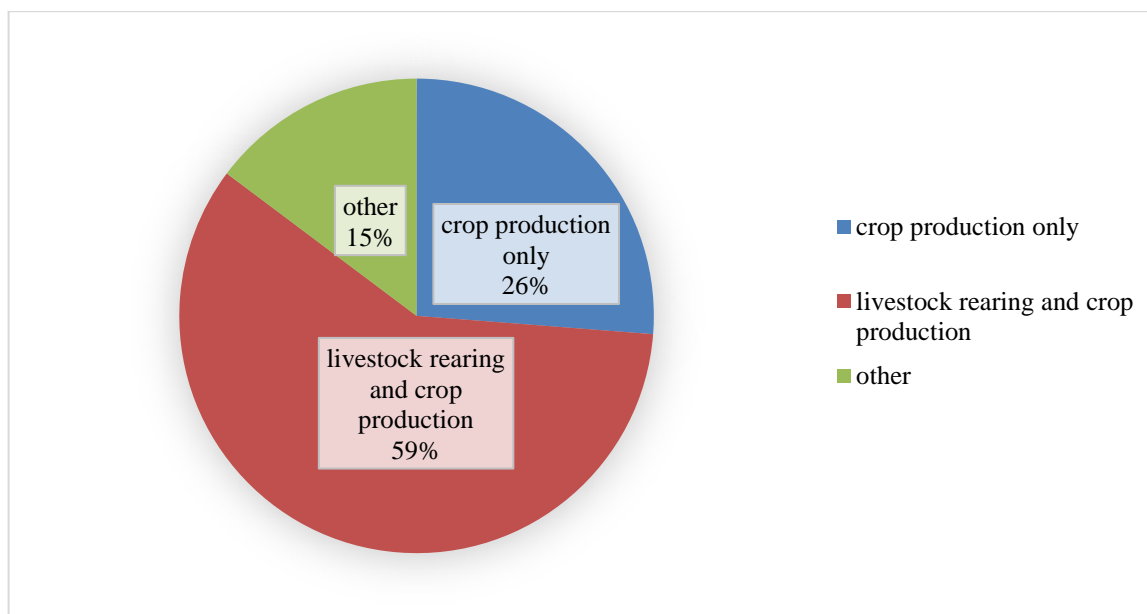
Level of education	Number of people	Percentage %
Primary school	25	49.01%
Secondary school	13	25.49%
Tertiary education	9	17.65%
Agriculture vocational training (Master Farmer)	4	7.84%



**Figure-1:** Gender of respondents.



**Figure-2:** Marital status of respondents.



**Figure-3:** Sources of Income.

**Major Sources of Income:** The major source of income for the Zezani local community is livestock rearing and crop production 59% of the respondents citing as it their major source of income. This was followed by 26% who said that their major source of income was crop production only. On further probing most of those who cited cropping only as their major source of income divulge that they would have loved to rear livestock and reap the benefits of milk, manure and drought power. The last group was those who listed their major source of income as other which included doing menial jobs, support from relatives in towns or outside the country and selling of forest resources (firewood, poles for building and fencing, fruits and herbs). The major sources of income are shown in Figure-3.

**The impacts of deforestation:** The major impacts of deforestation were listed as being increased distances travelled to collect firewood, increased erosion resulting in siltation of water points, reduced amounts of mopane worms, reduced number of wildlife, unavailability of herbs for the treatment of various ailments and loss of soil productivity due to erosion.

The increased distances travelled to collect firewood results in loss of opportunities for doing other productive jobs which could increase income for the different households. The siltation of water points results in lost opportunities for irrigation to improve livelihoods and might also impact on the condition of livestock thus reducing their value. Mopane worms and wildlife

are a major source of protein and income for the community and their reduction has severe negative impacts on their livelihood. The loss of soil productivity results in reduced yields and the poor condition of livestock. This view is supported by some scholars who assert that, soil erosion is a leading factor in reducing food security among rural households and poses a real threat to the sustainability of the existing subsistence agriculture<sup>18</sup>. Some studies have shown that dwindling natural forests in developing countries is a critical problem, since this negatively affects the livelihoods of people dependent on forest products and services<sup>19</sup>.

Data from interviews carried out on the trends in crop and animal production for food security showed that trends on food security in the village was not stable. 62.7% of the respondents indicated that agricultural production was fluctuating due to evidence of serious land degradation fuelled by vast clearing of the forests. Soil erosion reduces soil productivity which threatens global food and economic security, especially for poor farmers<sup>20</sup>. Erosion not only diminishes the quality of soil resources but also renders earning a sustainable livelihood from land increasingly difficult<sup>21</sup>.

When the respondents were asked on the people mostly affected by deforestation, 69% of them stated that women were suffering the most. They indicated that it was women who were physically there at home to feed the families thus collecting water and firewood from far places. Only six respondents said that the children were the most affected growing up in a hunger-stricken life, thus being underfed and failing to go to school opting to spend the whole day looking for food in the dams and along rivers. The results of the study indicate that the women and children are the most affected by deforestation as more time will be spent looking for firewood instead of working on come generating projects. For the children less time will be spent on school activities thereby reducing their chances of getting good results at school. The problem of deforestation imposes an additional burden on women as their workload is increased as they need to travel further to seek fodder, water and fuel, resulting in less time for income generation and other activities to improve their standard of living<sup>22</sup>.

## Conclusion

The research study concludes that the major impacts of deforestation on the Zezani households are increased distances travelled to collect firewood, increased erosion resulting in siltation of water points, reduced amounts of mopane worms, reduced number of wildlife, unavailability of herbs for the treatment of various ailments and loss of soil productivity due to erosion.

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