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EFFECT OF LAND DEGRADATION & COPING STRATEGIES AMONG RURAL WOMEN IN OMO STATE

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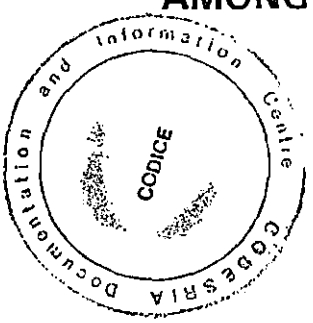

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SPONSORED BY THE COUNCIL FOR THE DEVELOPMENT OF ECONOMIC AND SOCIAL RESEARCH IN AFRICA (CODESRIA).
DAKAR, SENEGAL.

DEDICATION

To my brothers

Dr. Chike C. Anyaegbu

Chief Vitalis I. Anyaegbu

and the entire Anyaegbu family for their moral and material support.

Abstract

This study focuses on the complex and intricate relationship between the rural women and land degradation in Imo state, Nigeria. It highlights the activities of women that accelerate land degradation, the impact of the degraded land on women as well as the coping mechanisms adopted by women of various socio-economic statuses encountering similar environmental problems. The study also deals with various single handed efforts made by the women at controlling the problem of land degradation, as well as the obstacles to their efforts. Finally, recommendations are suggested based on the findings of the study.

The investigation involves a sample of 500 women 3 Local Government Areas(LGAs) and 30 villages that were selected through simple random and systematic sampling methods. Findings reveal that the majority of women in agriculture in Imo state are married, 97.3% are middle-aged ranging from 26 - 55 years old, with low annual income, averaging about N13,000. They maintain a large families, with a mean family size of 8 and operate at subsistence level with traditional tools and low level technology. Their level of education is equally low, majority of them (84.7 per cent) either have only primary education or no formal education of any kind, only 15.3 per cent had secondary education and above. The women have suffered drastic fragmentation and reduction in their farm sizes. On the average

they were cultivating 0.4 hectares in the past (10 years ago), but at present they cultivate 0.1 hectares of farmland. Consequently, women have reduced their average fallow period from 6 to 2 years.

The chi square(X^2) statistical test of differences between farm sizes in the past and at present, at 0.05 level of significance, confirm this significant difference in farm sizes. It was also noted that cultural biases against women do not permit women to own land. This entails that women are more or less squatters on the farmland they cultivate. The majority of the women either got their farmland through lease or as gift from their husbands or male heads of their families.

Test of hypotheses carried out showed that there is a significant relationship between agricultural practice (reduced fallow period) and land degradation. A significant relationship also exists between pattern of land degradation and its effects on rural women. It was also revealed that a significant relationship exists between socio-economic characteristic (level of income and education) of rural women and their coping strategies in land degradation.

Based on these findings, and their implications some recommendations are suggested regarding the ways of improving the status of land, as well as reducing the difficulties women encounter as a consequent of land degradation.

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CERTIFICATION

I certify that this work was carried out by **Miss HEDO, RITA NDIDI** in the Department of Sociology, University of Ibadan, Nigeria.

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Chapter One

Introduction

1.1 Background to the study

The importance of studying and improving the status of our environment cannot be over-emphasised as it is highly inter-related with our state of health and well-being. As human beings, our health and well-being depends upon a number of factors, among which is a healthy environment. When the environment deteriorates, it can have a serious impact on the health of the population (Rodda 1991).

Problems associated with environmental degradation affect both developing and developed nations alike. In the process of the progressively aggressive exploitation of natural resources which span the period of human existence on the earth's surface, serious and sometimes irreversible degradation of the environment has been brought about. Thus, there are today environmental concerns related to global warming, land degradation, loss of biological diversity, surface and underground water pollution etc. From whatever perspective one looks at it, it seems clear that human activities in the last few decades, have not incorporated the principle of sustainability in their

conceptualization and implementation Processes.

In most rural areas in Nigeria, land which is one of the major components of the physical environment is intensively used for farming and other agricultural activities, that ensure food security. To perform this function efficiently, the land must be in a good form. Productive land is the foundation on which life depends. If the land is healthy, agricultural and pasturage will produce food and feed in great quantity and quality. If it is degraded, the ecosystem will show signs of strain and food production will become difficult (Dunkelman and Davidson 1988). Thus land degradation is a reduction in the intrinsic quality of land. When land becomes degraded, its productivity declines unless steps are taken to restore that productivity and curb further losses.

Given the high level of pressure of population on land in some parts of Nigeria, the low level of environmental education and the extreme hardship of the last 10 years, it is not surprising that there is widespread degradation of the physical environment. Many Nigerians regard their "large population size" as a symbol of greatness, power, and prestige and tend to resist attempts to reduce it drastically. Many also are still under the illusion that the stocks of both our renewable and unrenewable resources are

limitless and that we can therefore go on for ever exploiting them recklessly. Before 1988, there was no separate and clearly defined population policy in Nigeria. The view expressed by government was that although the population of the country was large and growing very rapidly, this does not constitute a problem because to them, Nigeria is blessed with a large land area and abundant natural resources. But there has been an increasing evidence of disharmony between nature and the activities of man in the country. Many parts of Nigeria have experienced natural hazards in recent times such as the Sahelian droughts of 1968-73 and the 1984-85 invasions of the North-Eastern Nigeria by locusts and strange birds, and the continued depletion of soils through nutrient deterioration and severe erosion in parts of South Eastern Nigeria (Areola, 1991). ~~first step to the solution of this land degradation problem~~

This disharmony in man-land relations is evident in the degradation of their environment. There is a need for a rational approach in the use of land and natural resources. If the present yield or the quality of the land is to be improved upon, there must but be proper planning, management and utilization of land. A ~~first~~ step to the solution of this land degradation problem, is to analyse the nature and extent of this problem especially with regards to rural women who provide the majority of the food and

energy requirements of their households.

1.2 **Statement of the problem**

Although women constitute an important proportion of the Nigerian population, the link between women and the state of their environment has only recently begun to be recognised. It was the damaging impact of the 1968 - 74 Sahel drought and the resultant mass migration of men from the region's countryside that made the role of women in the environmental conservation of the delicate semi-arid ecosystem a crucial issue (Oladipo and Tseayo 1991).

Land degradation has implication for health, as can be seen in reduced energy use. In trying to cope with the problem of scarcity of fuelwood for instance women may adopt the "energy saving technique", which entails a conscious and desperate attempt to save energy. In some areas, shortages of cooking fuel have affected food consumption and quality, especially as regards the long-cooking traditional staples such as beans the possibility for boiling water as well as eating nutritious staples may also be restricted (Zubeide, Ahmed and Loutfi 1985).

The local rural women have been considered as exploiters of land and their natural resources, rather than as potentially valuable actors in the attempt to regenerate and protect such areas. Despite

the hardship women encounter during the collection of fuelwood, they are blamed for deforestation and seen as environmental destroyers (Rodda, 1991). But fuelwood collection is rather a desperate attempt by women, especially in the rural areas, to provide the energy requirements of their households.

The fact that rural households depend basically upon land products for their household food and economic security is usually ignored. The low status of women who are directly involved in the utilization of these products, militates against the problem being addressed at the national level. Virtually no programmes have addressed the disappearance of these "minor" products. Rural women have a virtually exclusive role in securing and utilizating most land products especially for household consumption and also to some extent, for sale (Olawoye 1994).

In most Nigerian societies, there has been neither attempt to incorporate women into sustainable environmental development strategies nor to change the direction of decline for these products which adversely affect the lives of members of the poorer rural household.

