

**ENVIRONMENTAL EDUCATION ACTIVITIES AMONG  
CHONGWE RURAL WOMEN OF ZAMBIA ARISING  
FROM ENVIRONMENTAL DEGRADATION OF THEIR  
AREA.**

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Submitted in partial fulfillment for the award of Master of Education in  
Environmental Education

**UNIVERSITY OF ZAMBIA  
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2008**



## DECLARATION

I hereby declare that the dissertation hereby submitted is my own work and it has not previously been submitted for a degree, diploma or other qualification at the University of Zambia or any other University.

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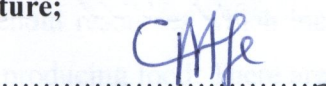
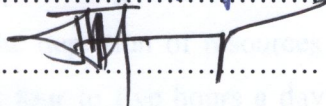
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## CERTIFICATE OF APPROVAL

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## ABSTRACT

Environmental education is vital to Environmental Conservation in order to reduce or stop environmental degradation which in most cases affects women severely. In view of the point that women have the responsibility of taking care of their household resources, degraded environments mean that women must spend more time and effort than ever to manage such household resources which include, among others, collection of firewood, fetching water and producing food. There are many cases which demonstrate that women suffer a lot after the depletion of resources on which they rely. For instance, in India women now spend four to five hours a day collecting firewood where previously they would have done so once every four to five days. Investigating how to address this situation, constituted the research problem of this study as applied to Chongwe area.

In this regard, the purpose of this study was firstly to find out how environmental degradation in Zambia affected rural women in general and the Chongwe rural women in particular. Having established this, the second aim of the study was to draw out some environmental education activities from the connection to be so made between environmental degradation and the rural Chongwe women.

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The study employed both qualitative and quantitative research designs. Questionnaires were administered to some Council workers in Chongwe, high school teachers and a few police officers in the research area. In addition, some short interviews were conducted with sampled Chongwe women. The results were analyzed using the statistical package for social sciences from the qualitative data collected.

The study's findings confirmed the reviewed literature assertions that there was environmental degradation in Chongwe area and that such degradation mostly affected women. The study also revealed that there were some environmental education activities taking place in the research area at a very low level.

Major recommendations of the study included the need to involve Chongwe residents in Environmental Education sensitization so that residents are sensitized on issues affecting their environment. It is hoped that such sensitization would help in reducing environmental degradation in Chongwe area. Another major recommendation is the need to involve women in environmental issues as they were the most affected by effects of environmental degradation as revealed by this research. When women are actively involved, they will understand their environment better and, therefore, will be able to preserve it.

## **ACKNOWLEDGEMENT**

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## **LIST OF ABBREVIATIONS**

**EE** - Environmental Education

**ED** - Environmental Degradation

**CSO** - Central Statistical Office

**ECZ** - Environmental Council of Zambia

**CHANGES** - Community Health and Nutrition and Gender Education

**GRZ** - Government Republic of Zambia

**WWF** - World Wide Fund for nature

**UNICEF** - United Nations International Children's Emergency Fund

**FAO** - Food and Agricultural Organization

**UNEP** - United Nations Environment Programme

**UNDAF** - United Nations Development Assistance Framework

**WFC** - Women for Change

**NWPE** - National Water Policy on Environment

## CHAPTER ONE: BACKGROUND TO THE STUDY

As a woman, I was motivated to carry out this research after experiencing and reading about how women suffered worldwide whenever the environment in its widest sense could no longer support life. Women suffer more than other people as they are the ones in direct contact with the environment because of their daily chores. This point is elaborated below.

My personal connections with this and, hence, the background to this research are that having grown up in a rural setting of Kalabo District in Western Province of Zambia, and passed through the same experience myself, I felt that women suffered the most in the daily chores of providing for their families. They woke up early in the morning to fetch water from distant places before proceeding to their fields where they work the whole day. When they return to their homes, they continue working by preparing food for their families sometimes using cow dung as a source of energy or they have to again travel to far away places to collect firewood. They do all this because Women have the responsibility of managing household resources, and degraded environments mean that women must inevitably spend more time and effort than before to manage such household resources which include finding fuel or producing food. Women have other responsibilities of meeting household needs and ensuring that family health does not diminish. Given the variety of women's daily interactions with the environment, they are the most closely affected by its degradation. For example, deforestation increases the time that women must spend in looking for firewood or safe clean water. The contamination of water on the other side increases women's risk of contracting water borne diseases.

There are many cases which demonstrate the suffering of women after the depletion of resources. For example, <http://www.fao.org/docrep/x0178E/x017804.htm> reveals that in the state of Gujarat, India, women now spend four or five hours a day collecting firewood, where previously they would have done so once every four to five days. Another example is where soil erosion, water shortage and crop failure can combine to reduce harvest yield with ultimate effects on women.

<http://www.fao.org/docrep/x0178E/x017804.htm> also explains that massive deforestation has serious consequences on rainfall and climate patterns resulting in the loss of food crops. These food shortages and increases in food prices affect livelihood of families and increase women's burden as resource managers who have to seek out increasingly scarce alternatives. The increasing degradation of the natural resource base in many countries, according to Sirisambland and Gordon (2001) has, therefore, undermined women's roles in providing food and securing overall family welfare.

<http://www.fao.org/docrep/x0178E/x017804.htm> further explains that women of child bearing age are more vulnerable to environmental pollutants than men because of their reproductive functions and breast feeding practice. Possible effects of exposure to chemicals on women range from infertility, miscarriage, malformation and neo-natal death to growth retardation.

A case example revealed by <http://www.fao.org/docrep/x0178E/x017804.htm> indicates that water pollution in three Russian rivers was a factor in the doubling of bladder and kidney disorders in pregnant women. Furthermore, in Sudan, a link has been established between exposure to pesticides and prenatal mortality with the risk being higher among women farmers <http://www.fao.org/docrep/x0178E/x017804.htm>.

As an educator, my role is to educate the people on the effects of environmental degradation. Furthermore, the people would also be educated on the importance of taking care of the environment so as to reduce the effects of environmental degradation, such as the ones cited above, especially on women.

From the above background, it was therefore important to undertake this study because its results were expected to reveal types of environmental degradation common in the Chongwe area and how the rural chongwe women are affected by these types of environmental degradation. Furthermore, the results of the study would also suggest possible environmental education solutions that could address the connections between environmental degradation and Chongwe rural women. This is important to the people

concerned as they would be able to manage their degraded area in order for them to reduce their suffering. The results may also be important to the Zambian government because the environmental education activities to be suggested could help in eradicating environmental degradation in the area as well as other rural areas in the country affected by similar types of environmental degradation.

All the above premises have a basis in theory. The next chapter examines the theories between Women and the Environment.

## **CHAPTER TWO: THEORETICAL PERSPECTIVES ON WOMEN AND THE ENVIRONMENT**

### **2.1 Introduction**

This chapter outlines some of the many theories on women and the environment, which include **Ecofeminism or ecological feminism, Religious theories** such as the **Judaeo-Christian Tradition, cultural traditions and environmentalism.**

### **2.2 Ecofeminism**

Ecofeminism or ecological feminism is a theory that argues that the coercive relations between women and non-human nature are the result of an essentially gendered process of exploitation (Adams 2003). His emphasis is on how women are victims of the environmental effects due to the gender position.

Shiva(1988) also states that ecofeminism is a movement that focuses attention on the historical linkage between denigration of nature and women. She further explains that ecofeminism seeks to shed light on why Eurocentric societies, as well as those in their global sphere of influence, are now enmeshed in environmental crises and economic systems that require continuing ecocide and the dynamics of exploitation. Ecofeminism, according to Shiva (1988), is a global phenomenon that is bringing attention to the linked domination of women and nature in order that both aspects can adequately be understood.

[Http://www.integrative, spirituality. org/postnuke/html/modules](http://www.integrative, spirituality. org/postnuke/html/modules) also pointed out that an influential table of opposites has placed or linked women with the negative attributes of formlessness, the indeterminate, the irregular, the unlimited that is the dumb matter as opposed to the (male) principles of fixed form and distinct boundaries.

According to <http://www.integrative, spirituality.org/postnuke/html/modules>, the term “ecofeminism” brings together ecological and feminist consciousness. The fight of feminisms according to Shiva (1988) has been that of rectifying the man/woman dichotomy. The status of a woman, according to Shiva (1988) is defined as other,

highlighting the presumptions and assumptions of patriarchy and the patriarchal world where the labeling of the tendencies, preferences and beingness of woman as “bad” and those of man as “good” is the norm. Adams (2003) further added that the dualistic thinking that shaped so much of the Eurocentric worldview was perhaps the central concern of ecofeminist philosophical and political analysis. He further said that countless ramifications followed from the Eurocentric notion of “the masculine” being associated with the rationality, spirit, culture, autonomy, assertiveness, and the public sphere, while the feminine’ was associated with emotion, body, nature, connectedness’ receptivity and the private sphere.

Shiva (1980) analysed that men and women were essentially different and that women were closest to nature than men. She added that this closeness was affirmed by the spiritual environmental feminists who saw the connection between females and nature.

[Http://en.wikipedia.org/wiki/Feminism](http://en.wikipedia.org/wiki/Feminism) also argued that there was a connection between women and nature that came from their shared history of oppression by a patriarchal western society. Women according to <http://en.wikipadia.org/wiki/feminism> are connected to the environment through their daily interactions with it.

As applied to this study, there are a number of points of relevance between ecofeminism and this study. Firstly, it has been noted above that ecofeminism partly dealt with the historical linkage between denigration of nature and women. This means that whatever happens to nature also happens to women. In other words, environmental degradation of nature also implies the suffering of women, and this is the running theme of this study. Secondly, ecofeminism aims to bring human attention to the link between domination of nature and women so that both aspects can be understood. This point brings to the fore the focus of this study, namely, the need for environmental education which would educate people about the dual exploitation of the environment in Chongwe and its women.

### **2.3 Cultural Traditions**

Most cultural traditions in the world have noticed women and nature having an age-old association that has persisted throughout culture, language and history (Merchant 1980). Merchant (1980) explains that the ancient identity of nature as a nurturing mother links women's history with the history of the environment and ecological change. She further adds that the ancient inter-connections of women and nature have been dramatized by the simultaneity of two recent social movements, namely; women's liberation and the ecological movement.

Women, according to Merchant (1980) are struggling to free themselves from cultural and economic constraints that have kept them subordinate to men in the American society. Merchant (1980) further adds that the egalitarian perspective was common to both the women liberation and ecology movement.

