The Impact of Environmental Degradation on Women in Ohaozara and Ivo Local Government Areas of Ebonyi State, Nigeria

By

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Declaration

I, EUGENIA CHIKA AKPA (Mrs), hereby declare that: this thesis entitled, **"The Impact of Environmental Degradation on Women in Ohaozara and Ivo Local Government Areas of Ebonyi State, Nigeria"** is a record of my own research work and it has not been submitted in any form to any other institution for award of any degree or diploma. All quotations and sources of information have been duly acknowledged and referenced.



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Zaria, August, 2000

Certification

This project report entitled: **The Impact of Environmental Degradation on Women in Ohaozara and Ivo Local Government Areas of Ebonyi State, Nigeria** by Eugenia Chika Akpa meets the requirements of the regulations governing the award of Master of Science Degree of Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation.

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Dedication

This work is dedicated to my mother and all women of this world especially those suffering various kinds of economic and social discrimination.

Acknowledgements

I wish to use this opportunity to thank all my teachers who in various ways contributed in bringing me up to this level. I especially thank my team of supervisors, Prof. S. A. Nkom and Dr. J. Hellandendu. They showed untiring efforts in clarifying issues, made invaluable suggestions, showed a lot of patience, tolerance and understanding in guiding me even at very difficult periods in the course of this work. It is my ardent hope that the work, as it appears here, might in some ways, justify the input made by them. I remain ever grateful too, to the head of Department, Dr. J. Gyong, he has in a way been urging me to put more effort in completing this work. To my past heads of Departments, Drs. P.T. Ahire, K. Aliyu, and most especially, Prof. Ebow Mensah who suggested this topic, I say "Thank you very much". My academic colleagues made valuable contributions also. I will only mention a few, such as A. Malik, Mrs. P. Mudiare and T. Maiangwa. I remain ever grateful to them all. Others who contributed academically in this work are Profs. Oladipo presently at UNDP, Lagos Office, D. O. Ogbonna of Geography Department, U. Ezenwe of Department of Economics, and late M. Igbozurike of Department of Sociology. Drs. M. Mamman of Geography Department, E. Irene and C. Periera also joined the eminent Professors in providing literature materials. I also appreciate the help by Dr. L.A. Dim of the Centre for Energy Research and Training and Professor I.B. Osazuwa who volunteered their computers and advise on the compilation and correction of the thesis.

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Abstract

There are two broad types of environmental degradation, namely, the sudden disaster and the gradual types. This study examines the impact of the gradual type of environmental degradation on women in five typical rural communities in Ohaozara and lvo Local Government Areas of Ebonyi State, namely, Ishiagu, Uburu, Okposi, Akaeze and Ugwulangwu. In the two Local Governments Areas, women have three main environmentally based occupations, namely, pot-making (Ishiagu) salt-making (Uburu-Okpsi) and farming only (Ugwulangwu-Akaeze). The study area was clustered into three zones according to these occupations. Three research instruments were used: observations of the physical environment during transect walk, sample survey of women in the area and focus group discussions with selected women on the existence of environmental degradation and its impact on women. A sample of 150 women, 50 from each zone, were selected for the survey. For the focus group discussions were with four groups, each made up of eight women. The groups were drawn from two zones using age as a criterion for inclusion in the various groups. It was found that water sources are either drying up or becoming salty. Thick natural forests are cut for farmlands and settlements. The topsoils are being eroded and crops in the farms appeared poorly developed. The results of the survey showed very strong agreement among the respondents that the land is being degraded due to excessive use. Younger respondents, who needed the forests more and fetch water themselves, complained more about the degraded forests and water resources than the older ones, who rarely fetch firewood and water from the same sources themselves. In Ishiagu, 50% of the 20 respondents who used to make pots have abandoned the craft due to low income and low prestige accruing form the job while in Uburu-Okposi zone, 87.5% of the respondents who used to make salt have abandoned salt-making for the same reasons. Limited income and changes in occupation were identified as consequences of environmental degradation by at least 80% of respondents from all the zones. Some women now have to buy water and firewood, others rent farmlands.

The scarcity of natural resources has led to the emigration of particularly male family members. Evidence of stress was reported by women whose male providers had emigrated because they have taken up male gender roles in addition to their female roles in sustaining the family. At least 60% of the respondents from all the zones have suffered from the effects of communal feuds caused by scarcity of land. The focus group discussants revealed that the problems started being felt in the 1970s because of the Nigerian Civil War. The women attributed the increase in hardship to sacrilege committed against the gods of the land. More than 70% identified the use of fertilisers as solution to poor crop yield, 50% advocated tree planting as solution to deforestation and 80% suggested digging wells as solution to water scarcity. There were variations of opinion on who should solve the environmental problems. While 68% in Ishiagu zone advocated the combination of efforts of Government and the communities, 66% from Uburu-Okposi said that Government alone should solve the problems. In addition, 66% from Ugwulangwu and Akaeze zone believed that the community alone can deal with the problem. The research revealed that the women in the area have organised women's groups and these they often take advantage of in fighting against environmental problems

It is recommended that a developmental model, which looks at the root causes of the environmental problems and which involves women as a critical group should be adopted. For example, the use of local knowledge of marching crops to soil type, crop rotation and use of natural manure to tackle the problem of poor crop yield should be adopted. Using the same developmental model, planting of trees and digging of wells should be adopted to tackle deforestation and water scarcity respectively.

Table of Contents

Declaration ii
Certification iii
Dedication iv
Acknowledgements v
Abstract vi
Table of Contents viii
List of Tables xi
List of Maps xii
List of Plates xiii
List of Appendices xiv
List of Abbreviations xv

Chapter One INTRODUCTION

1.1 The Nature and Magnitude of Environmental Crises in Nigeria 1
1.2 Environmental Changes and Women 3
1.3 Statement of Research Problem 6
1.4 Objectives of the Study 8
1.5 Justification for the Study 9

Chapter Two LITERATURE REVIEW

2.1 Introduction 11
2.2 The State of the Nigerian Environment 11
2.3 Female Gender Roles in the Use of Natural Resources 13
2.3.1 Women, Land and Agriculture 14
2.3.2 Women and Forests 16
2.3.3 The Fuelwood Crisis: The Women's Crisis 17
2.3.4 Women as Water Managers 18
2.4 Coping with Environmental Degradation 20
2.5 Empowering Nigerian Women for Environmental Management 21
2.6 Sociological Perspectives on Environmental Degradation 22
2.6.1 The Functionalist Views of Environmental Crises 24
2.6.2 The Conflict Perspectives on Environmental Crises 27
2.6.3 The Ecofeminist Perspective 29

2.6.4 Involving Women in Sustainable Development of the Environment.....31
2.7 Summary.....33

Chapter Three METHODOLOGY

3.1 The Study Area.....34
3.1.1 Choice of the Study Area.....38
3.2 Research Design.....39
3.2.1 The Survey Design.....39
3.3 Techniques of Data Collection.....41
.3.3.1 Structured Interview.....41
3.3.2 Focus Group Discussions (FGD).....42
3.4 Organisation and Analysis of Responses.....43
3.5 Operationalization of Concepts.....43
3.5.1 Family Size and Responsibilities.....43
3.5.2 The Physical Impact of Environmental Degradation.....44
3.5.3 Socio-economic Impact of Environmental Degradation.....46
3.5.4 Coping Strategies Against Impact of Degradation.....48
3.6 Statistical Analysis of Data.....48
3.7 Limitations And Problems of the Study.....48

Chapter Four DATA ANALYSIS AND INTERPRETATION

4.1 Introduction.....50
4.2 The Physical Features of the Area.....50
4.3 Socio-Demographic Characteristics of the Respondents.....52
4.4 Physical Environmental Degradation.....54
4.4.1 Farm Output and Land Degradation.....55
4.4.2 Disappearance of Forests.....59
4.4.3 Degradation of Natural Sources of Water Supply.....62
4.5 Socio-economic Impact of Environmental Degradation on Women.....66
4.5.1 Impact of Poor Crop Yield.....67
4.5.2 Impact of Environmental Degradation on Local Crafts.....68
4.5.3 Other Economic Impact of Environmental Degradation.....71
4.5.4 The Impact of Emigration of Family Members.....73

4.5.5 The Neglect and Marginalisation of Women 81
4.5.6 The Issue of Stress 83
4.5.6 A Summary of the Impact of Environmental Problems on Women According to Zones 87
4.6 Coping Strategies Adopted by Women Against the Impact of Environmental Degradation 88
4.6.1 Efforts Directed at Solving the Women's Problems: 88
4.6.2 Who Should Solve Environmental Problems? 92

Chapter Five SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction 94
5.2 Summary 94
5.3 Discussions 96
5.4 Conclusions 101
5.5 Recommendations 101

REFERENCES 104

APPENDICES 110

List of Tables

2.1 Land Use in Nigeria....23

4.1 Socio-demographic Characteristics of Respondents (age, formal education and occupation)....53

4.2 Ranking of Suggested Causes of Poor Crop Yield....57

4.3 Respondent's Recall of the Number of Neighbourhood Forests that are Known to Have Existed up to the 1970s and Those Still Existing as at 1996....60

4.5 Respondents' Views on Evidences of Physical Degradation by Age, and Level of Education....65

4.6 Family Size as a Function of Dissatisfaction with Crop Yield (between 1986 and 1996)....67

4.7 Participation/Abandonment of Local Crafts by Age and Occupation....69

4.8 Main Reasons for Abandoning Craft-works....70

4.9 Comparison of Evidences of Economic Impact of Environmental Degradation as given by Respondents....72

4.10 Number of Adult Family Members Emigrating Since 1991 per zone....73

4.11 Reasons for Emigration with Respect to Zones....74

4.12 Income and Reception of Remittances....75

4.13 Occupation and Level of Income....77

4.14 Reasons for not Receiving Support from Government....81

4.15 Sources of Stress on the Life of Women....86

4.16 Opinions on Coping Srategies as Encouraged by Respondents....89

4.17 Opinions on Who Should Best Solve the Problem of Environmental Degradation....92

List of Maps

3.1 Map of Nigeria Showing the Location of Ebonyi State. 35

3.2 Map Showing the Position of Ohaozara and Ivo Local Government Areas in Ebonyi State 36

3.3 Sketch Map of Ohaozara and Ivo Local Government Areas of Ebonyi State. 37

List of Plates

1	A Typical Salt Lake in Uburu, the `Nwa ogwu'	110
2	A typical Salt industry the `onu ebe'	111
3	Some Salt Cakes Displayed for Sale in Uburu Market	112
4	Woman Making Pot in Ishiagu	113

List of Appendices

I	Salt Processing Techniques in Uburu and Okposi	110
Ii	Description of Pot Making in Ishiagu	113
III	Questionnaire (Interview Schedule)	114
IV	Focus Group Discussion Guide	122

List of Abbreviations

UNFPA	United Nations Population Fund
FAO	Food and Agricultural Organisation
NEST	Nigerian Environmental Study/Action Team
WHO	World Health Organisation
UNEP	United Nations Environmental Programme
UNICEF	United Nations International Children Education Fund
INSTRAW	International Research and Training Institute for Advancement of Women
DFRRI	Directorate for Food and Rural Infrastructures
UN	United Nations Organisation
NCWS	National Council for Women Societies
WID	Women in Development
NAUW	National Association of University Women
FEPA	Federal Environmental Protection Agency
LGA	Local Government Area
FGD	Focus Group Discussion
EIA	Environmental Impact Assessment
WCED	World Conference on Environment and Development

Chapter One

1.0 INTRODUCTION

1.1 The Nature and Magnitude of Environmental Crises in Nigeria

The world is currently facing a variety of environmental problems. These are caused mainly by poor disposal of industrial wastes, water and air pollution. Another factor is, non-sustainable use of natural resources by human beings. In the developing countries, the increasing human population has led to massive exploitation of natural resources, leading to the degradation of land, disappearance of forests, soil erosion, desertification, water pollution and the extinction of various types of plants and wildlife. The earth is at risk of suffering from the greenhouse effect and the depletion of the ozone layer in the atmosphere.

In Nigeria, the problems associated with the destruction of the natural resource base (land, water and air) upon which all forms of life depend are already visible. With an estimated population of over one hundred million and a land area of approximately nine hundred thousand square kilometres, Nigeria is the most populous country in Africa and the tenth largest in the world. The average population density is about 120 persons per square kilometre varying from few persons per square kilometre in the far northern parts of the country to 1000 persons per kilometre in some southern rural areas (Igbozurike, Okali and Salau, 1989). The obvious implication is that there is a considerable pressure on land, water, forests and other forms of natural resources. Inevitably, with the present low level of environmental awareness, education and technology, this severe population pressure leads to serious environmental degradation. Nigeria is, for instance, being rapidly deforested in the process of creating farmland, acquiring fuel-wood and logging timber for various purposes (Oladipo, 1992). The loss of vegetation cover increases soil erosion and

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aggravates local flooding and water pollution. These manifest in the form of destructive gully erosion at various locations all over the country. These occur especially at Agulu-Nanka in Njikoka Local Government Area of Anambra State; Orlu and Okigwe Local Government Areas of Imo State and parts of Sokoto and Katsina States. Oil exploration in the southernmost riverine areas of the country has resulted in severe damage to lakes, rivers, underground water, soil and forests. Indiscriminate mining in Plateau State has left the land around the mines bare and unproductive (NEST, 1991). In fact, each state of the Federation has one type of environmental problem or the other. The combination of type, severity, socio-economic impact and duration vary from one geographic region to another.

Paradoxically, most of the measures taken by the government to control environmental degradation are focused on how to rescue the physical environment to the neglect of measures to modify environmentally harmful human activities. For instance, various environmental protection laws have been enacted establishing environmental standards in industries, prohibiting the emission of dangerous gases, dumping of radioactive wastes and a host of others (Adewale, 1991). There are local regulations for controlling other human activities, such as bush burning, use of chemicals for fishing, excavation in streams and rivers, tree felling and forest conservation. How far these laws are enforced is still suspect (Aina and Salau, 1992). Little is known of the question of environmental degradation as it affects the people at low level of technological development where women bear most of the brunt because of their traditionally ascribed gender roles. These roles include, harvesting natural resources in forms of water, fuel wood and mineral salts, in addition to tending the lands for the sustenance of the family.

1.2 Environmental Changes and Women

Ecologists have generally defined the human environment as the external conditions affecting the life and development of human beings (Barthelmus, 1986). The environment is a life support system in which human life and culture can continue indefinitely. However, it is also a system in which the effects of human activities need to remain within bounds so as to preserve the diversity, complexity, and functions of the ecological life support system (Chinsman, 1997). Thus, the human environment consists of both the biophysical and socio-cultural aspects of the eco-system.

Human beings utilise the environment in various ways resulting in both constructive and destructive impact on the biophysical environment. Barthelmus (1986) observed that most environmental problems in developing countries originate from lack of sustainable development. If a country has to develop, there should be a conscious effort to promote the positive effects of human activities on the environment and minimise the negative ones.

For a long time, environmental development and protection have been studied without recourse to gender differences. It is assumed that both men and women make the same contributions to environmental degradation, that they are affected in the same way and that the roles both sexes can play in ensuring environmental protection, are identical. These assumptions may not all be true. Instead, according to WHO (1994) there is a need for segregated gender studies of environmental problems and that there are four main ways in which environmental problems can particularly affect women namely:

i. **Exposure to Domestic Environmental Hazards:** the social role of women make them vulnerable to certain domestic hazards, for example smokes during

cooking, and musculo-skeletal burdens of carrying heavy loads of water, firewood and various food materials.

ii. **Stress:** Women face a lot of stress as home managers, mothers and income earners.

iii. **Hormonal Peculiarities**: Women have peculiar hormonal response to some environmental situations like the presence of pesticides and radioactive materials. These affect the foetus and interfere negatively with the reproductive processes.

iv. **Stigmatisation:** Some environmentally acquired diseases like guinea worm and river blindness can easily lead to disfigurement resulting in ostracism, rejection in marriage and sexual deprivation. The effects of these are more severe for women.

It is therefore not just the nature of the problem, but their implication on gender, which aggravate the severity of impact on women. Some of these problems are often neglected but, if environmental problems are studied from the women's point of view, the uniqueness of the impact on women is brought out (Dankelman and Davison, 1988). For example, the crucial roles women play in the upkeep of the home are often taken for granted when studies are carried out without recourse to gender roles. This is why women are used as sole respondents in eliciting information on the impact of environmental degradation on their gender roles and well being.

According to Ngur (1987) Nigerian women are generally the backbone of their family economy. In discharging their gender roles, they bear a disproportionately large share of the burden of sustaining their families. They bear and take care of the future generation and produce most of the food. They are solely responsible for extracting fuel, water and shelter from the environment for their families in various societies. Their roles in shaping the environment are shown in their participation in agricultural and dairy production, providing food and water, meeting energy needs

and environmental sanitation. Although no time-budget study has been done for Nigerian women, it is estimated that they spend between 10-16 hours daily, engaged in productive and reproductive activities (Oladipo, 1992).

In spite of women's extensive involvement as users and managers of the environment, women in Nigeria have little or no direct access to land, agricultural credit facilities, agricultural innovations and extension services (Ngur, 1987 and Ezumah, 1988). Most importantly, policy makers have hardly considered women in planning agricultural projects. According to Senghor (1985) women will continue to manage the subsistence economies of developing countries though they are often the poorest among the poor and the most economically vulnerable. Women are usually found at the bottom of the occupational ladder of most economies and are last in line as recipients of benefits derived from economic advancements. The principal victims of environmental degradation are the most underprivileged people and majority of these is women. This implies that the performance of female gender roles like food production and processing, provision of fuel-wood, water, health care, sanitation, child-bearing and rearing and other basic needs of the family are heavily dependent on the natural environment. If such environment is degraded, the impact will be more on people who depend on it, women. Examining the issues from the women's point of view will show in a better way, the actual impact and the importance of involving women in all spheres of environmental development. These and other issues are what constitute the ecofeminist perspective. The ecofeminists advocate that a good relationship has to be established between women's issues and economic exploitation of natural resources in an attempt to end all forms of domination of women and nature.

1.3 Statement of Research Problem

In many developing countries, rapid population growth has meant that arable land per capita has declined sharply in recent years. Hinrichsen (1997) reported that in 1961, the developing countries as a whole had an average of about 0.3 hectares of arable land per person. By 1992, the amount had fallen to less than 0.2 hectares. The report forecasts that if the current trends in population growth and land use continue, by 2050 the available arable land would be just over 0.1 hectare per person. FAO (1996) asserted that much of the cultivated lands are being lost world-wide. An estimated five to seven million hectares of farming land are lost each year because of accelerating land degradation and rapid urbanisation. As densely populated agricultural areas become more crowded, arable land will come under increasing pressure. Agricultural yields could fall, as land becomes more degraded, putting the livelihood of millions of subsistence farmers at risk.

The poor tend to depend heavily on natural resources for employment and economic growth particularly in the rural areas. For example over 60% of Nigerians live in the rural areas and are heavily dependent on agriculture. Rapid population growth, which is characteristic of developing countries, increases pressure on the environment and leads to its degradation. Degradation of resources reduces the productivity of the poor, making them more susceptible to extreme environmental crises. Poverty in turn makes recovery from these crises more difficult and contributes to lowering social and ecological resistance.

Ghai (1992:3) in discussing African environmental problems states that:

> Africa's 703 million hectares of forest are being cleared at the rate of 3.7 million hectares (or 0.6%) each year. Deforestation outstripped the rate of new tree planting by 29:1. More than 63% of the original wildlife habitat has been lost. Soil erosion has

> assumed dramatic proportion. The affected areas are experiencing soil loss at the rate of 10 - 200 tonnes per hectare. Either erosion or salinity affects more than 35% of the land north of the equator.

In Nigeria, land use is determined by population, land tenure system, level of technology, level of development and tastes of members of the community (Famoriyo, 1983). Since no land in Nigeria can presently be described as being "without an owner", it is important to note the relationship between need and access to land. Is it actually the people who need the land, that own it and its resources? Rural women for example, need land to work for family support and survival, do they have the land they need in their locality?

In the eastern parts of Nigeria, where the study area is situated, the causes of environmental problems include population pressure on a limited land area. Ofomata, (1964) reported that the massive soil erosion in this area, in particular, is clearly aggravated by human beings. The very high population density, mining, inability to practise the fallow system, mono-cropping and bush burning result in widespread impoverishment of vegetation and expose weak soils to further degradation.

In Ohaozara and Ivo Local Government Areas of Ebonyi State, the location of this study, farmers practised fallow system of agriculture and harvested big yam tubers. Fuel-wood, wild vegetables and spices were so close to homes that women went to harvest them while they had already started cooking. These days the staple food has changed from yams to rice, which has always been a major cash crop in the area? Farmland has become so scarce that bush fallow system is no longer practised. Farmers complain about poor crop yields after harvest every year. The harvests are so poor that most of them borrow seeds to plant during subsequent farming seasons. Making salt and pots are becoming more cumbersome due to scarcity of firewood and suitable clay respectively. The rivers dry up during the dry season. In addition, they

are becoming salty. The issues here are that the environmental problems are making it more difficult for women to execute their gender roles in domestic work and economic activities like agricultural production, pot and salt making.

This study is focussed on those important and often taken-for-granted problems of environmental changes, which have been and are continuously robbing the women in Ohaozara and Ivo Local Government Areas of Ebonyi State of their means of livelihood. Since this is an exploratory work, the hypothesis testing is not very feasible. Instead, some probing questions are raised. The questions investigated in this work are:

i. What are the environmental problems, which affect the women in the study area as seen by the women themselves?

ii. How are these identified problems affecting the women?

iii. Who do the women expect to remedy the problems posed by environmental degradation (themselves, the community or the government)?

iv. What strategies do the women adopt as their own means of solving these problems?