This study on women and land degradation therefore, will examine the intricate and variable ways in which rural women in Imo State affect the environment and are affected by it. The coping

mechanism adopted by women, as well as, how they can be incorporated into strategies to regenerate and manage land resources will also be considered.

The researcher will attempt to answer the following questions:

1. What are the demographic and socio- economic characteristics of women engaged in land degradation?
2. What activities of women cause land degradation?
3. What are the effects of land degradation on women?
4. What methods do women use in coping with the adverse effects of land degradation?
5. What are the contributions of women towards the amelioration of land degradation?
6. What are the constraints on the efforts of women in combating land degradation?
7. In what ways can women be involved in sustainable environmental management?

1.3 Aims and objectives

The broad objective of the study is to examine the relationship between rural women and land degradation.

Specific Objectives

The study specifically focuses on the following:

1. To identify the pattern of land degradation in Imo State.
2. To examine the activities of rural women that bring about land degradation in Imo State
3. To identify the socio-economic characteristics of women farmers in Imo State.
4. To determine the effect of land degradation on rural women in Imo State.
5. To identify methods of controlling land degradation by rural women in Imo State.
6. To examine the coping mechanisms of rural women in land degradation in Imo State.
7. To document literature on land degradation with specific emphasis on gender issues.
8. To provide guidelines on policy formulation and implementation and aid the design of environmental programmes.

1.4 Hypotheses

The following hypotheses will be tested in the study:

1. There is no significant relationship between land degradation and agricultural practice of the rural women
2. There is no significant relationship between pattern of land

degradation and its effect on rural women

3. There is no significant relationship between socio-economic characteristics of rural women and their coping strategies in land degradation.

1.5 Significance of the study

A knowledge of the complex and variable ways in which rural women affect land degradation and are affected by it, will assist government and aid-giving agencies to know the appropriate material aid to give to such women.

Furthermore, a realization of the impact of land degradation on rural women and the role they (women) can play in the amelioration of the problem will enable policy makers appreciate the need to integrate women into strategies to regenerate and conserve the land upon which not only they, but also their households, community and the nation depend. Invariably, this would facilitate the incorporation of women in environmental policies and programmes.

Finally, information on the inter-relationship between land degradation and the socio-economic status of women will enable development agencies, researchers and the local community device appropriate ameliorative measures to the problem.

1.6 Scope and Limitation

This study is specifically focused on rural women, especially those who are engaged in agriculture, in Imo state.

Due to time constraint and resources, the study could not delve fully into water pollution which is partly caused by land degradation.

In carrying out the study, some problems were encountered. These include the initial reluctance of the respondents to supply needed data, the difficulty in translating some English words perfectly into the native language and vice versa.

Despite all these, there was still a considerable response due to the flexibility of the researcher in asking the questions.

1.7 Definition of Terms

With respect to the investigation, the theoretical definition of terms used are given below:

Land degradation: the deterioration of land resources as a result of a complex of factors either human or natural that reduces the capability of the land to sustain crop production at optimal level.

Deforestation: the removal of forest and other forms of vegetative cover from a site without its replacement.

soil exhaustion: the loss of the inherent capacity of the soil to supply needed nutrients in proper amounts to plants on demand.

Soil Erosion: The wearing away of the top soil by such agents as rain and wind.

Fallow: the deliberate practice of leaving a piece of land to revert back to bush without crops, but with a large number of volunteer plant species growing on it for the purpose of restoring soil fertility.

Fuelwood: In this study fuelwood is synonymous with firewood

Patriarchy: A sexual system of power, in which the male has superior power and economic privilege. It is the hierarchical ordering of society.

Environmental Degradation: is associated with any activity, process or event which contaminates or paints the environment in a way that renders it injurious to living organisms in an ecosystem.

Chapter Two

Literature Review

2.1 Land Degradation: the state of the Art

Land per se does not belong to the present generation. It is a legacy that has to be left for future generation and in good condition too. Land users the world over are accountable to their ancestors for the proper management of the resources. Moreover, the land and all its natural resources on which the welfare and continuance of the community depend are held in trust for both the present and future generation (Danquah 1968). Unfortunately, rapid population growth, coupled with the low level of environmental education and technological knowledge in the country, has led to serious land degradation in many sections of Nigeria (Igbozunike, Okali, and Salau 1992). Many researchers, Blaike (1985a), Blaike and Brookfield (1987) have revealed that rapid population growth and the cash crop production system is forcing traditional societies to abandon long traditional system of production and resource management techniques that exert minimal impact on the environment Areola (1987), also observed that in Nigeria the system of shifting cultivation and bush fallow are not only being undermined

but have already broken down completely in Tiv and Igboland. This has led to some disastrous consequences in these areas. Furthermore, he noted that farmers in Nigeria have continually faced three environmental soil related problems. These are deterioration, desiccation and accelerated erosion.

Accelerated soil erosion which is the rapid removal of soil materials by storm, wind heavy rain and flood has attracted attention in some parts of Nigeria, especially in Imo, Anambra and Plateau States. The problem of soil erosion also exist in other areas in the form of sheet erosion, especially during the wet season when most farmlands are bare of crops and vegetation cover, these problems are compounded by the removal of natural vegetation which not only protect soil against loss of moisture but in addition maintain the humus level. The history of the environment shows that it takes about 300 years to form three centimeters of good top soil, however bad farm practices can remove the rich top soil within ten years, while one violent storm or flood on unprotected land can remove same in a matter of hours (I E.D File 1990). Thus, deforestation, continuous cultivation and bush burning expose the soil to increased insolation which result to the intensive evaporation, decomposition and oxidation of organic matters, which invariably leads to low productivity of the soil (Areola 1991).

The main causes of deforestation in Nigeria include rapid population growth and expansion of economic activities such as logging, timber exploitation, bush burning, firewood collection, cattle grazing and infrastructural development (NEST 1991). It is estimated that more than 70% of the yearly forest clearing in Nigeria is attributed to farmers. Another major cause of deforestation in Nigeria is the creation of new settlements, for instance the Ajoda New Town in Ibadan, Agbara Estate in Ogun State and the Federal Capital Territory, Abuja. Other major causes of deforestation are bush burning, overgrazing and over exploitation of firewood.

The emphasis on land and particularly deforestation is due to the adverse effect of forest loss on the economy and its negative socio-economic impact on the citizenry. Barraclough and Chimire, (1990) classified these effects into environmental degradation and socio economic consequences. Ives and Pitt (1988), Gradwohi and Gressenberg (1988) documented the environmental impact. Barraclough and Ghimire 1990 also summarized the two effects. The environmental effects are as follows:

* deforestation is linked with increased run-off of rainfall and intensified soil erosion (Reiger 1976);
* Many species of fauna and forest plants become extinct

consequent upon deforestation, leading to the reduction of local streams or water, and depriving the inhabitants of traditional medicine and food;

* it is assumed that deforestation in the semi-arid region is the major cause of desertification (UNEP 1977);

* finally deforestation and climate change are correlated in some intricate manners, for instance the removal of forest cover in region would lead to the reduction in rainfall, hence resulting in loss of agricultural livestock, plant growth and productivity (Serageldin 1990).

On the other hand, the socio-economic impact of deforestation include the following:

*Forests accelerate wildlife reproduction by ensuring food and favourable habitats. The loss of forests entails loss of an enormous number of stock of wildlife;

* as the forest becomes depleted, the products obtained by the inhabitants in the forest (fuelwood, building materials, medicine food etc) became exhausted. The people either have to pay high prices for them or go far afield to obtain them

* forest in developing countries mostly serve as "food banks" harbouring large number of fruits, nuts etc, for the inhabitants. In the same vein, numerous species of animals

and birds are obtained and consumed within the forests. Most of these become extinct as forests are destroyed.