The theory is of relevance to this study because it brings out the connection between nature and the environment which has persisted throughout culture, language and history. This is the basis of this study. From this connection, it could be said that that when the environment is degraded, women would suffer the most because they are directly connected to the environment.

### **2.4 Environmental Perception (Cognition)**

Tuan (1990) defines perception as both the response of the senses to external stimuli and purposeful activity in which certain phenomena are clearly registered while others recede in the shade or are blocked out.

Tuan (1990) further explains that the human mind appears to be disposed to an organized phenomenon not only into segments but in an arrangement of opposite pairs. For example, the colour of the spectrum is broken into discrete bands and then 'red' is seen

as the opposite of 'green', red is the signal for danger, and green is the signal for safety. Traffic lights use these colours for the readiness with which we read their messages.

Tuan (1990) also explains that in other cultures the colours may have some different emotional associations, but the general point that remains valid is that the tendency for a human mind is to pick pairs among segments perceived in nature's continuum and assign opposite meanings to each pair.

Tuan (1990) suggests that this tendency may reflect the structure of the human mind. However the emotional force of some bipolar antinomies suggests that the total human being, that all levels of experience, is involved.

Some of the fundamental opposition in human experience according to Tuan (1990) are life and death, male and female, "we" (or "I") 'and – they'

These antinomies of biological and social experience according to Tuan (1990) are then transposed to the enveloping physical reality. The Indonesian dualism is divided into two parts where each part is not only a social unit, but a category in cosmic classification comprising all objects and events around the villagers Tuan (1990). A list according to Tuan 1990 could be set up classifying all objects and characteristics associated with each of the two divisions. The two divisions are categorized into left and right as shown below;

<b>Left</b>	<b>Right</b>
Death	Life
Female	Male
Earth	Heaven
Low	High
Darkness	Light

From the above dualism, the Female is on the same side with the earth. This, therefore, implies that whatever happens to earth also affects the female. If the environment is degraded, women suffer most because both Earth and Female belong to the same side.

Environmental Perception therefore is relevant to this study because of its associates of the Earth to the Female. This is clearly seen where the female is placed on the same side with the earth. It therefore implies that when the earth is degraded, women would suffer the most because they both belong to the same side hence they are directly affected.

## **2.5 Religious Theories of Judeo-Christian Tradition**

Judeo-Christian is a term used to describe the body of concepts and values which are thought to be in common by Judaism and adopted by Christianity and typically considered by some as a judgmental basis for western legal codes and moral values O’Riordan (1981).

O’Riordan (1981) further explains that the term in particular refers to the common Old Testament which is a basis of both moral traditions, including particularly the Ten Commandments and implies a common set of values present in the modern Western World. However O’Riordan (1981) mentions that the term has been criticized by some for suggesting more commonality than may actually exist.

O’Riordan (1981) theorises that the judaeo-christian ethic’ was the cause of Western men’s alienation from nature, his objectification of natural objects and processes, his anthropomorphism, and his quest for progress at all costs. O’Riordan (1981) further commented that Christianity was the most anthropocentric religion the world has seen. He further explains that Christianity has not only established a dualism of men and nature but has also insisted that it is God’s will that men exploit nature for his proper end. Christianity according to O’Reordan (1981), has been “blamed” for providing the rhetorical justification for separating men from nature and decreeing that man could shape his own destiny.

O’Riordan (1981) also identified the Genesis myth from Genesis chapter 1: verses 26-28 which states as follows:

“And God said. Let us make man in our image, after our likeness; and let him have dominion over the fish of the sea and over the fowl of the air, and over the cattle and over

all the earth, and over every creeping thing that creepeth upon the earth. So God created man in his own image, in the image of God he created him: Male and female, he created them. And God blessed them and God said unto them, be fruitful and multiply, and replenish the earth and subdue it. And have dominion over the fish of the sea, and over the fowl of the air and over every living thing that moveth upon the earth.” as having many contradictions’’. The myth according to O’Riordan (1981), contains contradictions which fall in three parts as follows:

The first one is that there is the duality between prophecy and command. O’Riordan (1981) believes that the two contentious statements about fertility and multiplication and about having dominion probably do not represent the earliest attitudes of man to his environment.

The second myth, according to O’Riordan (1988) was that there is a dichotomy between ‘subdue’ and replenishment. To subdue, according to O’Riordan (1988), is to exert force and command complete control, and exhortation to continue the struggle against an hospitable land. But, having ‘won’ the struggle, men’s duty is to replenish, care, tend the land for his and the earth’s natural good.

The third and final duality of the Genesis myth according to O’Riordan (1981) applies to the nature of the original relationship between man and other living creatures. The original text and various interpretations as well as all ambivalent to the precise relationship between God, man, and nature.

O’Riordan (1981) further illustrates two distinctly differing versions one by priestly, and the other in the Jahwist (earlier) edition where the priestly postulates that God first created the land, then the living things, and finally man who was to have control over his domain and on the other hand the Jahwist interpretation has God creating man on a barren earth, then adding the garden for him to tend. In the latter case according to O’Riordan (1981), it shows that living things are companions of man, not objects for his use. Schaeffer, (1970) also accepted this latter hypothesis. He believed that God was

united with all things on earth through the whole act of creation. 'When the world was made by God, all matter was embraced with dignity and equality of existence before God. The divergence of the two versions according to O'Riordan (1981), demonstrated the ancient uncertainty about the proper role of man on earth. It also possibly indicates the influence of social attitudes prevailing at the times these two significantly different interpretations were produced.

O'Riordan (1981), finally, concludes that our ecological 'crisis' is not so much a product of Judeo-Christian teaching but as a fundamental uncertainty of the past and the future of man, a doubt that is nationalist in myth.

From this theory, it can be pointed out that man is dominant over the earth and whatever belongs to it. This dominance could be connected to the degradation of the study area where the activities of men in Chongwe area such as the indiscriminate cutting down of trees for Charcoal burning is common. The dominance of man over nature, as pointed out in Genesis chapter 1 verses 26-28, as well as the command to multiply further explains that such activities are common possible causes of environmental degradation and it agrees with some of the responses collected from the field.

From all the theoretical perspectives explained above, it can be seen that the man/woman dichotomy is prominent in all the theories as well as the dualistic thinking which puts females on the same side with nature. This further explains that whatever happens to nature also happens to women because they are directly connected to nature. Cultural traditions also confirmed that women and nature have an old age association that has persisted throughout culture. The ancient identity of nature as a nurturing mother according to Merchant (1980) also links women's history with the history of the environment and ecological change.

The next chapter looks at the practical realities of Environmental Degradation and its effects on women.

## **CHAPTER THREE: PRACTICAL REALITIES OF ENVIRONMENTAL DEGRADATION AND WOMEN**

### **3.1 Introduction**

This chapter outlines the global environmental degradation and its effects on women. The chapter further outlines the environmental degradation effects on the Zambian women. It ends by stating the statement of the problem, purpose of the study, objectives of the research, research questions, significance of the study, limitations of the study as well as the definitions of terms used in the study.

### **3.2 Global Environmental Degradation and How it Affects Women.**

Global information on environmental degradation and its effects on women reveal that women of child bearing age are more vulnerable to environmental pollutants than men because of their reproductive function and breast feeding practice Ghimire and Krishna (1993).

According to UN studies available on <http://www.Fao.org/docrep/x0178E/x017804.htm>, the possible effects of exposure to chemicals range from infertility, miscarriage, malformation and neonatal death to growth retardation.

<http://www/unfpa.org//swp/2001/English/chos/html>, reveals that degraded environments means that women must spend more time and effort to either find fuel or produce food, but their responsibilities of meeting house hold needs and ensuring family health, do not diminish.

<http://www/unfpa.org//swp/2001/English/chos/html> further gave a variety of women's daily interactions with the environment such as fuel wood collection and fetching of safe and clean water.

The other environmental degradation includes exposure to pesticides which is reported in Sudan. This affects the prenatal mortality with the risk being higher among women farmers. Furthermore, toxic chemicals and pesticides in air, water and earth are responsible for a variety of women's health risks. This is because they enter body tissues and breast milk, through which they are passed on to infants.

Another proof of effects of environmental degradation among rural women comes from [fao.org/docrep http://www /xo17804.htm](http://www.fao.org/docrep/017/017804.htm), where a village in China's Gansu province whose state-run fertilizer factory discharges pollutants which are linked to a high number of still births and miscarriages.

In Russia also [fao.org/docrep http://www /xo17804.htm](http://www.fao.org/docrep/017/017804.htm) revealed that water pollution in its three rivers is a factor in the doubling of bladder and kidney disorders in pregnant women.

These case examples go to demonstrate the need to find out the types of environmental degradation common in Chongwe area and how they affect the chongwe rural women of Zambia as well as to draw out some educational solutions to the connections to be defined between environmental degradation in Chongwe area and Chongwe rural women. Chongwe is chosen as the study area because of its proximity to the greater city of Lusaka which makes its charcoal business very profitable as there is a readily available market in Lusaka.

### **3.3 Environmental Degradation in Zambia and its Effects on Women.**

Zambia is endowed with a wealth of natural resources within 16 ecosystems with landscapes that include forests, grassy plains, hills and steep escarpments, huge lakes and rivers, deep valleys and ecologically rich wetlands together with areas of entropic origin such as cropland, plantation forests and urban settlements.

The country at present faces daunting challenges of deforestation at the rate of 250-300 thousand ha/ year, land deforestation in many places verging on desertification, wildlife depletion, especially in the protected areas and all accompanied by soil erosion, loss of productivity, inadequate sanitation and air and water pollution ECZ(2000).

Deforestation in Zambia is mainly caused by uncontrolled forest product exploitation, illegal settlement, encroachment, clearing land for agricultural purposes and bush fires. Deforestation is further increased by wood fuel demand which is still the common energy source (supplying about 90% of urban house-holds) used by most house-holds. Wood fuel pressure has been very heavy especially near the big towns and along the main roads. Deforestation is also a consequence of population growth in Zambia ECZ (2000). Like in many parts of the world, women in Zambia have to travel kilometres in search of wood for fuel. And in areas like the Western Province of Zambia, cow dung is collected by rural women and is used as fuel for their cooking.

Land degradation is also another environmental concern common in Zambia. This is mainly caused by mining activities such as disposal of mine wastes (ECZ 2000).

Other forms of land environmental degradation common in Zambia according to ECZ (2000) are: air pollution from smelters including desertification at Mufulira, also dust dispersal from dried surfaces and process operations.