1.4 Objectives of the Study

The main objective of this study is to identify, describe and analyse the negative effects of environmental changes on the lives of women in Ohaozara and Ivo L.G.As. The specific objectives are:

i. to describe the nature of environmental degradation in the Ohaozara and Ivo LGAs and how it has resulted in changes in the economic activities of women;

ii. to evaluate the impact of environmental degradation on the overall well-being of the women of the area;

iii. to identify the steps that can be taken to remedy the effects of the environmental problems;

iv. Based on the findings, to make recommendations that will foster environmental protection for sustainable economic development in Ohaozara and Ivo Local Government Areas.

1.5 Justification for the Study

Much of Nigeria's arable land is being deprived of its productive potentials through overuse and unwise treatment (Mortimore, 1989). This is worsened by rapid population growth. High density of population results in scarcity of farmlands and land-based resources like forest, wildlife, water and water based resources. This type of environmental degradation emanates from long-term use of natural resources, which has shaped the life and culture of the people. An in-depth study of how the continually worsening natural environment is affecting the life of the people is therefore necessary to facilitate appropriate means of dealing with the problem. It will also serve as background study for other cases of environmental problems.

It is also observed that although, environmental problems affect everybody, women constitute the critical group for this study because their gender roles in domestic work and subsistence agriculture are usually more adversely affected. Such roles as gathering of fruits, fetching firewood, making pots and salt are severely affected by environmental degradation. Men mostly engage in trading and in fact, migrate quite often to other parts of the country. Women are more likely to have an early and prolonged exposure to pollutants in water, food chain, and indoor air, than their male counterparts. Women who over-depend on the environment for their basic needs should be crucially studied, to bring out the impact of these problems on them.

Often women's problems have been studied by asking both men and women their opinions/feelings concerning such problems. This study deviated from that tradition by making women the sole respondents. This is justified because the women who suffer this problem the most are in a better position to report the full impact of these problems on them. The women are also the ones in the best position to suggest appropriate measures to ameliorate these problems.

Chapter Two

LITERATURE REVIEW

2.1 Introduction

In this chapter, literature is reviewed on the nature, and causes of environmental crises. The female gender roles in the utilisation of natural resources and the impact of environmental degradation on them and the coping strategies against the adverse effects are reviewed. Finally, highlights of the theoretical perspectives on environmental degradation are made.

2.2 The State of the Nigerian Environment

Nigeria has four distinct ecological zones (NEST, 1991). In the south, mangrove forest, fresh water swamp forest and rain forest form the natural vegetation. This gives way to Guinea Savannah in the middle belt, while savannah woodland and thorny vegetation dominate the semi-arid and arid regions of the north. Annual rainfall increases from less than 600 mm in the northeastern zone to more than 3000 mm in the southernmost part of the country (Oladipo, 1992). Agricultural practices vary from zone to zone.

Nigeria's environment is facing increasing threats from natural disasters, like desertification, drought, erosion and flooding, all of which are exacerbated by human activities. There are already some visible signs of environmental degradation in the depletion and pollution of the natural resource base including land, water and air, upon which all life depends.

Land is by far the most important resource necessary for human subsistence, and despite myriad of sophisticated technologies and scientific advances, human welfare remains tightly linked to it. Yet much of Nigeria's arable land is being

depleted of its productive potentials through overuse, or harmful treatment (Mortimore, 1989). Intensive application of chemical fertilisers on farmland has resulted in the pollution of ground and surface water resources. Large scale agricultural practices in the northernmost arid and semi-arid zones have resulted in the siltation of dams, water logging, salination, textural changes and the health problems of malaria and schistosomiasis among others (Jackson, 1986).

Nigeria experiences deforestation resulting from farm clearance, uncontrolled cutting of wood for firewood, charcoal, timber and other uses. Annual deforestation of the woodland in northern Nigeria is about 92 thousand hectares while the whole country consumes about 50 million cubic metres of wood annually (Oladipo, 1992). According to Oladipo (1992), no nation in Africa consumes wood, as does Nigeria. A family of five Nigerians consumes a whole big tree every year in form of firewood. This high demand for fuel-wood has denuded forests and woodlands near villages and cities. Other factors, which enhance deforestation in Nigeria are overgrazing and bush burning. Declining vegetation cover can accelerate rainfall runoff and increase soil erosion. These are some of the reasons for the serious erosion sites found in Nigeria.

There is also a growing nuisance of air and water pollution, which are associated with urbanisation and industrialisation. Nigerians are increasingly being exposed to poisonous gases and dust emitted from industries and vehicles (Akeredolu, 1989). The deadly acid rain is now found responsible for increasing damage to rivers, forests and lands in some parts of the riverine areas of Nigeria. This occurs mainly in areas where some of the sulphur-emitting oil refineries and other industries are located (Oladipo, 1990). Salt-spraying from the ocean and the springing up of salt-water along the Benue Trough, the invasion of inland water ways by water hyacinths (*Eichornia crassipes)* are other examples of environmental problems facing the

country (Igbozuirke, *et al.*, 1989). The foregoing shows that the consequences of increasing human pressure on the resource base - land, water and air, is severe environmental degradation. These often show in the form of soil erosion, loss of fertility, desertification, deforestation, water and air pollution.

2.3 Female Gender Roles in the Use of Natural Resources

In this section, the link between women and the environment is explored concerning culturally defined female gender roles in exploiting natural resources in the environment. Women in Nigeria have many responsibilities in the preservation of the environment, which are culturally defined. They have proved themselves as managers of land, water and fuel and have contributed, in so doing, to environmental preservation.

NEST (1991) reported that there are variations in women's roles across the country. Among the Yoruba in the cocoa belt of southwestern Nigeria, women participate in planting, harvesting and spraying cocoa and in food processing. The Yoruba women in the Savannah zone play more roles in agricultural production and processing of crops than their southwestern counterparts. They plant, weed and apply fertilizer to their farms. They also harvest yam, maize, tobacco and cassava on their husband's farms. Sometimes they farm on small plots allotted to them by their husbands. Igbo women in the forest zone of southeastern Nigeria participate more in farming than their Yoruba counterparts in the southwestern Nigeria (Ijere, 1991). Here their husbands or male relations allot lands to them. They grow cassava, cocoyam, beans, pumpkins, okra and pepper primarily for household consumption. The women may sell surpluses. Oladipo (1992) found that the Tiv women in the Middle Belt area of Nigeria clear land and make yam mounds. They weed, harvest and transport all the crops. They also process yam, cassava and millet flour for sale and consumption.

Kilba women in Adamawa have separate farms from their husbands'. They plant various crops like groundnuts, bambra nuts and tiger nuts which they sell to meet their various needs (Oladipo and Tseayo, 1992). On the contrary, the Muslim Hausa women engage less in agricultural activities because of their seclusion. When they do, they are often rewarded unlike their non-Muslim counterparts who are quite often required to work in their husbands' farms (Oladipo and Tseayo, 1992).

2.3.1 Women, Land and Agriculture

Soil degradation and erosion (excluding the often-dramatic gully erosion that occurs where surface runoffs are concentrated) are insidious processes. These are not readily apparent to farmers until the effects are severe and irreversible with the means traditionally available. They deplete the soil of nutrients, diminish its moisture retention capacity, and reduce the depth of the rooting zone for annual crops (Kevin *et al.*, 1994). Crop yields decline as a result of soil degradation and erosion on crop land.

In most rural cultures, it is the women's work on the land that provides the basic food needs for the family. They maintain the traditional farming systems, while men go for mechanised agriculture with its attendant dangers of environmental degradation. Despite this, there is a gross underestimation of women's contribution to agriculture. This is because in some cultures, men do not admit that women do agricultural work (Taylor, 1985). Equally, statistics most often, measure paid labour and neglect unpaid garden work (Dankelman and Davidson, 1988).

The `Green Revolution', tried to replace the traditional farming system with `high technology' farming, thus displacing women from land without producing net increase in per capita income. Instead, it contributed to increased erosion, desertification and greater concentration of land ownership in a few hands (Lappe and Collins, 1986). High technology agriculture can make land infertile, irrigation can

cause water logging, demineralisation and salination of land (UNEP, 1980). Synthetic petroleum-based fertilisers and pesticides can cause serious soil and water pollution which affects the metabolic balance in plants, leaving them more vulnerable to pests and diseases (Guazzelli, 1985). The use of hybrid seeds diminishes the genetic resource-base of many crops leaving farmers dependent on fewer, perhaps less adaptable varieties. Dankelman and Davidson (1986), told of how a poor Zimbabwean woman forestalled the extinction of a local variety of millet. She was poor, knew only the traditional seed, did not purchase the hybrid seed but planted her traditional seed. Others planted only the hybrid seeds. Subsequently, drought caused the widely distributed new species to fail, but hers survived and became the only source of millet in the locality. This illustrates one of such risks of abandoning local knowledge and traditional agriculture in preference to 'high technology' agriculture.

The gender specific division of labour in rural agricultural societies makes women concentrate on subsistence agriculture. Since they have limited access to land and yet have to produce food for their families, their desperate efforts are sometimes mistaken for over-exploitation of land. Thus, many of the environmental problems are wrongly attributed to women (Elukpo, 1991).

In the event of commercial opportunities arising from traditional gender roles, the performances of some tasks that fall within the female gender roles are often compromised. For instance, in most parts of Nigeria, the acquisition of firewood for domestic use is women's role, but men take over the role of acquiring and selling firewood in the cities. In eastern Nigeria, the marshy lands usually left for women to plant cocoyams and vegetables find new use in mechanised rice farming by men. Thus, once a particular activity acquires the status of increased profit, the women are displaced (Igbozurike, *et al.* 1989).

Intensive agriculture reduces women's access to land and displaces them to more distant, fragile and less fertile lands. This means that women must travel longer distances to their fields. In the farms, they must work harder to compensate for the low fertility of the land. The transition from subsistence food cropping to capital intensive cash cropping makes the role of women in rural economy more burdensome and less socially valued. Mechanised agriculture means increased crop yields and reduction in working hours for men. However, for women, it means increased working hours because they have to work longer to weed and maintain larger fields, the result is increased workload without improvement in standard of living. Thus, it is clear that women are handicapped victims of environmental degradation (Agarwal, 1986).

2.3.2 Women and Forests

For women, trees and forests are multifunctional. Trees offer fuel, food and fodder (Dankelman and Davisson, 1988). Women are noted for gathering forest products. The time spent in the forest gathering has taught the women many uses of trees. As fuelwood resources diminish, the cost of gathering them, in terms of time and cash, impose severe and increasing strains on the already precarious survival strategies. The impact of such recession is greatest for women, who normally bear the responsibility for fuel provision. (Leach and Mearns, 1988). Where there are no cheaper alternatives such, as is the case in Nigeria, women must gather wood and other biomass for fuel.

In most Nigerian societies, gender-division of labour assigns women and children the duty of fetching firewood. With the children in school, the women are virtually left to tackle this often hazardous and time-consuming duty alone. It is common sight to see women hacking at shrubs and dead wood, sometimes with

children on their back or crying under a tree. Women walk long distances in search of fuel-wood as forest around their houses recede further. They spend hours before finally coming home with heavy loads of wood. In spite of these hardships and hazards, women are blamed for deforestation (Oladipo, 1992).

2.3.3 The Fuelwood Crisis: The Women's Crisis

The fuelwood "crisis" of developing countries became apparent when much of the world was gripped by the energy crisis resulting from the oil price shocks of 1973-74. It was a case of rising energy demand outstripping supply. The usefulness of the rural peoples' dependence on biomass was brought to light. It was noticed that, although fuel-wood is a renewable resource (unlike oil, gas and coal) it is used at an unsustainable rate. The rate of felling old trees outstrips the rate of planting new ones. This situation has many consequences for the women. Women spend hours collecting weeds and shrubs and digging out the roots of trees as substitutes for firewood. These do not provide continuous heat but increases cooking time (Dankelman and Davisson, 1988). Again fuel shortages are driving villagers to shift to foods that require less fuel but are of lower nutritional value like raw vegetables and canned foods, or to miss some meals completely. This is the human face of the fuel-wood crisis.

Today, we can hardly associate the problem of hunger with only food scarcity - it is linked crucially to fuel scarcity. Agrawal (1986) found that lack of fuel could cause malnutrition just like lack of food. Thus the difficulty of collecting, cutting and transporting wood, exacerbated by poor nutrition, undermines women's health. The longer they have to work, the more they are affected and the less time they have for more productive, income generating activities (Cecelski, 1985).

Another consequence of the crisis is air pollution. The worst is the emissions from biomass fuels which poor rural women often inhale while cooking. According to

WHO (1984) the burning of cooking fuels envelops the indoor environment with heavy smoke and the women who do the cooking may be exposed daily to more pollutants than even industrial workers. The WHO (1984) studies attribute respiratory and eye diseases, which are common among Third World women and children to wood and other bio-mass burning. Thus, women are being affected at every end of the cooking cycle: as firewood becomes scarce they have to put in more energy to collect fuel and then they have to face the dangers of wood smoke everyday. Exposure to smoke is particularly harmful for malnourished, anaemic women as carbon monoxide, an important component of wood smoke, increases the effect of anaemia by reducing the haemoglobin available in the blood.

Finally, fuel-wood crisis affect women's income and other cultural practices. Women who sell firewood for income will suffer in the face of scarcity. Pot firing, salt making, fish smoking and other businesses that involve the use of fuel-wood will decline. Some cultural practices like heating the room during harmattan, and making fire underneath the bed at *puepertum* will be de-emphasised. According to Sontheimer (1991) there is a crucial three-way link between cooking, energy crisis, poverty and socio-economic inequalities. This recognition is necessary for pinpointing the implications of the crisis, its complex causes and consequences.

2.3.4 Women as Water Managers

The United Nations declared the years 1981 to 1990 the International Drinking Water Supply and Sanitation Decade. Member States were urged to promote full participation of women in the planning, implementation and application of technology for water supply projects. The UN realised that women are specialised in water management. They know where to collect water and how to cope when supplies are

scarce. However, they have been consistently neglected in water development programmes (Melchoir, 1989).

Nigeria had given relatively low priority to water in her rural development efforts (NEST 1991). Although the Directorate for Food and Rural Rehabilitation Infrastructures (DFRRI), has sunk boreholes, the rural dwellers have not been able to derive maximum benefits from them. This is due to technological problems and ignorance. Rural dwellers still depend on rivers, streams, pond and shallow wells for their water supply. During the dry season most of these sources dry up and women who are responsible for fetching water have to walk up to eight kilometres or about five hours to fetch water (NEST, 1991).

Lack of portable water brings about the incidence of various diseases, such as cholera, diarrhoea, typhoid fever and guinea worm. It reduces the rate of industrial production and retards efforts to improve the quality of life. According to UN International Research and Training Institute for the Advancement of Women (INSTRAW), inadequate water and sanitation facilities constitute some of the most critical problems facing the developing world. They argue that "In this decade, approximately 80% of all sickness and diseases can be attributed to inadequate water supply and sanitation facilities". Diarrhoea alone kills between five and six million children in developing countries every year, and up to 18 million people in general. More than 400 million people have gastro-enteritis, while dysentery and parasitic worms infect nearly one-half of the entire population of developing countries. Finally people suffering from water-borne diseases alone occupy half of all the hospital beds world-wide, and 25,000 of them die every day, representing some 15% of all hospital deaths. Women by virtue of their domestic functions especially laundry and cooking are in constant contact with polluted water and are therefore the group most

vulnerable to water-related diseases (Melchoir, 1989). Women as water carriers, managers, end-users and family health educators should be allowed to play paramount role in water supply and management.

2.4 Coping with Environmental Degradation

Coping strategies are the innovations devised to overcome problems in difficult situations. The coping strategies of the poor vary by region, community, social group, household, gender, age, season and time in history (Chambers, 1989). Examples of coping strategies are the use of common property resources, changes in eating habits, combined rearing of livestock and mutual support networks (Beck, 1989). While some people seek single source of support, poor people prefer to diversify their sources of support. They reduce risks, increase adaptability, and seek a degree of autonomy by developing and maintaining wider options. Chambers (1989) argued that the rural poor do many things to maintain their livelihood including labouring in farms, mortgaging and selling assets and labour, begging, theft, and migration. Other strategies include, eating less, deferring medical treatment, and sharing self-help sickness insurance and mutual help.

Rather than being passive and apolitical, the poor are active in their household survival strategies. Beck (1989) found out that among the poor in a West Benghal village in India, the poor would prefer increased availability of firewood at no cost to the use of intermediate technology - solar power or bio-gas. To them, the benefits of such externally introduced relief are likely to be appropriated by those who have more power. When the environment is degraded, the poor women in particular have to engage in chains of activities to survive. With decrease in income and little support from family members, they experience more insecurity and they would rather prefer improvement in their indigenous technology to externally imposed ones.

2.5 Empowering Nigerian Women for Environmental Management

The term empowerment is defined as a range of activities from individual self-assertion to collective resistance, protest and mobilisation that challenge basic power relations (Okeshola, 1995). For individuals and groups, where class, ethnicity and gender determine their access to resources and power, their empowerment begins when they recognise and act against the systemic forces that oppress them.

Women issues in development were treated as peripheral in national planning in Nigeria until the declaration of the United Nations Development Decade for Women in 1975. This was a global programme to direct attention to the numerous problems inhibiting women's full participation in the socio-economic and political development of the world. Although the United Nations Development Decade for Women aroused global awareness about the strategic and practical need of women, there was very little political commitment to incorporate these into national sectoral policies until the mid-1980s. The establishment of the Better Life for Rural Women Programme in 1987 and the National Commission for Women in 1990 helped to promote women issues. Other societies whose activities helped were, the National Council for Women Societies (NCWS); Women in Nigeria (WIN); Women in Development (WID) and Nigerian Association of University Women (NAUW) to mention but a few. These programmes and societies were not fully out to empower Nigerian women for safe environment and socio-economic well being. Their policies were aimed mostly at fighting the economic depression of the 1980s and the thereafter. To increase national productivity and wealth, the skills and potentials of Nigerian women who constitute more than 50% of the population must be recognised, developed and counted as part of total national wealth (Okeshola, 1995).

Nigerian women are involved in environmental issues not because they have consciously decided to work on improving or maintaining the environment. Their close relationship to the environment is often taken for granted and considered natural. The relative political powerlessness and marginalization of women has made them uninformed of the basic economic and political matters affecting the state of our environment. The challenge is in the mobilisation and conscientisation of women over sustainable development and women issues. The removal of the various obstacles to the individual and collective realisation of the potential of women is also very important.

2.6 Sociological Perspectives on Environmental Degradation

There are opposing viewpoints on whether the environmental problems being experienced all over the world have reached a crisis. This section examines these viewpoints in relation to the Nigerian situation.

The proponents of the non-existence of environmental crisis contend that human activities have minimal effect on the environment. According to them, the earth is resilient and has rebound from worse treatment than it presently receives (Ray and Guzzo, 1991). Though they agree that human beings have been hard on the environment in many ways, they argue that human beings have been good stewards of the earth and possess the intellectual capabilities to clear up any environmental mistakes. They contend that areas, which were once despoiled by pollutants had been reclaimed to form an abode for many species (DiSilvestro, 1991). Furthermore, they assert that the ways to live in harmony with nature while maintaining a comfortable lifestyle and high technology are far better understood today. Therefore, there is no reason to believe that everything will get worse. Finally, nature will remain what it has to be, and man's influence will be trivial and relatively local.

In Nigeria for example, the work of Famoriyo and Awogbade (1982) supports this position when they showed that there is a an under-utilisation of rural land in Nigeria as described in Table 2.1.

Table 2.1 Land Use in Nigeria

Land Use	Approximate Percentage
Farming	18.0
Fadama/Dry Season Agriculture	17.0
Forest Reserve	10.0
Non-Agricultural Use	5.0
Uncultivated Bush Land	50.0
Total	100.0

Source: Famoriyo and Awogbade (1982)

The argument is that if there is about 50% uncultivated land in Nigeria, then the over-exploitation argument do not hold for Nigeria and possibly for other countries.

Those who argue that there is an environmental crisis hold that a catastrophe awaits humanity if nothing is done to improve the environment. Global warming, acid rain, reduction of the ozone layer, and over-population threaten to cut world-wide food production and cause serious health problems (Disilvestro, 1991). Signs of this were seen years ago when salt in irrigation water poisoned farmlands in the Fertile Crescent of the Tigris and Euphrates valley. World wide, deserts are encroaching on land needed for food production. The rate of encroachment is estimated at nearly fifteen million acres per year. Desert encroachment is also causing decrease in available land, water and forest resources, especially in the northern parts of the country. In Nigeria, for example, a likely factor of environmental degradation is the heavy and short seasonal rainfall, which generates intensive agricultural activities in areas of high population density like in the eastern parts of Nigeria (Federal Republic of Nigeria, 1963). The important factor in land use is not just the availability as shown in Table 2.1, but also the control. The land tenure system is such that land is not

always available to those who actually need them. Therefore, there is a problem of over use of land in one part of the country than in other, leading to local degradation. In the past, there were other lands to move to and new worlds to settle, but, it is becoming clear that the limits have been reached (Disilvestro, 1991). It is therefore evident that environmental crisis is real in Nigeria as it is in other parts of the world.

There are many ways people have tried to explain environmental crises. The functionalist, the conflict and ecofeminist perspectives are discussed in this section and examined for their appropriateness in explaining the impact of environmental degradation on women.

2.6.1 The Functionalist Views of Environmental Crises

The functionalist sees the environmental problem as deriving from social disorganization brought about by rapid social change. Under this perspective, society is seen as a persistent, cohesive, stable and a generally integrated whole, differentiated by their socio-cultural structures (Cuff and Payne, 1979). Robertson (1980); argues that industrial revolution radically changed human being's way of life. In the pre-industrial agricultural societies, most people were poor. Most people depended and worked on the land at subsistence levels. Surpluses produced were generally acquired by a small upper class of aristocrats and landowners that converted them into other forms of wealth and enjoyed a life of affluence. This social order was transformed by industrialisation, a more productive strategy, which created new types of jobs, making a high standard of living possible for an unprecedented large number of people. Thus, industrialisation is functional, but its rapid consumption of resources and environmental pollution are dysfunctional. More people are demanding for various goods, but few mechanisms have been developed to cushion the adverse environmental impact of meeting these demands. This perspective was adopted by the

Federal Environmental Protection Agency (FEPA) in analysing poverty and environmental degradation in Nigeria (NEST, 1991). This analysis is relevant because in the absence of a disaster, people do not think that the environment is being degraded. Rapid population growth causes pressure on land, and industrialisation, the alternative to dependence on land, provided escape for the more powerful and created poverty and stress for the less powerful.

