AN ASSESSMENT OF THE CAUSES OF DEFORESTATION: A CASE STUDY OF SHAANTUMBU AND NEIGHBOURING FOREST RESERVE

BY:

IREEN C. NYANGA

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ACRONYMS AND ABBREVIATIONS

LM – Land Management

CF- Conservation Farming

PFAP- Provincial forestry action Programme

SCAFE- Soil Conservation and Agro-Forestry Extension programme.

FAO – Food and Agriculture Organization

ZFAP- Zambia Forestry Action Programme

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I would also like to appreciate my Husband Elvan for taking up the challenge of typing and editing my work. Am grateful for his support and encouragement

DEDICATION

This work is dedicated to my son Chipo and my husband Elvan for their unfading support during the preparation of this report.

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CHAPTER 1

INTRODUCTION

Deforestation is a growing problem in the country. Forests are being rapidly degraded and placed by other land users in Zambia. The term deforestation means the cutting down of trees indiscriminately. Forests and trees in general are important in the country's development. They posses the potential of making a major contribution in industries. More than 90% of Zambia's population is estimated to heavily depend on forestry for firewood and other basic needs. (Chabafimbi, 1998). However, these forests are under severe pressure especially in highly populated areas through widespread and indiscriminate cutting down of tree for fuel wood and charcoal production, reaching alarming proportions and has been discovered to lie in community forestry programmes which have successfully worked well in some parts of the world such as; India; Nepal, and South Korea. (Chabafimbi, 1998). The loss of biodiversity and ecosystem services resulting from forest degradation and clearance has devastating and wide range effects as well as threatening important, valuable and endangered flora and fauna. It's social and economical

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impacts are immense, eroding livelihood and taking away essential life support functions (PFAP, 1998).

The need for sensitization on the dangers of deforestation has been necessitated by a number of problems, but may be chiefly because of the high cost of deforestation and its consequences and the high cost of carrying out afforestation and reforestation by the forestry department. It is the government's policy to plant and to maintain and improve essential ecological processes such as soil and forest regeneration and nutrient cycling.

STATEMENT OF THE PROBLEM

The problem addressed by this study was that of the causes of deforestation in shaatumbu area as well as the neighbouring forest reserve. Deforestation is a growing problem in the country. Forests and trees in particular are being rapidly degraded and placed by other land uses in Zambia. This has resulted in the loss of whole forests as well as individual tree species and habitats. Only just a tenth of the forests are in an intact state. Nearly most of them are neither depleted nor encroached and further more are considered to be threatened (Emerton, 1998). There was therefore, a great need to investigate the causes of deforestation so that a lasting solution may be found hence reducing the dangers made to trees. Indiscriminate cutting down of trees is a great concern countrywide.

Government ministries, Non-governmental organization, and the community at large are worried about the high levels of deforestation.

PURPOSE OF THE STUDY

The purpose of the study was to unveil the causes of deforestation. The study looked at how lack of knowledge about trees contributes to the high levels of deforestation. The study further looked at effects of high prices of fertilizer had on trees. The study was conducted in Lusaka district- Shantumbu area.

OBJECTIVES OF THE STUDY

The researcher intended to achieve several objectives as follows:
   a) To establish factors that caused deforestation
   b) To establish whether people in shaantumbu area and those who shared boundary with the reserve had any knowledge about the benefits of trees
   c) To determine whether deforestation had any effect on the environment.
   d) To ascertain whether high levels of unemployment caused deforestation.

ASSUMPTION OF THE STUDY

The researcher assumed that, the causes of deforestation include Lack of knowledge about trees, unemployment, Liberalization of the Agricultural

sector, high poverty levels, and charcoal burning. It was assumed that, due to high levels of unemployment, people resorted to cutting down trees for their survival. It was further assumed that, it was only education, which could make people realize the importance of trees. This could be only achieved through collaborative efforts with the forestry officers.

RELEVANCE OF THE STUDY

The study was very important because it may show the major causes of deforestation and maybe provide some solutions to these problems. The study will also be an eye opener for many citizens to know the underlying factors and causes of deforestation. Other tree users may appreciate the importance of conserving trees.

LIMITATION OF THE STUDY

The study was limited to shaatumbu area and neighboring forest reserve in Lusaka district due the following;

-Lack of funding and inadequate resources to cover the whole of Lusaka district

- Another factor was lack of ample time for the researcher to cover a larger area.

-Lack of transport to enable the researcher to cover the whole of Lusaka and manpower were not enough.

DEFINITION OF TERMS

In this study, the researcher used certain terms, which need clarification. The following were the terms:

Biodiversity- wealth in a forest (an overview of social economic aspects of forest sector in Zambia, 1999).

Deforestation – Indiscriminate cutting down of trees (Forest biodiversity in Zambia, 1998).

Depleted – Loosing forest species (Scafe newsletter,1999).

Ecosystem – include life support function such as watershed catchments protection, climatic regulation and carbon sequestration, all day life of human population (PFAP, 1998).

Encroached – To slowly begin to cover more and more of an area destructively. (Social economic aspect of the forest sector in Zambia, 1998).

Fauna – All animals living in an area or particular period of history. (PFAP, 1998).

Forests – Are protected areas where trees are kept for sustainable use in future. (Researcher's own definition).

Flora – The plants of a particular type of area or particular environment. PFAP, 1998).

Habitants – A place where a particular type of animal or plant normally are found. (Forest utilization in Zambia,1998).

Species – A group into which animals, plants that are able to breed with each other is divided. (Agro-forestry extension manual,1998).

CHAPTER 2

LITERATURE REVIEW

Zambia is faced with a number of environmental problems, the major being deforestation and soil degradation (Land management and conservation farming Report, 1999).

According to the ministry of Environment and National Resources (1999) it is established that Zambia uses between 200,000 and 300,000 hectares of forests every year through cutting of trees for fuel, wood, charcoal production, expansion of agriculture land, over exploitation of timber, late destructive fires, overgrazing and urban expansion.