Water pollution is another form of environmental degradation common in Zambia. This is still caused by mining activities such as the disposal of sediment into the drainage system and natural waters either as discharges, overflows from spillages or by erosion of over burden dumps. Water pollution is also caused by the release of dissolved substances including heavy metals and other chemicals into rivers and underground water either as direct discharge or overflow from pollution control facilities ECZ (2000). Agriculture chemicals such as phosphates and nitrates can also pollute natural waters when applied excessively.

Inadequate sanitation is another serious environmental concern in Zambia. According to GRZ/ UNICEF( 1999), 80% of the Zambian population exercises sanitation without water and 62% of the Zambian population uses pit latrines. This problem leads to water borne diseases such as cholera. GRZ/ UNICEF( 1999), reports that inadequate sanitation and poor hygiene has contributed to high incidences of water borne diseases noticeably cholera. It further explains that contaminated surface water supplies are the cause of water related diseases in Zambia such as typhoid, hepatitis, cholera, polio, acute diarrhoea, schistosomiasis and guinea worm in Zambia GRZ/ UNICEF( 1999).

Wildlife depletion in Zambia is responsible for the reduction of animal species such as fish. This is caused by over fishing and unsustainable fishing methods GRZ (2005).

*Other factors responsible for depletion of wildlife resources are high demand for human settlement due to human population increase. This reduces habitats for wildlife and consequently leads to a reduction in wildlife species. Deforestation also contributes to loss of biodiversity. Others are uncontrolled hunting and unplanned clearance for farmland GRZ (2005).*

These and many other types of environmental degradation make women suffer most because they depend almost entirely on natural resources for their survival and that women are in direct contact with the environment because of their daily chores such as finding water for cooking and sanitation, as well as gathering wood for fuel. Therefore if the environment is degraded women are the most hit ECZ (2000).

### **3.4 Statement of the Problem.**

Although there is evidence provided worldwide to show how environmental degradation affects women, it is not very clear how similar environmental degradation affects rural women in Zambia. For this reason, the study sought to investigate how environmental degradation affected Zambian women in general and the Chongwe rural women in particular. The study would propose environmental education activities which could be

instituted among rural Chongwe women of Zambia arising from the environmental degradation to be determined in their area.

### **3.5 Purpose of the Study.**

The purpose of this study was, firstly, to find out how environmental degradation in Zambia affected rural women in general and the Chongwe rural women in particular. Having established this, the second aim of the study was to draw out some environmental education activities from the connection between environmental degradation and the rural Chongwe women.

### **3.6 Objectives**

The study sought to:-

1. identify types of environmental degradation existing in the Chongwe area.
2. portray how environmental degradation in Zambia affects women in Chongwe Districts.
3. suggest some environmental education activities from the connection between environmental degradation and the rural Chongwe women.

### **3.8 Research questions.**

1. What types of environmental degradation exist in Chongwe area?
2. How do such types of environmental degradation affect women in Chongwe area?
3. What educational solutions could be devised to address the connections between the environmental degradation to be identified and the Chongwe rural Women?

### **3.7 Significance of the study**

It is important to undertake this study because its results may reveal types of environmental degradation common in Chongwe area and how the rural and rural Chongwe women are affected by the types of environmental degradation to be revealed. Furthermore the results of the study would also suggest environmental education solutions that could address the connection between environmental degradation and Chongwe rural women. This is important to the people concerned as they would be able to manage their degraded area in order to reduce their suffering. The results are also important to Government because the environmental education activities to be suggested would help in eradicating environmental degradation in the study area as well as other rural areas in the country affected by similar types of environmental degradation.

## **CHAPTER 4: LITERATURE REVIEW**

### **4.1 Introduction**

This chapter looks at different types of environmental degradation that are common worldwide and Zambia in particular. The chapter further outlines the effects of environmental degradation to women worldwide and in Zambia.

### **4.2 Types of Environmental Degradation Common World Wide.**

Different types of environmental degradation are common world wide. These include toxic chemicals which are responsible for a variety of women's health risks as they enter body tissues and breast milk through which they are passed on to infants. <http://www.fao.org/docrep/x017E/x017804.htm> gives an example of two cities in India, namely Delhi and Agra, whose drinking water comes from rivers heavily polluted by DDT and other pesticides.

Air pollution is another example of environmental degradation that kills between 2.7 million and 3.0 million people every year, and about 90 percent of them in the developing world. This is as contained in <http://www.fao.org/docrep/x017E/x017804.htm>. This website further gave the most critical components of air pollution as sulphur dioxide (from the burning of oil and high sulphur coal), particulate matter (from domestic fires, power and industrial plants, and diesel engines), carbon monoxide and nitrogen dioxide (from petrol fumes from motor vehicles), ozone (from the effect of sunlight on vehicle emission-generated smog and atmospheric lead (from burning leaded petrol or coal). Air pollution includes indoor air pollution and outdoor air pollution. Sources from Bangladesh, <http://www.fao.org/docrep/x017E/x017804.htm> reveal that indoor air pollution kills more than 2.2 million people every year, most of whom are women. This is because they are managers of essential household resources such as fuel for cooking and heating. In Bangladesh some of these air pollutants come from crop residue used for cooking.

<http://www.fao.org/docrep/x017E/x017804.htm> further explains that outdoor air pollution also harms more than 1.1 billion people and kills estimated half million per year, mostly in cities. <http://www.fao.org/docrep/x017E/x017804.htm> explains further that fine particulate pollution is responsible for up to 10 percent of respiratory infections in European children. Time situation is particularly serious in the former Soviet Union where despite reduced levels of industrial output, automobile transport has increased remarkably. World Bank (1992).

Deforestation is another serious cause of environmental degradation world wide. This is defined by FAO as the complete clearing of tree forms (closed or open) and their replacement by non forest land uses. However, biologists define deforestation in terms of degradation of forest ecosystems, involving wildlife species, gene, and pools climate and biomass stocks. Deforestation occurs through timber logging resulting in the loss of topsoil, landslides and floods. Utting (1993)

The rate of deforestation has been estimated by FAO in the World Bank report of 1992 in the years (1971-1986) as being 0.4% and by 1989 global rate of tropical deforestation had reached 1.8 percent per year. As seen from these figures, forests have been destroyed each year in developing countries. The report further explains that Bangladeshi, Haiti, mainland India and Sri Lanka have already lost nearly all their primary forests World Bank (1992).

Other examples of environmental degradation include soil erosion, water shortage and crop failures. These reduce harvest yields because of exhaustion from over-use. This further reduces the productivity of household gardens. Soil erosion and crop failure are usually a result of sustainable land use. Panayatou (1993).

Nuclear contamination as reported from <http://www.fao.org/docrep/x017E/x017804.htm> has contaminated areas around the Chernobyl nuclear facility in Ukraine and over 2 million people were immediately affected, including 500,000 children. Also there has been a great increase in typhoid cancers.

Desertification is another form of environmental degradation. It is defined by United Nations Environment Programme as a complex process of land degradation in arid and sub-humid areas resulting mainly from adverse human impact. World Bank (1992).

Another type of environmental degradation is global warming. This is the kind of degradation which increases the temperature of the Earth's atmosphere. The effects of weather events such as global warming have a variety of effects on reproductive health, including an immediate short- term decline in fertility Foley (1991).

### **4.3 Types of Environmental Degradation Common in Zambia**

Zambia like any other country in the world today, is besieged by various environmental problems that include deforestation, air and water pollution, land degradation, inadequate water and sanitation as well as depletion of fish and wildlife species ECZ (2000).

The underlying factor for the types of environmental degradation stated above is poverty. Unless poverty levels are reduced drastically, the Zambian environment will suffer extreme degradation with negative impact on both humans and biodiversity ECZ (2000). This is due to over dependence of the poor people on the natural environment. ECZ (2000) explains the poverty situation in Zambia, with statistics which show that in 1998, 73% of the country's total population was considered poor, out of which 58% were extremely poor and 15% moderately poor as shown in table 1 below. The incidences of poverty during that time were higher in rural areas (83%) than urban areas (56%).

**Table 1: Incidence of Poverty by Rural/Urban and Stratum Zambia.**

Stratum Province	Poverty status			Total Population
	Extremely poor	Moderately poor	Above poverty line	
All Zambia	58	15	27	10,172,000
Rural	71	12	17	6,367,000
Urban	36	20	44	3,805,000
Small scale farmers	72	12	16	5,587,000
Medium scale farmers	57	15	28	249,000
Large scale farmers	14	3	83	9,000
Non-Agricultural	66	13	21	521,000
Low coast areas	41	20	39	2,762,000
Medium coast areas	30	21	49	549,000
High coast areas	19	15	66	494,000

**Source: Living Condition Monitoring Survey Report 1998, CSO.**

As mentioned earlier, the poor often rely almost entirely on the environment for their livelihood and survival strategies. At the same time, they are affected by the way others around them use the environmental resources.

Deforestation in Zambia is mostly caused by some traditional farming practices such as the Chitemene system and also by cutting down of trees for wood fuel. This leads to unsustainable charcoal production due to increased demand on fuel wood as an alternative energy. Other cases include unplanned clearance for farmland and uncontrolled annual burning. The consequence of inadequate forest management in Zambia has led to a loss of productivity, erosion, siltation, reduction stream flow and this also has contributed to climate change ECZ (2000).

Land degradation in Zambia mainly arises from the use of heavy machinery which tends to cause soil compaction, application of relatively huge amounts of chemical fertilizers as well as other agricultural chemicals on a regular basis also tend to degrade land. This has

tended to degrade productive land by reducing soil peat and thereby limiting the range of crops easily and economically grown on such soils. Also some traditional farming practices earlier mentioned have negatively impacted on the environment. Livestock production is also a source of land degradation in Zambia as it removes grass cover thereby exposing the soil to water and wind erosion. Young bushes and trees are also destroyed through browsing. Goats are particularly destructive in this respect ECZ (2000).