In the African context, traditional systems of resource use and management came under severe pressures at the on-set of colonialism. In Kenya and Tanzania, large tracts of grazing and croplands were expropriated either for European settlement, for plantation or cordoned off as farms, government residential areas and military barracks. Shifting cultivation and nomadic pastoralism were reduced and indigenous people were confined to areas of low agricultural potentials. The overcrowding of croplands, the closing off of seasonal pastures and the absence of experienced males, who had migrated to work for the Europeans, effectively undermined traditional systems of resource management, thus laying the foundation for environmental degradation (Ghai, 1992).

In the case of Nigeria where only a few Europeans settled, colonial education undermined the traditional system of environmental conservation by crippling the cultures that set aside laws which had guided against the destruction of lands, forests and rivers. The traditional system that prescribed rules and regulations on the use and reservation of land, forests and rivers for shrines were seen as primitive and eventually opened up such reservations for exploitation (Mazieres, 1971). `Another major colonial influence was the spread of cash crop cultivation by peasant farmers. While tree crops like cocoa, coffee and tea have beneficial effect on soil conservation, the growth of export crops like cotton and groundnuts, and increased soil erosion. Soil

erosion is worse with continuous mono-cropping of maize and rice which became staple food on colonisation (Ghai, 1992). In the southern part of Nigeria, large yam mounds act as check for erosion, but modern farming methods involving tractor levelling allow top soil to be carried away massively into the rivers causing man-made erosion (Igbozurike, et al., 1989).

Ghai (1992) further observed that African population increased threefold over the past four decades without expanding employment opportunities in non-agricultural sector. These led to the intensification of farming activities that worsened the crises.

Darkoh (1993:1-4) observed that:

> the foremost causes of environmental problems are rapidly increasing animal and human population pressure and outside influences (e.g. modernisation and factors shaping the world economy) leading to over-exploitation and poor management of resources.

As population increases, competition for the use of the natural resources increases. This has been one of the most cited causes of environmental degradation, since the Malthusian theory. Even within the neo-Malthusian theory, the view that increasing demographic pressure results in over-use of land resources has been retained. This has several consequences like increased demand for environmental resources and destruction of the resource base to support the growth of population.. However, we should be cautious about this assumption, because at a high level of technological advancement, population need not be high to cause problems to the environment. For example, the population of the developed countries is smaller but they consume more food and produce more pollutants than the less developed countries. It can be observed that an important by-product of industrialisation is the creation of adverse changes within the environment. Unless these changes are properly monitored and controlled, they may lead to the destruction of the environment. Thus, plans to facilitate agricultural and industrial development

should be pursued within plans to protect the environment. This perspective cannot fully explain the impact of environmental degradation on women. This is because it is silent on the issue of protecting the critical group (women) who needs the environment for their well being and are more likely to take measures to protect it.

2.6.2 The Conflict Perspectives on Environmental Crises

The conflict theory holds that all forms of exploitation and domination occurs as a result of competition for resources. Using this perspective, Robertson (1980) argues that conflicts over values and interests are deeply involved in the problems of the environment. Governments naturally favour expansion of the economy and higher living standards, and corporations are dedicated to converting raw materials into marketable goods for profits. Privileged groups in the society have a stake in continued free exploitation of the environment. The less privileged people on the other hand see concern about the environment as a middle class luxury and the depletion of resources as a basic means of survival. The conflict here is that people want more industrial production and jobs despite the pollution and other economic costs involved.

The present system of land use in Nigeria makes land operators/users/owners, aim at achieving the highest net return from land, whether or not it leads to environmental degradation. Prior to the establishment of FEPA in 1988, the Nigerian government has pursued development without regards to environmental protection. According to the then President Babangida, "Nigeria has a formidable backlog of environmental damage to tackle and many new problems to avoid in future development plans". He estimated the loss to tune of $5.1 billion a year (Babangida, 1992). In other words, the man-nature relationship has been distorted to the detriment of nature (environment). A lot of forests have been cleared, water polluted, land

devastated in the process of setting up development projects. New technologies were introduced without regards to their effects on environment. Both government and private operations are driven by profit maximization to over exploit the environment and thus create environmental degradation. The privileged people will naturally find easy escape from degraded environment while the poor will be left behind to work on degraded environment.

In another case, where women do not own lands, or are forced by circumstances to have access only to marginal lands, the conflict is between their survival and environmental preservation. Poor people (women in most cases) are forced by desperation to over-use available land and its resources. The primary conflict is between men, who own lands and women, who do not own land, especially in the area of study. The male landowners will naturally choose the most fertile land and leave the marginal infertile lands for women. In the bid to survive, they neglect certain traditional environmental conservation techniques such as shifting cultivation, use of organic fertilisers, inter-cropping, mixed farming, irrigation and other cultural laws that forbid the destructive use of lands. At the same time, the women would be blamed for environmental degradation (Oladipo, 1992).

This perspective is known for dwelling at the level of criticism instead of providing alternatives. It presents a view within which the man-nature relations are considered to be of secondary importance. Unfortunately, they see environmental problems as "derived" problems since they can be reduced to the class conflicts in society. Since the conflict perspective is gender-blind, it is not adequate for the analysis of women's specific oppression.

2.6.3 The Ecofeminist Perspective

Ecofeminism is a perspective that links feminism and ecology, in an attempt to end all forms of domination of women (Archambault, 1993). Although, ecofeminists take advantage of the connection between women and environment in criticising the patriarchal oppression of women, it is also true that the association between women and nature has historically hindered women from liberating themselves. The ecofeminists assert that environmental issues have not been given a central place in feminist discussions, as such a good relationship has not been developed between women's issues and the economic exploitation of natural resources. They assert, that women's views are crucial to the social and economic changes that are necessary to have a healthy egalitarian partnership with the natural world (Archambault, 1993). The Ecofeminists views can be summarised as follows:

i. in their efforts to nurture life, women are intrinsically attached to the environment, therefore both women and environment are providers that are taken for granted by the society.

ii. the link between women and environment are not adequately acknowledged even in feminists studies, therefore no good relationship between women issues and economic exploitation of natural resources has been established. Doing this will end all forms of discrimination against women

iii. women's views must be recognised as crucial for creating sustainable relationship between human beings and nature.

There are as many strands of ecofeminism as there are schools of feminism, but the ideas of the Socialist Ecofeminism is adopted in this study. These are summarised as follows:

i. the similarity between women and environment is that the unlimited exploitation of women by the patriarchal system is akin to the unlimited exploitation of nature by the capitalist system.

ii. society should be reconstructed so that women's roles in reproduction and the nature's role in production of material goods are not subordinate to patriarchy and production of capital.

iii. conceptual dichotomies on gender devalue feminine characteristics just as dichotomies on enterprise devalue the environment

The ideas of socialist ecofeminism are relevant to this work. They link the oppression of women and the material world to patriarchal and capitalist systems. They emphasise the restructuring of society and present a critique of capitalist development in which reproduction and ecology are both subordinates to production. Socialist ecofeminism views both nature and gender as socio-culturally constructed. It criticises the views which foster conceptual dichotomies like: *masculine/feminine, mind/body, public/private and nature/society*. The proponents of socialist ecofeminism contend that the individualism inherent in capitalism prevents communities from organising for social change that would create egalitarian societies. Socialist ecofeminists believe that collective action and rights are more empowering and more important than individual actions and rights (Berman, 1992). They believe that women's knowledge can be empowering and useful in breaking down traditional dualistic assumptions that devalue what have traditionally been feminine characteristics: caring, nurturing, and interdependence with the material world. The goal of socialist ecofeminism is to develop sustainable relations with nature in addition to re-socialising men and women into non-destructive forms of life (Berman, 1992). For example, in Nigeria, massive lumbering of forests without replanting depletes the forests. Although the environment is changing, the changes if made sustainable, will not distort the inter-relationship between human beings and nature (Huff, 1987). If human beings are re-socialised into non-sexist and non-dominating forms of behaviour towards the environment and each other, if nurturing the

environment is not seen as a woman's duty alone, the environment will be made more sustainable. This is the perspective adopted in this study.

2.6.4 Involving Women in Sustainable Development of the Environment

Sustainable development according to the Brundtland Report was defined as "development that meet the need of the present without compromising the ability of future generations to meet their own needs" (WCED, 1989). Women's knowledge can be useful in achieving sustainable development. Unforeseen disadvantages can arise when development programmes and policies neglect the critical population, that is the women in the rural areas. Typical examples of such failures can be cited from different countries. In India, the introduction of diaries to improve milk production and distribution in urban areas had serious negative effects on rural women. The poor women who had traditionally milked buffaloes, sold butter in towns and retained milk for their families were displaced by technologically advanced dairy production. Since no attention was paid to finding alternative sources of employment and milk, many families suffered from lack of employment and food. In Burkina Faso, the introduction of animal traction increased the amount of land that was ploughed. Women and children suffered because they had more lands to weed by hands and less food since the food produced were sold for cash (Karl, 1995).

In Nigeria, the Arid Zone Afforestation Project whose objectives included the establishment of plantations, wood lot and shelter belts in an attempt to check the southward advance of the Sahara Desert failed. The failure was because the extension services did not involve the rural women. In addition, human needs for food were neglected. It would have been better if fruit trees were given to farmers to plant rather than the neem (*Azadirchta indica*) and *Euchalyptus* seedlings that were distributed (Igbozurike, *et al.*, 1989).

Another case of neglect of the critical group (women) was reported in 1991 by D.J Shehu of Usman Dan Fodio University, Sokoto. According to her, in a pilot survey of some villages along the Sokoto-Rima River, elephantiasis (a variant of filariasis) affects more women than men. In the six villages surveyed, only 16% of the cases were reported for government attention. This is because it manifested as hydrocele or swollen scrotum in the men. The other 84% comprise of women who visit watercourses more frequently, but because theirs manifested as swellings on the legs, they were not reported. According to her, the women's case was noticed for more than 10 – 15 years without alarm because the symptoms were not considered as something that needed attention as those suffered by men. This case can be likened to effects of gradual degradation of the environment investigated in the study, which is not given attention by government (Oladipo and Tseayo, 1992).

There are cases where women in the spirit of sustainable development have succeeded in protecting their environment. Two cases are cited here, the Chipko and Green Belt movements in India and Kenya respectively. The Chipko movement is an ecological movement concerned with the preservation of forest and the maintenance of the traditional ecological balance in the Sub-Himalayan region. The hill people have traditionally enjoyed a positive relationship with their own environment. The Chipko demonstration involved poor, rural women holding hands around their trees to stop timber lumbers from cutting trees in their forests. It was considered an important success story in the fight to secure women's rights in the process of local community development through forestry and in environmental protection. Women took the lead in Chipko demonstration and saved forests from felling.

In 1977, Kenya's first female professor (Professor Wangari Maathai) gave up her job as head of Department of Anatomy at the University of Nairobi and initiated a

campaign to halt desertification in her country under the name, The Greenbelt Movement. They successfully mobilised women throughout Kenya to combat desertification, fuel-wood scarcity and soil erosion. Women in the Movement planted tress, and practised traditional soil and water conservation techniques. The trees were planted to meet immediate community needs, to provide fuel-wood and materials for fencing and building and to give shade. Gradually, however, people learnt that trees also prevent soil erosion and the consequent loss of fertility. They have come to see the link between loss of soil fertility, poor crop yield and famine and deforestation. Thus, collective rather than individual action and benefits should be encouraged if sustainable development of the environment and the empowerment of women are to be achieved.

2.7 Summary

This review has established the fact that Nigeria's environment is facing increasing threats from natural disasters, like desertification, drought, erosion, flooding, coupled with various human activities, which exacerbate their gravity. Studies on women and their dependence on the environment are therefore crucial in understanding the impact of these problems in the country. Although there are various perspectives in conceptualising environmental problems, none answers all the questions raised in the discussions of environmental degradation. However, the socialist ecofeminist perspective, which links woman and environmental issues to patriachy and capitalist acquisition is adopted in this work.

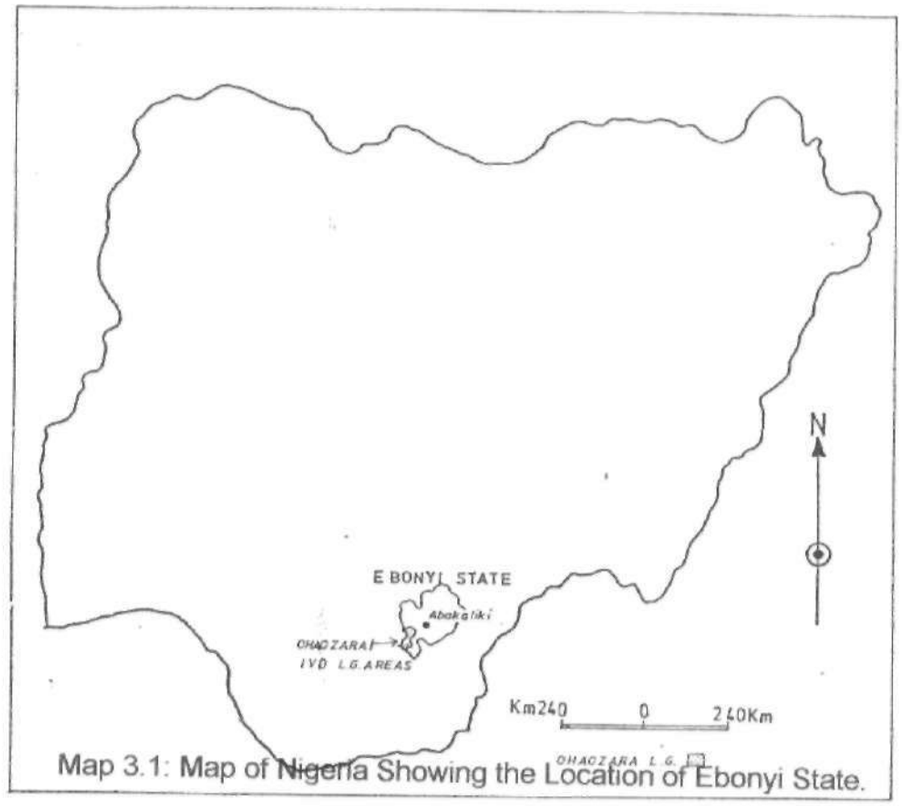
Chapter Three

METHODOLOGY

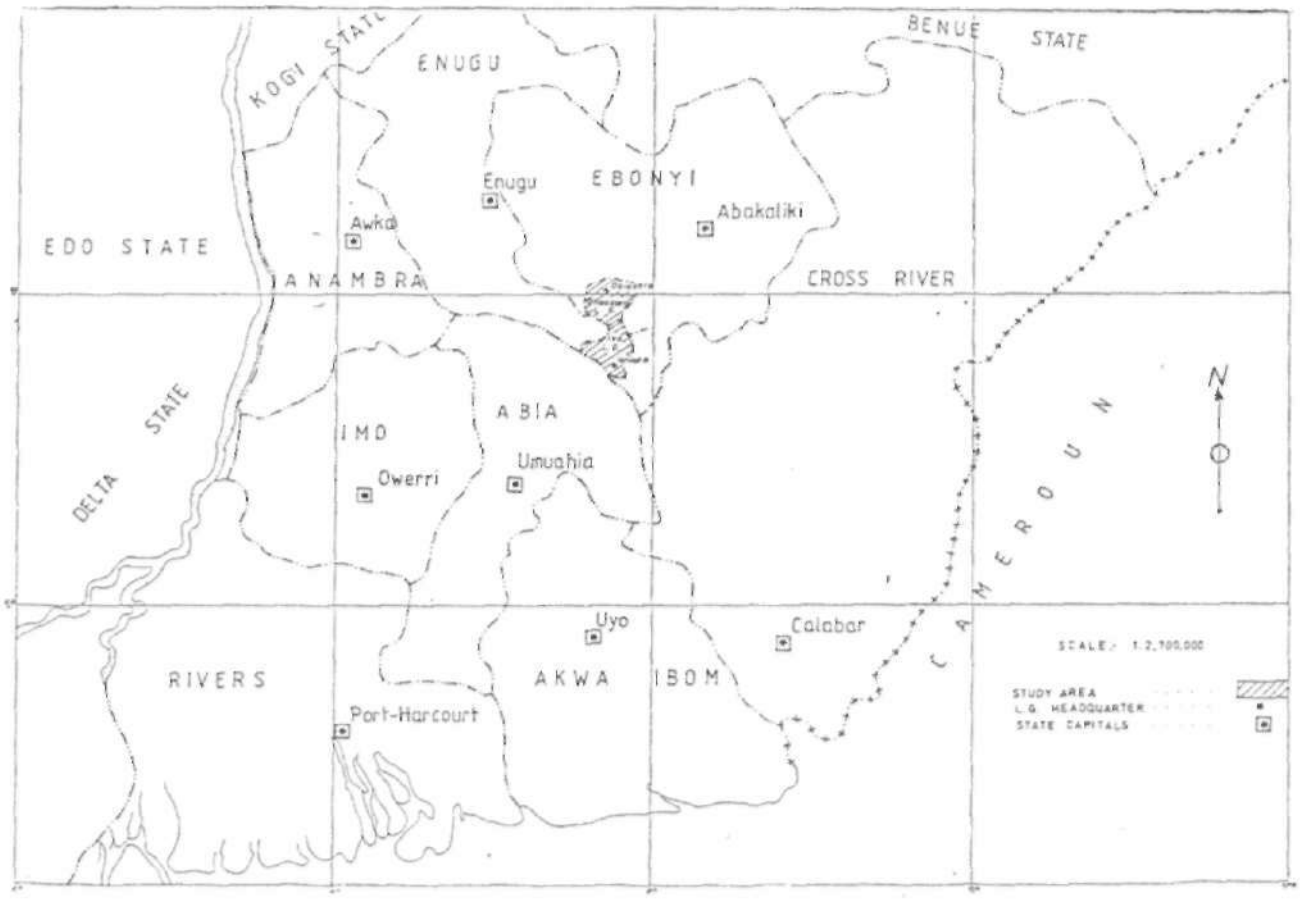
3.1 The Study Area

The study covers five communities, namely, Uburu, Okposi, Ugwulangwu, Ishiagu and Akaeze, in the then Ohaozara Local Government Area of Abia State now Ohaozara and Ivo Local Government Areas of Ebonyi State. Three of the communities, Uburu, Okposi and Ugwulangwu, are located in the present Ohaozara LGA, while Ishiagu and Akaeze are now in the new Ivo Local Government Area. The area is partly bounded in the south by Afikpo-North Local Government Area and partly by the Isukwuato Local Government Area of Abia State. In the east is Onicha Local Government Area of Ebonyi State. In the north it is bounded by Nkanu and Ani-nri Local Government Areas of Enugu State and in the west by Isuikwuato Local Government Area of Abia State. All the boundary communities speak Igbo language although dialects differ. The population of the area, by the provisional estimates of 1991 National Census, is 133,968 persons out of which 74, 486 (55.6%) are women (New Nigerian, 1992). The area is situated at the fringe of the southern-most part of the Nigerian savannah vegetation belt. Map 3.1 shows the position of Ebonyi State in Nigeria, Map 3.2 shows the position of the research area in Ebonyi State and Map 3.3 is a sketch map of the study area.

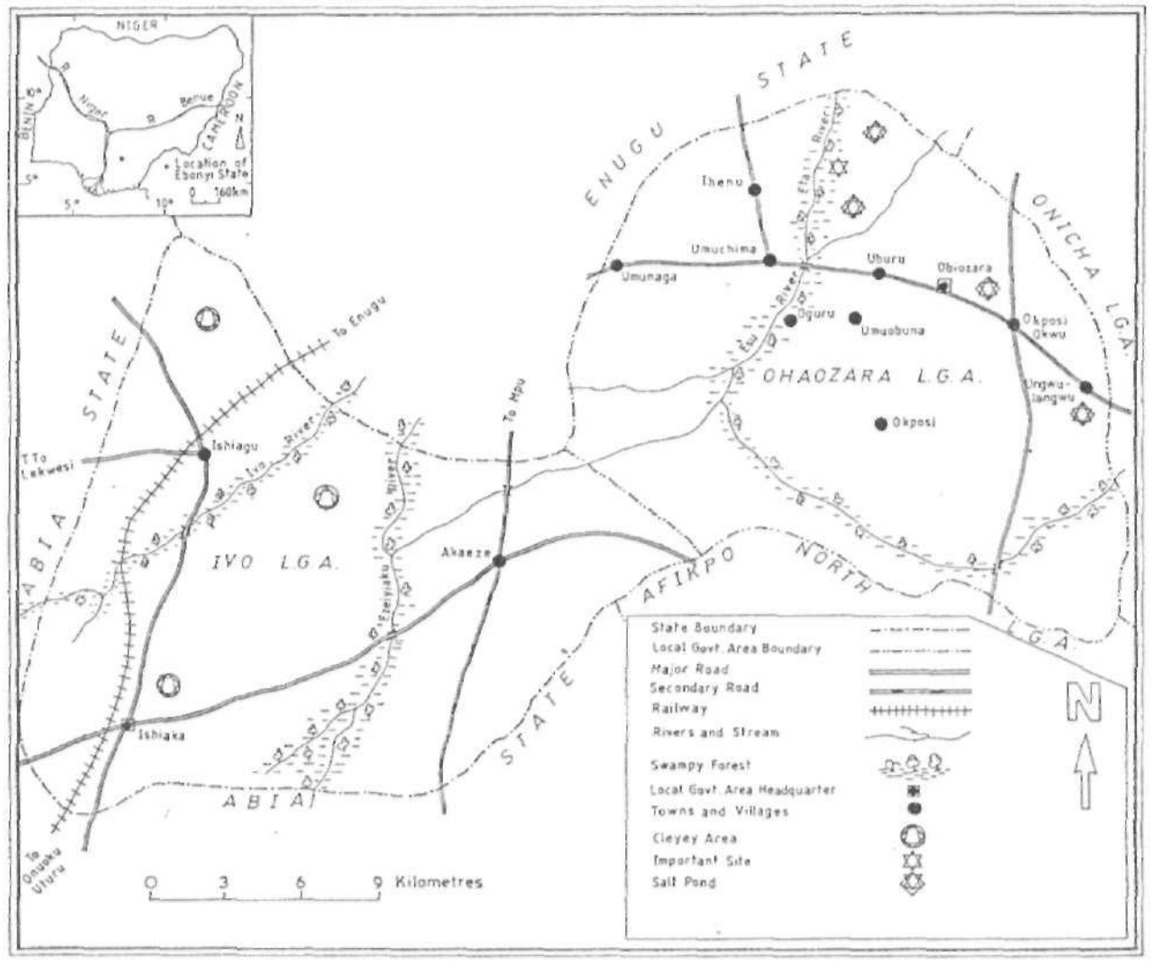
The road network in this area is very poor. A poorly tarred road runs through the area from Agbani in Enugu, through Onicha LGA and terminates in Okposi where it is joined by another similar road, which starts from Amasiri in Afikpo LGA. Okposi and Uburu are connected by a laterite road, which passes through the Obiozara (Ohaozara LGA Headquarters) to Akaeze. The Abakaliki-Okigwe highway passes



Map 3.1: Map of Nigeria Showing the Location of Ebonyi State.