*land degradation consequent upon deforestion affect productive subsistance system in the rural areas. Soil erosion, flooding and ground water depletion can have negative impact on agricultural productivity thus food supply, nutrition and health would invariably, be adversely affected

* forest protect streams and rivers which provide fishes and other aquatic animals for the people. The removal of such forests necessarily disrupts the life support of the inhabitants.

Ihimodu (1995) asserts that both the environmental and social economic consequences of deforestation have been experienced in Nigeria. These include among others, acute shortage of timber and fuelwood, disappearance of some shrubs and herbs which have food and medicinal values. In 1981, Gbile et al for instance,compiled a list of 484 plant species as being threatened with extinction in Nigeria. Deforestation has resulted in accelerated soil erosion in some parts of Nigeria, like Imo and Anambra states. It has in addition given rise to flash flood with some dangerous impacts. The Ogunpa flood that claimed more than 200 lives and displaced more than 50,000 people in Ibadan in 1980 has been linked with the removal of forests along river banks and streams and some major catchment areas of Ibadan (Oguntole and Oguntoyinbo 1982). In the

north, exposure of the soil through deforestation disposes it to wind erosion during the dry season.

2.2 Women and Environment

The 1991 census result revealed that there are 88.5 million Nigerians, out of which 49.6 are women. Women are at the centre of subsistence for production -accounting for more than 80% of the food in some African countries (Davidson 1993). According to WIN (1994), Nigerian women represent 70% of the agricultural labour force and thus produce much of the country's food. A sample survey of 600 rural women in eastern, western and northern Nigeria showed that over 80% of Nigerian women aged 15 and Older, engage in agricultural production (WIN 1994).

As the world's farmers, tenders of animal and suppliers of fuel, the women interact most closely with nature and environment. Their contribution towards enhancing the environment has earned them the title of "managers and preservers of the earth" (Daily Times, March, 2, 1992 p. 33). Corroborating this view Nwankwo (1992), stated that "it is in her capacity to generate life that the woman is linked to mother earth". There has always been a deep link between human productivity and earth productivity" when the earth suffers from any kind of environmental disaster, the women suffer too" (Daily Champion 1992).

This assiduous relationship of women with environment has also been documented by NEST (1991), Anyakoha (1990) and Shiva (1988). According to Shiva, the ecological ways of knowing nature are necessarily participatory and "nature herself is the experiment and women as Silviculturists, agriculturalists and water resource managers are traditional scientists".

The earth Summit (UNCED) recognised this assiduous relationship between women and the environment, hence the summits' "Principle 20" declared "women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development (Connect June, 1992).

In Nigeria just like in most developing countries, women are known to have close relationship with their environment. However, the extent of the interaction between each woman and the environment is subject to a lot of factors, which is consequent upon the heterogeneity of Nigerian women. Due to the enormous variety of socio-economic and cultural situation in the society, various classes of women exist in Nigeria and the class position of a woman determines how she relates to her environment. Thus, the relationship between poor women and the environment is different from those of more privileged women (Aina and Salau 1992). They further declared that "the women have a close link with the protection or destruction of our environment in circumstances

which are dictated by their position within the "Nigerian culture".

The disadvantages suffered by rural African women creates a special dimension of poverty. Rural women in general and in particular the household they are heading are often the most disadvantaged. They are the most vulnerable group of rural people. Their live is ranked by hardship, deprivation and uncertainty. The total number of rural women living below the poverty line in developing countries was estimated to be 564 millions (IFAD, 1993). The number of households headed by women in Africa, is the highest in the world representing 31%, 55% of the female headed households are in poverty and females constitute 42% of the total poor (IFAD, 1993).

Traditional biases and practices result in poverty of women. The poor status of women perhaps compel them to degrade the environment. The world commission on environment and development also stated in "Our common future" that poverty pollutes the environment; it creates environmental stress in a difficult way. Those who are poor and hungry will often destroy their immediate environment in order to survive (cited in NEST profile 1991).

According to Johnson (1992) as the access of women to resources continues to dwindle in subsistence economies their responsibilities and the demands on their times and physical energy-increases. Women therefore, are less likely to realize the utility for themselves of having

fewer children, even though population density, on the little land available for subsistence families are rapidly increasing. Supporting this view, Abramovitz and Nicholas (1992) wrote that when "development plans fail to take women's duties and responsibilities into account they lead not only to biotic impoverishment but also to human impoverishment". However, rapid population growth within subsistence economies, in turn complicates environmental degradation- the unsustainable escalation of soil erosion, depletion and deforestation initially propelled by the increasing separation of poor farmers from the assets that once sustained them. The health of girls and women, most affected by environmental degradation due to the crucial role they play (in both domestic/agricultural activities) deteriorates further.

This is worsened due to the fact that women often combine this activities with childbirth. This is the population trap. In essence most of the development centered policies and programmes actually increases women dependency on children as a source of status and security. Furthermore environmental problem accelerated by misguided government policies is itself responsible for rapid population growth, partly due to women's economically rational response to rapid demand on their time caused by inadequacy of resources. Except government take rapid steps to change conditions faced by women in subsistence economy, rapid population growth will continue unabated. This is not to suggest that

population growth is the major issue in environmental degradation. In addition to population control adequate social organisation and a more equitable distribution of resources is vital.

Education has also been noted to have a relationship with environmental degradation. Anyakoha and Igboeli(1994), revealed in their study that education was a significant factor in women's awareness level of the importance of their environment. Women with higher education level obtained higher environmental awareness score. According to World Bank report,investment in education especially for girls is the single most essential way of breaking the cycle of poverty, population growth and environmental degradation. Women with greater education have access to wider variety of jobs. Educated farmers, produce more, earn more and take better care of land; moreover, educated families have fewer, healthier and better educated children. Since education does so much to ease poverty and reduce population growth, it is one of the best environmental policies a country can pursue (World Bank Fiscal, 1992).

It is surprising to note that no other groups is more affected by environmental degradation then poor rural women. The depletion of the natural resources by environmental destruction has significant effect on the lives of rural women who are almost totally dependent upon the natural resources based for food, fuelwood, water, medicine, fodders, fertilizer, materials for house construction,as well as,the ingredients

of many of their income-earning enterprises. Davidson (1994) captures this, when she said that forest plays a special role in the lives of poor women; not only are trees essential in protecting watersheds regulating water flows and maintaining soil fertility and air quality but also provide a 'Cornucopia' of benefits - foods, fodder, fuel building materials, medicine and many of the materials for women's income earning activities. The depletion of the natural resources through deforestation, for instance, have environmental consequences which impinges directly upon the life of poor women. According to Rodda (1991) women work-burden are increased since they must walk further to find fuelwood, water and other forest products, in order to meet up with their basic need. This not only adds to their physical burden, but also leaves less time for taking care of their family as well as for income generating and other activities to improve their standard of living.

Fuelwood is of special importance for Nigerian women. It is estimated that 90% of rural energy requirements are met by fuelwood. The mean amount of daily labour time expended in collection of fuelwood is estimated to be about two hours per day per family. Apart from the Hausa land where men are generally expected to ensure the household's fuelwood supply and increasingly rely on market purchases to do so, women are largely encumbered with this responsibility (WIN 1994); less wood means that women may reduce cooking times with the

consequences that they and their households consume poorer food, often dangerously uncooked. It also entails that crop and animal wastes normally used to maintain soil fertility, become substitutes; though they are inefficient, polluting household fuels (Davidson 1993). Corroborating this position Olawoye (1993) revealed that in Plateau and other northern states of Nigeria, cow dung, crop residues and sometimes dry cactus used for fencing, are among the most common alternatives used as fuel substitutes. In the eastern part of the country such as Enugu State, the study revealed that women use dry pod of the oil bean seed for fuel.