**Table2: Ownership of Grazing Land and Over – Grazing Conditions**

GEOGRAPHIC AREA	HOUSEHOLDS RAISING CATTLE	% OWNERSHIP OF GRAZING LAND				% REPORTING OVER GRAZING
		OWN LAND	RENTED	COMMUNAL LAND	OTHER	
ZAMBIA	111,085	4.5	1.1	93.9	0.5	17.7
CENTRAL	12,284	8.3	-	19.7	-	22.8
COPPERBELT	865	26.8	2.7	70.5	-	-
EASTERN	32,617	2.6	2.4	95.0	-	23.4
LUAPULA	510	-	-	100.0	-	30.6
LUSAKA	2,391	22.5	13.0	64.5	-	32.9
NORTHERN	8,558	10.1	0.5	89.5	-	21.2
NORTH WESTERN	3,681	0.6	-	95.6	3.8	24.9
SOUTHERN	38,979	3.3	0.3	95.3	1.2	12.4
WESTERN	11,200	1.5	-	98.5	-	5.2

**Source: Agricultural and Pastoral Production, CSO July, 1999**

Air and water pollution in Zambia is mainly caused by mining and industry activities which generate waste in form of solid, liquid (effluent) and air emissions in the environment. These effluents have an adverse impact on the environment (though data is still scanty) and locally alter the natural environment through land degradation which includes deforestation and displacement of existing land uses such as farming or wildlife. On the Copperbelt, for example, disposal of mine wastes and tailings, soil erosion, mine dusts and air pollution, unfilled mine pits and trenches, localized pollution of underground water, blockage of stream water courses, destruction of river banks and siltation of river water have led to pollution of surface waters by heavy metals ECZ(2000).

Water is a basic requirement for all life and good sanitation is essential for health. Poor sanitation and personal hygiene can contribute to high incidences of water borne diseases such as cholera. Zambia is endowed with sufficient water resources to meet the present and future demand. However, the uneven distribution and the threat of pollution pose the greatest danger to its continued availability in some areas. Surface water pollution in Zambia is mainly attributed to mining, agricultural and manufacturing activities especially along the line of rail ECZ (2000).

Inadequate sanitation and poor hygiene has contributed to high incidences of water borne diseases noticeably cholera. In 1992, cholera claimed 1178 lives out of 1595 verified cases. Cholera incidences are common in Central, Copperbelt, Luapula, Lusaka and Northern provinces. Dysentery has also affected more than 20,000 people since 1990 ECZ (2000).

Fish and wildlife species in Zambia are under threat due to some human factors such as land use, conflicts, human settlements, climate change, pollution, over exploitation of resources for example over fishing and deforestation. Others are introduction of new species into ecosystems, biotechnology, and lack of biodiversity knowledge. These pressures greatly affect biodiversity in Zambia such as flora and fauna or plants and animals. Some of the unsustainable fishing practices affecting Zambian fishing are intensive or over fishing, unsuitable fishing methods such as the use of mosquito nets and also selective fishing, Environmental Council of Zambia (2000).

Floods are also a common type of environmental degradation common in Zambia, especially in the rain season when most people are displaced by floods. The floods destroy people's homes and fields. This displaces the people and makes their lives difficult but the most affected are the women who usually shoulder the responsibility of taking care of the family, Worldwide Fund for Nature (2008).

#### **4.4 Effects of Environmental Degradation on Rural Women Worldwide.**

Women are society's most important resource managers. In some countries of Africa, they perform up to 80 percent of work in running the household supplying such essentials as water and wood as well as producing food for both for the family's needs and the growing export business, United Nations Environment Programme (1995).

Meanwhile, environmental degradation has made their burdens even heavier especially in ecologically vulnerable zones such as the Sahel, remote mountainous areas deforested tropics and urban slums. Some types of environmental degradation such as deforestation have forced them to walk further for their fuel wood. Diminishing access to safe water sickened their children and desertification has taken their cropland, United Nations Environment Programme (1995). Women in developing countries are particularly vulnerable since they depend almost entirely on natural resources for their survival Wolfe (1980).

Dankelmal and Davidson (1988) point out that many effects of environmental degradation are confined to women because of the division of labour by gender in rural agricultural societies. They are in most cases responsible for providing food for their families, growing food crops, finding water for cooking and sanitation, farming and fuel gathering among other tasks. They therefore, play a major role in managing natural resources which include, forests, water, soil and energy, and directly experience any environmental degradation because it affects their daily chores United Nations Environment Programme (1995).

Other literature reports that women in Zimbabwe can no longer use the well water on the land they work because the application of large amounts of fertilizer has both depleted and contaminated it. United Nations Environment Programme (1995).

In Gadharkh village in India, deforestation has made women to walk longer hours because they have to walk progressively further for firewood. The Krou women of Cote D'Ivoire have had to abandon their fields to expanding coconut and palm oil plantations. They have been forced into nearby forests which are not suitable for agriculture thus causing environmental damage. Women are the cultivators of many agricultural areas and their health is threatened by the misuse and over use of pesticides <http://www.unnnpa.org/swp/2001/English/chos/chos/html120>.

In developing countries, women suffer from indoor pollution due to using stoves in huts with poor or no ventilation. They and their children thus receive high exposures to a complex view of carcinogenic emissions with major impacts on their health. Unsafe water also makes children suffer and die from diarrhoea and other diseases. Women further live with mental and physical impairments because of iodine deficiency resulting from poor soil. Women's lives are generally harder and often shorter because of malnutrition, a complex end-product of inadequate agricultural practices, soil erosion, drought and interconnected problems Dankelman and Davidson (1993).

In Africa, women spend up to three hours a day fetching water, spending more than a third of their daily food interactions, because deforestation forces them to walk further and spend more time and energy collecting fuel wood.

Poor people are the most vulnerable to environmental shocks and stresses including floods, prolonged droughts and the emerging effects of global climate change. This is because women are least capable of coping with such shocks and stresses.

In relation to the environmental destruction or degradation which is now wide spread in the Third World, women have also suffered disproportionately due to their traditional role as providers of water and fuel wood supplies. This has not only increased the women's workload, but has also led to serious nutritional and health problems, associated with lack of clean food and clean water. In countries with a shortage of firewood, for example, women are now using manure as a fuel instead of as a fertilizer mortgaging' tomorrow's food to today's Cremin (1996). Women, according to Cremin (1996), were

also conserving fuel by cooking less often and it is reported from Korea, Bangladesh and the Sahel that only one meal was cooked each day instead of two as formerly.

#### **4.5 Effects of Environmental Degradation on Rural Women in Zambia.**

According to Makayi (1996), women in Zambia like other women world wide are affected by environmental degradation. Makayi(1996) reports that women are forced into walking greater distances for fuel wood and water due to environmental degradation. Women according to Makayi (1996) may further take a walk of four hours to reach a supply of water.

Makayi (1996) further explained that changes in the environment such as land degradation resulting from overgrazing, bushfires, deforestation and expansion of arable farming onto unsuitable marginal lands affect women directly and increase the women's level of drudgery. The costs to women according to Makayi (1996), included high disease rates, chronic malnutrition, disability and death. Also exhaustion from the drudgery of hauling water and fuel wood leaves women with little energy to prepare nutritious meals or to properly care for their children. Rural women mostly have an excessive domestic burden of looking and taking care of their families Makayi (1996).

The effects of environmental degradation in Zambia is however similar to the rest of the region and the world at large. Women are most affected when the environment is degraded in Zambia, as portrayed in other parts of the world. Floods as one of the examples of environmental degradation, affects women most. The recent report by Women For Change (2008) on flood assessment in Southern Province of Zambia states that there was a widely varying impact on households in different communities such as in Sinazongwe. In this area, women were seen to have severely suffered the flood effects. The report further points to an incident in which a 43 year old Beauty Siagumwa had a miscarriage of an almost nine month old pregnancy due to the closure of the nearest health clinic owing to the flood situation in the area. Other incidences cited in the report

included a word of thanks from the headperson of Bumba area in Mazabuka District who was quoted as follows:

“Thank you for coming to see us, for crying with us. For this is a funeral. We lost everything. We are mourning even though no one has died”

The report further explains that all the maize fields were submerged or washed away. This demonstrated that pregnant mothers and children had no food. This may result in some giving births to still born babies due to nutritional problems as there was no food.

The effects of floods according to the report would have a severe economic impact on families as everything was lost. In this regard the families may resort to marrying off the girl-child in an effort to recover economically. This would see the girl-child not continue with her education as she is the only alternative in this dilemma. However, the boy-child would still be allowed to continue with his education. This further demonstrates the effects of environmental degradation on young women in Zambia.

The next chapter looks at the various research methods that were used in this research study.

## **CHAPTER FIVE: METHODOLOGY**

### **5.1 Introduction**

This chapter introduces the various research methods that were used in this study. It introduces the research design, describes the study population and sample size. A description of the data collection instruments is also provided. Illustrations on what and how data was collected, analyzed and interpreted ends the chapter.

### **5.2 Research Design**

The investigation into the environmental education activities among Chongwe rural women arising from environmental degradation of their area was explored through a survey. A survey is a method of systematic data collection whose instruments of data collection (questionnaires and interviews) link to logic and statistical procedures for analyzing the kind of data collected. The research design is therefore a combination of both qualitative and quantitative study.

### **5.3 Target Population**

The target population of this study comprised all women in Chongwe rural district. It also included Chongwe Council workers, Chongwe District Hospital workers, Police officers, Chongwe High School and Chongwe Basic School teachers..

### **5.4 Study Sample**

The study sample comprised fifteen women from the nearby villages and some Chongwe council workers, health workers, policemen and some Chongwe high school teachers. Respondents from the council and hospital were men while those from the two Schools

were a combination of men and women. Respondents from the council and the hospital were trained on environmental issues and those from the schools were experts in their field of specialization which was teaching.

### **5.5 Sampling Procedure**

Simple random sampling procedure was used to select respondents for the study, except for one council worker, one police officer and one hospital worker who were each purposely selected from their institutions. Names of respondents from Chongwe High School were written on pieces of paper which were folded and two independent people were asked to pick one piece of paper at a time until 13 of them were picked. The pieces of paper that remained in the box were left out. The same was done at Chongwe Basic School. As for Chongwe women, the same simple random sampling procedure was followed and 15 women were finally selected and were interviewed using the interview guide.

### **5.6 Data Collection Instruments**

The following instruments were used to obtain the data required.

**Interview Guide**-These were administered to Chongwe women in Chongwe town.

**Questionnaires**- The questionnaires were administered to the council workers, Police officers, Hospital workers and to teachers at both Chongwe high school and Basic school.

**Observations**- Physical observations were conducted in areas where indiscriminate cutting down of trees for charcoal burning was common and pictures were taken.

These instruments were employed in order to obtain standardized information from all subjects in the sample which were from similar conditions. The data so collected was quantified for normative description. Observations were also made on degraded Chongwe

areas. The instruments also provided an in depth understanding of the variables of the study.