Map 3.2: Map Showing the Position of Onaozara and Ivo Local Government Areas in Ebonyi State



Map 3.3: Sketch Map of Ohaozara and Ivo Local Government Areas of Ebonyi State.

through Akaeze and Ishiaka (the Ivo LGA Headquarters) and is connected to Ishiagu by a laterite road. Another laterite road connects Ishaigu and Ndiagbo, in Enugu State. There are other minor, muddy and un-motorable roads connecting villages and towns outside the area. The only electricity supply to the area is the European Economic Community (EEC) funded local electricity project in Okposi. There are hospitals and schools in almost all the communities and a College of Agriculture at Ishiagu.

The predominant occupation of the people is farming. Men traditionally cultivate yams and women plant vegetables and condiments. Rice and cassava are also becoming major food crops farmed by both men and women. The area is known for its unique women activities, like salt making in Uburu and pottery in Ishiagu. Women also make palm-oil using fruits from palm trees located around residential areas, a job that is typical among women of this area They also engage in other occupations, such as petty-trading and civil service.

3.1.1 Choice of the Study Area

The study area is a typical Igbo rural area where women, in particular, have guarded their traditional crafts against some forms of modernisation. Some towns in the area have specific environmentally linked crafts with which they are associated. For example the women from Uburu and Okposi are associated with salt making because of the occurrence of salt ponds in these towns. Ishiagu women are associated with pottery because of the occurrence of clayey soils in the town. These craft-works are traditionally exclusively reserved for women due to the fact that they involve fetching and cooking, which are mainly women's works.

Furthermore, the area is known to have some untapped mineral resources like kaolin, lead, zinc, galena and coal, which when tapped would likely create

environmental disturbances. The result of this work can be used as a background study in assessing the impact of such disturbances if they occur.

3.2 Research Design

Two main methods were used in collecting data for this project, a survey, using structured interview and focus group discussion. Prior to conducting the structured interview, a pilot study was carried out to facilitate the design of the interview questions. Before administering the interview, an observation during transect walk around the area was made.

3.2.1 The Survey Design

The Pilot Study

This was conducted to familiarise the researcher with all the sections of the area of study and to collect data on some recent environmental issues affecting women in the area. Five women, one from each of the five communities of the study resident in Zaria, were visited in their respective homes for discussion in December 1994. An unstructured interview whose objective was to obtain relevant information about their respective hometowns and villages, which would facilitate the construction of the interview schedule/questionnaire and determine the appropriate period for the fieldwork, was held.

From the discussions, the researcher obtained information about Ishiagu, Akaeze and Ugwulangwu, which she had no prior knowledge of. The researcher knew Uburu and Okposi. Information gathered from the discussion guided the fixing of the fieldwork between January and March 1996. This is the period of rest between the harvest and the planting seasons.

The Transect Walk

The transect walk was carried out in the company of the women leader in each community. Some areas identified during the pilot study such as, the salt pond in Uburu (see plates 1 and 2) the pottery sites in Ishiagu (plate 4) and some farms and rivers in each community were visited. The purpose of the visitation was to observe the surrounding environment. Intermittently people working at the various sites were asked questions on observed phenomena.

Sampling Method

The five communities (towns) in the study area were divided into three clusters based on the traditional occupations of the women. The clusters were designated as follows: (a) Ishiagu zone, the area where pot making is the traditional craft. (b) Uburu-Okposi zone, the area where salt-making is the traditional craft and (c) Ugwulangwu-Akaeze zone, the area where there are no traditional women crafts, but he dominant occupation is farming.

The pre-designed data collection method which involved house to house visits proved difficult, due to long distances between homes, difficulty in transportation and the fact that the women are mainly at home only at night due to their work schedules. Since it is customary that women come to markets on their popular market days, meetings were arranged with the women through the women leader in each town on such market days. The meetings were held in the village squares near the market place. At the meetings, the participants were given numbers and by shuffling and picking at random, the desired number of 150 respondents was chosen and interviewed in empty halls in the Market Square.

This method of sampling had its attendant problems. For example, those women who were not selected felt disappointed and grumbled home. Those who were selected asked for tips, and they were given refreshments (biscuits and coke-drink) to keep them through the interview period. However, some of those selected felt special as 'representatives' of their community, resulting in a large response rate. Arrangements were made to interview those who could not wait to be interviewed at the market square, to have their own interview at home.

The 1991 population census figures estimated that there were 74, 486 females in Ohaozara and Ivo Local Government Areas. It was assumed that if the number of children and unmarried ladies were subtracted, the number of married women would be about 19,000. This corresponds approximately to 6, 200 women per zone. In Ishiagu 103 women reported, in Uburu, 72, Okposi, 61, Ugwulangwu, 40 and Akaeze, 80 women reported respectively. Total number of women who reported was 356, which is about 2.0% of the whole population of women under survey.

3.3 Techniques of Data Collection

.3.3.1 Structured Interview

The main instrument of data collection was a questionnaire, which was also used as a structured interview schedule. This was because it was expected that both literate and non-literate women would be encountered. The literate respondents filled the questionnaire, while the researcher and the assistants interviewed the non-literate ones. The assistants had been recruited and trained to conduct the interviews. For Ishiagu and Akaeze four female teachers from Ishiagu Girls' High School were recruited. Two secondary school teachers were recruited for Uburu, Okposi and Ugwulangwu. Each of the assistants interviewed eight respondents and the researcher

conducted the rest. The first set of interviews lasted several hours in one day and those who were not interviewed were later visited in their homes. Some who could read and write themselves were given the prepared interview schedule to fill in as questionnaires at home. This was done in order to save time. They were later visited to retrieve the papers. The questionnaire is attached as Appendix I.

3.3.2 Focus Group Discussions (FGD)

The Focus Group Discussion was conducted between the 4th and 12th of October 1997, after the preliminary analysis of the survey data. The aim of the FGD was to supplement the results of the earlier interview. During the discussion, feelings about some of the issues raised in the research were discussed to see if they could be variations in opinions on environmental problems as they affect women of various age categories. Four groups of eight women each were selected from three towns, in two zones. These towns are Ishiagu, Uburu and Okposi. They were selected because they practise traditional crafts in addition to farming. Two groups made up of women of ages, below 40 years and those 40 years and older respectively were selected from Ishiagu town. In Uburu participants were taken from women of ages below 40 years and in Okposi respondents were of ages above 40 years. The selection of age groups from Okposi and Uburu was merely for the convenience. Both towns belong to the same zone. No other variable except age was considered in the selection because the main aim was to obtain information about the environment over a period of time, roughly between 1960 and 1997. To achieve a good discussing atmosphere, it was considered that people in the same age group and locality can discuss issues that involve time together more effectively. Participants were either full time or part-time farmers. The researcher and an assistant, who had earlier carried out research on women in the area, conducted the FGD. The assistant helped in briefing and clarifying

some issues to the discussants and took copious notes while the researcher acted as the moderator of the discussions. The discussion guide is attached as Appendix II.

3.4 Organisation and Analysis of Responses

The social impact of environmental degradation forms only a small part of the overall Environmental Impact Assessment (EIA) that is usually required when proposing development projects that would cause physical disturbance to the environment (Jain, Urban and and Stacey, 1981). The analyses of impact were considered under two broad divisions, the physical impacts and the socio-economic impact. The physical and biological impact is usually measured by laboratory analysis of samples taken from the study area over a period. In this study, the physical impact is derived from the effect of erosion, pollution, desertification and soil infertility on crop yield in the study area.

3.5 Operationalization of Concepts

The main dependent variables in this work are the responses to the effects of the environmental problems, while the environmental conditions are the independent variables. There are intermediate variables such as family size, which help to explain the dependent variables. Some concepts as they obtain in the area of study are explained below.

3.5.1 Family Size and Responsibilities

The family size and responsibility for the upkeep of the family can be a source of stress that can possibly influence the responses in this study. Large families would probably experience more conflicts between individual members than families of smaller size. In the research area, each compound comprising of a group of related

nuclear families always have the eldest man as the head and the eldest woman as the woman leader, such woman is referred to as `Nne', that is mother of the compounds. Sometimes, co-operation goes beyond the compound, and smaller compounds are still tied culturally to their ancestral home usually referred to as `Ndi-uno'. An average compound has about 2 - 3 nuclear families each having between 6 and 10 children. Family size was categorised as small size families (1-20 persons) medium size families (21-40 persons) large families (41-80 persons) and very large families (more than 80 persons).

Responsibilities of respondents in the nuclear family were inferred from the gender division of roles within the family. These were categorised as sole responsibility if the is playing out these roles alone, example as a household head after the death of the husband. It is joint responsibility, if both wife and husband or other persons share the roles appropriately.

3.5.2 The Physical Impact of Environmental Degradation

The physical impacts of environmental degradation are considered to be of two types: structural impacts, which include changes in land, forest and water resources. The level of land degradation is inferred from decline of crop yield from same plots of farms over the years. This is because degradation can lead to infertility of the land and decrease in crop yield. Changes in forest and water resources are inferred from recollections of the respondents on the number of forests they ever used and what are available now. A correlation of these variables with age is used to roughly infer a time frame for the changes in number of these resources.

a) **Land Degradation:** The respondents' views on crop yield are categorised as adequate, if in the opinion of the respondents the yields still meet their expectations or

inadequate where it does not. Decreasing output is a good indicator of land degradation. The possible causes of low farm output were categorised into two as follows: those due to human factors (land allocation method, lack of fallow and lack of inputs) and those due to natural factors (erosion and drought).

b) Concept of Forests: People in the research area categorise forests in various ways:

"*Okonto-ovia*" - thick forests for day to day utilitarian purposes. For example, "ovia isi-ugwebi" in Uburu where people go to fetch firewood, soup condiments, fruits, medicinal herbs and hunt for animals.

"*Ovia –erisi*" –f orest reserved for shrines.

"*Ejo-ovia*" - the evil forests

"Ebo" - other collections of trees in form of bushes, orchards, plantations.

The respondents were asked the number of forests in their neighbourhood, which they were entitled to use before (5-10 years ago) and how many are presently available to them. The questions were directed at forests types i) – iii) above.

c) Water Source Degradation: This can be of three kinds, pollution, depletion and salinazation. The type considered is mainly depletion or scarcity and salinization. The following can cause depletion and degradation of water sources:

Siltation: occurs if loose mud washed into springs or slow flowing streams make them shallow. Over time, the springs become influent.

Salination: According to Robinson (1971) the body of water on topsoils and rocks contain sodium in addition to other ions. Most of these ions combine to form organic matter, which are absorbed by plants. Sodium ions are hardly absorbed by plant and hardly forms part of the rocks. Interstitial water (water between rocks in the ground) carries the sodium and chlorine ions into the underlying aquifer, thus forming of saline water. When this water is carried to the topsoil, it

causes salination of soil. Salination causes swelling of soil particles, prevents proper germination of seeds and damages parts of plants. It also causes plasma toxicity in animals and humans beings.

3.5.3 Socio-economic Impact of Environmental Degradation

Two aspects of economic impacts and four aspects of social impacts were studied: impact on traditional crafts, income, desertion of women due to emigration, impoverishment of women, stress in the life of women and conflicts that would affect the women. These consequences stem from the degradation of the physical environment and economic structures over a long time period.

a) Problems in Traditional Craft-work: The issues here are to ascertain whether the practice of some craft had been abandoned. Also to know if the reasons for abandoning them were due to changes in the environment, categorised here as diminishing resources, economic factors categorised as low net income and diminishing demands. Other problems of traditional craftwork are drudgery and availability of better alternative crafts of jobs which people would prefer.

b) Dwindling Income: Opinion of the respondents were sought on whether their incomes are increasing or decreasing thereby affecting their living standards and welfare. Income is defined in terms of the totality of ones possession in the study area. It comes in these forms: for a high-income woman, she possesses a good cement building roofed with zinc, a number of titles held (*Ogoo, Osu Nwanyi*, etc.), the number of yam stakes in husbands ban, number of bags of rice (fifty bags or more) and cassava farms. Number of domestic animals kept, cakes of salts stored (*agbirigba umu*), ability to marry for the eldest son, ability to hire farm labourers and feed them well. In polygynous families, a high-income woman is the wife who does not depend

on her husband for feeding, clothing and paying for the education of her children. She takes care of her immediate house and husband.

A woman is identified as having low income if: she is often a labourer, who survives on daily wages; lives in a mud thatched house; has no title, may have farm but cannot hire labour. Other attributes are: she has less than fifty bags of rice, less than fifty domestic animals and does not store salt or pots.

c) Desertion of Women: It is common for men in the study area to emigrate when faced with economic difficulties. Women are then left to fend for their families alone if there are no remittances from their emigrating husbands. The number of adult members of the family who emigrated is categorised as follows: very few (1-3), few (4-6) many (7-9) very many (10+). The reasons for emigrating are categorised as environmentally related causes (farming and land problems); emigrating for formal and informal education (search for better future) and for no specified reasons. People in the last category leave home because others are leaving (the bandwagon effect). From these, it would be possible to know how far emigration is determined by environmental problems compared to other reasons.

d) Impoverishment of Women: This is mainly due to desertion of the woman and not remitting anything to support and inability of the women to obtain support somewhere else.

e) Stress: Stress occurs in the life of a woman if she has to do more than one job to survive. Similarly, if she spends much time in search of water and fuel-wood needed for family upkeep and if she has to take up responsibilities of migrant husbands or male relations in addition to her normal female roles in sustaining the family. This is derived by cross tabulating related variables.

f) Conflict over land and natural resources: Conflict over land can be caused by shortage of arable lands (farmland-related problems) territorial expansion (boundary problems) and human greed. Also studied here are the number of such conflicts that affect the respondents and the frequency of occurrence.

3.5.4 Coping Strategies Against Impact of Degradation

These are measures adopted by the women to cope with the various forms of degradation. These include measures to combat shortage of good farmlands, shortage of water and fuel-wood, co-operation among themselves and delegation of responsibilities for solution to the problems. The variables are, measures against degradation and shortage. This is categorised as follows: acting to improve the environment (planting trees, digging wells, fallow the land) employing temporary measures (buying water, fuel-wood and more fertile lands) or engaging in stressful and demanding duties (application of organic wastes on land, searching for fuel-wood or water).

3.6 Statistical Analysis of Data

The data obtained from the survey are reduced to frequency tables and percentages of respondents in the zones. The statistical test used is chi-square test of independence. This is used to ascertain the association between the cross-tabulated variables.

3.7 Limitations And Problems of the Study

Some of the limitations and problems of this study are:

i. The bulk of the data were collected from primary Sources through memory recalls, which are subject to lapses.

ii. The study is restricted to only the female sex. A comparative study of the impact on the two genders may help to make more comprehensive conclusions.

iii. Most of the respondents lack awareness of the environmental problems, and they had difficulty in understanding the questions.

iv. There is a set of general problems associated with conducting research in rural communities, which include lack of accommodation, transportation and other facilities. These problems contributed in the redesigning of the data collection process from house to house visit to collecting data from women during a meeting in the market square.

Chapter Four

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

The findings are presented in the following sequence: the results of the observations carried out by the researcher, followed by the socio-demographic characteristics of the survey respondents. Following these is the presentation of the findings on the physical and economic impact of environmental degradation. The impact is derived from the physical degradation of land, forests and water resources as perceived by the respondents. The results of the physical impact and the observations carried out by the researcher address the first objective of the research, which is to describe the nature and effects of environmental degradation encountered in the area under investigation. The socio-economic impact address the second objective, which is to examine the impact of environmental degradation on the overall well being of the women and how the women perceive them. The overall well being is examined from their perception of the stresses they go through in performing their roles as women within the family set-up. Finally, the coping strategies adopted by the women are presented. The last part of the objective, which is to use the results obtained from this study, to offer useful recommendations, is considered under the conclusions and recommendations.

4.2 The Physical Features of the Area

The result of the observation showed that the entire research area consists of a continuous stretch of open grassland interspersed by short trees. There were signs of topsoil erosion, but no deep gullies were seen. In Ishiagu, stone quarries were seen along the major roads. There were saline lakes around the rivers in Uburu, and some

springs in Okposi. The saline water which was found only in Uburu and later in Okposi around 1960s is now extending to other areas such as Ugwulangwu and Ishiagu as observed in water from deep wells.

The rivers in the area include the Eta River in Ihenu village, the Esu River in Uburu and Okposi, the Ivo River in Ishiagu and the Ezeiyiaku River in Akaeze. The fish in Eta River belong to a deity called `Okwaibe'. According to the women these fish are not supposed to be caught, they are being used as tourist attraction. Visitors come to the river to watch the fish. The fish are attracted by throwing red palm fruits into the 'Okwaibe' spot, which they come and eat. Traditionally, it was believed that the fish would not come out when a visitor with the intention of carrying or killing them, invites them. All the rivers and most of the other sources of water become shallow and coloured during the dry season and are flooded and muddy during the rainy season.

The rivers have linear forest zones along their banks with many stumps of lumbered trees, especially, bamboo and iroko trees. Other forms of forests seen were a few isolated sacred forests housing traditional shrines. Some of the trees in the sacred forests have however, been cut down and many stumps were seen.

The people live in compounds of different sizes consisting of a number of related families. One important observation about the living arrangements is that palm trees are planted within most of the compounds. It is not possible to make gardens around residential houses because the roots of the palm trees spread wide on topsoil. Some of the people interviewed during the survey said that living arrangements are changing because younger families now move into more open areas formerly reserved for farming, to start compounds of their own.

The major environmental problems, that were observed and which many of the residents of the area complained of are: infertility of farmlands, disappearing forests, drying up and salinization of sources of drinking water. In addition, they complained that excessive conversion of clayey lands to farmlands and other industries, like quarries have been going on gradually over a long time.

4.3 Socio-Demographic Characteristics of the Respondents

In this section, three socio-demographic variables are considered, namely: age, educational qualification and the occupation of the survey respondents. These variables determine the social status of the respondents and can influence their responses. These variables can influence the respondents' level of consciousness of the dynamics and implications of environmental degradation. Table 4.1 shows the distribution of these socio-demographic characteristics for the respondents by zones.

(see page 51)

In Table 4.1, the ages range from 20 to 70 years and the modal age is 40 years. As much as 81.3 percent of the respondents are below 50 years. About 67.0% of the respondents have had education up to at least primary school level. Generally, the distributions show that the zones, which have younger respondents, have more people who attain higher levels of formal education. The table shows that farming is the major occupation of the women in the study area irrespective of zones. Only a few women engage in trading in all the zones. The presence of young and highly educated women in Ishiagu explains the zeal with which the respondents from there answered the questions.

Table 4.1 Socio-demographic Characteristics of Respondents (age, formal education and occupation)

Zones	Percentage of Respondents (%)											
	Age (in years)				Level of Formal Education				Major Occupation			
	20-29	30-39	40-49	50+	None	Primary	Secondary	Tertiary.	Farming	Trading.	C.Service.	Others
Ishiagu (n=50)	40.0	32.0	26.0	2.0	38.0	34.0	32.0	6.0	58.0	18.0	4.0	20.0
Uburu-Okposi (n=50)	6.0	38.0	30.0	26.0	32.0	40.0	10.0	18.0	60.0	8.0	24.0	8.0
Ugwulangwu-Akaeze (n=50)	2.0	28.0	42.0	28.0	26.0	36.0	30.0	8.0	46.0	14.0	38.0	2.0
Total (%)	16.0	32.6	32.7	18.7	32.0	35.6	20.7	10.7	59.7	13.3	2.0	10.0
(N=150)	24	49	49	28	48	55	31	16	82	20	33	15

Legend: None - no formal Education,: C.Service - civil service. The values indicated in this table are percentages of number of respondents in each zone.

The observed change from traditional crafts to farming is rather surprising. In the olden days, once Ishiagu was mentioned the idea that readily came to mind was the pot-making community and it was women only who make pots. Similarly, Uburu and Okposi women were noted for making salt. It is therefore surprising to find women identifying farming as a major occupation in these communities. Farming was known to be the major occupation of men, while women planted vegetables and condiments in their husbands' farms as food supplements. This change is an indication of increasing contribution of women to family sustenance through full-time farming. In the face of environmental degradation, the involvement of women in full time farming would impinge on their well being. It would add to their number of roles, increase their working hours and the farms would not be well attended to since the women do not have enough capital. The change can also be explained by the low income the crafts attract.