Trees play a very important role in anything that has to do with the environment and in the rain cycle. If rainfall is reduced, there will be a corresponding reduction in river flow. Low river flows are associated with high concentration of pollutants. Deforestation reduces protection given to the soil and increase surface run off and siltation of streams and rivers (Siame, 1999).

As a result, forests and soil of the world over are increasingly at risk and this has negative consequences for the development of many rural areas in developing countries like Zambia (Banda, 1999).

Despite the effort made by Government, deforestation levels have continued to swell. This is due to the fact that population is increasing, as such; there is rampant cutting down of trees for survival. However, biological diversity is being significantly reduced by certain human activities. This is because there is general lack of information and knowledge regarding it and of the urgent need to develop scientific, technical and institutional capacities to provide the basic understanding upon which to plan and implement appropriate measures.

Biological diversity is the variability among living organisms from all sources including interalia, terrestrial, marine and other aquatic ecosystem and ecological complexes of which they are part. This includes diversity within species, between species and of the ecosystem (Mulasikwanda, 1999).

Prominent aspects resulting from biodiversity mismanagement or abuse are land degradation drought, which have been identified. Due to deforestation, the climate of Zambia has been characterized by long, dry season with the highest temperatures and relative humidity occurring during the hottest and driest season from August to November. In Central Zambia, average wide spread is highest during April to October. It is during this period of windy conditions that the risk of fire is greatest; for these are the favorable conditions for high

intensity fires with a high combustion factor and rapid spread (LM & CF Report, 1999).

Any loss of forest species, by reducing biodiversity, can have devastating efforts on the complex web of forest life. Biodiversity depletion does not just mean that individual forest species are lost; it can have far wider knock-on effects on the overall integrity of forests and the ecosystem service they support (Province forestry Action Programme, 1999).

Much less attention has been paid to the wide spread change acquiring in the tropical dry forest, woodlands and ecosystems on which the majority of rural people as well as urban people depend for their livelihoods (LM and CS, 1999).

As a major obstacle to sustainable development, the continued deterioration of trees and other needed resources pose an immediate threat to the livelihood of Zambia. Poor majority depend on trees for survival and the pastoral activities for their survival (PFAP,1998).

The extent of this deforestation is equal to an area of Austria, Denmark and the Netherlands combined.

Just imagine that a country like Zambia decimated by charcoal burners every year and those opening or clearing land for agriculture, how much forest are we

going to remain with? The same with open areas, how many trees are going to be there? (Scafe newsletter, 1999).

In developing countries like Zambia natural products from forests and open areas are diminishing. The natural products from the forests are the only source of herbs and medicines to more than half the populations. It is well known that the active ingredients found in 25%(Twenty Five Percent) of the western or prescription medicine of drugs come from medicinal plants (scafe newsletter, 1999)

Tuber and non-wood products from the trees support hundreds of thousands of large and small industries in the world and also give employment to millions of people. In the industrialized countries, wide spread deforestation has been redressed. However, in developing countries because of the perceived abundance of trees, charcoal burning and wanton destruction of forests and trees in general has continued unabated. The annual rate of deforestation ranges from 250,000 and 300,000 hectares per year (PFAP, 1998) other studies have put it at 900,000 hectares per year (Chidumayo, 1996). The variation in estimates shows that, there is an uncertainty of the real situation due to the non-availability of reliable data. This therefore calls for an up to date inventory of all trees/forest reserves in the country.

According to the wood and survey report of (1986), 61,203 million hectares of forests from an inventory made in 1965 as a reference point and estimated Zambia is decline in forest cover. This forest cover includes both trees found in the open areas (where people live) and closed forest areas.

Trees are important as stated earlier but there is usually decline in the forest cover. Confirming this, the tree inventory, which was carried out in 1985, shows how the decline has been taking place and how much cover has been left.

Estimated forests cover decline in Zambia 1985

Annual decrease % since 1965	Wood area in million m3	Other land cover m3	Growing Stock million m3
Annual decrease 5%	55.2	19.99	4.100
Annual decrease 1.0%	50.2	24.99	3.700
Forestry Department Report 1985	46.1	29.09	3.400
Lowest possible	41.2	33.99	3.000

SOURCE: **Zambia Forestry Action Programme, 1998.**

➢ From this table, it can be concluded that, trees in Zambia are being cut or destroyed without clear knowledge of all the consequences and without commitment to sustainable use. According to the researcher, sustainable use means proper use of natural resources including trees for future generations.

Presently, it is a great concern that the clearing of land for agricultural expansion, unsustainable fuel wood collection, illegal settlement and cultivation in both protected and open woodlands, over exploitation of timber and uncontrolled forest fires has caused great danger. All these contribute to deforestation. It is also a consequence of population growth. (Shakacite, 2000).

In additional to population growth, as people prepare land for shifting cultivation, they involve themselves in unscrupulous way of clearing land such as arson. (Shakacite, 2000).

The pressure on the forest resources/trees has been very heavy especially near the big towns and along the main roads. Wood fuel is still the common energy source (supplying about 90% of urban households) used by most households. (Department of Energy report, 1998) states that, with increased population, the demand for food is increasing, areas under cultivation are as well increasing, and hence deforestation is increasing.

Agricultural expansion is the largest contribution (90%) to the loss of forest cover (trees to be specific) in the country. It has been estimated that from 1992 to 1991, Agricultural land use has increased by an average of 1.5% each year. Wood fuel has also contributed to the loss of forest cover (deforestation). It is estimated that deforestation as a result of fuel wood production claimed 25,000 hectare in 1969, 38,000 hectares in 1980 and 53,000 hectares in 1960 (Chidumayo, 1996).

These figures are substantial even in view of large forest areas in Zambia. The fact that the population is growing, it increases the net loss. Deforestation and associated environmental problems are a threat to ecosystem conservation and hinder social economical development (Chidumayo, 1996).