### **5.7 Data Collection Procedure**

Three methods were employed in order to establish the environmental education activities among Chongwe rural Women of Zambia arising from Environmental Degradation of their area. These were the administering of questionnaires to Chongwe residents such as Chongwe high school teachers, Council workers, Hospital workers, police officers and to Chongwe Basic School teachers.

The second method was to administer the interview guide to some Chongwe rural women and the third one was through observation which was accompanied by the taking of the photographs of some degraded areas in the study area.

To obtain the needed data from the study area and from the sampled participants, the researcher got written permission from the University authority. At every institution that was visited, the researcher reported to the information desk where she was later directed to the person in charge of the institution. After the introductions and briefing on the purpose of the visit, the researcher was given permission to administer the questionnaires and interview guides to the respondents and thereafter time was arranged for collection of completed questionnaires. As for the interview guide, they were administered to women there and then. The data collection exercise took approximately one month, from June to July 2007. To make the interview easy for women to understand, some terms in the interview guide were explained by the researcher. Documents from the council office on environmental degradation as well as environmental education activities in Chongwe area organized by the council were inspected and analyzed.

## **5.8 Data Analysis**

Quantitative data from questionnaires was analysed manually using simple distribution tables to generate frequency tables and percentages. Qualitative data from interview guides and physical observations were coded and emerging themes were grouped into categories using constant comparative analysis technique and then interpreted. The responses from the subjects were put in percentages to show the popularity of the idea.

## **5.9 Data Interpretation**

Analyzed data were presented in graphic forms especially frequency tables, Bar graphs and Pie charts. These summaries were used to display responses on how Environmental education took place in the research area. The information on the graphs was used to find answers to the research questions and objectives. Qualitative data from structured questions were coded and grouped under categories. Comparison of responses among the data collected was made and summarized. Themes cutting across were noted.

The following chapter presents the findings of the study and then discusses the data collected.

## **5.10 Definitions of Operational Terms.**

1. **Environmental degradation**-reduction in quality and or quantity of resources due to careless use of renewable resources.
2. **Environmental education**-a permanent process in which individuals gain awareness of their environment and acquire their knowledge, values, skills, experiences.

The chapter that follows looks at different types of Environmental Degradation that are common worldwide as well as in Zambia. It further explains their effects on women both worldwide and locally.

### **5.11 Limitations of the study**

Difficulties were encountered in organising transport to Chongwe and within Chongwe area as the research was self funded. However, this did not hinder the researcher from conducting the study in Chongwe area. Lack of local literature on the topic was also a limiting factor.

## **CHAPTER SIX: PRESENTATION AND DISCUSSION OF DATA**

### **6.1 Introduction**

The purpose of this study was firstly to find out how Environmental Degradation affected Chongwe rural women and having established this, the second aim of this study was to draw out some Environmental Education activities from the connection between environmental Degradation and the Chongwe rural women.

Furthermore, the objectives of this study was firstly to identify types of environmental degradation, the second objective was to clarify how environmental degradation affected the Chongwe rural women and thirdly to suggest some Environmental Education activities from the connection made between environmental degradation and the Chongwe rural women.

This chapter therefore presents the findings on the types of environmental degradation, effects of environmental degradation and Environmental Education activities common in Chongwe area.

### **6.2 Social Background of Respondents**

#### **6.2.1 Age Category of Respondents**

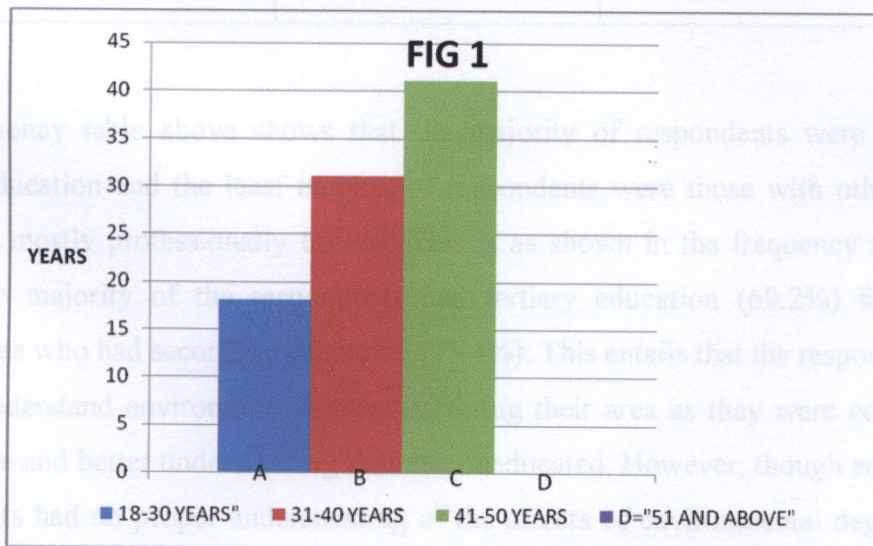
From the questionnaires distributed and the interview guide administered to the respondents, the data collected showed that there were more adults aged between 45-50 years and this represented 46.1% of the respondents. This was followed by the age category of 31-40 years, representing 38.5% of respondents and the remaining respondents were in the category of 18-30 years representing 15.4% of respondents as shown in the table and bar chart below.

**Table 3: Age Category of Respondents**

Age of Respondents	Number of responses	Percentage
18-30	2	15.4
31-40	5	38.5
41-50	6	46.1
<b>Total</b>	<b>13</b>	<b>100</b>

This variable was interested in determining the age of respondents in the study area. This was so because it was going to reveal the age category that was more likely to degrade the environment and thereafter find solutions of taking care of the environment. The information in the frequency table above comes out clearly in the graph form as shown below.

**Fig 1: Age Category of Respondents (N=13)**



In this age category, 41-50 years were the majority of the respondents (46.1%). This age group therefore signifies that there were more adults in the study area aged between 41 and 50 years than other age groups. The significance here is that usually environmental degradation such as deforestation or charcoal burning is done by adults and not children

or the elderly. This therefore, implies that remedial environmental education programs should target this age group so that the adults were aware of the effects of degrading the environment and the benefits of taking care of the environment.

### 6.2.2 Educational Levels of Respondents

The figure below shows the level of education attained by the respondents

**Table 4: Educational Levels of the Respondents. (N=13)**

Level	Number of responses	Percentage
Primary	0	0
Secondary	2	15.4
Tertiary	9	69.2
Other	2	15.4
Total	13	100

The frequency table above shows that the majority of respondents were those with tertiary education and the least number of respondents were those with other types of education mostly professionally trained. This is as shown in the frequency table above where the majority of the respondents had tertiary education (69.2%) followed by respondents who had secondary education (15.4%). This entails that the respondents were able to understand environmental issues affecting their area as they were educated and had a more and better understanding than the uneducated. However, though educated, the respondents had no proper understanding of the effects of environmental degradation in their area as this is shown from the data collected from the area and the photographs taken from the study area showing types of environmental degradation common in Chongwe area. This therefore entails that there should be more environmental education activities in the area so that the respondents could also be educated further on issues affecting their environment as well.

### 6.2.3 Marital Status of Respondents

Responses on the marital status of the respondents were revealed as shown in the table below. The information on marital status was going to reveal the category of respondents that had the potential of degrading the environment.

**Table 5: Marital Status of the Respondents.**

Status	Number of Responses	Percentage
Single	1	7.7
Married	11	84.6
Widowed	0	0
Other	1	7.7
<b>Total</b>	<b>13</b>	<b>100</b>

The table above shows that the majority of the respondents were married (84.6%) and the least of the respondents were single (7.7%). This is shown in the frequency table above where most of the respondents are married (84.6%) and the least number of respondents are single (7.7%). However, one respondent did not specify their status (7.7%) These were in the category of “other”.

The respondents were mostly married people as revealed from the frequency table above. This information was important because it was going to reveal whether or not the married people were able to articulate environmental issues affecting their area and if so, were they able to educate their families on how to take care of their environment? This therefore signifies that environmental degradation such as deforestation which is common in the area is usually caused by the married people. This is because families tend to be bigger in marriages, hence more resources such as firewood and more farming land are required to support the families. This puts more pressure on the environment and could lead to environmental degradation as exhibited from the photographs taken from the area.

#### 6.2.4 Family Size of Respondents

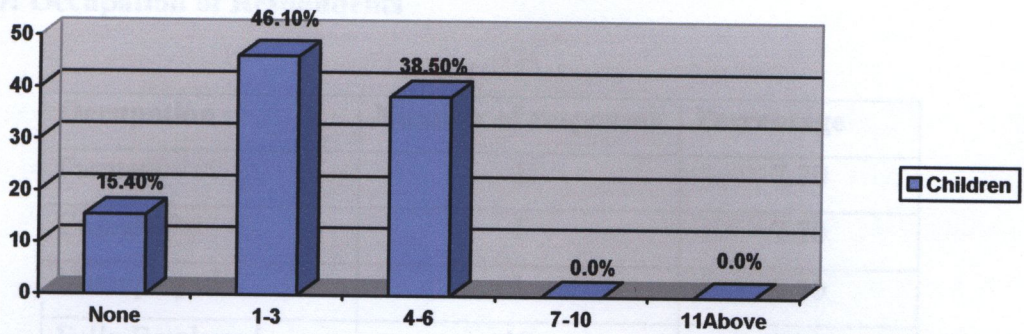
The table below shows the number of children each respondent had.

**Table 6: Family Size of Respondents**

<b>Number of children</b>	<b>Number of responses</b>	<b>Percentage</b>
None	7	53.8
1-3	1	7.7
4-6	5	38.5
7-10	0	0
11-Above	0	0
<b>Total</b>	<b>13</b>	<b>100</b>

The responses to this question were necessary to the study because they were going to show whether large family size had an effect on the environment or not. Furthermore, the information on the family size would help in determining or answering the research question on the causes of environmental degradation in Chongwe area because population size is related to environmental degradation. Thereafter, it was going to be suggested that the respondents with large family sizes be given more environmental education so that they learn how to look after their environment sustainably so that environmental degradation is prevented. The responses to this question were as shown in the bar graph below.

**Figure 2: Number of Children Each Respondent Had (N=13)**



The figure above indicates that many respondents had 1-3 children (38.5%), followed by respondents with 4-6 children (46.1%) and the least had no children (15.4%) had no children. Many respondents had 1-3 children.