The low level of participation in trading activities by women can be explained by the fact that resources must be available to support trading. In the communities, women trade mainly in farm, forest and river products. Therefore, low level participation in trading activities is due to decreasing resources resulting from environmental degradation.

4.4 Physical Environmental Degradation

The physical environmental degradation refers to the effects of degradation on land, water and forests that embody the natural resources on which the economy depends. The degradation of land was investigated using diminishing crop yield. Diminishing forest and water resources were investigated using the respondents'

recollection of number of forests and water sources that existed and those that are presently existing. The findings on these are presented in this section.

4.4.1 Farm Output and Land Degradation

Farm output was investigated by asking respondents to compare crop yield from the same plot of farm over a period of 10 years (1986 - 1996) and state if the yield is increasing or decreasing. In response, 86%, 94% and 98% of women from Ishiagu, Uburu-Okposi and Akaeze-Ugwulangwu respectively reported decreasing output. This is an indication of land degradation through low crop yield within the period.

The issue of poor crop yield was discussed extensively during the FGDs. The younger women from Uburu told stories about big yam tubers harvested from home gardens. One of them told the story from her mother concerning the big yams her mother used to sell. Another told a folk story about the tortoise and the type of big yams he invited other animals to carry with him when visiting his in-laws. The older women from Ishiagu told stories about the land acquisition pattern practised in the earlier days. Fertile lands belonging to neighbouring towns were forcefully acquired for shifting cultivation. Yams harvested from such virgin lands were large. In the younger women group from Ishiagu, a discussant told the story on how her grandmother, as a young girl, fell down while carrying two tubers of yams from the farm. The yams were very heavy. These stories point to the fact that women transmit their feelings about the good old days from one generation to another. These stories corroborate the responses in the survey on declining outputs.

The issue of time, when land degradation started was discussed at the FGDs. All the discussants agreed that the changes started being noticed after the Nigerian

Civil War (1970s) and became glaring in the late 1980s. According to the older women, this was the period when effects of abominations against the land, like ritual killing, use of charms for money and disrespect for traditional injunctions committed during the Civil War started to manifest. The changes are said to have been gradual and contributed to emigration.

The discussants highlighted the issue of the changing environment and the effects. They all agreed that things are no longer as they used to be as far as land and farming are concerned. There are no more rich soils and bumper harvests. Yam had been the major food crop, usually regarded as men's crop in the area. Women used to inter-plant other crops such as coco-yams, maize, vegetables and condiments on yam mounds. Women were not full time farmers in the olden days, but they had enough to feed their families, they are full-time farmers now, and yet find it more difficult for them to fulfil the same roles. Traditional farming was geared towards family subsistence. These days, farming is more commercialised and cash oriented. People now prefer to farm for cash instead of for subsistence.

On the issue of poor crop yield, the respondents were asked to rank some suggested causes in the questionnaire. Four variables were suggested by the researcher: lack of fallow, lack of input (artificial and natural fertilisers), natural causes (erosion, drought, and flood) and land allocation methods (if women were allocated marginal lands). The respondents were asked to rank them (1-4) in descending order of importance. The responses to this question are given in Table 4.2. The values in the Table are percentages of respondents who ranked the variables in the zone.

Table 4.2 Ranking of Suggested Causes of Poor Crop Yield

Suggested Causes	Percentage of Respondents											
	Ishiagu Zone (n=50)			Uburu-Okposi Zone (n=50)			Ugwulangwu-Akaeze Zone (n=50)			All (n=50)		
	Maj	Min	Neg	Maj	Min	Neg	Maj	Min	Neg	Maj	Min	Neg
Lack of fallow	46.0	2.0	52.0	82.0	2.0	16.0	76.0	8.0	16.0	68.0	4.0	28.0
Lack input	40.0	4.0	56.0	78.0	4.0	18.0	64.0	12.0	24.0	60.7	6.6	32.7
Natural Causes	26.0	6.0	68.0	20.0	40.0	40.0	24.0	50.0	26.0	23.3	32.0	44.7
Land Allocation Method	8.0	6.0	86.0	6.0	14.0	80.0	8.0	22.0	70.0	7.3	14.0	78.7

Key: Maj = major reason, Min = minor reason Neg = Negligible reason
Ranking order -1-2 is major, 3 is minor and 4 is negligible.

Table 4.2 shows that lack of fallow is considered the major reason for poor crop yield as identified by 46.0% respondents from Ishiagu, 82.0% from Uburu-Okposi and 76.0% from Ugwulangwu-Akaeze. This is followed by lack of input (natural and artificial fertilisers) identified by 40.0% respondents from Ishiagu, 78.0% from Uburu-Okposi and 32 from Ugwulangwu-Akaeze. The overall result is that the perceived major causes of poor crop yield are lack of fallow identified by 102 (68%) of the respondents and lack of farming input, identified by 91 (60.7%) of the respondents. Natural causes and methods of land allocation were identified as negligible by 44.7% and 78.7% respectively. This findings therefore indicate that the poor crop yield already identified in the study area is perceived to be mainly due to land degradation. It is instructive to note that there are no major environmental catastrophes observed.

The reasons for poor crop yield were discussed during the FGDs. There was consensus among all the discussants that land had been overworked through continuous cropping. In the past people could afford to leave their lands fallow for up to five years, but these days, due to scarcity of farmland, the practice of fallow is becoming impossible because population is increasing and new compounds are

cropping of the available farmlands, they now depend on excessive use of chemical fertiliser input.

In the survey, 45% of the respondents considered natural causes as negligible. However, some discussants in the FGD felt that the soil salination and flooding contributed to poor harvest. Others felt that the presence of salt in the soil contributed to good taste in the food and flooding is a source of manure for crops. The variation between the discussants opinion is an indication of lack of awareness. Salination, which is excess of sodium salt in the land, cannot be said to contribute to crop yield in any way. The discussants were only considering the taste of the food rather than the yield of crops. Flooding on the other hand causes large devastation of farmlands washing away crops and therefore contributes to poor crop yield.

Other cultural and religious reasons for poor crop yield were pointed out by discussants. For example, in Uburu, they said that new yams were not eaten until after the flooding period. According to them, yams cannot mature for harvesting before the floods because the sediments in the floods were needed to provide the yams with nutrients that enhanced their maturity. Religious reasons were given by the older women group from Okposi. They opined that there are so many abominations being committed on the lands these days, which incur the wrath of the gods. Examples include the raping of women in farmlands by young men and flouting the rules of the oracles. Even the cassava plant, according to them is said to be annoyed because people have failed to accord it the prescribed sacrifices and so cassava harvests started being poor.

The FGD's findings agree with the earlier identified causes of poor crop yield, namely, the continuous cultivation of the land, lack of fertiliser and natural causes.

However, sacrilege against the traditional religious injunctions is believed to be a major cause by the older women.

4.4.2 Disappearance of Forests

The type of forests found in the area before were high forests consisting of layers of tall trees of about 30 metres high. The forests had trees like iroko, mahogany and baobab. There were medium trees such as "Akparata", "achi' and "nweze-oku'. There were also low trees, which are mainly herbaceous plants, which the women use for medicine and as spices. Such forests developed on un-used land, around river banks, on evil lands (burial grounds for evil doers) or around oracles. Only members of a community are allowed to fetch resources from a forest situated in their community therefore, for the purpose of this investigation, the neighbourhood forests are those that are owned by the respondent's community. Disappearance of such forests was investigated by asking the women to state the number of forests that ever existed and those that were still in existence. Responses from unstructured interviews with the women leaders showed that in the research area, it is forbidden for people to trespass into forests that are not within their own community. It is believed that the gods and other spirits live in the forests and that a trespasser can install an evil spirit in a forest to torment the owners. Normally men own land and forests with all the resources in them. Women are allowed to fetch food, fodder and firewood from especially the utilitarian thick forests, "*okonto ovia*".

Table 4.3 shows the distribution of number of forests available to respondents earlier, but not available presently (shown in the table as ever existed) and those that have survived to date (shown in the table as presently existing). The time limit was fixed to the early 1970s, in determining forests that ever existed. For those presently existing, (1996) was used.

Table 4.3 Respondent's Recall of the Number of Neighbourhood Forests that are Known to Have Existed up to the 1970s and Those Still Existing as at 1996.

No.of Forests	Percentage of Resondents (%)							
	Ishiagu Zone		Uburu-Okposi Zone		Ugwulangwu-Akaeze zone		All Respondents	
	Ever Existed	Presently Existing	Ever Existed	Presently Existing	Ever Existed	Presently Existing	Ever Existed	Presently existing
0	6.0	68.0	2.0	12.0	-	8.0	2.7	29.3
1-3	22.0	32.0	18.0	88.0	2.0	92.0	14.0	70.7
4-6	72.0	-	80.0	-	16.0	-	56.0	-
7	-	-	-	-	82.0	-	27.3	-
Total (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
n	50	50	50	50	50	50	50	50

Table 4.3 shows that up to the 1970s, 72% and 80% of respondents from Ishiagu and Uburu-Okposi zones respectively recalled that they had between four and six neighbourhood forests. In Ugwulangwu-Akaeze zone, 82% recalled they had up to seven forests at the same period. On the other hand, around 1996, 68% of respondents from Ishiagu opined that there are no neighbourhood forests whereas, in Uburu-Okposi and Ugwulangwu-Akaeze zones 88% and 92% opined that there were only between one and three forests. The responses show that most of the women are aware that a certain level of deforestation has occurred.

On the reasons for deforestation, as high as 84% of the respondents from Uburu-Okposi zone said that the forests were cleared for farms and fuel-wood used in the salt making industries. Most of the surviving forests are sacred forests where wood fetching is forbidden. In Ugwulangwu-Akaeze zone where forests resources are solely utilised for cooking and fruit gathering, there used to be a larger number of forests (7). Most of the forests according to 58% of the respondents are being cleared for farming and 20% claim it was for commercial lumbering. In this zone the practice of selling fuel-wood to rice-mill workers for parboiling rice and to bigger towns like Abakaliki is on the increase. The response from Ishiagu that there were virtually no more forests is

not surprising since the quarrying activities were depriving most people of their forests. Furthermore, the disused quarries have been converted to farmlands, which forestall the possibility of regenerating forests.

Women who participated in the FGDs said that up to twenty years ago, trees were rarely lumbered. There used to be a consultation within the family before big trees were felled. The trees were preferably allocated to rich young men within the family to use in building houses in the community rather than for sale. The women also told stories of the nature of thick forests that housed big trees like `*orji*' (iroko) `*nwezeoku*', `*achi*' `*akparata*', `*akpuogwu*' and `*uburuokoto*'.

The stories on the type of wild life seen in the thick forests were also told with enthusiasm. Women from Uburu told stories that before the Ogwu forest was cleared in the 1960s, there were buffaloes, gorillas, elephants, leopards, lions, tigers and chimpanzees. Animals were said to come and scratch their bodies against walls of houses in the night. In Ishiagu, where it was forbidden to kill tigers, the women reported that the tigers used to enter the homes and play with children. It was an abomination to hunt them. These stories reveal the fact that the area was heavily forested and with a lot of wild life in the past. The fact that the people cohabited with these animals shows that the forests were nearby in the neighbourhood. These days, the forests are cleared for farming and settlements and the animals have all disappeared. Bush burning during dry season and indiscriminate hunting contributed to the disappearance.

On the issue of sacred forests, the discussants said that such forests grew on lands set aside for burying evil doers in the society. Others were lands set aside for gods and important oracles. '*Ovia Agunabani*' in Okposi, housed sacred lions in those days. People were forbidden from hunting, fetching firewood and cutting trees in these

forests. Some of these forests were cleared for setting up Churches and Schools by colonial missionaries. Even forests housing formerly powerful oracles like `*ngeneukwemu*' and `*Ani*' in Uburu are now reduced to few trees due to encroachment. According to the discussants, forest rules were observed in earlier days, because it was their tradition to respect the rules made by their forefathers concerning the invisible. The effect of disobedience is visible these days for instance, women waste a lot of time in search of good quality ingredients such as `*achi*', `*akparata*' and vegetables such as `*uturukpa*' and `*uzziza*'. These ingredients, which were usually picked from nearby forests are very important for preparing different types of traditional soups. These days there are only a few surviving trees from which they can be obtained and as such, most of them have to be bought. Most of these fruits come from forests in the southernmost part of the country and from the Republic of Cameroon.

The FGD and survey data show that the disappearance of forests and forest resources in the area of study were man-made. The immediate consequences as they observed were disappearance of the wild life and large trees on which human beings depended for food and medicine. This kind of deforestation invariably has effect on drying up of water sources and erosion of the fertile topsoil.

4.4.3 Degradation of Natural Sources of Water Supply

According to the information obtained from the women leaders, people settled along the banks of the rivers. This is because the lands around the rivers were fertile, the rivers were sources of aquatic foods and afforded them some kind of protection from invading enemies. There were rules and regulations on how to treat the rivers. A typical example is the Eta-River in Ihenu Uburu, where fish living near the river shrine, `Okwaibe,' were not killed and farming was not allowed around the area for fear of disturbing the oracle. The spot is still deep and contains some large sacred fish.

Farming around rivers, deforestation and natural erosion has caused many streams to dry up. Today, many people do not have good quality natural sources of water supply in their community. Further inquiries on the trend of river disappearance yielded the results presented in Table 4.4. The table shows the distribution of the number of neighbourhood rivers/streams before 1970 ("ever existed") and those they are still making use of (presently existing). Neighbourhood rivers/streams are those which the respondents make use of because they are close to them. Use of rivers/streams is not restricted to people from the community where the water body is situated. This implies that a respondent might be making greater use of sources of water located in another community's territory than the ones in her own community's territory. Some respondents can therefore recall a greater or lower number of rivers/streams that ever existed than those who restrict their use of water to their own territories.

Table 4.4: Respondent's Recall on the Number of Neighbourhood Rivers/Streams Known to have Existed up to 1970s and Those Still Existing as at 1996

No.of Rivers/Streams	Percentage of Respondents (%)							
	Ishiagu Zone		Uburu-Okposi Zone		Ugwulangwu-Akaeze zone		All Respondents	
	Ever Existed	Presently Existing	Ever Existed	Presently Existing	Ever Existed	Presently Existing	Ever Existed	Presently Existing
0	2.0	4.0	0.0	8.0	0.0	20.0	0.7	10.7
1-3	62.0	86.0	52.0	40.0	44.0	66.0	49.3	64.0
4-6	36.0	10.0	48.0	52.0	56.0	14.0	50.0	25.3
Total (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	50	50	50	50	50	50	50	50

From Table 4.4, it can be seen that more people (10.7%) in all the zones have no neighbourhood rivers as at 1996 compared to 0.7% who did not have around 1970s. This shows that availability of rivers and streams has decreased within this period. In addition, 66% and 62 percent in 52% and 44% in Ishiagu, and Ugwulangwu-Akaeze zones respectively and 52% in Uburu-Okposi had few (1-3) rivers and streams within their reach. In all the zones, 50% of respondents recalled they had between four but six rivers/streams and as at 1996, only 25.3% still had the same number of rivers/streams

within their reach. Overall, more respondents have decreasing number of rivers and streams in their neighbourhood. This shows that the number of natural sources of water in the area is decreasing.

Responses to the question on the condition of natural water supply reveal that about 60%, 42% and 44% from Ishiagu, Uburu-Okposi and Ugwulangwu-Akaeze zones respectively, use natural sources of water supply. Out of these, 23.3%, 23.8% and 36.4% respectively claimed that the natural sources were good for domestic use. Others, 40%, 58% and 56% form Ishiagu, Uburu-Okposi and Ugwulangwu-Akaeze zones respectively use man-made sources, like bore holes and wells. The major contributing factor to bad nature of the natural sources of water supply is the colouration of the rivers, due to decaying foliage and the muddy state of the drying up streams. These make lack of drinking water the major problem with the degradation of water supply in the area.

The condition of water supply was discussed in the FGD. In Uburu the discussants said that water supply was not a major problem. They have the Eta and Esu Rivers, which flow all year round through most of the villages. In addition, there are smaller streams like Iyiodu, Otebene are springs. They said that none of these sources of water was salty. The only problems are the muddy colour of the rivers after the floods and the drying up of some streams during dry seasons. The Okposi women group saw water shortage as a distressing problem. The only river that does not dry up during the dry season, Esu, passes through only a few villages at the outermost part of the town. The women told stories of how they guard other water sources such as Ata (a stream), Obanta and Akaiyi (both springs) during the dry seasons although the water taste salty. The UNICEF boreholes are helping them, though these do not solve the problems completely because of the salty taste of the borehole water. The Ishiagu

women groups also talked about the problem of water shortage, but in their case, the Ivo River passes through many villages. Saltiness of wells in Ishiagu is a new distressing development. According to Ofoegbu (1985) it is an evidence that the water table in this area is rising and that new salt springs, similar to those known in the Benue Trough are developing. The impact of this is increasing salination of the soil, which causes poor crop yield.

To find the opinions of the respondents on the issue of forest and water, they were asked in separate questions if each type of degradation existed. The results show that more respondents in Ishiagu (98%) reported decreasing forest resources than in Uburu-Okposi (32%) and Ugwulangwu-Akaeze zones (20%). The response from Ishiagu is due to the extensive quarrying going on there, which is destroying the forests. On degradation of natural water sources, the result shows that women from Ishiagu (62%) and Ugwulangwu-Akaeze (68%) zones are more concerned about water degradation than those in Uburu-Okposi zone (32%)

To find out if the opinion of the women were influenced by their age or education, the responses were further analysed in terms of their ages and levels of education. The results are presented in Table 4.5

Table 4.5: Respondents' Views on Evidence of Physical Degradation by Age, and Level of Education.

Forms of Structural Degradation	Percentage of Respondents							
	By Age (years)				By Level of Education			
	20-29 n=24	30-39 n=49	40-49 n=49	50+ n=28	None N= 37	Prim. n=61	Second. n=36	Tert. n=16
Diminishing Crop-yield	91.7	93.9	98.0	92.9	83.8	90.2	72.2	56.3
Decreasing Forest Resources	87.5	34.7	32.7	17.9	16.2	52.5	52.7	43.8
Decreasing Water Resources	66.6	59.2	93.9	78.6	59.5	65.6	72.2	25.0

Values in the Table are percentage of respondents in each age and level of education category accepting that the named form of degradation exists

Table 4.5 shows that with respect to age groups, there is a very strong agreement among all respondents (higher than 90%) that land is being degraded. A large proportion (87.5%) of the women below the age of 30 years, identified that there is decreasing forest resources more than the older ones. This is because the younger women make more use of the forests. It is the younger women who fetch firewood, food ingredients and vegetables from forests. With degraded sources, they spend more time and energy in search of these needs. In the case of water, more of the older women of ages 40 years and above (78.6 - 93.9%) than the younger ones of ages less than 40 (66%) reported that there is water sources degradation. This is because the older women fetch water directly by themselves. At old age, their children, who used to fetch water for them, must have left home. Thus, the response pattern depends on how much the respondent is affected by a particular problem.

More of the women (57.1%) who have attained the tertiary level of education reported that there was no sufficient evidence to show that the land was degrading. This is because they are not directly involved in extracting from the natural resource base. Fewer women (16,2%) without formal education opined that the forest is degrading and for the other levels of education between 44% and 53% reported forest degradation. In the case of water, more women with formal education did not think water sources are being degraded. The general pattern of response suggests that the identification of the problem of environmental degradation is a function of how directly the respondent is involved in the extraction of the environmental resources.

4.5 Socio-economic Impact of Environmental Degradation on Women

Degradation of the physical environment generated some socio-economic problems for women in the study area. For example, the crop yield from farms no longer meets the family's food needs. Women no longer practised their crafts like

before, they now have to buy water and firewood. These impacts are discussed in next section.

4.5.1 Impact of Poor Crop Yield

To determine whether respondents were satisfied with the crop yield, a question was asked if their crop yield was enough to meet their basic family food needs. The result obtained showed that 68% from Ishiagu and 80% each from Uburu-Okposi and Akaeze-Ugwulangwu zones reported that the yields do not meet their needs. To investigate if the inability of the farm output to meet food need is a function of family size, the data on dissatisfaction with crop yield was further analysed in terms of family size (number of persons in a compound). The results are presented in Table 4.6.

Table 4.6 Relationship between Family Size and Dissatisfaction with Crop Yield (between 1986 and 1996).

No.of persons in Compound	Ishiagu Zone		Uburu-Okposi Zone		Ugwulangwu –Akaeze Zone	
	N	% not satisfied	N	% not satisfied	N	% not satisfied
10 or less	20	60.0 (12)	13	61.5 (8)	23	87.0 (20)
11-20	7	71.4 (5)	11	81.8 (8)	19	84.2 (16)
21-30	12	75.0 (9)	5	80.0 (4)	4	75.0 (3)
31-40	1	100.0(1)	6	83.3 (5)	4	25.0 (1)
41+	10	100.0 (10)	15	100.0 (15)	0	- (0)
Total	50	(34)	50	(40)	50	(40)
% of Total	100.0	(68.0)	100.0	(80.0)	100.0	(80.0)

The column, N represents number of respondents in the family size category. The percentage not satisfied is then followed by the absolute frequency in bracket. These are the numbers that indicated that their farm output no longer sustain their respective families.

Table 4.6 shows that in Ishiagu and Uburu-Okposi zones, dissatisfaction with crop output from farm increases with number of people within a family unit. The percentage of respondents from each category rises from 60.0% to 100.0%. This is an evidence of the effect of population pressure on scarce resources. On the other hand in Ugwulangwu-Akaeze the trend is reversed, that is, the percentage claiming dissatisfaction decreases with increase in family size, falling from 87.0% for small families (10 or less) to 25% for larger families (30-40 persons). This shows that population pressure is not the only factor. It could be inferred from earlier finding that environmental factors such as land degradation (soil infertility) contributed in generating this dissatisfaction. In addition, since this zone is a purely farming zone and farming is their major source of income, any decrease in crop yield would be highly felt by the women.