Population growth, change in population distribution, economic pressures, and efforts to alleviate poverty and ensured food security will lead to more intense scrutiny of forests/trees actual and potential contribution to development, and of the relative benefits of retaining land in areas or forests versus converting it to other land uses. The most obvious are that of meeting the growing number demand of or forest products (especially fuel wood) whilst at the same time safe guarding the ability of forests to provide a range of environmental services including, among others, the conservation of biological diversity, mitigation of the global climate changes, protection against desertification (changing country

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in a desert due to loss of trees) and protection of soil and water resources, demands for achieving more equitable distribution of the benefits from forests/trees. (Shakacite, 2000).

At local level, forests are a means of survival. For instance, in urban areas charcoal contributes about 90% of all energy forms available to the family, forestry employment, collection and sale of forest products and small forest based enterprises. These local enterprises provide income important for meeting household needs and for rural investment. Hence forests tend to offer possibilities for income generation in rural areas (FAO, 1997). In most cases, few other opportunities may be available. Despite the value of trees/forests, people continue cutting trees indiscriminately.

Demand and supply balance for forestry products are likely to change in the near future, as the population increases. It is estimated that, the 3.5 percent annual population growth rate will trigger an annual increase of 2.6 percent in consumption of wood fuel, (Alarjarvi, 1996). This figure is expected to remain constant for the next 20 years. The conversion from forest to cultivated land is expected to grow at the rate of 1.5 per annum. This means the forest base will decrease as well as that of open areas.

According to the report which was released by the Ministry of Agriculture Food and Fisheries (1999), states that, deforestation is believed to be the main cause of land degradation that contribute to the reduction of agricultural yields. This makes them less predictable, thus having a negative bearing on food security (SIC). The researcher does not agree with this statement because clearing land for agriculture has a devastating effect on trees.

Conservation of forests/trees is the key to development and in promoting tourism in the country. If deforestation continues, this will have a regrettable effects on the environment.

"It is clear that there is a growing realization that the genetic resources found in many developing nations are assets that if managed properly, could contribute significantly to both local and national economies."

CHAPTER 3

METHODOLOGY

Research Design

The study used a descriptive methodology that was aimed at giving an accurate description of the causes of deforestation. The study took place in Lusaka but the areas of concentration were Shaantumbu area and neighboring forest reserve.

Population

The population studied consisted of farmers from Shaantumbu area and forestry officers at the district level. The target population was 90 (ninety). 60 (sixty farmers) and 30 (thirty) forestry officers. Priority was given to farmers who share boundary with the forest reserve.

Population Sample

The sample was 50 (fifty). Out of the 60 (Sixty) farmers, only 20 (Twenty) were selected to be in the sample. Whilst all the 30 (thirty) officers were chosen as eligible participants. Altogether, the total sample came to 50 (fifty).

Sampling Techniques

The simple random sampling was used. This was to enable every participant to have an equal chance to be in the sample. Pieces of paper marked "YES" and "NO" were used. Those who picked papers marked "YES" were automatically picked to be in the sample.

Instruments

Questionnaires were the main principle instruments used. Unstructured and structured questions were developed. The questionnaires consisted of close-ended questions that required the respondents to choose an answer from a set of answers. At the same time applying their own opinions. The questionnaires were administered to both the farmers and forestry officers.

Data Collection

Data was collected using questionnaires.

CHAPTER 4

DATA ANALYSIS

The data collected from the questionnaires were analyzed manually by using

frequencies and percentages and each table was discussed

RESPONSES FROM FORESTRY OFFICERS

TABLE 1 – AGE

AGE	FREQUENCY	PERCENTAGE
20-29	3	15
30-39	14	70
40-49	0	0
50-59	3	15
60 & Above	0	0
TOTAL	**20**	**100**

70% of the respondents were between the ages of 30-39 as shown in the

table above.

TABLE 2 - SEX

SEX	FREQUENCY	PERCENTAGE
FEMALE	9	47.4
MALE	10	52.6
TOTAL	**19**	**100**

52.6 % respondents were males and 47.4% females. Which means that, the large numbers of Forestry Officers are males

TABLE 3 – MARITAL STATUS

MARITAL STATUS	FREQUENCY	PERCENTAGE
Single	3	15.7
Married	16	84.3
Divorced	0	0
Widow	0	0
Widower	0	0
TOTAL	**19**	**100**

Most of the respondents were married. This can be evidenced from the table above. 84.3% were married.

TABLE 4 - EDUCATIONAL LEVEL

EDUCATIONAL LEVEL	FREQUENCY	PERCENTAGE
Grade Twelve	15	78.94
Grade Nine	0	0
Form Three	2	10.53
Grade Seven	2	10.53
TOTAL	**17**	**100**

78.94% of respondents completed grade 12 or form five

TABLE 5 – PROFESSIONAL QUALIFICATIONS

CERTIFICATE	FREQUENCY	PERCENTAGE
Certificate	7	43.75
Diploma	9	56.25
Advanced diploma	0	0
Degree	0	0
Masters	0	0
TOTAL	**16**	**100**

56.25 of the respondents reached college level and 43.75% have certificates in Forestry. Therefore, this table reveals that most of the respondents some training of some sort.

TABLE 6 – CAUSES OF DEFORESTATION

CAUSES OF DEFORESTATION	FREQUENCY	PERCENTAGE
Lack of knowledge	6	18.2
Charcoal burning	6	18.2
Clearing land for agriculture	15	45.5
Population growth	3	9.09
Fuel wood collection/fencing	3	9.09
TOTALS	**33**	**100**

45.5% respondents said that the main cause of deforestation was clearing land for Agriculture. Yet 18.2% commented that, lack of knowledge and charcoal burning as well contributes to deforestation.

TABLE 7 – SEX MOSTLY INVOLVED IN CUTTING TREES

SEX INVOLVED	FREQUENCY	PERCENTAGE
Female	0	0
Male	4	21.05
Both	15	78.95
TOTAL	**19**	**100**

The table shows that both females and males are involved in the destruction of

trees. 78.95% represents both female and males. No one is an exceptional.