The size of the family was important for the research as it was going to reveal the relationship between population size and environmental degradation. A high population puts pressure on the environment and the end result is environmental degradation as clearly shown in the study area. People with more children tend to degrade the environment more than those with no or fewer children. This could also be attributed to the amount of resources used on the children and the family at large.

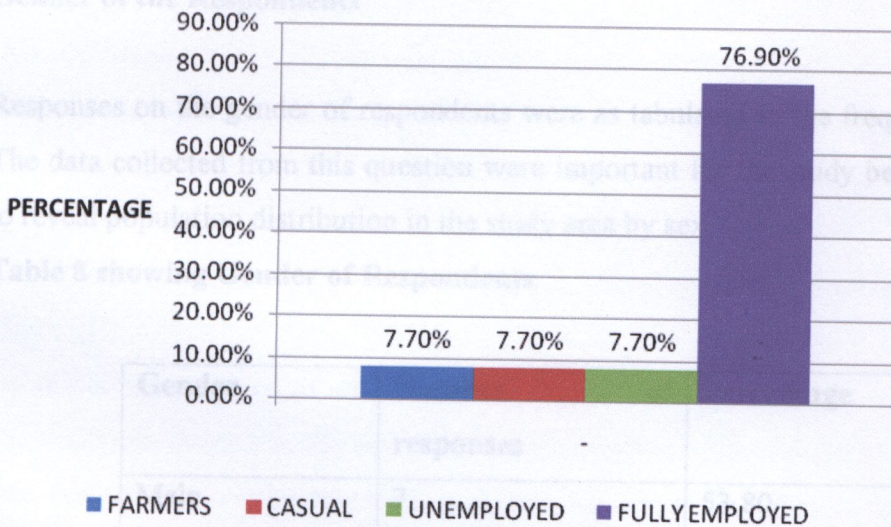
### 6.2.5 Occupation of Respondents

The findings on the occupation of respondents showed that the majority of the respondents were involved in some professional full time employment such as teaching, nursing and agricultural work (76.9%). The least respondents were farmers (7.7%) and others were doing nothing (7.7%) while some were depending on piece work (7.7%). The table and the figure below show the responses made by the respondents.

**Table 7: Occupation of Respondents**

Occupation	Number of responses	Percentage
Farmers	1	7.70
Casual	1	7.70
Unemployed	1	7.70
Fully Employed	10	76.9
<b>TOTAL</b>	<b>13</b>	<b>100</b>

The information in the table above comes out clearly in graph form as shown below.



The figure above revealed that the majority of the respondents were in full time employment. Occupation information would help in determining the causes of environmental degradation in the study area as it would answer one of the research question of the study . The result signifies that although the majority of the respondents were in full time employment, they still depended on charcoal and firewood as source of energy. The excessive use of charcoal and firewood in the study area had led to the degradation of the area. This was evident from the results collected from the research area and the pictures taken from it (see figures 3 and 4).

### 6.2.6 Period of Stay in Chongwe Area

Responses to the period of stay in Chongwe area could not be tabulated in form of range because each respondent had lived in Chongwe for a different length of time. The period ranged from a minimum of 2 years to a maximum of 24 years. However this showed that very few people lived in the study area for over 25 years. The responses on this question were important to the study because it would reveal whether there was environmental degradation in the study area or not. This information was going to lead to the research question about the types of environmental degradation common in the area and answer it correctly.

### Gender of the Respondents

Responses on the gender of respondents were as tabulated in the frequency table below. The data collected from this question were important for the study because it was going to reveal population distribution in the study area by sex.

**Table 8 showing Gender of Respondents**

<b>Gender</b>	<b>Number of responses</b>	<b>Percentage</b>
Male	7	53.80
Female	1	7.70
Did not specify	5	38.50
<b>Total</b>	<b>13</b>	<b>100</b>

The frequency table reveals that most of the respondents were men (53.85%) and the least respondents were females (7.7%). Others did not indicate their sex (38.5).

This shows that environmental degradation such as the indiscriminate cutting down of trees for charcoal burning that leads to deforestation is usually done by men (see figure 3) but not women or children. This therefore implies that more environmental education

lessons should target men because they are the ones who are involved in the direct degradation of the environment and the ones who are mostly involved in environmental issues affecting the area.

### **6.3 Environmental Degradation in Chongwe Area**

#### **6.3.1 Understanding of the Phrase “Environmental Degradation” and Types of Environmental Degradations Common in Chongwe Area**

On the understanding of the phrase “**Environmental Degradation**”, it was revealed that all the respondents understood the phrase. This was because all the respondents answered in the affirmative. It must be noted that the researcher was explaining this term to the Chongwe women who were interviewed.

All the respondents (100%) who understood the phrase “Environmental degradation” were also able to mention the types of environmental degradation found in the area under research as elaborated.

#### **6.3.2 Types of Environmental Degradation Common in Chongwe Area**

On the common types of environmental degradation found in the area under research, deforestation, water scarcity and pollution were some of the common ones cited. Factors that contributed to deforestation included indiscriminate cutting down of trees for charcoal burning, poverty, lack of environmental education activities, population and construction work. The research findings agree with ECZ (2000) which mentioned deforestation, water pollution and air pollution as some of the common types of environmental degradation common in Zambia. The data collected on the types of environmental degradation in Chongwe area was also in line with <http://www.fao.org/docrep/x017E/x017804.htm> which identified air pollution, water pollution and soil erosion as well as deforestation as some of the common world wide environmental degradation types.

Figures 3, 4, 5 and 6 below show one of the common types of environmental degradation which was in the form of deforestation due to the indiscriminate cutting down of trees for charcoal burning.

**Figure 3: Trees Cut Indiscriminately in Chongwe Area**



**Source: Field Data, 2007**

Source: Field Data, 2007

**Figure 4: Trees branches Heaped Together in Readiness for Charcoal Burning.**



**Source: Field Data, 2007**

**Figure 5: Tree branches being Buried for Charcoal Production**



**Source: Field Data, 2007**

**Figure 6: Logs of Trees being Buried for Charcoal Burning**



**Source: Field Data, 2007**

The common types of environmental degradation revealed from the study area agree with Environmental Council of Zambia (2000) which mentioned deforestation, water pollution and air pollution as some of the common types of environmental degradation common in Zambia. The research findings were also in line with <http://www/unfpa.org//swp/2001> which identified air pollution, water pollution soil erosion and deforestation as some of the common worldwide environmental degradation types.

### **6.3.3 Causes of Environmental Degradation in the Study Area**

After identifying the types of Environmental degradation common in Chongwe area, the respondents further gave the causes of the identified types of environmental degradation found in their area as indiscriminate cutting down of trees,, affluent poured into Chongwe river, poor farming methods, lack of sensitization, illiteracy and charcoal burning. Poverty was also a cause of environmental degradation in Chongwe. This agreed with the literature from the Environmental Council of Zambia (2000) which gave poverty as the

underlying factor for the type of environmental degradation common in Zambia in general. ECZ (2000) also revealed that unless poverty levels were reduced drastically in Zambia, the Zambian environment would suffer extreme degradation with a negative impact on both humans and biodiversity. This is true in the research area because the type of environmental degradation common in the area affected the residents in many ways.

## **6.4 Dimensions of Environmental Degradation**

### **6.4.1 Category of People Affected by Environmental Degradation**

On the responses as to which category of people was affected by the identified environmental degradation found in the area, the respondents said that all the categories including women, children and men were affected. This was because all the respondents answered in the positive sense to all the three categories.

As to how the types of environmental degradation affected the women, it was revealed that women came to be affected because they traveled long distances from their homesteads to fetch water and collect firewood. Secondly, children were affected because they drunk contaminated water and they were prone to diseases and hunger in the area. Last but not the least, men were also affected by the identified types of environmental degradation common in Chongwe area because they too like children drunk contaminated water and, therefore, were prone to water borne diseases such as cholera.

### **6.4.2 Category of People Most Affected by Environmental Degradation**

Responses on which category was most affected by the types of environmental degradation mentioned above and why that was so showed that the women were the most affected because of the division of labour by gender in rural areas. They were in most cases responsible for providing food for their families, growing food crops and finding water and firewood for cooking, and these resources were very far from their homes. The

frequency table below shows the results by number of responses and percentage from the most affected to the least affected category

**Table 9: Table showing Responses on the Category Most Affected by Environmental Degradation**

<b>Category</b>	<b>Number of responses</b>	<b>Percentage</b>
Women	10	76.9
Children	2	15.4
Men	1	7.7
<b>Total</b>	<b>13</b>	<b>100</b>

The frequency table above reveals that women were the most affected by Environmental Degradation (76.9%) followed by children (15.4%) and the least were men (7.7%). This agrees with the researcher's assumption that women were the most affected by environmental degradation. The result further agrees with some reviewed literature such as Dankelman and Davidson (1988) who pointed out that many effects of environmental degradation were confined to women because of the division of labour by gender in rural agricultural societies. Women were in most cases responsible for providing food for their families as well as finding water for cooking and sanitation among other tasks

#### **6.4.3 Effects of the Identified Types of Environmental Degradation Common in Chongwe Area on Women**

The respondents also revealed that all the types of environmental degradation affected them as women and when asked on how the identified environmental degradation types affected them as women, the respondents disclosed that they were affected because they collected firewood and fetched water from distant places. Also when children got sick due to drinking unsafe and contaminated water, the women spent more time caring and

nursing them. The women also revealed that they spent more time queuing for clean water from the few boreholes around the area. Though the data collected showed that men, children and women were affected by the revealed types of environmental degradation in the research area, the latter were the most affected because of the division of labour by gender in rural areas. Women were in most cases, responsible for providing food for their families, growing crops for food and finding water and firewood for cooking. However, these resources were very far from their homes as the area was degraded. This is in line with Dankelmal and Davison (1988) who explained that the many effects of environmental degradation were confined to women because of the nature of the roles they played in their homesteads and therefore were directly affected by any environmental degradation. Once the environment is degraded, the women have to travel long distances to fetch water and collect firewood.

The data collected agreed with Dankelmal and Davidson (1988) who stated that women was the category most affected by environmental degradation. This is because women perform up to 80 percent of work in a household in supplying such essentials as water and wood, meanwhile environmental degradation has made their burden even heavier especially in Sahel and remote areas. Furthermore the data collected was also in line with Wolfe (1980) who stated that women were the most affected by environmental degradation. This was because women in developing countries are particularly vulnerable since they depend entirely on natural resources for their survival.