4.5.2 Impact of Environmental Degradation on Local Crafts

There are two types of crafts engaged in by the women in the research area, salt making in Uburu-Okposi zone and pot making in Ishiagu zone. Making salt and pot involves the use of land, forest and water resources. Deforestation and quarrying deprive women of the raw materials they need for their arts. The details of salt and pot making, both of which need a lot of wood, are described in Appendices I and II. Table 4.7 shows the distribution of responses to the questions asked to determine the participation in and abandoning of salt making in Uburu-Okposi zone and pot-making in Ishiagu zones respectively.

Table 4.7: Participation/Abandonment of Local Crafts by Age and Occupation

Socio-Demograhic Characteristics	Pot Making (Ishiagu Zone)				Salt Zone (Uburu-Okposi Zone)			
	%-Never Practised	%Stopped Practising	% Still Practising	Total	%-Never - Practised	%Stopped Practicing	%Still Practising	Total Practising
Age (yrs)								
20-29	80.0	15.0	5.0	20	100.0	-	-	2
30-39	68.8	12.5	18.7	16	27.8	66.7	5.5	18
40-49	65.5	30.8	7.7	13	18.8	75.0	6.2	16
50+	-	100.0	-	1	28.6	57.1	14.3	14
Main Occupation								
Farming	75.9	13.8	10.3	29	33.3	60.0	6.7	30
Trading	55.6	33.3	11.1	9	50.0	50.0	-	4
Civil Serv.	100.0	-	-	2	16.7	83.3	-	11
Local Craft	-	75.0	25.0	4	-	-	100.0	2
Labourer	83.3	-	16.7	6	-	100.0	-	3
Total Involved	35	10	5	50	14	32	4	50

Civil Serv - Civil Servants, Local Craft - Local Craft workers

In Table 4.7, 35 out of 50 respondents (70.0%) from Ishiagu zone never practised pot making. Out of the 15 that had ever practised pot making, 10 (66.7%) have stopped. Only five (33.3%) are still making pots. In terms of age distribution, more of the younger women (80% of those 29 years old and below) never practised pottery. All the older women (100% of those 50 years and above) practised, but have stopped making pots. It can also be noticed that few middle-aged women (18% of those between 30 and 39 years old) are still making pots. The Table shows that women irrespective of age group are abandoning the art of pot making. This can be explained by diminishing sources of clay, the low income the sale of pots attract and the drudgery of the work. None of those who are engaged in civil service ever practised pot making.

In the case of salt making in Uburu-Okposi zone, 14 (28.0%) had never practised salt making, Out of 36 (72%) that have made salts, 32 (64%) have stopped. Only 4 (8%) are still making salt. None of the two young women (below 30 years)

interviewed has ever practised salt making. For those who have ever practised, 2 (14.3% are old women (50 years and more) still make salt. In terms of occupation, it is only 6.7 (2) farmers that engage in salt making and all those (2) who regard salt-making as their major occupation still make salt.

In summary, from Table 4.7, it can be seen that both pot- and salt making in the study area are being abandoned by the women. Of special importance is the fact that a greater proportion of young women, and those who work in the civil service are abandoning the crafts, leaving them for the old, who are mostly farmers. In Uburu, it is expected by their culture that all women should know how to make salt. It is a taboo to see any male member of the community step into the salt spring. A newly married woman is introduced to the spring after an elaborate preliminary preparation which includes a special hair decoration '*ishi ogonwaevi*', she goes there carrying a pot in the company of older women. A young girl can help her mother to transport the brine home. Since salt making is a cultural preserve for women, every woman who does not learn the craft was looked down upon in the olden days. Many women used to reckon their wealth in the number of salt cakes they have. The high rate of abandonment of this hitherto prestigious women's craft is rather surprising, The main reasons for abandoning salt and pot making was sought from a survey question. The results are presented in Table 4.8.

Table 4.8 Main Reasons for Abandoning Craft-works

Reasons for abandoning craft-work	Percentage Respondents (%)	
	Pottery (n=50)	Salt-making (n=50)
Diminishing Resources	50.0	-
Low net income	30.0	40.6
Diminishing demands	-	12.5
Work is cumbersome	10.0	12.5
Existing better alternatives jobs	10.0	34.4
Total (%)	100.0	100.0

Table 4.8 show that a major reason for abandoning salt making is the low net income as claimed by 40.6%. Other reasons are existence of better alternatives (34.4%) diminishing demand (12.5%) and drudgery of the work (12.5%). The demand for local salt was boosted during the Nigerian Civil war, when manufactured imported salt became scarce and local ones became a very good source of income. Many women participated in making salt then. However, since the shortage of imported salt is no more and the demand for local salt has dwindled, more women abandoned salt making due to low net profit.

Diminishing sources of clay is claimed by 50.0% of the respondents from Ishiagu to be the main reason for low participation in pot making. The significance of this is that environmental problems are causing people to abandon their traditional arts. Drudgery and existence of alternative jobs are also contributing factors for low participation rate. Furthermore, the need for clay pots as utensils is no more fashionable compared with modern metal and ceramic utensils. Therefore the demand for clay pot has fallen and the income accruing to the pot makers has become low.

4.5.3 Other Economic Impact of Environmental Degradation

Other economic problems considered are low and limited sources of income and situations where women have to buy what they usually obtain naturally from their meager resources. Response to questions on the existence of economic problems show that 40 (80.0%), 44 (88.0%) and 50 (100.0%) respondents from Ishiagu, Uburu-Okposi and Ugwulangwu-Akaeze zones respectively claimed they had low income generally. On the issue of existence of alternative source of income or job 30 (60.0%), 25 (50.0%) and 27 (54.0%) respectively in Ishiagu, Uburu-Okposi and Ugwulangwu-Akaeze zones respectively claimed they did not have access to alternative jobs. Those who must pay to obtain land are 26 (52.0%), 17 (34.0%) and 19 (38.0%) respectively

from Ishiagu, Uburu-Okposi and Ugwulangwu-Akaeze zones. Those who must buy firewood are 34 (68.0%), 43 (86.0%) and 49 (98.0%) and those who must buy water are three (6.0%) from Ishiagu none from other zones. The pattern of response shows predominance of low-income earners. Since many of them have no alternative jobs and must buy these commodities, they have no option than to source them from the environment. With environmental degradation, these women are bound to suffer. To verify if age and level of education could affect the pattern of the response, the data on economic problems were analysed with respect to these variables and the results are presented in Table 4.9.

Table 4.9:Relationship between Age, Level of Education and Felt Economic Impact of Environmental Degradation

Felt Economic Problems	Percentage of Respondents							
	By Age (years)				By Level of Education			
	20-29 (n=24)	30-39 (n=49)	40-49 (n=49)	50+ (n=28)	None (n=37)	Prim. (n=61)	Secon (n=36)	Tert. (n=16)
Low Income	70.8	87.5	95.9	89.3	94.6	83.6	80.6	81.3
No Alternative Jobs	54.2	58.3	44.9	39.3	67.6	47.5	69.4	43.8
Must pay to obtain land	70.8	41.6	28.6	25.0	43.2	50.8	38.8	0.0
Must buy firewood	16.7	16.6	8.2	7.1	10.8	13.1	8.3	18.3
Must buy water	4.2	4.2	4.1	3.6	0.0	1.6	0.0	0.0

Key: None = No formal education, Prim = Primary Education Level, Secon. = Secondary Education Level and Tert. = Tertiary Education Level

The numbers in the table are percentages of the respondents (n) in each category and the response under felt economic problems are derived from different closed-ended questions.

Table 4.9 shows that at least 70% of the respondents, irrespective of age group and level of educational attainment said that low income is one of the effects of environmental degradation. This is because the nature of the occupation of majority of the women has to do with direct extraction from the environmental resource base. Therefore, the degradation of the environment will adversely affect their level of income.

On issue of finding alternative jobs, more women with high levels of educational attainment are better placed and can easily find alternative jobs that are not dependent on environmental resource base. Those with lower educational attainment suffer more because they are left to manage with whatever the environment has to offer.

A greater proportion of the younger women (69.6%) and those from Ishiagu (51.0%) said they have to rent land to farm. The small portions of land on which they depended can no longer sustain their needs, and in order to survive, they have to rent land. The shortage of farmland in Ishiagu can be explained by larger population of farmers, extensive quarrying activities going on there and use of clay for pot making which depletes available farmland.

4.5.4 The Impact of Emigration of Family Members

When economic problems, like increasing poverty and difficulty in obtaining food worsen, men are usually the first to emigrate in search of better jobs, leaving women behind to cater for themselves and the children. Table 4.10 shows the distribution of number of adult family members who emigrated from family compounds.

Table 4.10 Number of Adult Family Members Emigrating Since 1991 per zone

Number of Adult members of the Family emigrating	Percentage of Respondents (%)			
	Ishiagu Zone	Uburu-Okposi Zone	Ugwulangwu-Akaeze Zone	Average
0	10.0	6.0	20.0	12.0
1-3	30.0	12.0	32.0	24.7
4-6	32.0	12.0	30.0	24.7
7-9	8.0	12.0	10.0	10.0
10+	20.0	58.0	8.0	28.6
Total	100.0	100.0	100.0	100.0
No. of Respondents	50		50	150

χ^2=43.6, degree of freedom =8 significant at 0.05.

Responses in Table 4.10 show that there is more emigration within families in Uburu-Okposi zone (58.0%), than from other zones (20.0% and 8% for Ishiagu and Ugwulangwu-Akaeze zones respectively). The reason for higher rate of emigration in Uburu-Okposi zone can be explained by their early exposure to the outside world during the slave trade era. Uburu had a slave trade market place which is still being used as a regular market place.. Since the people were already used to long distance trading, effect of environmental degradation helps to promote emigration in the area. The reasons advanced by respondents for the emigration of their relations are given in the Table 4.11.

Table 4.11 Reasons for Emigration with Respect to Zones

Reasons for Emigration of Relations	Percentage of Respondents by zones							
	Ishiagu Zone		Uburu-Okposi Zone		Ugwulangwu-Akaeze Zone		All Zones	
	N	%	N	%	N	%	N	%
Environment Related	24	33.3	27	37.5	21	29.2	72	100.00
For Higher Education	3	30.3	4	40.0	3	30.0	10	100.00
To find Job	4	30.8	8	61.5	1	7.7	13	100.00
No Specified Reason	14	37.8	8	21.7	15	40.5	37	100.00
Total	45	34.1	47	35.6	40	30.3	132	100.00

Responses in Table 4.11 show that more than half 72 (54.5%) of the respondents strongly feel that emigration is mainly due to environmental degradation (lack of fertile land for farming). Out of this, 24 (33.3%), 27 (37.5%) and 21 (39.2%) are from Ishiagu, Uburu-Okposi and Ugwulangwu-Akaeze zones respectively. While 21 (46.7%) in Ishiagu zone 20 (42.6%) in Uburu-Okposi zone and 19 (47.5%) in Ugwulangwu-Akaeze zone respectively related emigration to other economic problems.

Two questions were asked separately on the respondents' perception of their level of income and on reception of remittances from relations. Level of income is rated as high, if the work a woman does enables her to acquire titles, to possess a modern building, to stack yams in barns and to store up to fifty-100kg bags of rice. In

addition, she could feed and pay for her children's education among other things. It is perceived as low income, if she is a farm labourer, has no title, lives in thatched house and has no stores of food crops. In addition, her children do not go to school because of inability of the woman to pay school fees, among other things. The two variables, income and reception of remittances are cross-tabulated in Table 4.12 on zonal basis. The aim is to find out if remittances do help in boosting the family's income status as claimed by them.

Table 4.12 Income and Reception of Remittances

Zone and Level of Income	Percentage Receiving Remitances		
	Yes %	No %	Total %
Ishiagu Zone			
	76.9	23.1	100.0
High Income (n=13)	37.5	62.5	100.0
Low Income (n=32)			
Total (n=45)	***48.9***	***51.1***	***100.0***
Uburu-Okposi Zone			
High (n=6)	66.7	33.3	100.0
Low (n=41	58.5	41.5	100.0
Total (n=47)	***59.6***	***40.4***	***100.0***
Ugwulangwu-Akaeze Zone			
High (n=0)	-	-	-
Low (n=40)	52.5	47.5	100.0
Total (n=40)	***52.5***	***47.5***	***100.0***
All Zones			
High (n=19)	73.6	26.3	100.0
Low (n=113)	50.4	49.6	100.0
Total (n=132)	***53.8***	***46.2***	***100.0***

The totals refer only to those families whose members emigrated.

The results in Table 4.12 shows that in Ishiagu zone 10 out of 13 women (76.9%) who claimed they have high income receive remittances. While 20 out of 32 (62.5%) who claimed low income do not receive remittances. These show that the women in this zone needed the remittances to enhance their income. In Uburu-Okposi zone, 4 out of 6 women (66.7%) who claimed high income receive remittances, but 24 out of 41 women (58.5%) who claimed low income received remittances. Therefore, whereas remittances enhanced the income of those who claimed high income, it did not change the income status of most of the women who claimed low income. In Ugwulangwu-Akaeze zone, no woman claimed high income, but 52.5% of those who claimed low income do receive remittances. In this zone, remittances do not change the income status for the women as they claimed. The variation in the claimed effects of remittances on income agrees with the fact that in Ugwulangwu-Akaeze zone, more family members live at home than in Ishiagu and Uburu-Okposi zones as shown in Table 4.10 above. Generally, only 19 (10.6%) of all the respondents claimed high income with remittances. It can be inferred that remittances do boost family income and women who are left at home by their husbands and relations depend on the remittances for their well being.

The data on level of income was further analysed in terms of occupation to see if impoverishment was related to occupations that deal with direct extraction from the environment. The analysis involves all respondents irrespective of whether they receive remittances or not. Respondents were asked to assess the work(s) they do in terms of the income accruing from it (them) and to rate their income as high or low. The findings are presented in Table 4.13.

Table 4.13 Occupation and Level of Income

Zone and Main Occupation	Percentages of Respondents with high or low income		
	High Income %	Low Income %	Total %
Ishiagu Zone			
Farmers (n=29)	31.0	69.0	100.0
Traders (n=9)	22.2	77.7	100.0
Crafts-women (n=4)	-	100.0	100.0
Civil servants (n=2)	50.0	50.0	100.0
Labourers (n=6)	16.7	83.3	100.0
Total (n=50)	***26.0***	***74.0***	***100***
Uburu-Okposi Zone			
Farmers (n=30)	**6.7**	93.3	100.0
Traders (n=4)	-	100.0	100.0
Crafts-women (n=2)	-	100.0	100.0
Civil servants (n=11)	27.3	77.7	100.0
Labourers (n=3)	-	100.0	100.0
Total (n=50)	***10.0***	***90.0***	***100.0***
Ugwulangwu-Akaeze			
Farmers (n=22)	-	100.0	100.0
Traders (n=7)	-	100.0	100.0
Crafts-women (n=0)	-	-	-
Civil servants (n=19)	-	100.0	100.0
Labourers (n=2)	-	100.0	100.0
Total (n=50)	-	***100.0***	***100.0***
All Zones			
Farmers (n=81)	**13.6**	86.4	100.0
Traders (n=20)	**10.0**	90.0	100.0
Crafts-women (n=6)	-	100.0	
Civil servants (n=32)	**12.5**	87.5	
Labourers (n=11)	**9.1**	90.9	
Total (n=150	***12.0***	***88.0***	***100.0***

Table 4.13 shows that respondents who claimed to be of low income constitute 88.0% of the whole sample. out of which 65.2% are farmers, crafts-women and labourers. These are those who eke out their living through direct extraction from the environment. Traders and Civil Servants do not necessarily have to depend on the

immediate environment to practise their occupation. However, they make up 34.8% of the respondents who reported low income. The large proportion of people who claim to be having low income implies that there is high level of poverty among women. It is clear from Table 4.13 that the high level of poverty is related to their occupation, which is environmentally based. In other words, environmental degradation impoverishes women. Ugwulangwu-Akaeze zone has the highest percentage (100.0%) of women who claimed low income, followed by those of Uburu-Okposi zone (90.0%) and Ishiagu zone (74.0%). This shows that there is a high level of poverty in the area. To further substantiate the relationship between occupation and income/impoverishment, three case studies, one from each zone are presented. The names appearing in the cases are not real names.

1. The Case of Madam Aja (A 60-year old crippled potter from Ishiagu)

She is a woman, who depends on the environment for sources of income. She cannot meet her family needs because of environmental degradation. According to her, she had always been a potter because of her disabled condition. When asked to judge between her living conditions nowadays and before. She said that things are worse nowadays.

In her narrative she said:

> In the past my husband used to shoulder greater responsibility for family upkeep, but he is dead. I have three children, two of whom have left the village for the city because farming no longer pays. My youngest child, a daughter has dropped out of secondary school to look for a husband out of pity for me. The income from the pot I make cannot sustain us and my children outside the village do not remit enough money. Even the governments are not helping my situation. They often pick me up to state and national art exhibitions in Umuahia and Abuja. In return, they promise

buying a wheel chair for me but until now, those cheats have not bought anything. See common clay soil, which used to be dug free, is now paid for. In fact, we are suffering a lot in this village.

2. ***The case of Mrs. Nwobasi (A 30-year farmer and part-time salt maker from Uburu)***

In her narrative, she said:

> Are you asking me how these occupations are faring in terms of income? Come into our ban and see things for yourself. We used to stake up yams in those empty spaces. My husband and I were large-scale farmers, but I don't know what is happening to our farmlands these days. Every body complains about poor harvest. Even the shift to rice cultivation is no better. It is too expensive to hire labour, tractor, buy fertiliser and other chemicals. In the end, you don't get good yield. My husband is planning to leave the village.

This case represents a typical case of the effect of environmental degradation on a source of income and a likelihood of further impoverishment by the time the husband emigrates.

3. ***The case of Mrs. Chukwu (A widow from Akaeze aged 58).***

Her narrative is as follows:

> Soon after my husband's burial, I left for Aba. I was managing a restaurant there. While in that business, I started erecting that uncompleted building over there. Since 1990 when I came back to the village and started farming, things are no longer the same. Work on the building stopped. Look at cracks all over the wall and some parts have started falling. My husband's relatives have taken over most of his land and I am just managing to survive.

This represents a case where a high-income woman has been drastically reduced to a low-income woman through change in occupation and environmental degradation.

4.5.5 The Neglect and Marginalisation of Women

The women were asked questions during the survey if they felt that they were neglected in terms of obtaining support from government in the area. Support is usually given to farmers in forms of farm inputs, fertiliser and high-yield seedlings. Economic supports also come as soft loans, extension and tractor hiring services. A large proportion, 86.0%, 84.0% and 100.0% in Ishiagu, Uburu-Okposi and Ugwulangwu-Akaeze zones respectively said they do not receive such supports. The women were further asked for reasons why government was not giving them such support and the responses are shown in Table 4.14.

Table 4.14: Reasons for not Receiving Support from Government

Zones	Percentage of Respondent Giving Reasons			
	Neglect	Ignorance	Diversion*	Total
Ishiagu Zone (n=50)	88.3	7.0	4.7	100.0
Uburu-Okposi Zone (n=50)	50.0	26.2	23.8	100.0
Ugwulangwu-Akaeze Zone (n=50)	50.0	34.0	16.0	100.0
Total (%,, n=150)	62.2	23.0	14.8	100.0

* see text below for explanation

Table 4.14 shows that In Ishiagu zone, 38 (88.3%) respondents who said they do not receive support, also said the women were neglected. Three, (7.0)% of the respondents said that they were ignorant (unaware of the existence) of Government support. Only two (4.7%) respondents said that men and those in authority diverted the support (that is they do not allow the support to get to the women). In Uburu-Okposi and Ugwulangwu zones, 25 (50.0%) respondents each claimed that women were neglected, 26.2% and 34.0% respectively claimed ignorance. While 23.8% and 16.0% respectively claimed diversion. The result above is clear evidence that women are neglected and many of them are not aware that supports exist.

The scarcity of resources leads to the marginalisation of weaker people in the society, in most cases women. In land allocation, women find it difficult to obtain good and fertile lands and thus have to spend scarce resources to acquire better land. However, the responses obtained from questions on this issue show that 94.7% of the women believed they are not marginalised in the type of land allocated to them by men. Furthermore, 83.4% claimed that the land they farm on were as good as those of the men.

This perceived high level of equality between men and women in the allocation of farmlands found in the survey does not agree with the claims made by the women in the FGDs on the issue of land acquisition. This is because information from the FGDs articulated the issues better. The discussants claimed that women do not own land directly but get access to lands in various ways. The women from Uburu and Okposi told of a situation in which a family, without a male child kept one of the daughters to bear male children for her natal family without which they would lose their lands. Women can only hold their family lands for their male children. A powerful and influential woman can acquire lands from her father, but such lands revert to her brothers if her marriage fails or if she dies. Women also acquire land by buying. The transfer of ownership is accompanied by a ceremony in which the woman gives a goat for sacrifice. The mutton is shared by the former landowner among his relatives and friends to inform them about the sale of the land. Women can also acquire farmlands on lease, but after harvest, the land reverts to the owner. Tenants on lands are supposed to give wine and crops to the owner before planting and after harvest respectively.

It is important to note the exploitative nature of land acquisition for the women, which was silent in the survey. That is, while a male child simply inherits land from his father, his sister has to buy or rent it. Moreover, because of scarcity of lands, no man

would be willing to sell his fertile land. This discriminatory mode of acquisition is a form of marginalisation, which compounds the problem of unavailability of land for women.

4.5.6 The Issue of Stress

Some of the sources of stress to women are the multiple work they must compulsorily do to sustain their families and the effects of community and family feud over land on women and children. Another source is carrying family burdens alone in the presence of difficulties like environmental degradation.