TABLE 8 – WHETHER COMMUNITY IN SHAANTUMBU/NEAR RESERVE EDUCATED ABOUT THE DANGERS OF DEFORESTATION

WHETHER COMMUNITY EDUCATED	FREQUENCY	PERCENTAGE
Yes	18	94.7
No	1	5.3
TOTAL	**19**	**100**

94.7% of the communities have been educated on the dangers of cutting trees

indiscriminately but so far nothing has changed.

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TABLE 9 – PROBLEMS FACED IN REACHING OUT THE COMMUNITIES IN SHAANTUMBU AND THOSE SHARING THE BOUNDARY WITH THE FOREST RESERVE

PROBLEMS FACED	FREQUENCY	PERCENTAGE
Inadequate transport	18	66.66
Time	0	0
Few officers	5	18.52
Lack of commitment	4	14.82
TOTAL	27	100

According to the table above, most of the respondents interviewed cannot reach their intended farmers. This is due to the fact that there is inadequate transport. Hence this makes it difficult for them to perform as required.

TABLE 10 – MEASURE TAKEN TO STOP DEFORESTATION

MEASURE TAKEN	FREQUENCY	PERCENTAGE
Educate masses	5	20
Punish those found guilty	9	36
Patrolling	11	44
TOTAL	25	100

44% of the respondents suggested that, patrolling would be the best measure to stop deforestation. 36% suggested anyone found cutting trees anyhow, should be punished

TABLE 11 – OTHER SUGGESTIONS TO STOP DEFORESTATION

OTHER SUGGESTIONS	FREQUENCY	PERCENTAGE
Personal forums with politicians	2	20
Back to coupe system (demarcated area for cutting trees)	3	30
Provision of employment	1	10
Joint forest management	4	40
TOTAL	**10**	**100**

Most of the respondents suggested that, the only effective way of controlling the rate of deforestation was to include the communities in the management of trees.

TABLE 12 – CATEGORIES OF PEOPLE WHO CUT TREES

CATEGORIES OF PEOPLE WHO CUT TRESS	FREQUENCY	PERCENTAGE
Employed by GRZ institution	2	8.69
Retrenched	13	56.53
Self employed	8	34.78
TOTAL	**23**	**100**

The table reveals that 56.53 % of people who have been retrenched cut trees indiscriminately. 34.78% of those who are self employed also contribute to destruction of trees. Usually the self-employed, supply fuel wood to prisons and other GRZ institutions.

TABLE 13 – HOW THE ORIGINAL STATE OF SHAANTUMBU/NEIGHBOURING RESERVE CAN BE REINSTATED.

ORIGINAL STATE	FREQUENCY	PERCENTAGE
Plant more trees	4	16
Community training in sustainable use	11	44
Joint forest management	10	40
TOTAL	25	100

44% of the respondents pointed out that training farmers in Shaantumbu in community utilization of natural resources for sustainable management could make it look better and promising; 16% suggested that, it is only tree plant, which can help in such a situation.

TABLE 14 – ATTITUDE OF FORESTRY OFFICERS TOWARDS WORK

ATTITUDE OF FORESTRY OFFICERS	FREQUENCY	PERCENTAGE
Good	15	78.95
Bad	4	21.05
TOTAL	19	100

78.95% of Forestry Officers good attitude towards work except that, they are not provided with logistics and incentives required. Only 21.05% of them are not responsible when it comes to work.

TABLE 15 – WHAT ROLE SHOULD THE FORESTRY DEPARTMENT PLAY IN CONTROLLING DEFORESTATION

ROLE FORESTRY DEPARTMENT SHOULD PLAY	FREQUENCY	PERCENTAGE
Punish people who cut trees	3	15.7
Introduction of the use of coal	1	5.3
Continue sensitization campaigns	4	21.1
Forestry to collaborate with communities involved	9	47.4
Provide officers with inputs	2	10.5

This table shows that, 47.4% of the respondents were for the idea that the forestry department and the community in Shaantumbu work together to stop this scourge of cutting trees anyhow.

21.1% suggested that, the department needs to carry out mass campaigns to reach out people who do not know the dangers of cutting trees.

In addition, the department should provide all the required resources needed, otherwise deforestation would continue to be a problem.

TABLE 16 – CAN EARLY BURNING CONTROL DEFORESTATION

CAN EARLY BURNING CONTROL	FREQUENCY	PERCENTAGE
Yes	7	36.8
No	12	63.2
TOTAL	19	100

63.2% revealed that early burning does not control deforestation instead it just contributes more to damage of trees. Usually trees get burnt in the process and destroyed completed.

TABLE 17 – SUGGESTED ACTIVITIES TO BE UNDERTAKEN IN ORDER TO REDUCE DEFORESTATION

SUGGESTED ACTIVITIES	FREQUENCY	PERCENTAGE
Creation of wildlife sanctuary	3	12.5
Creation of individual woodlots	2	8.33
Community training	2	8.33
A forestation	6	25
Reafforestation	2	8.33
Provision of electricity in rural areas	2	8.33
Introduction of micro-projects	1	4.3
Agro-forestry	6	25

COMMENTS

The officers suggested that, for deforestation to end in Shaantumbu and neighboring forest reserve, there is need to introduce the following activities:

> Creation of wildlife sanctuary in the affected areas;

> Farmers in Shaantumbu should learn to raise their own tree seedlings and establish wood lots (woodlots) are individual plots where any interested person plants trees and cares for them him/herself. They further stated that, this would instill a sense of ownership hence trees would not be cut anyhow.

TABLE 18: INVOLVEMENT OF NON-GOVERNMENTAL ORGANISATIONS.

INVOLVEMENT	FREQUENCY	PERCENTAGE
Yes	18	100
No	0	0
TOTAL	**18**	**100**

100% of the respondents agreed that Non-Governmental Organizations could create impact if identified as the main player to curtail deforestation

TABLE 19 – PART THAT NON-GOVERNMENTAL ORGANIZATIONS SHOULD PLAY IN REDUCING DEFORESTATION

PART N.G.O SHOULD PLAY	FREQUENCY	PERCENTAGE
Provision of security	1	5.26
Consciatisation	7	36.84
Provision of transport facilities	6	31.57
Promotion of tree planting	3	15.78
TOTAL	**17**	**100**

According to the table above, officers feel that if Non-Governmental Organizations are involved, they could help in various ways when it comes to reducing the rate of deforestation. Some of the vital parts which were identified were provision parts which were identified were provision of transport to forestry officers. This would enable them combat deforestation without any problems 36.84% of respondents suggested that, if any Non-Governmental Organizations were involved in the massive conscientization of how important trees are.