In addition to this women have used mud to enclose the three stone fireplace to conserve heat and to prevent smoke from reaching them when they are processing cassava at the stage of frying the 'gari'.

Women have recorded success in the solution to environmental problems. These include the "Chikpo" movement in India, in which Indian rural women protected their forest from indiscriminate cutting through the Gandhian method of non violence resistance. In Kenya, the Green Belt Movement has mobilized women to take charge of their environment and met their needs and that of their families. According to Ress (1992), it was the women success in solving environmental problems that provided an "unusually up-beat team for a conference on the global environment "the Global Assembly on Women and the Environment, held in Miami (4 - 8 November 1991).

Despite all these Gender Specific activities, women have not as yet, been incorporated into most of the government's environmental development strategies (Oladipo and Tseayo 1992).

Women's knowledge and experience are inadequately reflected in government, and Non Governmental Organisation (NGO) policies concerning environmental management. Many reforestation projects for instance favour monocultures rather than a diversity of species because women are not integrated in the planning and implementation processes. In Nigeria the limited involvement of women in State Department of forestry, not only as staff but, also as participants in conservation and regeneration activities, shows that no special provision has been made for needs of, or abilities of women. The involvement of key users of the resource at grassroots level is important. In all these tasks women are important, they posses the knowledge, the skill and the organisation to conserve land, trees and water resources.

2.3 Theoretical Perspective

Gender Analysis Theory

Gender analysis theory is used in this study to analyse sex roles, the relative position of women in the society, especially, as regards access to land, intrahousehold dynamics within farming system, and applying that analysis to decision about agriculture, as well as, other environment related

development activities.

This theory starts with the premise that the household is a differentiated grouping of people with common production and consumption resources and or benefit from production (Guyer 1981, 1985).

Concern for gender relations is consequent upon the explanatory power of gender as a primary organising principle of the social system. It also aid in the clarification and better comprehension of structures, and actions, the setting of goals and priorities, production relationships, the rights to benefits derived from farm production, willingness to take risks as well as the mobilization and management of resources.

The major characteristics of gender stratification is its systematic nature. It is backed up by major social and economic institutions of the society such as the educational system the work organisation and the family (Brinton 1988). Gender is prevalent in every society. The institutional complexity of gender has resulted in its consideration with the varieties of theories and paradigms in sociology. But the emphasis given to it as an organising characteristic of social life is incumbent on the fact that, most social organisations are based on unequal relationships. Men exert greater control and authority and invariably have power over women (Mclaren 1988). Hence, since gender analysis theory is critically preoccupied with domination, power, exploitation ideology conflict

Marxism unlike the other theories in Sociology (Functionalism and Symbolic Interactionism) best provides a theoretical framework potentially relevant for studying gender. But unlike marxism, which emphasis inequality and conflict around gender , functionalism, for instance stress harmony in the social system (Anderson 1988).

Another theory used to explain this study is the theory of the tragedy of the commons by a Neo-Malthusian known as Garneth. The theory is a rebutal to the invisible hand of population control. According to him, the essence of dramatic tragedy is not unhappiness; it dwell in the solemnity of the remorseless working of things. This inevitableness of destiny can only be demonstrated in terms of human life by events which in fact involves tragedies, since this is the only means futility of escape can be revealed.

The tragedy of the commons develops thus, picture a pasture open to all. It is to be expected that each herdsman will attempt to keep as many cattle as possible on the commons. This may work satisfactorily for centuries, due to tribal wars poaching and diseases that maintains the number of both man and beast below the carrying capacity of land. However, there comes a day of reckoning, that is the day when the long desired goal of social stability becomes a reality. At this point, the inherent logic of the commons remorsely generates tragedy.

Each herdman as a rational being seeks to maximize his gain

implicitly or explicitly, more or less conscious. The utility of an additional animal to the herd is almost plus 1 (+1) since he receives all the proceeds from the sale of the additional animal. The negative component on the other hand,is a function of the additional overgrazing by one more animal. Since however, the effects of overgrazing are shared by all the herdsmen, the negative utility for any particular decision making herdsman is only a function of minus one (-1).

All things being equal, the component partial utilities, the rational herdsman concludes that, the only sensible course to pursue is to add more and more animals to his herd. But this is the conclusion reached by each and every rational herdsman sharing a commons. There lies the tragedy, each herdman is faced with a system that constrains him to increase his herd without limit in a world with exhaustible resources, in the course of pursuing private goals each man rushes to the destination of ruin. The end result of freedom in a commons is inevitable ruin of every individual in that society (Reid and Lyan, 1972).

The logic of the commons has been understood long ago, probably, since the invention of private property or the development of agriculture, especially, as regards the natural resources which has been found to be exhaustible.