The issue of multiple jobs was investigated by asking the women how many house jobs they do. A woman is said to have many house jobs (domestic works, which are not paid for) if she performs more than three of the following: subsistence farming, fetching firewood, water and fodder, craftwork, gathering herbs or fruits. All these jobs involve direct extraction from the environment and with degradation, they become more stressful. Analysis of the response by zone shows that 76.0%, 80.0% and 60.0% from Ishiagu, Uburu-Okposi, and Ugwulangwu-Akaeze zones respectively reported they have many jobs.

On the issue of communal feuds, 60.5%, 78.0% and 84.0% from Ishiagu, Uburu-Okposi and Ugwulangwu-Akaeze zones respectively reported that their families have been affected by communal feud over land. Some accounts of feuds were narrated by women leaders. There were disputes between Umuchima and Ihenu villages in Uburu over boundary adjustment since 1986. Another one was between Akaeze and Ishiagu over the fertile swampland at Nzerem since 1984. There was also another conflict between Amenu in Uburu and Okposi Okwu in Okposi over an 11-kilometre

piece of land between them. The last example had been on since 1955, but worsened in the 1980s.

The origin of the communal feud is usually pressure on land. In the past people settled on forested fertile lands along the banks of rivers. Degradation of these natural resources and increasing population pressure have made it necessary for bigger communities to fight, displace and occupy the lands of the vanquished communities. This is often motivated by the quest to acquire lands that are more fertile. Fire, guns, machetes and charms are used in the fights. This has caused the deaths of able-bodied men who normally go out to fight. When people lose their lands during feuds, men emigrate, leaving women to work marginal lands into which they have been forced. Furthermore, such defeated people have more casualties, male fighters, whose widows assume household heads roles and eke out sustenance from degraded lands.

The issue of communal feuds was discussed during the FGD. The views of women from Uburu and Okposi were that land disputes rarely occurred in the olden days, but it is more common these days. The women from Ishiagu claimed that the disputes that used to occur were those of inter-community wars to acquire lands. On the reasons for the present land disputes, the discussants tried to show that land disputes nowadays are due partly to scarcity of fertile land and partly due to greed. In situations where fathers and elders no longer sit to portion out lands to their successors, the children quarrel and fight for the lands when they need them. In addition, situations arise where the family lands are not large enough to go round. In such cases, richer members use their influence to acquire more to the chagrin of the other members.

Discussants from Ishiagu pointed out that a new dimension to the land dispute is the fact that their forefathers gave out their lands to immigrant farm labourers to settle on since the 1970s. Now the indigenes want the land back and this may escalate

into full conflict and perhaps war if the immigrants refuse to leave. The immigrants are mainly from Ezza in Ebonyi State. These discussions point to the central position fertile land has in the life of the rural people. If land degradation occurs and is allowed to continue unmitigated, there would be more feuds and more stress in the life of women.

On the issue of family burden, 20.0%, 38.0% and 60.0% from Ishiagu, Uburu-Okposi and Ugwulangwu-Akaeze zones respectively reported carrying their family responsibilities alone. Traditionally, it is the responsibility of the man to cater for the members of his family. However, in times of difficulties, women share in this responsibility and in some cases, for example, if the woman is widowed, divorced, deserted or the husband is incapacitated, the woman takes full responsibility. With the emigration of husbands, women assume positions as household heads, breadwinners and sole caretakers of children. The situation is worsened by environmental degradation affecting farming and prevailing economic problems in the society. Taking full responsibility of family upkeep adds more burden and stress to the woman. The responses from this survey show that on the average, 26.0% of all respondents carry responsibility for family upkeep alone. This represents approximately one out of every four women and is indeed a pointer to the level stress on the woman.

To find out if other factors affect the responses on the issue of the family responsibilities, the data on sources of stress were analysed according to age and level of education. The results are presented in Table 4.15.

Table 4.15: Sources of Stress on the Life of Women

Sources of Stress	Percentage of Respondents Affected Respective Stress							
	By Age Group (years)*				By level of Education*			
	20-29 (n=24)	30-39 (n=49)	40-49 (n=40)	50+ (n=28)	None (n=37)	Prim. (n=61)	Secon. (n=36)	Tert. (n=16)
Many Household jobs	80.0	61.0	67.3	74.0	75.0	69.0	64.0	46.0
Communal Feud	70.0	80.0	60.0	80.0	81.0	77.6	84.0	5.0
Family Burden Alone	4.0	16.3	25.5	20.0	21.0	13.8	15.0	26.0

None - no formal education; Prim - primary education.
*Responses are from separate close-ended yes or no questions. Respondents were asked to mention all stressors affecting them. The data are percentages of women who agreed that these sources of stress affected them.

Table 4.15 shows that between 60% and 80% of the women across all ages suffer stress due to many house jobs and effects of communal feud over land. Carrying of family burden alone is low especially for the youngest group (29 years or younger) and for the oldest (50 years or older). The young women still have their husbands while the old women have grown up children who help them in carrying family burden. In terms of education, the stress of many jobs decreases with level of education from 75.0% for those that have no formal education to 46.0% for those who had tertiary education. This is explained by the fact that women with higher level of educational attainment are more likely to employ house-helps. At the same time, they are likely to carry more family burden alone because of their higher income. More than 70.0% of respondents across age and level of education suffered from stress due to the effect of communal feud.

4.5.6 A Summary of the Impact of Environmental Problems on Women According to Zones

This issue was discussed during the FGD. Generally, land infertility was seen by the women as the greatest problem facing them. This is because every other thing depended on the land. The women in Okposi felt that water scarcity is the worst environmental problem because it leads to illness. The time they spend in fetching or

managing their water encroaches on their other activities like farming. Discussants from Uburu and Okposi also agree that the new method of making salts by evaporation consumes more firewood than the older concentration method (see Appendix IV for details). This has increased their foraging for firewood and has adverse consequences for both the women and the already depleted forests. If this trend is not checked, the problems of deforestation will be exacerbated. In Ishiagu, women see pot making as an old fashioned industry. Very few young women start pot making as a career these days because of the low income it attracts and the drudgery involved. The same trend occurs with salt making in Uburu and Okposi. If this trend continues, the cultural identity of the future generations of women from these communities, as potters and salt-makers will be lost.

The economic problems generated from the physical degradation of the environment have had adverse impacts on women. The impact include low income, lack of alternative jobs, renting of land and buying of firewood and water. Survey and FGD findings have shown that women are marginalised in land ownership and acquisition, though not in type of land allocated to them. There are, in addition, stress on women due to multiple domestic works, family burden and communal feuds due to land scarcity. These sources of stress are exacerbated by environmental degradation and emigration of male family members.

4.6 Coping Strategies Adopted by Women Against the Impact of Environmental Degradation

In the face of the scarcity of resources and economic difficulties, people struggle over what is available and are likely to use several means to get what they want. In most cases, they simply act against or form attitudes towards the daily problems confronting them. These include farmers trying to specialise in the kind of

crops they plant, use of organic and inorganic fertilisers in farming, and the use of joint action groups to obtain farm inputs. In this case, women have greater obstacles because they are handicapped by cultural practices that tend to allocate less resources and power to them. This section directs attention to the views of the women in their own efforts and their suggestions on how to solve the problems caused by environmental degradation.

4.6.1 Efforts Directed at Solving the Women's Problems:

Four close-ended questions were asked to ascertain the strategies the women employed in solving the problems of environmental degradation. The first is to find out if they use artificial fertilisers (chemical fertilizers). Chemical fertilisers, although in the short run increases soil fertility, usually contribute to environmental degradation in the end. They leave residues in the soil, which may become poisonous to the living organisms. In response to the question on use of chemical fertilisers, 78.0%, 90.0% and 70.0% from Ishiagu, Uburu-Okposi and Ugwulangwu-Akaeze zones respectively agreed they use such fertilisers. This shows that there is much use of fertilisers to improve soil fertility without considering the latent effects which later shows as degradation and pollution of the environment. The second question was on participation in tree planting, which is an afforestation measure. More respondents (90.0%) from Ugwulangwu-Akaeze zone participate in tree planting when compared with those of Ishiagu (68.0%) and Uburu-Okposi (48.0%). However, the responses still indicate a need for women to participate more actively in tree planting. The third question was on preference for providing drinking water by artificial means (well digging). In answer, 80.0%, 74.0% and 88.0% from Ishiagu, Uburu-Okpsi and Ugwulangwu-Akaeze zones respectively have preference for well-digging. Digging of wells was not common in this area before the 1980s. This popular preference for wells

supports the idea that natural water sources are degrading and more people seek artificial sources they can provide for themselves and which will be nearer to their houses. The fourth question was on participating in joint actions. Here the women were required to say if they have joined the women groups that fight to improve the lots of women. Results show that more women from Ishiagu (80.0%) and Uburu-Okposi (60.0%) are joining in joint action to fight for their lots more than in Ugwulangwu-Akaeze zone (10.0%). The women from Ugwulangwu-Akaeze zone are more complacent, because, unlike than their counterparts in the other zones, they do not have unique women crafts to protect from encroachment.

Table 4.16: gives a breakdown of the data on coping strategies by age and level of education. This is to verify if the strategy adopted depends on age or level of education.

Table 4.16: Opinions on Coping Strategies as Encouraged by Respondents

Coping Strategy	Percentage of Respondents (%)							
	By Age (years)*				By Level of Education*			
	20-29 (n=24)	30-39 (n= 49)	40-49 (n=49)	50+ (n=28)	None (n=37)	Prim. (n=61)	Second. (n=36)	Tert. (n=16)
Use of Fertiliser	90.0	93.8	75.5	78.6	79.4	89.6	73.9	87.5
Tree Planting	68.0	44.4	51.0	64.3	57.8	72.7	62.5	83.3
Well digging	86.0	82.8	95.9	86.7	82.6	91.4	87.0	87.5
Women Joint Action	82.0	55.5	46.9	33.3	48.8	60.4	68.8	37.7

None - No formal Education, Prim - Primary education, Second. - secondary education and Tert. - tertiary education.

*The responses were obtained from separate closed-ended yes or no questions. The respondents were allowed to mention all strategies they considered viable. The data are percentages of women who accepted that they encouraged the enlisted coping strategies.

Table 4.16 shows that in all the zones the youths (below 40 years) are eager to use artificial fertiliser. The survey result has shown that the youths are also active in farming. Table 4.1 earlier showed that 59.7% of all the respondents are farmers. It can then be inferred that the application of chemical fertilisers with their attendant

environmental problems (pollution of water and land) is common in the area. In the FGD, the group from Okposi said that educated farmers in their town considered the old practice of digging the ground and applying domestic manure as time wasting and old fashioned. They prefer the modern system of agriculture. From these responses, it can be inferred that the people lack awareness of the environmental impact of modern agricultural practices.

The level of participation in joint action decreases from 82.0% for the youngest group (20-29 years old) to 33.3% for those 50 year and above old. It is obvious that the younger people are more active because their future is at stake. There is also evidence that more of those with primary education (60.4%) than those are with secondary education (68.8%) participate in joint action than those with no formal education (48.8%) and tertiary education (37.7%). The later is surprising because one expects those with tertiary education to take the lead in fighting for lots of women. They are not taking the lead because by the virtue of their main occupation, which is mostly in the civil service, they are not directly affected by the problem of environmental degradation.

These issues included in the survey were further discussed in the FGD. Okposi women who suffer most from water shortage talked of measures employed to ensure that people get water. Spring ponds like `Akiyi' and `Obanta' are guarded by women to prevent people from bathing and washing in them. Fences with locks are made and opened for use only in the mornings and evenings. Some women fetch and store rain water as protection against guinea worms from infested ponds. Uburu women mentioned villages that use masquerades to guard the rivers from people polluting the waters. Where it is impossible to impose laws on people by their leaders, they can

easily be imposed by the masquerades as they are regarded as living spirits which human beings dare not offend.

Another method adopted by the women in combating the problems of degradation is forming joint action groups to protect themselves from misrepresentation by politicians and other leaders in the society. They complained that their representatives receive bribes from companies quarrying rocks and allocate the community farmland to them. In addition, they do not enforce the requests the women make to the Companies to provide drinking water and good roads for them in return for their lands. The women from Ishiagu also complained of neglect and diversion of support from government (as was cited in the survey). They later realised that it would be better for women to represent themselves. They formed a society called *'Ndi Nne Mama'* meaning 'Mothers who have the interest of women at heart'. All mothers were encouraged to join the society. They made rules that guide women and through this association, they have at least challenged men in the allocation of land for quarrying. In Uburu, the women told a story of how they jointly opposed the men leaders when they wanted to commercialise the salt ponds. This is a good idea, because it would provide more income for the Local Government, but the women's argument was that the traditional salt making supplemented their families' subsistence. If salt making is done by industry women will loose control of the trade.

4.6.2 Who Should Solve Environmental Problems?

To solve the environmental problems, the people must identify who should be responsible for solving them. The women had various views as shown in Table 4.17.

.Table 4.17 Opinions on Who Should Best Solve the Problem of Environmental Degradation

Who Should Solve the Environmental Problems	Percentage of Respondents by Zones (%)			
	Ishiagu Zone (n=50)	Uburu Okposi Zoner	Ugwulangwu -Akaeze	All Zones (n=150)
Government alone	28.0	64.0	10.0	34.0
Community alone	2.0	12.0	60.0	24.7
Individuals alone	-	2.0	8.0	3.3
Combination of all	66.0	14.0	6.0	28.7
No Response	4.0	8.0	16.0	9.3
Total Responding n	100.0	100.0	100.0	100

Table 4.17 shows that 34.7% of the respondents think that Government alone should handle the problem of environment degradation. On the other hand 26.7% believe that the communities alone are able to solve the problems. A few of the respondents (3.3%) believe that the solution to the problem lies with the individuals themselves, while 30.0% are of the opinion that the problems can only be solved through a combination of efforts. Statistical test shows that the responses from the different zones differ significantly. The attitude of waiting for government alone to solve the problems in Uburu-Okposi zone as indicated by 66.0% of the respondents from that zone is not surprising. This is because the people from this zone have had more people in Government. These include the first Minister of Education in Nigeria, Mr. Aja Nwachukwu and the first Governor of Abia State, Dr. Ogbonnaya Onu. In contrast, respondents from Ugwulangwu-Akaeze zone prefer to solve the problem by themselves within their community because they have no strong representative in Government. Ishiagu zone has produced a Chairman of Ohaozara Local Government only and has had the attitude of solving problems by themselves with the government assisting.

The other issue on the way forward is the process that could be adopted to salvage the environment. On this, the general view of all the FGD discussants was that

it might not be possible for the environment to recover to its former status. Modernisation processes already adopted by women in the rural communities make it impossible for the traditional way of life to be revived in the villages. It is the view of the older women that unless the abominations are stopped and the gods of the lands are appeased, things will not be normal again. Modern religion and education seem to oppose the process of punishing people who commit abominations (raping, adultery, incest, murder, and disrespect to the orders of the oracles) in the villages. Banishment and offering offenders as sacrifices to oracle (the *osu* system in Igboland) is no longer practised and this has in a way increased the rate of committing the types of offences the older women were referring to. These suggestions point to the fact that the women are yearning for the good old days. However, some of the suggestions cannot be practicable in the present era. Some more progressive processes of revamping the environment like the formation of unions (*'Ndi nne mama'*) to champion the campaign for environmental protection and restoration as suggested by Ishiagu and Uburu women could be seen as yielding more results.

During the survey, an issue was witnessed in Ishiagu involving members of *'Ndi nne mama'* and officials of one of the quarrying companies (Crushed Rock Company Ltd.). The women gave them an ultimatum to build roads, supply water and electricity to their community or stop exploiting their environmental resources. Later it was found that the protest yielded some results. The companies started sinking bore holes in the area to provide potable water. They also extended the electricity they were using in their camps to the villagers to use. A similar incident was narrated by the Uburu women leader concerning the commercialisation of the Uburu salt. Male representatives of the community, in collaboration with the government, wanted to take over the salt production. The opinions of the women who lived on salt production were

not sought. A powerful women's group "*Otu Ogbo Nwankwo Nudu*' led an all women's protest against this plan. Women marched round the town shouting and singing that they would not allow anybody to take away one of their sources of livelihood, the salt lake. By so doing, the women were able to safeguard their rights over their source of income, notwithstanding the fact that few women practise salt making these days. These examples have shown that, collective action and rights are empowering. If these collective actions and rights are properly utilised, they could be used for solving most of the environmental degradation problems in the rural areas. This is in conformity with the ecofeminist's point of view.

In conclusion, a combination of the coping strategies suggested by the women and collective actions by the government community and individuals would go a long way in solving the problems of environmental degradation in the research area. Since the problems of environment affects women more adversely in their gender roles, they should be the vanguard in the struggle against degradation of the environment

Chapter Five

5.0 SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The objectives of this work were to find out, among other things, the nature of environmental degradation in the study area (Ohaozara and Ivo Local Government Areas of Ebonyi State). It also includes finding out how the impact have resulted in changes in the economic activities and overall well being of women. Finally, the steps taken to remedy the effects of the identified environmental problems are to be investigated. This chapter summarises and discusses the findings and makes recommendations for alleviating the problems.

5.2 Summary

Observations made during the survey show that the sample towns have rivers and seasonal streams that are muddy during the rainy season because of flood and become coloured and malodorous in dry season due to decaying leaves. Forests are mainly found along the riverbanks and around shrines. Compounds have palm trees that spread their roots on topsoil thus preventing home gardening. New living arrangements are also emerging in which young families start smaller homes in places reserved for farming. These deplete available farmlands and increase pressure on land. The types of land degradation in the area are sheath erosion and the increasing salination of underground water. The overall consequence is decreased soil fertility resulting in poor crop yield. Forest resources are also being depleted due to commercial activities, like lumbering and commercial farming.

The division of the study area into zones, according to traditional occupations, has brought out the fact that the practice of traditional occupations is crumbling due to environmental degradation and modernisation. Women in salt- and pot-making zones are changing from these traditional occupations to farming and those who belong to farming zones have more civil servants. These changes in occupation are desperate moves by the women to improve their well being. Economic problems identified include low income, high cost of land, marginalisation of women in land acquisition and low trading activities. The economic problems are indicators of degrading environmental resources, while the changes in occupation, are responses to it. The respondents agreed that human action, such as over-farming of lands and disrespect for sacred laws and deities are causes of the problems. They noted natural causes like flooding, salination and poor weather as contributory factors too.

The pattern of response indicates that the attitude and actions taken by the women depend on how directly they are affected by the problem. Those who are not farmers, though highly educated, do not appreciate the problems of the land degradation as those whose occupation is farming. This supports the idea that women do not constitute a social class. That is, women as a group cannot be considered as a social class. Instead, a woman suffers the kinds of problems associated with the class to which she belongs in the society.

It was also found that, on the average, 10 or more adult members of the family emigrate from their family homes to look for better means of livelihood in other towns. This was found to be largely due to environmental problems. Most of these emigrants do not remit enough money to their wives and many women (26%) have to assume sole

responsibility for the family material needs in spite of the dwindling resources. This is a source of stress in the lives of the women. When land is rendered infertile, men simply emigrate and leave the women to till the degraded soil. Consequently, women get involved in multiple domestic works and face shortages of resources in the absence of their husbands. The findings also show that communal feuds and clashes between family members over land, due to greed, are erupting in the various parts of the study area making life more difficult for women and children.

The women are making desperate efforts to cope with the problems. Some of their efforts are rather dangerous to the environment. For example, the young women farmers have adopted the use of chemical fertilisers, which in the end destroys the environment. Some of their efforts are also beneficial to their well being, for example they encourage well digging, tree planting and participation in joint actions to agitate for their needs. Most of the women agree that combination of efforts by government, the community and individuals will be a good option for alleviating the problem.

5.3 Discussions

In this work, it has been established that within the period under study, there had been gradual degradation of the environment in Ohaozara and Ivo Local Government Areas of Ebonyi State. Deterioration of soil fertility, disappearance of forests, and natural water sources, were substantiated with claims such as: dwindling crop yield by 77.0%, loss of thick forests by 70.0% and loss of natural water sources by 55.0% of the respondents. It was also found that the women in this area were increasingly impoverished due to their dependence on environmental resources that are degrading. Concern about the environment is not a recent phenomenon. According to Ghai (1992)

during the colonial period, there were serious debates on soil conditions and excessive deforestation in places like the Cape Colony in South Africa. The problems identified by Ghai (1992) were loss of soil, disappearance of forests, extinction of wild life and plant species, desert encroachment, pollution of waterways and sedimentation in dams and irrigation facilities. The people mostly affected were subsistence farmers and forest dwellers whose increasing number and primitive method of earning livelihood from the natural resource base has put excessive pressure on limited and fragile land resources. These identified problems agree with the findings in this work. However, this work concentrated only on women in a typical rural area of eastern Nigeria.

On the reasons for the observed land degradation, 75.0% of all respondents identified lack of fallow as the major cause of soil infertility. Fallow was practised when land was available, but population pressure, approximately 200 persons per square kilometre (1991 Census) has made the practice of fallow infeasible. Majority of the respondents (59.7%) reported farming as their major occupation and others farm in smaller scale for the purpose of subsistence. Therefore, excessive farming of same plot of land was a major cause of soil infertility in the area of study. As was observed by Kevin, *et al.* (1994) soil degradation due to loss of fertility is an insidious process, which is not often apparent to farmers until the effects are severe and irreversible thus causing continuous drop in crop yield. Degradation of forests was found to be due to establishment of new farms and settlements, coupled with commercial logging of trees. It was also found that pollution and sometimes complete disappearance (turning influent) of natural sources of water were aggravated by human acts of forest clearance, and use of chemical fertilisers. However, salination, was an important natural cause of water and

land pollution found in the area. This added to the problem of poor crop yield. According to Robinson (1971) salination is capable of causing varieties of problems for crops such as yellowing of leaves, thickening of stems, and germination inhibition. Thus, the type of environmental degradation in the study area is both natural and due to human activities.