RESPONSES FROM FARMERS

TABLE 1; AGE

AGE	FREQUENCY	PERCENTENGE
20 – 29	12	63.157895
30 – 39	4	21.052632
40 – 49	2	10.526316
50 – 59	1	5.2631579
60 And above	0	0
TOTAL	**19**	**100**

According to Table one, most of the respondents are between the age of 20 years and 29 years.

TABLE 2; SEX

SEX	FREQUENCY	PERCENTAGE
Male	11	55
Female	9	45
TOTAL	**20**	**100**

From Table two it is clear that majority of the respondents were men

TABLE 3; MARITAL STATUS

MARITAL STATUS	FREQUENCY	PERCENTAGE
Single	3	15.789474
Married	14	73.684211
Divorced	0	0
Widow	1	5.2631579
Widower	1	5.2631579
TOTAL	**19**	**100**

It has been found out that a large number of respondents were married. This is

represented by 74% out of the total number interviewed

TABLE 4; EDUCATIONAL LEVEL

EDUCATIONAL LEVEL	FREQUENCY	PERCENTAGE
Form Three	0	0
Grade Nine	3	23.076923
Form Five	0	0
Grade Twelve	10	76.923077
TOTAL	**13**	**100**

None of the respondents reached grade 12 (Twelve). Most of them reached

grade 7 (Seven)

TABLE 5; RESIDENTIAL AREAS

RESIDENTIAL AREA	FREQUENCY	PERCENTAGE
Shaantumbu	9	47.368421
Mahopu	10	52.631579
Others	0	0
TOTAL	**19**	**100**

From the sample, 47.4% of the respondents stay within Shaantumbu area. This

made it easier to interview them.

TABLE 6: DO FARMERS UNDERSTAND WHAT DEFORESTATION IS?

DO FARMERS UNDERSTAND WHAT DEFORESTATION IS?	FREQUENCY	PERCENTAGE
Yes	6	31.578947
No	13	68.421053
Total	**19**	**100**

Most of the respondents did not understand what deforestation means. The

showed ignorance and it was found out that 68.4% did not know or head

anything about deforestation.

TABLE 7: SEX MOSTLY INVOLVED IN CUTTING TREES

SEX MOSTLY USED IN CUTTING TREES	FREQUENCY	PERCENTAGE
Male	16	84.210526
Female	3	15.789474
TOTAL	**19**	**100**

The table above reveals that 84.2% of the farmers were involved in cutting down trees. But only 15.7% represented females. Mostly it's males who are involved in cutting down trees.

TABLE 8: PEOPLE WHO CUT TREES COME FROM

PEOPLE WHO CUT TREES COME FROM	FREQUENCY	PERCENTAGE
Chilenje	7	19.45
Bauleni	12	33.33
Chawama	10	27.78
Shaantumbu	4	11.11
Others	3	8.33
TOTAL	**36**	**100**

Most of the people who cut trees come from Chawama. This is presented by 27.8%, 33.3% from Bauleni and 19.4% from Chilenje. People from outside Shaantumbu area cut most of the trees.

TABLE 9: CATEGORIES OF PEOPLE WHO CUT TREES

PEOPLE WHO CUT TREES	FREQUENCY	PERCENTAGE
Self-employed	2	10.5
Employed by GRZ	2	10.5
Retrenched	15	78.0
Others	0	0
TOTAL	**19**	**100%**

The study revealed that people who are retrenched are the ones who cut trees. These are represented by 78.9% as compared to those who are in employment.

TABLE 10: WHY PEOPLE CUT TREES

WHY PEOPLE CUT TREES	FREQUENCY	PERCENTAGE
Charcoal burning	19	63.3
Clearing land for agriculture	3	10
Lack of knowledge	3	10
Medical purpose	4	13.3
For making axe handles	1	3.3
TOTAL	30	100

It was discovered that people cut trees for charcoal burning, clearing land for

Agriculture and lack of knowledge contributed as well;

Above all the problem was charcoal burning, which is represented by 63.3%.

TABLE 11: EFFECT OF CUTTINGDOWN TREES TO THE SOIL

EFFECT OF CUTTING DOWN TREES ON RAINFALL	FREQUENCY	PERCENTAGE
Fertility loss	13	61.9
Soil erosion	8	38.1
Disturbance of soil structure	0	0
Reduced water holding capacity	0	0
TOTAL	21	100

In this study 61.9% of the respondent said, cutting down of trees makes the soil loss fertility. The data shows that, apart from fertility loss, there is a problem of soil erosion as well.

TABLE 12; DOES CUTTING DOWN OF TREES HAVE ANY EFFECT ON RAINFALL PATTERNS

EFFECT OF CUTTING DOWN TREES ON RAINFALL	FREQUENCY	PERCENTAGE
Yes	14	73.7
No	5	26.3
TOTAL	19	100

73.7 Respondents pointed out that cutting down of trees had a severe effect on the rainfall patterns. Not only in Shaantumbu but also other parts of the country.

TABLE 13; WHO SHOULD EDUCATE PEOPLE ON THE IMPORTANCE OF TREES

WHO SHOULD EDUCATE PEOPLE?	FREQUENCY	PERCENTAGE
Farmers in Shaantumbu	0	0
Forestry	17	85
Non-Government Organisation	1	5
Agriculture	1	5
Headmen in the Area	1	5
TOTAL	20	100

The study revealed that it is the duty of the Forestry Officers to educate people

on the importance of trees. This is rated at 85% as seen in the table above.