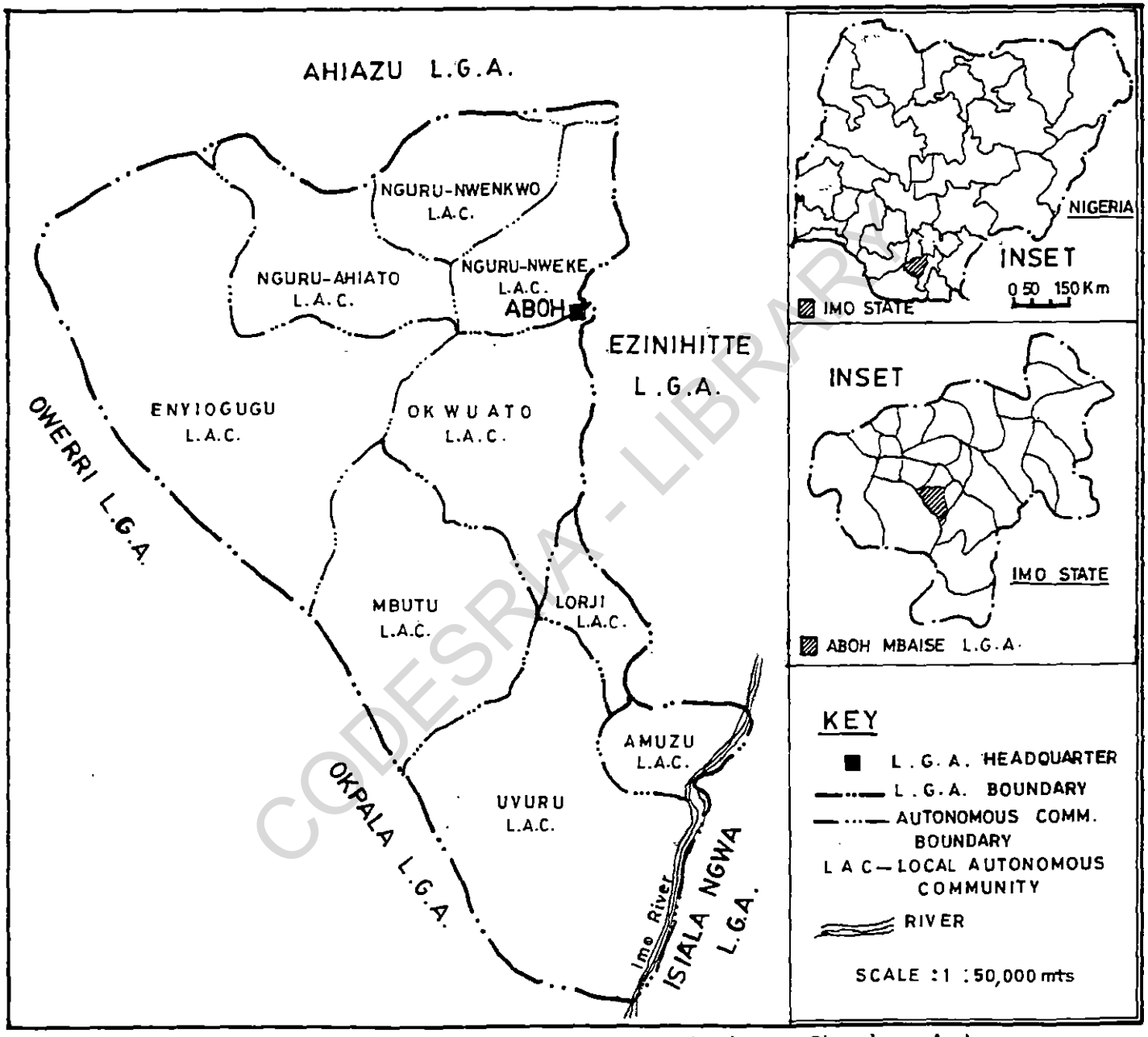


Fig. :Map of Aboh - Mbaise Local Government Area Showing Autonomous Communities

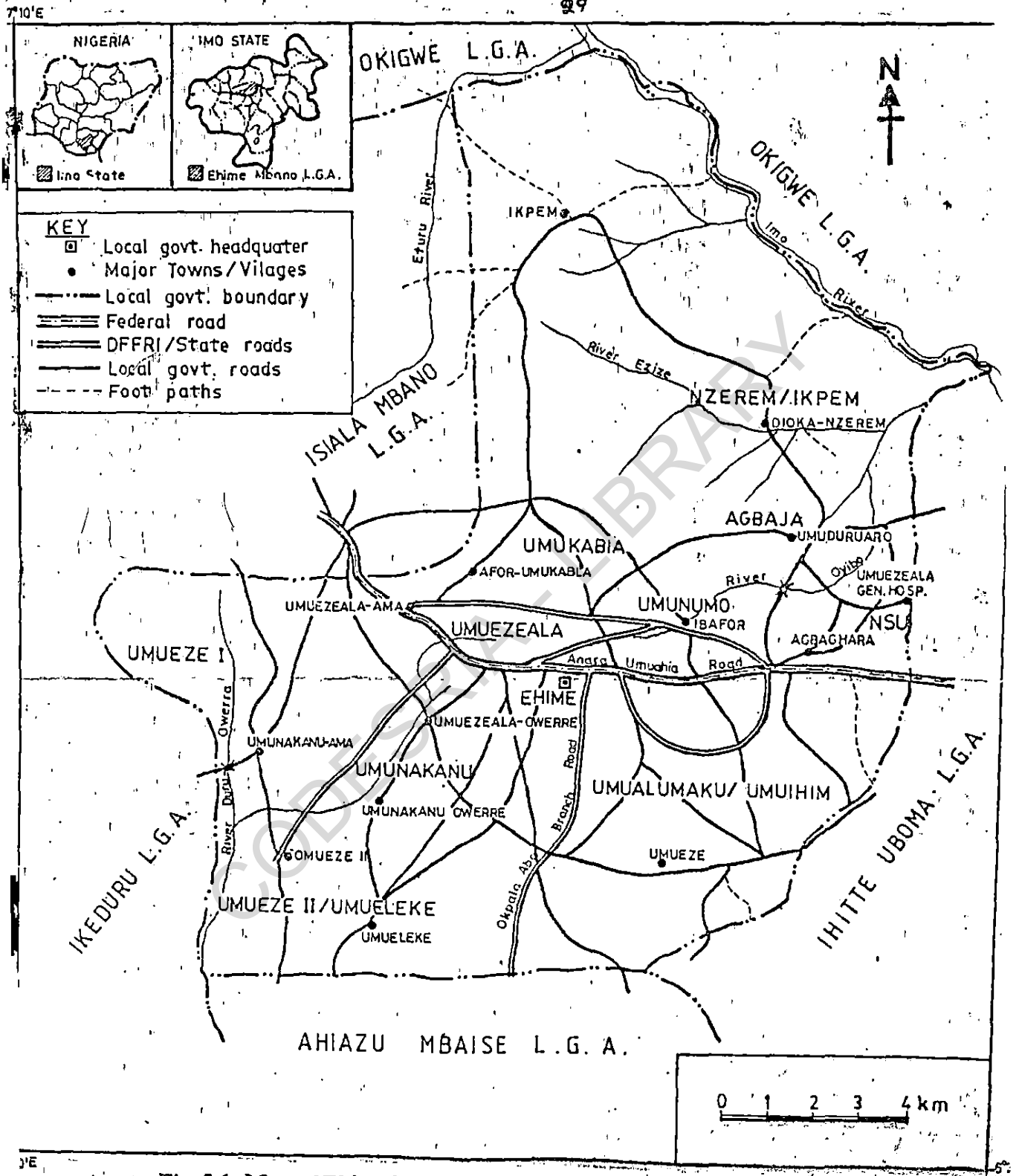


Fig. 2.1: Map of Ehime Mbano Local Government Showing the Communities.

Chapter Three

Research Design and Methodology

3. 1 Study Area

The study is conducted in Imo state. The state is located in the rainforest part of Nigeria, an undulating lowland (under 200 metres above see level) and humid tropical region. Unerlined by lithologically unconsolidated sand extremely fragile soil. Imo state has a population of over 2 million,and a population density of 500 per square kilometre(National Population Commission 1991). In Imo state there are 21 LGAs .

Imo state was charactertized by luxuriant growth and gigantic trees like Iroko, oil palm, oil bean, coconut etc. The entire area is one long and wide stretch of oil palm belt. The oil palm tree is one of the cash crop that have survived generations of deforestation processes. Annual average temperature and rainfall stand at 31°c and 1800 mm respectively. The soil-type is lateritic clay-laom.

One of the unpleasant development is the problem of erosion which is prevalent,specifically, along river valleys and road sides. In some cases roads are cut into two and villages are cut off from each other by erosion. Another development, is the disappearance of forest. Only a few of the original forests are sparsely dotted as

shrines or evil forest.

Crop farming is the major occupation. The farmers are mainly small scale producers depending on the use of traditional tools, implements and methods. The major crops grown are cassava, yam, cocoyam, maize, melon, local bean, vegetables. livestock production activities though rampant, is mainly at subsistence level. Livestock reared include goat, sheep, chicken, birds, which are kept in most households in the traditional open-range system. The people of Imo stae, have a homogenous cultural structure and speak the same language(Igbo).

3.2 Research Population

All women engaged in agricultural activities in Imo state, irrespective of their primary and secondary occupation constituted the population.

3.3 Sample size and sampling procedure

Imo state is made up of 21LGAs, 3 LGAs were randomly selected from the 21 LGAs representing 14.3% of the LGAs. The selected
LGAs are Ngor Okpala, Ehime Mbano and Aboh Mbaise, with 21, 10, and 9, autonomous communities respectively. An

autonomous community being a community under the authority of a traditional ruler called Eze. From the 30 autonomous communities, 7 communities (approximately 23%) were randomly selected on the ratio of 3:2:2. The criteria being the size of the communities.

The actual population figure for the target group was unknown during the study, hence the researcher with the aid of the village counselors, enumerated the households in the selected communities and got a total of 4,912 households. Thereafter, the researcher decided to pick 12% of the household using systematic sampling method. To determine the sampling interval, the researcher divided the total number of households by 12. However, for the selection of the first household simple random method was adopted, thereafter, the researcher selected a respondent after every 12 households till the households were exhausted. This gave a total of 500 respondents.

3.4 Sources of Data

Data for the study were collected from both the secondary and primary sources. The former supplied data on previous studies on women, particularly in the field of environment, where as the later featured data collection from the respondents.