#### **6.4.4 How Environmental Degradation Affect the Natural Environment**

Responses on how the identified types of environmental degradation affect the natural, environment in the area showed that the natural environment is affected by the types of environmental degradation in the area because soil erosion washes away the good top soil as most trees were indiscriminately cut down for charcoal burning. This also disturbed the distribution of natural ecosystems and food chains hence natural ecosystems were in this way affected by the identified environmental degradation common in the area.

#### **6.4.5 How the political environment contributes to environmental degradation in Chongwe area**

The political environment was also affected by the environmental degradation types common in the study area in that the village headmen and chiefs levy or allocate land to the charcoal burners. They also allocate land where these cut trees from. In the same vein, the local council also levies charcoal burners and realized revenue channeled to the local authority. This contributed to the environmental degradation in the study area because the charcoal burners were allowed by the traditional rulers to continue cutting trees indiscriminately. The revenue from charcoal burners and wood cutters was also collected by the Department of Forestry.

#### **6.4.6 How environmental degradation and the social environment affect each other**

The social Environment was another environment that was affected when the environment is degraded in that when the environment is degraded, the eating habits of people changed. For example, when the soil is degraded, it would not support crops and the people would not have enough food to support their families. This therefore would affect people's eating habits. There were also some social habits that caused environmental degradation such as the cultural beliefs about the freedom to use the natural resources. The formal philosophy about the diminishing of resources was not formally articulated or believed in by the local people. This therefore resulted in unsustainable use of the environment which later caused environmental degradation. Hence, in this way the social habits could cause environmental degradation. The use of braziers also contributed to environmental degradation. This is because charcoal was used which was prepared from trees which were cut and later burnt causing more harm to the environment.

#### 6.4.7 Effects of Environmental Degradation on the Economic Environment

The economic issues that arose from the charcoal burners were that charcoal burning was their only source of livelihood because most of them were lacking formal skills and education to venture into other income generating activities. However, they contributed to environmental degradation when they continued with their activities despite being poor. This is in line with UNDAF (2007) which states that as communities became more impoverished they tended to resort to using less sustainable practices of production and harvesting from the degrading natural biomass thereby contributing to its further degradation. UNDAF (2007) further explains that environment and natural resources were not being effectively managed partly due to high levels of poverty.

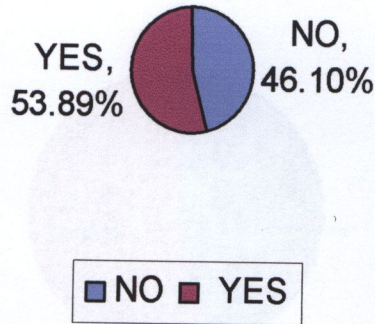
#### 6.5 Environmental Education in Chongwe Area

Responses on Environmental Education activities in the research area revealed that the majority of respondents (53.89%) agreed that there were environmental education activities taking place in the area the minority (46.1%) said there were no environmental education activities taking place in the area. This is as shown in the table below and later represented in the pie chart form showing percentages.

**Table 10: Table Showing Responses on Environmental Education Activities in Chongwe Area**

Type of Response	Number of Responses	Percentage
Yes	7	53.89
No	6	46.10
<b>Total</b>	<b>13</b>	<b>100</b>

In other words, the graphical representation of the same information is as shown in the pie chart below.



The information in the pie chart revealed that the majority answered in the affirmative concerning the activities of Environmental Education taking place in the area. This shows that most residents in Chongwe area were aware of environmental education activities taking place (53.89%).

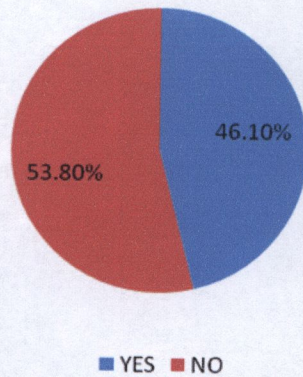
### 6.5.1 Participation of the Chongwe Residents in Environmental Education Activities

Responses on the participation of Chongwe residents in organized environmental education activities in the area are as shown in the table below and the pie chart. The data revealed that very few residents did participate in the activities (46.1%), and the majority of the respondents did not participate (53.8%).

**Table 11: Participation of respondents on the EE Activities in Chongwe Area**

Type of Response	Number of Responses	Percentage
Yes	6	46.10
No	7	53.80
<b>Total</b>	<b>13</b>	<b>100</b>

The pie chart below also shows the respondents participation in Environmental Education Activities.



Both the table and the figure above show clearly that most of the respondents (53.80%) did not participate in the Environmental Education activities taking place in their area. This therefore entails that the majority of the residents did not take part in the activities of the environment taking place in their area.

The other organizers of environmental education activities in Chongwe area included Community Health Nutrition and Gender Education Services (CHANGES).

### 6.5.2 Organizers of Environmental Education in Chongwe Area

The organizers of environmental education activities in Chongwe area according to the data collected were the Ministry of health, Ministry of Local Government, Ministry of Agriculture and Fisheries, as well as Ministry of Education through preventive maintenance in schools. The picture captured in the study area below shows the Ministry of Local Government through the local council office addressing the residents of Chongwe on the importance of taking care of their environment. The picture also revealed that both women and men did participate in environmental education activities. The data collected showed that there were many players offering environmental education in Chongwe area. This revelation calls for an office in the study area which would coordinate all the environmental education activities there.

**Figure 7: Environmental Education Talk in Chongwe Area Organized by the Local Council**



**Source: Field Data, 2007**

The other organizers of environmental education activities in Chongwe area included traditional leaders and Non Governmental Organizations such as Community Health Nutrition and Gender Education Services (CHANGES).

From the above, I can deduce that a number of different stakeholders operated in Chongwe area to address the relationship between Chongwe women and the environmental degradation in the area. This, therefore, raises educational implications such as the need for an office to coordinate all the Environmental Education activities in the area. At the moment (2007) there was no such an office, hence it is not clear as to who will be the teacher and learner to teach and learn on the importance of taking care of the environment. There was also a need for networking among the various players offering environmental education activities in Chongwe. This would bring harmony in the sensitization of Chongwe residents on issues affecting their Environment.

### 6.5.3 Frequency of Environmental Education Activities in Chongwe Area

Furthermore, among those who participated in the Environmental Education activities, about 23.1% participated every month, and 15.4% once a year, where as 7.7% participated when these activities were organized in their community regardless of the time period, 53.8% did not specify if they participated or not. This information is presented in table10 below.

**Table 12: Responses on the Frequency of Environmental Education Activities in Chongwe Area.**

The frequency of participation in environmental education activities in Chongwe area was as shown in the frequency table below.

<b>Period</b>	<b>Number of Responses</b>	<b>Percentage</b>
Every month	3	23.1
Every 6 months	0	0
Annually	2	15.4
Others	1	7.7
Not specified	7	53.8
<b>Total</b>	<b>13</b>	<b>100</b>

The data reveals that the majority of the respondents (53.8%) did not specify as to whether they participated or not. This revelation made it difficult for the researcher to analyze the frequency of environmental education activities in the study area. The responses from this question were necessary for the study because it would have been revealed whether or not respondents participated frequently in environmental education activities taking place in their area. Frequency of participation in Environmental

Education Activities is important because it makes the respondents be aware of their environment and how to take care of it in order to prevent environmental degradation.

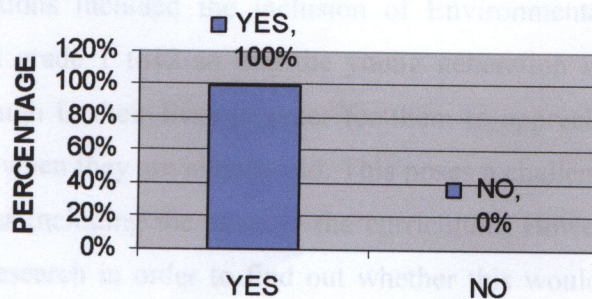
### 6.6 Making Linkages between Environmental Education and Environmental Degradation

The responses on the connection between Environmental Education and environmental degradation are shown in the figure below. The data collected shows that all the respondents (100%) agreed there was a connection between Environmental education and environmental degradation. This is exhibited in the table and the figure below.

**Table 13: Responses on the connection between Environmental Education and Environmental Degradation**

Type of Response	Number of Responses	Percentage
Yes	13	100
No	0	0
<b>Total</b>	<b>13</b>	<b>100</b>

The responses on the connection between Environmental Education and Environmental Degradation are also illustrated as shown below in the bar graph.



From the table and the figure shown above, it can be seen that all the respondents (100%) agreed that there was a connection between Environmental Education and Environmental degradation. The connection was however made clear by the researcher's probing.



and its components. It is also through Environmental Education also that people are made to understand nature and consequently learn to conserve it.

Furthermore, Environmental education provides answers or solutions to Environmental degradation. This is because it addresses effects of Environmental degradation and promotes a clean environment.

#### **6.6.1 Responses on How Environmental Education Activities could be used in Order to Reduce Environmental Degradation in Chongwe Area**

Finally, respondents were asked on how best they could use environmental education activities in their area to address the environmental degradation problems identified there. The responses included the following:

- A.** Having various forums such as workshops and seminars with locals where the locals would be taught how to look after their environment well in order to reduce or stop environmental degradation.
- B.** Through performances such as sketches and drama which would be performed in communities. The aim of these would be to sensitize the locals on the dangers of environmental degradation and highlight the benefits of using the environment sustainably.
- C.** Other suggestions included the inclusion of Environmental Education in the school syllabus from grade 1 to 12 so that the young generation is equipped with the knowledge early enough in their lives in order for them to appreciate the environment instead of teaching it when they are already old. This poses a challenge to the curriculum developers to consider including the same in the curriculum. However, there would be need to carry out a research in order to find out whether this would bring the intended purpose.
- D.** Through T.V programs and radio documentaries as well as the distribution of brochures and posters portraying the effects of environmental degradation and its solutions. The issue of coordination and proper networking would therefore be needed.

This is because there would be need for the coordinating office to plan in advance all the programs that would need to be aired or published.

E Occasionally, the Environmental education activities were sometimes organized by traditional leaders who sensitize the locals on environmental education issues. Non-Governmental Organizations such as CHANGES sometimes conduct some environment education activities in the area. The last photograph taken from the area (see figure 10) further reveals that there are some environmental education activities in the area. This meeting was organized by the Ministry of Local Government and Housing through the local council office. The residents in the picture were being sensitized on the importance of taking care of their environment.