**TABLE 14; HAVE YOU EVER BEEN EDUCATED ON THE
IMPORTANCE OF TREES?**

HAVE YOU EVER BEEN EDUCATED ON THE IMPORTANCE OF TREES	FREQUENCY	PERCENTAGE
Yes	2	11.11
No	16	88.89
TOTAL	**18**	**100**

Majority of the respondents, (88.89%) were not educated on the importance of

trees. Only a few knew the benefits of trees.

**TABLE 15; WHAT SHOULD BE DONE TO STOP THE
INDISCRIMINATE CUTTING DOWN OF TREES**

MEASURES TO STOP INDISCRIMINATE CUTTING DOWN OF TREES	FREQUENCY	PERCENTAGE
Educate the masses	9	48
Stiffer Punishment	8	42
Plant more trees	1	5
Provide Jobs	1	5
TOTAL	**19**	**100**

According to the table above, it is revealed that most of the respondents need to

be educated on the dangers of cutting down trees

TABLE 16; OTHER SUGGESTIONS OF STOPPING DEFORESTATION

OTHER SUGGESTIONS	FREQUENCY	PERCENTAGE
Farming	1	14.3
Provision of fertilizer	1	14.3
Provide Employment	3	42.8
Punish those found guilty	1	14.3
Nothing can be done	1	14.3
TOTAL	**7**	**100**

The table above shows that the suggestions on how deforestation can be stopped. Most of the respondents suggested providing employment to all those people who got retrenched.

DISCUSSION OF FINDINGS

The data collected from the respondents has been analyzed critically by use of frequency tables and percentages.

The study sought to unveil the causes of deforestation in Shaantumbu area and the neighboring forest reserve (protected area). The rate of deforestation in Shaantumbu is a source of worry as far as the forestry sector in Zambia is concerned. This is so because natural resources (trees) are a source of economic development and play a vital role in the forest ecosystem, biodiversity and watershed catchments protection.

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The nation further realises that; this can only be possible if people work jointly to sustain these forests for future generations. Thus if the forest ecosystem and species are protected.

The discussions focused on the findings from farmers in Shaantumbu and those neighboring the forest reserve. Not only the farmers but also Forestry Officers based at the District Office as well as the Province were given questionnaires.

Out of the 50 (fifty) questionnaires, which were distributed, only 40 (forty) were returned. Which means that, 10 (ten) were not answered.

It was discovered that, most of the farmers who answered the questionnaires did not understand what deforestation meant. They portrayed ignorance about the whole issue. It was further analyzed that, men were the key people who were cutting trees indiscriminately. It indicates that, 84.2% of men were involved in deforestation.

However, most of the people who cut trees in Shaatumbu and neighboring forest reserve came from as far as Chilenge, Bauleni, Chawama, Shaatumbu and lastly but not the least Kwajenke. There were few people (farmers) who cut trees and resided within Shaatumbu area. It was further discovered that, trees were being cut by individuals who did not have anything to do, thus those who were not in employment. This was evidenced in the data collected by 79%.

The study found out that, most of the people cut trees for charcoal burning, clearing land for Agriculture and lack of knowledge. The most prevalent one was charcoal burning. It was revealed that cutting down of trees caused fertility loss and soil erosion. These had a very big impact on the soil as well as rainfall patterns. This did not apply to Shaatumbu area alone but other areas in Zambia as well especially where rampant cutting of trees prevail. Most of the farmers were in their early twenties.

It was discovered that, indiscriminate cutting down of trees was caused by people who cleared land for agriculture and that both male and females were involved. It was revealed that Forestry Officers spent most of their time educating farmers about the dangers of deforestation. Despite the efforts made, the rate at which trees were cut is still high. This indicates that the education part did not yield any results. The study found out that most of the Forestry Officers had difficulties in reaching out the people. They revealed that, this was due to lack of adequate transport, commitment by other Forestry Officers. But their main constraint was transport (means of reaching their areas of operation). Majority of the respondents both female and male officers were in the ages of between 30 (Thirty) years and 40 (Forty) years. Most of them had reached college level in their education. The study further revealed that, most of the

respondents were married. Most of them were males, meaning that they are more males than females in the Department of Forestry.

Coming back to the objectives of the study, the first objective was to find out the causes of deforestation in Shaatumbu area as well neighboring forest reserve. It was discovered that, indiscriminate cutting down of trees erupted due to the following reasons: -

The first reason was that, most of the people involved in cutting down trees did not have any knowledge about the benefits of trees. It was further discovered that, charcoal burning and clearing land for agriculture were the main threats of deforestation. People cut trees without taking into considerations the future consequences.

Population growth was another cause of deforestation. As population grows, changes in population distribution take place. There is economic pressure and efforts to alleviate poverty and ensured food security which later leads to more intense scrutiny of forests actual and potential contributions to development, and of the relative benefits of retaining land in forests versus converting it to other land uses. Fuel wood collection was another cause of deforestation.

The second objective was to identify whether people who lived in Shaantumbu area and those surrounding the neighboring forest reserve had any knowledge about the benefits of trees. It was found out that, most of them were ignorant

about the benefits of trees and how they needed to be protected. Most of them believed that, God made trees for people to use whenever they felt like. There was no need to protect them from any indiscriminate cutting.

The third objective was to find out if deforestation had any effect on the environment. The study revealed that, deforestation caused soil fertility loss and had a devastating effect on the rainfall patterns. Soil degradation is a crucial environmental hazard. Soil sustains food production and other economic activities but human beings are making even greater demand on it that calls for shift to economic practices and life styles that are environmentally sustainable in a long term.

The fourth and last objective was to find out whether high levels of unemployment caused deforestation. From the study, it was confirmed that most of the people who are not employed or rather those who have been retrenched, involved themselves in cutting trees for survival.

Most of the trees cut were sold in exchange of money to pay for their school going children as well as home consumption.