3.5 Instrument and method of data collection

Data for this study collected through a combination of research methods, which include exploratory survey, interview schedule, using a semi structured questionnaire, Focus Group Discussions(FDGs).

The questionnaire was validated and pretested before use. Using a combination of rating scales, multiple-choice and open ended questions, the instrument was used to gather data from all members of the selected groups. Five hundred respondents were interviewed in all.

The questionnaire was categorized into four (4) sections 'A', 'B' 'C' and 'D' Section 'A' covers socio-economic and demographic characteristics section 'B' contains questions on pattern of land degradation, section 'C' examines among others, the effect of land degradation, while section 'D' identified the control measures and coping mechanism. The questionnaire was translated and administered in the language of the targeted population.

Group discussions and interviews were conducted by the researcher, with the aid of two field assistants who were given relevant training. Group discussions were tape-recorded and later transcribed.

3. 6 Variables of the study

The independent variables of the study are:

(1) Agricultural practice (years of fallow)

(2) Effect of land degradation (scarcity of forest products, shortage of food supply and environmental problems.

(3) Socio-economic characteristics (level of education and income

The dependent variables for the study are:

(1) land degradation

(2) pattern of land degradation (soil erosion, soil exhaustion and deforestation)

(3) Coping strategies

3.7 Measurement of variables

1. **Agricultural practice:** The years of fallow was used to establish the relationship between land degradation and agricultural practice. The respondents were asked to indicate the actual years of fallow which were later categorized into

> 2 years

2 - 4 years

above 4 years

2. **Effect of land degradation:** The possible effects of different patterns of land degradation were listed and each respondent was asked to indicate the appropriate effects each pattern of land degradation (soil erosion, soil exhaustion, deforestation) has on her and her household.

3. **Socio-economic characteristics**

Some selected socio-economic characteristics of women were used to establish the relationship between socio-economic characteristics and coping strategies. These are:

(a) Education: The respondents were asked to indicate their actual level of education, these were later categorized into:

None formal education

Primary education

Secondary education and above

(b) Income: The researcher defines income as the total revenue accruing to each respondent per annum. Based on this, respondents were grouped as follows:

N1,000 - N5,000

N5,001 - N15,000

N15,001 - N20,000

above N20,000

4. **Land Degradation:** Decrease in yield overtime was used to

measure land degradation. The yield from high yielding species of fresh tuber cassava in the past was compared to that in the present (note what constitute the past in this study is ten years ago). Cassava yield was used for the comparison because cassava is their staple food. The standard basket used by the local women to measure cassava yield was used.

A basket full of cassava was weighed by the researcher and was found to be equivalent to 25kg. The respondents were then asked to indicate the number of such baskets they were getting in the past and the number they are getting at present from a farm plot of land. However, since according to the respondents the present farm plot of land is half the size obtained in the past, the mean yield per hectare was obtained for harvest in the past and compared with the mean yield per hectare for harvest at present. The difference in yield was used to establish whether there was soil exhaustion/land degradation.

It must however be stated that prior to the above computation (differences in cassava mean yield), the plot sizes in the past and present were converted to hectares. To convert the present farm plot size to hectares, the researcher made use of the local measure which is a stick equivalent to 360cm (note this is the same stick they have been using). A farm plot size is usually one stick for the

width and 16 sticks for the length which is equivalent to 5,760cm. With this area of the present farm plot size was calculated thus:

Area = length x width

= 360cm x 5760 cm

3.6m x 57.6m = 207.36^2m

To convert this to hectares =

$$\frac{207.36}{10,000} = 0.02\text{ha}$$

This was then multiplied by 2 to get the past farm plot size. Since the present farm plot size is half of the past. Thus one farm plot size in the past was obtained thus 0.02 ha x 2 = 0.04ha

This was used in the above computation of the differences in cassava mean yield in the past and present. The t- test was used for this calculation:

$$t = \frac{X_1 - X_2}{\sqrt{\frac{SS_1 + SS_2}{N_1 + N_2 - 2} = \frac{N_1 + N_2}{N_1 - N_2}}}$$

where t = t - value

X_1 = mean yield in the past (10 years ago)

X_2 = mean yield at present

SS_1 = sum of square for past yield

SS_2 = sum of square for present yield

N_1 = sample size for respondents

N_2 = sample for respondents

5. Deforestation: This was measured using the extent of availability of shades and natural forest reserve in the past and present. The respondents were asked to indicate this extent in the column provided thus:

a). Availability of natural forest

	Existent	Almost Extinct	Non Existent
i	In the past	( )	( )	( )
ii	at present	( )	( )	( )

b).Availability of shades in the farm

	Existent	Almost Extinct	Non Existent
in the past	( )	( )	( )
at present	( )	( )	( )

6. Soil Erosion: The respondents were asked to indicate the severity of soil erosion. This was categorised thus:

i. severe ( )

ii. not severe ( )

iii. none ( )

7. Coping Strategies: A list of both negative and positive methods of coping were provided for each respondent to tick the ones applicable. This was later grouped into: use of negative coping strategies; use of alternative means of energy for example kerosine, gas and electricity; use of other positive coping strategies for example target trading and other innovations.

3.8 Analytical Technique

Data analysis was preceded by editing and validating exercises to check for errors and inconsistencies. Analysis was both qualitative and quantitative.

Analysis

Descriptive statistics namely mean, mode, frequency distribution, bar and pie charts were used for arranging , analysing and describing the data gathered, while inferential statistics (precisely) the chi-square (x^2) was used to test the three hypotheses.

$$X^2 = \sum \frac{(fo-fe)^2}{fe}$$

where x^2 = chi-square test

$\sum$ = sum

fo = observed frequency

fe = expected frequency

Chi square (x^2) was also used to establish whether there is a significant difference in present and past farm sizes of the respondents.

Qualitative Data From Focus Group Discussion

Qualitative data was collected using focus group discussions with women in the selected areas. This essentially reports the views, perceptions and attitudes of the respondents, regarding land degradation. Analysis of history of pattern of land degradation such as deforestation, soil exhaustion, soil erosion and their effects, as well as, the various survival mechanisms adopted, was made to substantiate our findings. Effort was made to report some of the underlying factors influencing women's unsustainable agricultural and domestic practices. This was useful in the identification of the variables which may be amenable to policy interventions and programmes of action to combat the problem of land degradation in the rural areas in Nigeria.

Chapter Four

4.1 Traditional Igbo Political System

The selected LGAs in the study area fell under one tribe-Igbo. Although the Igbos share a common culture, the Igbos of Nigeria had no homogenous political system. The Igbos who live east of the Niger River, traditionally operate what Afigbo calls "a democratic village republic system" of political organisation with authority greatly in autonomous units (Afigbo 1972).

The rest of the Igbos who live on the western side of the Niger and the riverine towns of Ossomali and Onitsha, greatly influenced by the kingdom of Benin to the north, had what Afigbo calls a "constitutional village monarchy" system.

In these two different political system, the units were small and the political authority was widely dispersed along the linage and kinship institutions; by age grades; by sex; among oracles, diviners and other professional groups and also among secret societies (Hafkin and Bay 1976). There was no clear separation of power between judiciary, executive and legislative functions and no division between the religions and political in the governmental process. These two systems were known as dual sex systems in which each sex generally managed its own affairs and had its own

kinship institution, age grades, secret and title societies. In fact majority interest groups are defined and represented by sexes and as earlier mentioned, each sex managed its own affairs and women interest are represented at all spheres of life.