The responses of how environmental activities could best used in order to address the environmental degradation problem identified in the area revealed that through various forums such as workshops and seminars with locals, sketches and drama groups that would perform in the area to sensitize the locals on the dangers of environmental degradation and the benefits of taking care of the environment.

The responses given concerning the best solutions to address environmental degradation in Chongwe area however showed that there was no proper procedure followed in the area to address environmental degradation there. This therefore calls for collaboration among all the stakeholders to come up with clear-cut solutions in deciding who should use what in sensitizing the residents of Chongwe on the importance of taking care of their environment .Furthermore, this still calls for the coordinating office in the study area to run all the programmes of environmental education.

The next chapter presents the conclusion and recommendations of the study.

## **CHAPTER SEVEN: CONCLUSIONS AND RECOMMENDATIONS**

### **7.1 Introduction**

The purpose of this study was firstly to find out how environmental degradation in Zambia affected rural women in general and the Chongwe rural women in particular. Having established this, the second aim of the study was to draw out some environmental education activities from the connection between environmental degradation and the rural Chongwe women.

The chapter presents the summary, conclusions and recommendations of salient points emanating from the study's findings and ends with recommendations.

### **7.2 Conclusions**

From the data collected in this study, the following were the revelations of the study.

- (i) The environmental degradation common in Chongwe area is water pollution, air pollution and deforestation.
- (ii) Deforestation was the most evident one as revealed from pictures taken ( see figures 4,5,6 and 7). This was because trees were cut indiscriminately for charcoal burning.
- (iii) Though water pollution and air pollution were mentioned as some of the types of environmental degradation in the area, it was not very clear on how the two types of environmental degradation affected the rural women.
- (iv) Deforestation as an identified environmental degradation type in Chongwe area affected Chongwe rural women in that they traveled long distances in search of firewood for cooking and preparing food for their families.
- (v) The suggested environmental education activities in Chongwe area as reviewed from the study include:

- (a) the inclusion of Environmental education in the school syllabi from Grade 1 to Grade 12 so that young ones were equipped with the knowledge early enough for them to appreciate and understand the environment.
- (b) holding of workshops and seminars with the locals by the people in authority such as the council and other line ministries like the Ministry of Health
- (c) public broadcasting of environmental issues through television programs . and radio documentaries
- (d) distribution of brochures and pictures portraying the effects of Environmental Degradation and how it could be solved.
- (e) Drama and cultural performances based on environmental issues.

Finally, the data collected also revealed that there were very few people who participated in environmental education activities and also that the environmental education activities were rarely conducted in the area. This made the area prone to environmental degradation because of lack of sensitization on issues affecting the environment. From the data collected, it was also evident that most respondents knew of the connection between environmental Education and environmental degradation as this came out in that 53.8% of them said there was a connection.

From this revelation, it is clear that the locals lacked environmental education to help them manage the problems of environmental degradation in their area.

Finally, the research also revealed that all the four types of environment were affected by the environmental degradation in the area. These include the political, natural, social and economic environments. This was in line with the definition of environmental degradation by Environmental Council of Zambia (2000) which defined Environmental Degradation as the reduction in quality and quantity of resources due to careless use of the renewable resources. This is true in that when the environment is degraded,

everything in it is disturbed as well as life in general where natural, political, social or political environment, are part and parcel.

### **7.3 Recommendations**

This subsection makes recommendations based on actual research findings. In this regard, the readers will be reminded of research findings which then would be followed by recommendations.

1. The findings of the study indicated that environmental educational activities taking place in the area were not involving each and every resident. In other words, there were very few residents who participated in environmental education activities taking place in the area. This suggested that there was a need to involve every resident in Chongwe area in order to participate in the few environmental education activities so that all residents could be sensitized on the importance of taking care of the environment in order to reduce environmental degradation in the area.
2. The study's findings also revealed that environmental education activities in the study area were rarely conducted, hence there was need to increase these activities so that the locals could see the need and seriousness of preserving the environment as well as the dangers of degrading their environment.
3. The research findings also pointed out that the environmental education activity taking place in the area were mostly general discussions with the locals on how to take care of the environment. This should be intensified through other activities such as drama performances which portray the need to preserve the environment. Therefore other activities suggested in the research area such as distribution of brochures portraying the dangers of environmental degradation and the need to preserve the environment should be seen to happen or take place in the area.
4. The study's findings further revealed that women were the most affected by Environmental degradation in Chongwe. This suggests that women should also be involved in issues affecting their environment as they were directly affected by

environmental degradation. This would ensure that women play a major role in managing natural resources.

5. The data collected also showed that most residents were aware of the connection between environmental education and environmental degradation. This revealed that locals had some knowledge of the environment. This suggests, therefore, that more environmental education should take place in the area in order for the locals to be more aware of their environment and the need to take care of it.
6. The data collected further showed that all the four environments namely, social, economic, political and natural were affected by degradation. It is therefore recommended that everyone should be part and parcel of solving issues affecting the environment as it is a crosscutting issue which affects all the environments.

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## QUESTIONNAIRE

**TITLE OF RESEARCH: Environmental Education activities among Chongwe Rural Women of Zambia arising from the environmental degradation of their area.**

Date..... /..... / 2007

### SELF INTRODUCTORY

I am a post-graduate student in the school of Education at the University of Zambia conducting a research on **types of environmental degradation** in chongwe area and **how these affect the rural women of the same area**. Afterwards, the aim will be to **design relevant environmental education activities** with which to empower the Chongwe rural women so that they could effectively address the forms of environmental degradation to be identified. You have been chosen as one of the key persons who are knowledgeable about issues in Chongwe area. You are, therefore, kindly requested to answer the questions in this questionnaire.

Name of institution .....

Province.....

District.....

Position within the institution.....

### SECTION A: PERSONAL INFORMATION

1. Gender Male [ ] Female [ ]

1. How old are you?

(A) 18-30 yrs

(b) 31- 40 yrs

(c) 41-50yrs

(d) 51 and above

2. Educational level attained.

(a) Primary level

(b) Secondary level

(c) Tertiary level

(d) other (specify)-----

3. Marital status

(a) Single

(b) Married

(c) Widowed

(d) Other (specify) -----

4. How many children do you have?

(a) None

(b) 1-3

(c) 4-6

(d) 7-10

(e) 11 and above

5. For how long have you lived in Chongwe area?

----- (specify here)

**SECTION B: ENVIRONMENTAL DEGRADATION ISSUES**

1. Do you understand the phrase Environmental degradation?

Yes [ ]

No [ ] (If no, researcher should explain the term)

2. If so, what are the types of environmental degradation (found) in your area?

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3. What do you think are the common causes of the identified types of environmental degradation in your area?

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.....  
.....

4. Do these types of environmental degradation affect the following categories of people in your area?

Women [ ]

Children [ ]

Men [ ]

5. How do the types of environmental degradation affect the category/categories chosen above?

Women.....  
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.....  
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Children.....

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Men .....

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.....

6. Which category is most affected by the types of environmental degradation mentioned above and why?

Women [ ]

Children [ ]

Men [ ]

Reason.....  
.....  
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7. How do these types of environmental degradation affect the following in your area :

(a) Natural environment .....  
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(b) Political issues .....  
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(c) Social issues  
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(d) Economic issues

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**SECTION C: ENVIRONMENTAL EDUCATION ACTIVITIES**

1. Are there any Environmental education activities taking place in your area?

Yes [ ]

No [ ]

2. Do you participate in these activities?

Yes [ ]

No [ ]

3. If yes, how often do you participate in these environmental education activities?

(a) Every month

(b) Every 6 months

(c) Annually

(d) Others

(specify).....  
.....  
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4. Who are the organizers of these environmental education activities?

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5. Do you think there is a connection between environmental degradation and environmental education?

Yes [ ]

No [ ]

6. If yes, what is the connection?

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7. Suggest how best you think environmental education could be used in order to address the environmental degradation problems identified in this document?

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## INTERVIEW GUIDE

**TITLE OF RESEARCH: Environmental Education activities among Chongwe Rural Women of Zambia arising from the environmental degradation of their area.**

**Date..... /..... / 2007**

### SELF INTRODUCTORY

I am a post-graduate student in the school of Education at the University of Zambia conducting a research on **types of environmental degradation** in chongwe area and **how these affect the rural women of the same area**. Afterwards, the aim will be to **design relevant environmental education activities** with which to empower the Chongwe rural women so that they could effectively address the forms of environmental degradation to be identified. You have been chosen as one of the key persons who are knowledgeable about issues in Chongwe area. You are, therefore, kindly requested to answer the questions in this questionnaire.

### SECTION A: PERSONAL INFORMATION

1. How old are you?

(A) 18-30 yrs

(b) 31- 40 yrs

(c) 41-50yrs

(d) 51 and above

2. Educational level attained.

(a) Primary level

(b) Secondary level

(c) Tertiary level

(d) Other (specify) -----

3. Marital status

(a) Single

(b) Married

(c) Widowed

(d) Other (specify) -----

4. How many children do you have?

(a) None

(b) 1-3

(c) 4-6

(d) 7-10

(e) 11 and above

5. What do you do for your living?

(a) Farming

(b) Piece working

(c) Nothing

(d) Any other (specify).....

6. For how long have you lived in Chongwe area?

----- (specify here)

**SECTION B: ENVIRONMENTAL DEGRADATION ISSUES**

1. Do you understand the phrase Environmental degradation?

Yes [ ]

No [ ] (If no, researcher should explain the term)

2. If so, what are the types of environmental degradation (found) in your area?

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3. What do you think are the common causes of the identified types of environmental degradation in your area?

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4. Do these types of environmental degradation affect you as a woman?

Yes [ ]

No [ ]

5. How do these types of environmental degradation affect you as a woman?

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(6) How do these types of environmental degradation affect the following in your area :

(a) Natural environment .....

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(b) Political issues .....

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(c) Social issues

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(d) Economic issues

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**SECTION C: ENVIRONMENTAL EDUCATION ACTIVITIES**

1. Are there any Environmental education activities taking place in your area?

Yes [ ]

No [ ]

2. Do you participate in these activities?

Yes [ ]

No [ ]

3. If yes, how often do you participate in these environmental education activities?

(a) Every month

(b) Every 6 months

(c) Annually

(d) Others

(specify).....  
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4. Who are the organizers of these environmental education activities?

.....  
.....  
.....

5. Do you think there is a connection between environmental degradation and environmental education?

Yes [ ]

No [ ]

6. If yes, what is the connection?

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7. In your own view, what do you think could be other environmental education activities that can be utilized in your area in order to reduce on environmental degradation common in your area?

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