CHAPTER 5

CONCLUSIONS

Causes of deforestation in Shaantumbu area and surrounding forest reserve have been attributed due to the following reasons: -

> Lack of knowledge about the dangers of cutting down trees. Most of the people in the area have not been fully sensitized on the importance of trees;

> Population growth, which has lead to changes in distribution, economic, pressures, efforts to alleviate poverty and ensured food security. This has further lead to intense scrutiny of forests actual potential to development and benefits of retaining land in forests versus converting it to other land uses;

> The other contributing factor was clearing land for agriculture and charcoal production. This was due to the fact that, both people in urban and rural areas depend on trees for survival. Wood fuel is still the common source of energy. In urban areas charcoal contributes about 90% of all energy forms available to the family;

> High levels of unemployment were another cause of deforestation hence people resort to cutting down trees for their survival.

RECOMMENDATIONS

From the findings of the study, the following are the recommendations made by the researcher to the policy makers, decision makers, Forestry Officers in the Ministry of Tourism and Natural Resources, Planners and any other interested parties: -

1. There is need to increase people's participations and perception of the value of trees; and to improve methodologies which incorporate social, economic and ecological values of trees, forests and forest land into economic accounting systems;

2. Communities should be directly involved in the management of forests/trees since trees are important to environmental preservation, ecosystem conservation and sustainable and economic development;

3. Need to create responsible partnerships, with gender equity, among stakeholders in any activity concerning trees to ensure permanent stability of forests and trees. This can only be achieved through dialogue with Stakeholders, Non-governmental Organizations (NGOs) and communities at large.

4. In order for trees to survive, the Government should rehabilitate all degraded areas through reforestation, afforestation and natural regeneration for conservation, supply and production purposes;

5. Information generation awareness creation, training and skill development on forest planning, management and resources utilisation within the Forestry Department as well as among local communities and commercial forest/tree resource users;

6. Improve performance and delivery systems of forestry extension service by using participatory approaches in partnership with communities and other stakeholders;

7. The Government should set in place private and community incentives for increased collaboration in sustainable forest management and utilisation;

8. Increased co-operation and collaboration in forest management between different stakeholders, including government agencies, private sector, local communities and forest resource users;

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Appendices

BUDGET

Description	Quantity	Unit	Total
STATIONERY			
Realm of A4 paper	2	30,000.00	60,000.00
Unit Blue Pens	1pk	5,000.00	5,000.00
Unit of pencils	1pk	2,500.00	2,500.00
Eraser	1	2,000.00	2,000.00
Stampler	1	30,000.00	30,000.00
Box of Stamples	1	20,000.00	20,000.00
SUB-TOTAL			**123,000.00**
SECRETARIAL SERVICES			
Typing Research proposal	15Pages	2500/page	37,500.00
Typing questionnaires	/10 page	2500/page	50,000.00
Photocopying questionnair	40/10 pg	2500/page	1,000,000.00
Binding Research Proposal			10,000.00
SUB-TOTAL			**1,097,500.00**
Transport			**300,000.00**
Contigency 10%			**152,050.00**
GRAND TOTAL			**1,672,550.00**

TIME LINE FOR THE YEAR 2004

ACTIVITIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Identification of research problem			■									
Compilation of research proposal				■								
Typing & binding of research proposal					■							
Submission of research proposal						■						
Administering Questionaires							■					
Collection of Questionnaires								■				
Data Collection								■				
Data Analysis									■			
Compilation of Research Report										■	■	
Submission of research Report												■

QUESTIONNAIRE FOR FORESTRY OFFICERS

Dear Respondent,

I am a student at the University of Zambia. Currently I am conducting a research on the causes of deforestation in Shaantunbu area and the neighbouring forest reserve number Twenty Six (26).

INSTRUCTIONS

1 Kindly answer the following questions as honestly as possible.

2 Do not write your name.

3 The information you will give, is strictly for academic purposes only and will be treated with the highest level of confidentiallity

4 Where options are given, tick in the box provided

5 Where options are not given, write your answer (s) in the space provided.

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SECTION A.

PERSONAL DATA

1 What is your age?_____

2 What is your sex?

      (a)   Male   ☐

      (b)   Female   ☐

3 What is your marrital status?

      (a)   Single   ☐

      (b)   Married   ☐

      (c)   Divorced   ☐

      (d)   Widow   ☐

      (e)   Widower   ☐

4 What is your academic qualification?

      (a)   Grade twelve   ☐

      (b)   form five   ☐

      (c)   form three   ☐

      (d)   grade nine   ☐

5 What is your professional qualification?

      (a)   Certificate   ☐

      (b)   Diploma   ☐

      (c)   Advanced diploma   ☐

      (d)   Degree   ☐

      (e)   masters   ☐

6 What is your residential Area : _____

SECTION "B"

SUBSTATIVE DATA.

7 What do you think is the main cause of deforestation in Shaantumbu and neighbouring forest reserves?

    (a)   Lack of Knowledge   ☐

    (b)   Charcoal burning   ☐

    (c)   Clearing land for agriculture   ☐

    (d)   Population growth   ☐

8 What sex is involved in cutting down tree?

    (a)   Male   ☐

    (b)   Female   ☐

    (c)   Both   ☐

9 Have you ever sensitized the communities in Shaantumbu and those near the forest reserve about the dangers of deforestation?

    (a)   Yes   ☐

    (b)   No   ☐

10 If your answer in the above question is yes, briefly descibe what you have done so far.

_____

_____

_____

11 What do you think has been the problem in reaching out people in Shaantume?

    (a)   Inadequate transport.   ☐

    (b)   Time   ☐

    (c)   Few Officers   ☐

    (d)   Lack of commitment   ☐

12 What measures have you put in place to combat the indescriminate cutting down of trees?

    (a)   Educate the masses   ☐

    (b)   Punish those found guilty   ☐

    (c)   Patrolling the areas more frequently.   ☐

13 Apart from your response to Question(12) State any other actions you put in place

_____

_____

14 Which of the following categories of peopple cut down trees?

    (a)   Those in employment   ☐

    (b)   Retrenched   ☐

    (c)   Self employed   ☐

15 What do you think should be done to retain the original state of Shaantumbu and the neighbouring forest reserve?

    (a)   Encourage people to plant more trees ☐

    (b)   Community training in sustainable utilisation of forest resourses   ☐

    (c)   Joint forest management   ☐

16 How would you describe the attitude of the forestry officers in stopping this trend (deforestation) .

17 What role should the forestry department play in this situation? _____

_____

_____

18 Do you think that establishing and monitoring early burning in deforested forest areas would reduce the problem at hand?