The existence of the dual sex political system in Igbo societies are particularly interesting because most Ibo societies are patrilineal and patrilocal and as such men rule and dominate. Yet at a slightly more removed level, pre-colonial Igbo society can be seen to have enjoyed a striking uniformity. Throughout Igboland, political fragmentation was visible, the village group being the largest unit of political integration. Authority was widely dispersed within this village group, the lineage and non-lineage institutions, individuals and groups, hereditary and non-hereditary office holders, men and women, the gods and the ancestors playing prominent roles in government. This was the same, even in those communities like West Niger and Riverine Igbo areas where much emphasis was placed on individual and hereditary leadership (Afigbo 1981)

4.2 Colonial Rule and The Decline of Dual Sex Political System

Colonial rule in Nigeria,saw the beginning of the end of most native laws and customs ,which resulted to the collapse of the

equality of the sexes in villages and towns in Igboland. Native law and customs received its death blow when the British administration became operative in the Igbo country, what now passes for native law and custom is but a travesty of what was in the old days.

It should be noted that under colonialism women in Igboland of Nigeria suffered the greatest loss of power. Men were accorded some level of participation because they were chosen by the British to fill the newly created posts.

The colonial era reinforced this situation and constricted women's role even more narrowly, since British attitudes, policies and law, did not encourage the agricultural, marketing and other economic activities in which women predominated. A similar attitude has persevered to date even after independence from colonial rule (WIN 1994).

As pointed out by Van Allen in her paper in, "Women in Africa", the British colonialist introduced sexist Victoria value into all aspect of the life (religion, economics and politics) of the colonial Igbo, such Victorian value extol the ideology that a women's place is in the home' and view women's minds as not strong enough for the masculine subjects of science, business and politics (Halkin and Bay 1976).

The famous women's war of 1929, the so called "Aba Riots"

in which more than 60 Igbo women were shot down, can be seen as Igbo women's demonstration for their rights to be consulted, on matters affecting them. This riot motivated the British about the roles of women but this in no way led to the greater recognition for Igbo women.

4.3 Position of women in Igboland

As has been noted, the oppression of women in the Igboland was reinforced by colonialism and has since been the order of the day. Igbo men have come to dominate women politically, economically , socially and otherwise. Women have become economic auxiliaries to their husbands, wives supplement their husbands income, but remain economically dependent. Women's group have also become auxiliaries to Nationalist parties women's wings have provided votes, money and even campaigned for political parties, but remain dependent on male leaders for policy making. The early national council for Nigeria and Cameroons (NCNC), the party that later became the dominant party in Igbo region had its basic support from market women's associations, but unfortunately, a few market women leaders were ultimately rewarded for their loyalty to the NCNC by appointment to party or legislative positions, market women association never attained a

share in policy-making that is commensurate to their contribution to NCNC electoral agitation for women participation in "modern life" and this appeared frequently in the newspapers (The Ziks pilot) owned by the then leader of the NCNC, Dr Nnamdi Azikiwe. Consequently,a leadership training course for women was begun in 1959 at the Man O' War Bay Training Centre and this training centre was to be run in the same way as the course for men, with little or no modification. "What the men can do, the women can do it". This was the motto of the first class of 22 women, but this programme was far from reality because during the period of party politics, no woman was elected to regional or national legislatures; those few appointed were just like mere appendages trying to find men, they gain favour by supporting "party first" instead of "women first" (Van Allen 1974b : p. 19-22).

Women in Igboland are not only oppressed and dominated politically and economically. Even in the family institution, Igbo women are also being discriminated against. Igbo women do not have control over land, they have no access to land. Men control the land but gave women access to it for farming and other agricultural activities. It is important at this juncture to distinguish between control and access. Feldstein and Poat (1989) sees control as the power to decide whether and how a resource is used, how

it is allocated. Access on the other hand means the freedom or permission to use the resources, perhaps with some decision making once access is obtained.

Land rights determine individual access to land and influences access to other factors. An ILO report (1980) states that the absence of land title restricts women's access to other productive resources such as, credit, extension training, technology and membership of peasant organisations, which are generally directed at male members of the household. As noted by Boserup (1990), in most Sub Saharan Africa, land is patrilinearly inherited. This implies that allocation of land is simply between male heads of households. This source of insecurity of women's tenure over the land is worsened by increasing scarcity of land (Boserup, 1990).

Under Igbo customary law of intestate succession, a widow (married under native law and custom) can never inherit from her husband on intestate. In the case of Nezianya v/s Okagbue unreported (1961 Onitsha High Court Suit No. 0/17/165), Ephraim died in 1909 and survived by a wife, Mary and a daughter. Mary took possession of his property consisting of a piece of land and a house. She collected rents and erected new buildings on the land. She paid all rates and received all the rents without accounting to anybody. On her death, Mary bequeathed this property to certain

beneficiaries, whose rights were challenged by a certain relations of Ephraim. In an action brought by the deceased beneficiaries to confirm their rights, Reynold J., was of the opinion that this action must fail on the grounds that,in accordance with Onitsha customary law, the widow can neither succeed to her husband's property nor bequeathing it to certain beneficiaries. If the husband dies without a male issue, his real property goes to his family.

In Igboland, a woman gains prestige from the number of children (especially male children) she has. Hence a barren woman is looked upon as a curse. In Igboland, a woman who has no male son will not have any share in her husbands' estate because it is the male children that inherit their fathers estate.

On the death intestate of an Igbo man, the eldest son succeed to his estate, he automatically becomes the head of the family and by virtue of his position, he is entitled to some special property, which remains his throughout his life time (thereafter his eldest will become the head of the family). Some of these special properties are his fathers dwelling house, the immediate adjoining land,and a piece of land specially reserved for the head of the family to farm, the rest of the real property is held by the eldest sons as a trustee beneficiary for himself and his brothers.

In Igbo custom, only sons to the exclusion of daughters of the

deceased can inherit his landed property... The distribution intestates of estate may take either of two forms. In some areas the distribution is per capita that is the property is divided into as many portions as there are wives with male children. Where the intestate have no children, succession to his estate is by brothers of full blood and half brothers, the former having priority over the later (Nwogugug 1974).

Women in Igboland grow cassava, maize, beans, cocoyam, pumpkin, okro, pepper etc. These are primarily for self subsistence but however, surplus is controlled and sold by the women if necessary. Men on the other hand, clear and prepare the land, ridges, cut and stake yam tendrils, build and repair huts, harvest yam and palmnuts. Despite the active involvement of women in the production and marketing of food in Igboland they have no land rights.

Their culture does not permit them to dispose of any piece of land, although they could use the land for the production of food by virtue of being a wife, daughter, sister or cousin. Among the Igbos farmland is acquired by women mostly as gifts from their husbands or other male members of their families. The statutory land rights in Nigeria do not favour Igbo women, while at the sametime they agree with customary laws in letting the male dispose of the land.

Males register the land in their names to the disadvantage of the females who use the land for food production.

Surely, landlessness of women brings insecurity and uncertainty in the production of agriculture and availability of food (J.E.E. Njoku 1980:78)

Although women are greatly involved in farmwork, like their male counterparts, they have no access to land. They only cultivate on their husbands' land. This implies that in case of a divorce the woman will be left with no mean of economic survival and as such most women farmers are forced (by that culture) to succumb to their husband's; oppression in order not to attract divorce.

This non ownership of land by women is not just peculiar to Igbo women alone, it is more or less universal. According to the United Nations Statistics, women own no more than 1% of the world land,and even when they have access to it for farming, their tenure is often costly and uncertain. Without ownership of land or secured access to it, women are deprived access to credit, training and other support to production and cannot engage in long term conservation practices (Davidson 1993).