Economic indicators of environmental degradation identified in the study area are high cost of acquiring natural resources like land, clay, water and firewood in the face of dwindling means of family sustenance as reported by 75.3% of the respondents. The economic effects are worsened by marginalisation of women in land acquisition as was brought out in the FGD. This is explained by the patriarchal structure, which does not grant direct land ownership rights to women. To cope with the economic problems, women change from their traditional jobs and crafts. They participate in full-time farming in contrast to the traditional gender division of labour in which women only planted vegetables and condiments in their husband's yam farms. The reports of the Federal Office of Statistics in 1984 on farm practices in Nigeria indicated that 86% of rural households are engaged in crop farming out of which 48% are exclusively owned by females (Longe, 1988). This report compares favourably with the value of 59.7% of women in this study who identified farming as their major occupation. This means that women are being forced into full-time farming by the desperate economic conditions created by degrading environment. They have to work harder (multiple jobs) and spend more time searching for the natural resources or pay more (buy water and firewood).

A typical response to environmental degradation is emigration of family members, especially male household heads. In this study, 54.7% of the respondents reported that adult members of their families emigrated due to environmentally related

problems. Emigration impoverishes women especially those who do not receive remittances and are sole provider for their families. As reported by 26% of the respondents in this study and are heads of family farms. Sutherland (1988) studying a similar problem in Zambia found that female owned farms are usually small and lack access to loans, machinery and other facilities which are based on profitability. Thus, the high rate of involvement of women in farming is not a solution, but as Sutherland puts it, "it is the feminisation of poverty".

Another social impact is the drudgery of involvement in multiple jobs. This was the lot of many women (72% on the average) in the study area. Similar studies carried out by NEST (Oladipo and Tseayo, 1992) in Niger, Benue and Kaduna States showed that a typical woman spends 33.5% of the day in producing, storage and processing of food. Another 26.6% in house cleaning, 14.5% in searching for water and fuel, 11.0% in trading and recreation (mostly related to child rearing) and 15.0% representing less than four hours in rest including bedroom activities (Oladipo and Tseayo, 1992). This trend shows that the women are living under stress.

Conflicts over land was identified as a major environmental degradation generated phenomena. Though women do not go to war, the effects of war and conflicts directly descend on them. Conflicts lead to death, maiming, and displacement of people from their land. Impoverishment of women is the result. Apart from torture and rape of women as obtained in Liberia and Sierra Leone during their civil wars in the 1990s, women are forced by the circumstance to take charge of their family. This becomes more difficult in the face of highly depleted sources of livelihood. In this study, 80% of the respondents reported stress caused by communal feuds.

The women in this study made some suggestions on how the problems created by degradation could be solved. They identified planting of trees and digging of wells. These according to them will reduce the drudgery of their domestic activities. However, the women support the use of chemical fertiliser to improve crop yield. This suggestion by majority of the respondents (79.3% on the average) though capable of increasing crop yield in the short run can create pollution problems in the land and water resources. Disparities in opinion on who should be responsible for restoring the environment were found in this study. While 34.7% wanted government alone to solve the problem, 26.7% wanted the community alone and 3.3% wanted individuals to solve the problems as it concerns them alone. About one third of the respondents agreed on the combination of individuals, the community and the government. In addition, 50% of the respondents wanted to form women groups as a means of mobilising themselves to solve the problems. Women joint actions had worked in preservation of forests in India and Kenya through the Chipko and Greenbelt Movements respectively (Sontheimer, 1991).

The formation of women groups in Ishiagu and Uburu have contributed in solving some of the problems that create hardship for women and degrade the environment as revealed in the FGD. These problems (quarrying of farmlands and commercialisation of salt production) as narrated by the women were typical examples of the intricate relationship between women and natural resources. Economic exploitation of the natural world, without recourse to sustainability has persisted because women's ideas have not been recognised. The success of these struggles by the women shows that the link between women's oppression by patriarchy and the indiscriminate exploitation of the material world by capitalism can be broken if women's ideas and knowledge are not

taken for granted. More can be achieved by redefining the relationship between men and women to empower women to cope with these problems when they occur. Society should on the other hand de-emphasise capital accumulation to the detriment of protecting natural resources and well being of the poor. This is the ecofeminist perspective.

5.4 Conclusions

Experience in Nigeria has shown that if a problem has not reached a disaster level, the Nigerian Government and citizens tend to take it for granted. Where there is flood or fire disaster, drought and desert encroachment, government becomes concerned and assists victims. In situation of gradual environmental degradation, as it is in Ohaozara and Ivo Local Government Areas, government does not act. This is worsened by lack of awareness, poverty, capitalism and patriarchal relationship in the society. The implication is that people suffer silently. The poor women who work on degraded land face stressful situations. However, some of them consider the problems as an act of God and in the final analysis, the environment cannot be sustained.

5.5 Recommendations

Environmental problems pose common threats, generate common concerns and therefore need ameliorating measures. What is needed is to let the women know what they, the community and the government could do to protect and sustain the environment. It is therefore recommended that:

1. The Local Governments should enforce environmental bye-laws against bush burning, lumbering of trees, use of chemicals for fishing.

2. The idea of digging wells, guarding of sources of drinking water and planting trees already being encouraged by women in the study area should be fostered by the Local and State Governments

3. At the community level., groups like '*Ndi Nne Mama*' in Ishiagu and the '*Otu Ogbonwankwonudu*' in Uburu should be recognised by the Local Governments and other community development organisations as information vanguards on environmental protection. This is because group decisions are more widely adhered to and can have wider application. Groups are also effective for reinforcing knowledge among non-literate women as they can rely on the collective memory of the group.

4. At the individual level, matching crops to soil types, crop rotation and other farming methods appropriate to the terrain should be practised. This can be done by using the ideas of experienced farmers.

5. Methods of enhancing the soil fertility with plant and animal waste instead of chemicals should be adopted. Since local sources of this method might be limited, it is therefore recommended that the government in conjunction with some international agencies/NGOs should set up large manure compose centres in various communities in the study area. Dry grasses should be collected during dry season for the purposes of building compost manure. This will be distributed to farmers during planting season to be used as natural feriliser.

6. Environmental research should be encouraged by the government, funding agencies and academic institutions. Research findings should be disseminated

through participatory education use of workshops and public awareness campaigns.

7. The developmental model which does not restrict itself to just solving local symptoms of environmental degradation, but looks at the root causes of such problems should be adopted. The root causes of environmental degradation, which include prevalent poverty and neglect of the critical groups (women) should be tackled to ensure success in environmental development and protection

8. A comparative study of the impact of environmental degradation on both genders is recommended as a follow-up to complement the results obtained in this study because men are also affected by the problems of environmental degradation

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APPENDICES

APPENDIX I:

SALT PROCESSING TECHNIQUES IN UBURU AND OKPOSI

Traditional Method of Salt-making in Uburu

The Uburu Salt Lake: There are salt springs in Uburu along Esu and Eta Rivers. There are several small pockets of such springs, but the largest which is the one mostly used by the women is the `Nwa ogwu' (See Plate 1). The spring gushes out salty water, which flows into the Esu River. A dike was built around the source covering up to 200 m^2 to form the Salt Lake. During the rainy season, the lake is covered by flood and is not very salty, but in the dry season, it contains enough salt for processing by a large group of women.



Plate 1: A Typical Salt Lake in Uburu, the `Nwa ogwu'.

The Uburu Salt Camp: A typical salt camp is a vast area (half a kilometre squared) close to the salt spring where women process salt water to obtain highly concentrated brine for preparing salt cakes. Some of them were situated along the bank of Esu River, where there are large salt springs. Smaller camps also existed in Ihenu close to `Eta Dim' where the largest spring exist along Eta River. The area is usually divided into small plots (~25 cm^2) owned by a woman. She builds her own small industry on the plot. The industry consists of series of 20-centimetre wide clay bowls above each is a 50 litre-clay pot, supported with stones. The whole series is moulded with soil into a ridge (see plate 2). A hole is drilled beneath the

clay pot so that liquid in it drips into the clay bowl below. The hole is first covered with fibre and closed with a leaf.

In front of the ridge is an open space, which is normally cleared of grass (the lawn) as shown in Plate 2. The set up consisting of the ridge and the open space is

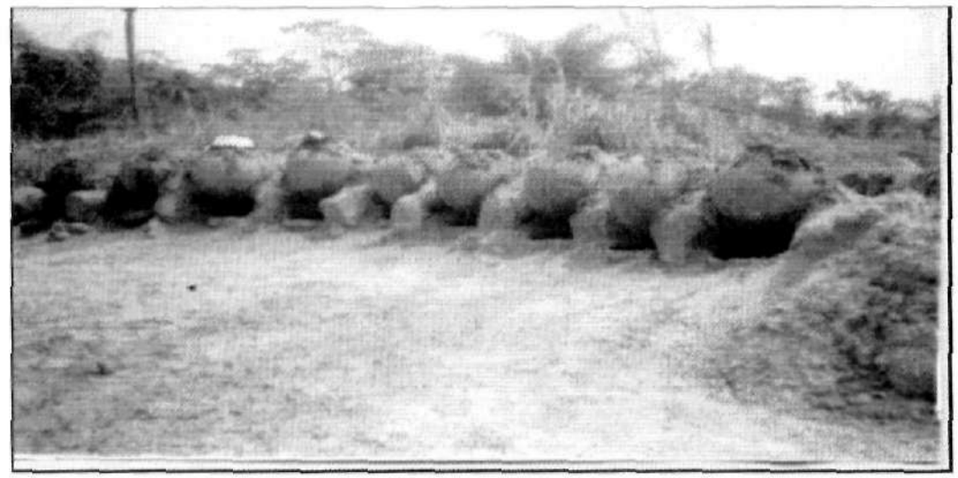


Plate 2: A typical Salt industry the `onu ebe`

called `*onu ebe*`.

Uburu salt is prepared in two stages: (i) pre-concentration of brine at the camp and (ii) moulding of the cake at home.

(i) Concentration of Salt at the Camp:

The woman fetches the salt-water from the lake and takes it to the camp. She pours 5-10 pots of the salt water (25 litres each) on the tilled lawn and allows the water to evaporate overnight or longer. Salt formed makes the topsoil white (see Plate 2). She then scraps the white soil into the 50 litre-pots, up to half the volume of each and fills them up with salt water fetched from the lake. The liquid, which drips into the clay bowls below, is then highly concentrated brine. The woman keeps changing the salt water and the scrapped soil in the pots and from time to time fetches the concentrated brine for further processing at home.

(ii) *Evaporation at Home:*

(iii) A stone tripod is set-up in the kitchen or under the shade of a tree, and a 30-litre-clay bowl is placed on it. The woman pours the concentrated brine into

the bowl and boils it until the cake is formed. A typical cake is shown in Plate 3.

The salt cake so formed or '*agbirigba*' as it is called is as strong as a stone and has to be crushed before being used for seasoning food. It is also dark grey in colour and only a small pinch is needed to salt a 20-litre soup.



Source: Akpa, A.N. (1987) Local Salt Industry in Uburu, Imo State. Project Paper presented for award of NCE , Institute of Education Ahmadu Bello University, Zaria

Plate 3: Some Salt Cakes Displayed for Sale in Uburu Market

Alternative Method of Salt Processing in Okposi:

An alternative method of preparing salt, which was used in Okposi and adopted in Uburu during the Nigerian Civil war, is to fetch the salt water and bring it straight home. Heating in a 100-litre drum evaporates the water until the desired concentration is obtained. The brine is further heated while the white salt is scooped out of the drum and dried using a basket. Some women from Uburu have adopted this method. On the other hand, the Uburu type of salt is made from this stage.

The environmental importance of these methods is the amount of firewood needed to prepare the two types of salts. The Uburu type consumes about 2.0% the amount of firewood needed to make the same quantity of the Okposi type. Since the Uburu-method of salt is being regarded as old fashioned, salt making these days, costs a lot in terms of fire-wood input and contributes to deforestation. In addition, the siltation of rivers can affect the salt springs and closing them up. In Okposi, the salt springs do not occur around rivers, but as separate ponds.

APPENDIX II

DESCRIPTION OF POT MAKING IN ISHIAGU

Clay is dug from underground deposits and moistened with water. The clay is pounded in a mortar with silt (ujiji) until it becomes malleable. The clay is then moulded into the desired shape. It is dried for eight days after which the pot is fired with dry palm-fronds from below and other types of firewood from on top for up to one day or until it turns brown. It can further be coloured to taste using the dyeing leaves.

The most important inputs in pot-making industry from the environment are the clay soil, the dyeing leaves, the palm fronds and the firewood. The women need the survival of the forests to fetch the dyeing leaves and firewood. Also excessive use of palm-fronds means that many palm-trees are denuded to obtain this commodity. The pot-maker needs a lot of them and must have enough in stock before going to get her clay.



Sources: Madam Cordelia Aja (During the Survey) Ishiagu Scope: Magazine of the Ishiagu Club 12A Vol.1 No.1 August, 1982 (Cover page)

***Plate 4: Woman Making Pot in Ishiagu**

APPENDIX III

Questionnaire (Interview Schedule)

ON

THE IMPACT OF ENVIRONMENTAL DEGRADATION ON WOMEN IN OHAOZARA AND IVO LOCAL GOVERNMENT AREAS OF EBONYI STATE

By E.C. Akpa (Mrs)

INTRODUCTION

The Investigator is a student of Ahmadu Bello University pursuing a Master of Science Degree in Sociology. All information gathered from this interview is to be treated as very confidential and the anonymity of the respondents is guaranteed.

Thank You

Town.....Sample Village.....House No.....

SECTION A

SOCIO-DEMOGRAPHIC DATA

This first section seeks to collect background information from you (Woman Household Leader)

1. How old are you? .....
2. Starting from yourself, how many people live in this compound?.....
3. How many adult members of your family live outside the village?.....
4. Does your husband live in the village? Yes [ ] No [ ]
5. How often do you receive remittances from your people living outside the village.....
6. What is your level of education?.....
7. What is your main occupation?.....
8. List other things you and members of your family do in order to increase family sustenance income.....

   .....
9. Is your family a monogamous or polygynous family?.....
10. How is family responsibilities shared in your household?.....

11. Do you think that there is a greater responsibility on you nowadays than there was 5-10 years ago? .....

12. If so why.....

SECTION B

WOMEN ACTIVITIES

This section seeks a state of the art information on women's activities directly linked with the environment. Examples are farming, fetching firewood/water/fodder, pot making, and mat making.

13. How many of these activities have you ever been engaged in?

Farming.....
Fetching firewood.....
Fetching water.....
Fetching fodder.....
Pottery.....
Salt-cake making.....
Matting.....
Gathering medicinal herbs.....
Gathering fruits and spices.....

14. Were you satisfied with the job(s)?.....

15. How many of them are you still doing and why?.....

16. What is the present situation of the job(s) in terms of?

Income.....
Source of materials.....
Availability of better alternatives.....
Other sources of income.....

17. What are the things that constrain you to continue doing some of this job(s)?

They are enjoyable
They are inherited women jobs
The things being sourced are available
I have extra hands to help
Better alternatives do not exist
Others (specify).....

SECTION C

PHYSICAL ENVIRONMENT DEGRADATION

This seeks to establish the state of physical environmental degradation and some impact on the social lives and norms of women in the area.

Land And Environmental Changes

18. Do women own land in this community?.....

19. How do you obtain your farming lands?

By direct ownership
Through husbands
Through relations
On lease
On rent
Others (specify)

20. Which crops do you plant on your farm?.....

21. Do these crops yield well on the lands you have like before?.....

22. If no, what in your opinion could be responsible for poor yields of your crops? (State in order of importance)

Marginal farms allocated to women
Lack of fallow
Lack of proper inputs (fertilisers etc.)
Natural causes (The lands are degrading)
Others (specify)

23. Are you satisfied with the land you have for farming?.....

24. In your community are there some types of land that are allocated mainly to women?.....

25. Do you think that if women own lands their productivity will increase?

.....

26. Which measures do adopt (in order of importance) in improving your crop output?

Shifting cultivation
Application of natural fertilizers
Application of commercial fertilizers
Looking for better farmlands far away
Others (specify)

27. Looking back to 5- 10 years ago, do you think there is really a decline in production of women's crops?.....

28. If yes, what could be the reasons

Men are taking over women's crops
Poor income from the crops
More lucrative alternatives for the women
Women are no longer obtain suitable lands
Others (specify)

29. How often do land disputes occur in your community?

a) are they increasing

b) are they decreasing?

30. What are the nature and causes of these disputes?.....

31. Do you receive incentives from government organs for your farming activities as men do?.....

32. If no why?.....

Diminishing Forest Resources And Its Problems

The trees offer fuelwood, food and fodder for the family and animals. Women are known to be responsible for the provision of these needs in most African countries. Where there is diminishing supply of forest resources, women are bound to suffer more.

33. How many thick forests do you recall that ever existed in your community?.....

34. How many of them still exist?.....

What are their conditions now?

Some have disappeared
They were cleared for farming
The trees were logged for timber
They were used as firewood
The trees were cleared for settlement
Others (specify)

35. From where do you get your fuelwood?

Nearby forests
Far away forests
From markets
No more uses fuelwood
Others (specify)

36. Rank these problems of diminishing firewood in order of affectation

Chest and eye problems from smokes
Excessively time consuming
Dirties the surroundings and environment
Poor diets

37. What uses of fuel are responsible for the disappearance of forests in your community? (in order of importance)

fuelwood
vegetables for food, spices and medicine
organic fertilizer
building and construction works
fodder for animals
Others (specify)

38. Rank these problems of diminishing firewood according the degree with which it affects you.

Chest and eye problem
Excessively time consuming
Dirties the surroundings and environment
Poor diets
Use of straws and animal dung

39. What uses of plants are responsible for disappearance of forests in your community? (in order of importance)

farming
fuelwood
commercial logging
vegetables for food, spices and medicine
organic fetiliser
building and construction works
fodder and animal
others (specify)

Salt Cake Production and Environmental Changes

This section is meant for salt making zone only

40. Have you ever been involved in salt making.....

41. If no why?

Sources are diminishing
It is too cumbersome
It is not profitable
It is old women's job
I did not learn how to make them
Others (specify)

42. If yes to question 40, are you still doing the job? Yes[ ] No [ ]

43. If yes to question 42, why?

It is a dirty job
I enjoy doing it
It provides for my family's need
Others (specify)

44. If no to question 42, why?

The salt ponds are drying
The trade does not bring profits anymore
The demand for the type of salt is declining
Others (specify)

45. What problems do you experience in salt making these days?.....

.....

.....

Pottery and Environmental Changes

Questions here are for the zones that produces pots

46. Have you ever been involved in pot making.....

47. If no why?

Sources are diminishing
It is too cumbersome
It is not profitable
It is old women's job
I did not learn how to make them
Others (specify)

48. If yes to question 46, are you still doing the job? Yes[ ] No [ ]

49. If yes to question 46, why?

It is a dirty job
I enjoy doing it
It provides for my family's need
Others (specify)

50. If no to question 46, why?

The clay lands are converted to other uses
The pottery clays are hard to get these days
The trade does not bring profit anymore
The demand for the type of pots is declining
Others (specify)

51. What problems do you experience in salt making these days.....

.....

.....

Water and Environmental Changes

52. What are the sources of water supply in your neighbourhood?.....

.....

53. How many streams and rivers can you recall ever existed in your neighbourhood?

.....

54. How many of them are still in use now?.....

55. Do some of the rivers change colour, stagnate or dry up completely?.....

56. Why?.....

57. Where do you fetch your drinking water during the dry season?

From nearby river/stream
From far away river/stream
From well/bore-holes/taps
Usually buy

58. Arrange the following water problems in the order of the degree they affects you

reduced personal hygiene
scarcity of drinking water
reduced dry season agriculture
diminishing supply of fish and aquatic foods
guinea worm/cholera epidemics

59. Which of these environmental problems do you think is the most disturbing to you as a woman?

Land degradation
Water supply degradation
Diminishing sources of forest material

60. Why do you think so?.....

.....

61. What coping strategies do you recommend for fighting the under-mentioned problems?

Land degradation.....

Diminishing forest resources.....

Reduced sources of water supply.....

62. Do women in your community co-operate to fight these problems as a body?
Yes [ ] No [ ]

63. Cite instances.....

.....

.....

64. What are government measures to address these problems.....

.....

.....

65. What do you suggest is the way out.....

.....

.....

Thank you.

APPENDIX IV

FOCUS GROUP DISCUSSION GUIDE
ON
THE IMPACTS OF ENVIRONMENTAL DEGRADATION ON WOMEN IN OHAOZARA AND IVO L.G.A, EBONYI STATE

For some years past, the environment has been noticed to be changing. when the environment as depicted in various folk-tales are compared to the environment as it is today, it is possible to see that a lot has changed. In this focus discussion, some of these issues will be highlighted.

1. It is commonplace to tell younger ones stories. tell me some of the your ancestors favourite stories about the environment.
2. Did they not tell you stories about what the land, farms, rivers, animals, forests were like?
3. When did the changes in the stories or those raised in the discussion start?
4. I understand that women do not own land, has it always been like that?
5. In situations like widowhood, imprisonment or emigration of husbands are wives allowed to manage the family lands in trust for their husbands and children? Are they better managers in terms of crops types they chose, the way they regenerate the lands and the output of the farms?
6. How do people acquire land in your community?
7. How many land disputes can you remember in the last 10 years?
8. Compare the disputes in terms of rate and type to those your parents tell you stories on.
9. What is the state of the lands on which these claims are made?
10. Can you remember your ancestors ideas about forests (types of trees and wild lives)?
11. Are there still hunters and hunting expeditions?
12. If they have reduced what could be responsible?
13. Apart from trees and wildlife, what other purposes do forests serve?
14. Are there still some sacred forests?
15. Compare your present idea of sacred forests and those your parents used to tell you stories of.
16. Why are there too few forests these days?
17. What is happening to the water sources in terms of level, cleanliness and seasonality).
18. Has there always been water scarcity?
19. Give reasons for the present water scarcity