    (a)   Yes   ☐

    (b)   No   ☐

19 Kindly explain with good reasons to your answer in question (18) above _____

_____

_____

_____

20 What other activities do you think should be carried out in order to minimise deforestation?

_____
_____
_____

21 Is it necessary (in your own opinion) to involve Non-Governmental Organisations to bring this problem to a halt.

      (a)   Yes   ☐

      (b)   No   ☐

22 What part do you think Non-Governmental Organisations can this play in this case

_____
_____
_____

The End!

Thank you for your co-operation

QUESTIONAIRE FOR THE FARMERS IN SHAANTUMBU AREA AND THOSE SHARING THE BOUNDARY WITH THE FOREST RESERVE

Dear Respondent,

Iam a student at the University of Zambia doing my second year in the School of Education

Iam conducting a research on the causes of deforestation in Shaantumbu area as well as

Forest Reserve.

INSTRUCTIONS:

1 Please do not write your name on the questionaire.

2 Kindly answer the questions as honestly as possible.

3 Where options are given please tick in the box provided.

4 Where options are not given, kindly write your answer(s) in the space provided

5 The information you give in this questionaire is stricktly for academic purposes

only and will be treated with the highest level of confidentiality.

<u>SECTION A</u>

PERSONAL DATA

1 What is your age?_____

2 What is your sex?

      a. Male   ☐

      b. Female   ☐

3 What is your marital status?

      a. Single   ☐

      b. Married   ☐

      c. Divorced   ☐

      d. Widow   ☐

      e. Widower   ☐

4 What is your academic qualification?

      a. Form Three (3)   ☐

      b. Grade Nine (9)   ☐

      c. Form Five (5)/ Grade Twelve (12) ☐

      d. Other   ☐Specify _____

5 What is your professional qualification?

      a. Certificate   ☐

      b. Diploma   ☐

      c. Others   ☐Specify _____

6 What is your residential area?

    a. Shaantumbu itself   ☐

    b. Mahopu   ☐

    c. Others   ☐ Specify _____

SECTION B

SUBSTANTIVE DATA

7 Do you understand what deforestation is?

    a. Yes   ☐

    b. No   ☐

8 If your answer to the above question is Yes, kindly explain in the provided space _____

_____

_____

_____

9 Which sex is mostly involved in cutting down trees in your area?

    a. Male   ☐

    b. Female   ☐

10 Where do you think the people who cut down trees in your area come from?

    a. Chilenje   ☐

    b. Bauleni   ☐

    c. Chawama   ☐

    d. Within Shaantumbu ☐

    e Other   ☐

11 If your answer to the above question is (e) kindly specify _____

12 Which of the following categories do people who cut down trees fall?

    a. Self-employed   ☐

    b. Employed by other organisations ☐

    c. Retrenched   ☐

    d. Other   ☐ Specify _____

13 What do you think these people cut trees for?

    a. Charcoal burning   ☐

    b. Clearing land for agriculture   ☐

    c. Lack of knowledge   ☐

    d. Medicinal purposes   ☐

14 If there are any other reasons, please specify _____

_____

_____

15 How does the cutting down of trees affect the soil?

    a. Loss of soil fertility   ☐

    b. Soil erosion   ☐

    c. Disturbs the soil structure   ☐

    d. Reduced water holding capacity ☐

16 Do you think the cutting down of trees has an effect on the rainfall pattern?

    a. Yes   ☐

    b. No   ☐

17 Have you ever been educated on the value of trees

    a. Yes   ☐

    b. No   ☐

18 Who should educate people about the importance of trees?

    a. Farmers around Shaantumbu area ☐

    b. Forestry Officers   ☐

    c. Non-governmental organisations ☐

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19 What do you think should be done to stop the indiscriminate cutting down of trees?
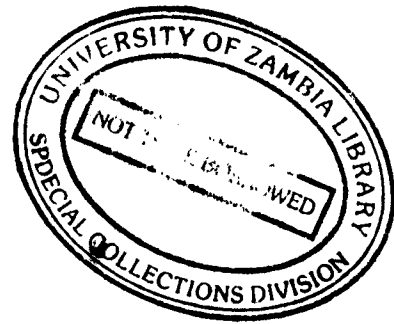
   a. Educate the masses ☐

   b. Put in place stiffer measures to cutail this trend ☐

   c. Plant a tree or two for every tree cut. ☐

20 What other suggestions can you give, if any, in order to stop deforestation? _____

   _____
   _____
   _____

The end.

Thank you very much.

THE UNIVERSITY OF ZAMBIA
SCHOOL OF EDUCATION
DEPARTMENT OF ADULT EDUCATION AND EXTENSION STUDIES

Telephone: 292702
Telegrams: UNZA LUSAKA
Telex: UNZALU ZA 44370
Fax: + 260-1-292702

P O BOX 32379
Lusaka, Zambia

Your Ref:

........................, 2004

NAME: ....

TO WHOM IT MAY CONCERN

RE: RESEARCH UNDERTAKING

The bearer(s) of this letter is a student in the Diploma/Degree in Adult Education. He/she has been requested to undertake research in your organization as part of his/her learning experience. Your help and cooperation in this regard will be highly appreciated by the department, as this will enable the student to link theory work, which is offered in the class, and practical work, which can only be obtained from organizations like yours.

I look forward very much to a favourable response in this regard.

Yours faithfully

for /D.M. Sibalwa (Dr.)
ACTING HEAD OF DEPARTMENT
ADULT EDUCATION AND EXTENSION STUDIES.

UNIVERSITY OF ZAMBIA
DEPARTMENT OF ADULT EDUCATION
P.O. BOX 32379
LUSAKA ZAMBIA