Despite the agrarian reforms in most developing countries, most productive land still remains in the hands of relatively few people,mostly large scale farmers who are mostly men. In 1978, the

Federal Government of Nigeria for instance promulgated a land use Act (LUA) to streamline land transactions and Ownership and facilitate the acquisition of land for development purpose. But this has in no way helped the situation of rural Igbo women in terms of ownership of land. Under formal and informal resettlement programmes, poor women have either become landless or have been forced onto the less productive areas with lower yield and poor output.

In most parts of Igboland there is a form of marriage which is known as woman to woman marriage, usually, there is a man in whose name the marriage is contracted, sometimes a barren woman to secure her position in her husband's family could decide to provide money to her husband in order to get a new bride who will bear children in her place. This marriage is also contracted in the name of her husband. On the other hand, a prosperous single woman may marry another woman to bring up children for her, but the contraction of this marriage is also done in the name of a man. A barren woman could organise for the marriage of another woman who is expected to produce male children in order to avoid the extinction of the family. In this case internal family arrangements are made which warrants the new wife to produce children by a special chosen paramour (Hedo 1991).

The cultural perception of women in Nigeria (Igboland inclusive) militates against women education. Most cultures in Nigeria view women as second class citizens who should be subjected to the care and dependence of man. Consequently, education instead of being advantageous to girls proves to be dangerous to them because the more education a girl receives the less her chances of securing a husband. Due to the culture of surbordination, only a small percentage of Igbo women have the opportunity of being educated. Without education, women may not participate fully in the sustainable management of their local resources.

Chapter Five

Analysis of data and discussion of findings

5.1 Analysis of data on demographic and socio-economic characteristics

Specifically, the following were considered with respect to women

(i) Age
(ii) Marital status
(iii) Level of education
(iv) Level of Income
(v) Family size
(vi) Sources of land
(vii) Farm size

5.1 Demographic and socio-economic characteristics of respondents

5:1:1 Age

Data in table 5.1.1 below shows that majority of the respondents (97:3%) are 26 to 55 years old. A break down of this shows that 45.3% are 26 to 35 years old, 30% are 36 to 45 years of age, while 22% are between 46 and 55 years. Only 2.7% of the respondents are over 55 years old.

Table 5:1:1

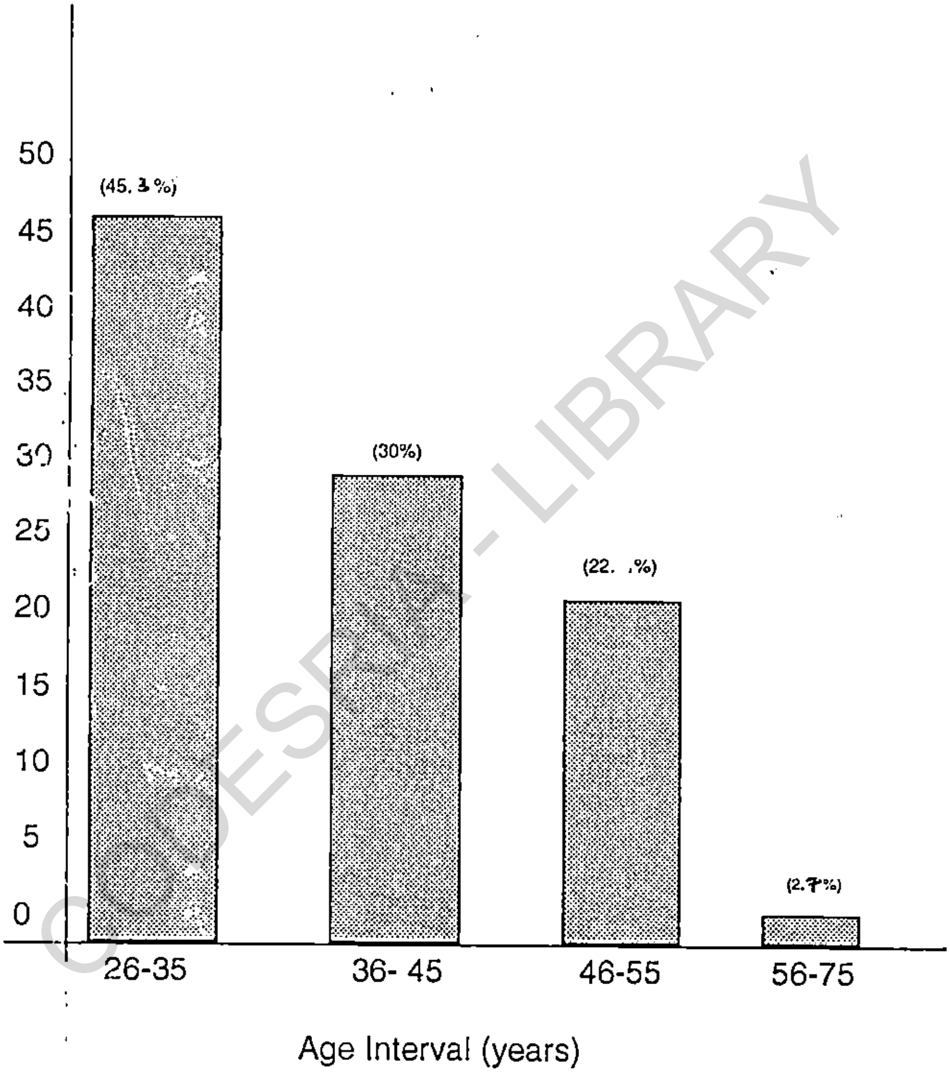
Age Distribution of Respondents (n=490)

Age Interval (Years)	Frequency	Percentage (%)
22 - 35	222	45.3
36 - 45	147	30.0
46 - 55	108	22.0
56 - 75	13	2.7
Total	490	100

Source: field survey, 1995

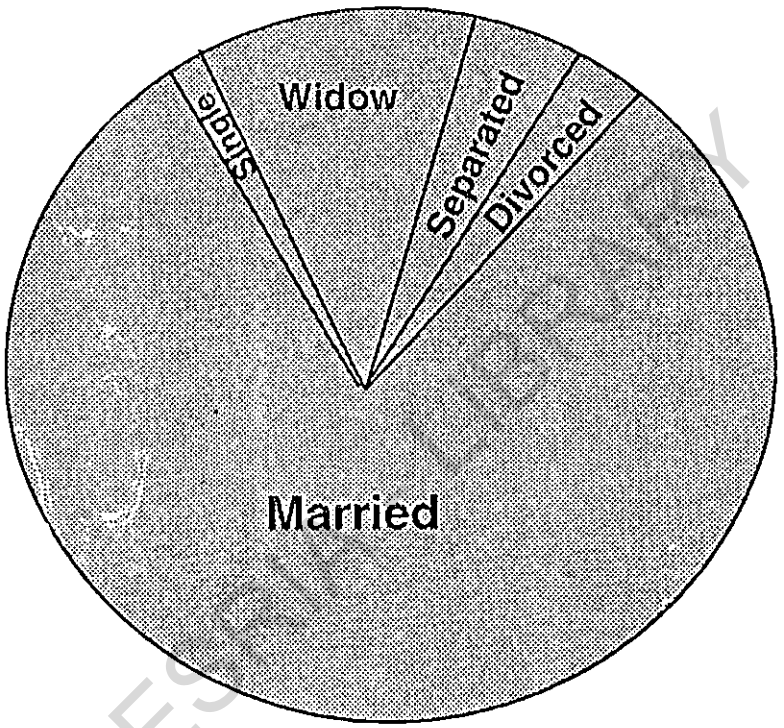
The preponderance of the respondents at age 26 to 45 years is because at this age women are most active, and are actively engaged in farming. But at age 56 and above majority of them may not be as active as they used to, this explains the reasons for the small proportion of the respondents within this age category.

Fig. 4:1:1
Age interval of women involved in farming in Imo state.



Source: Drawn from survey data, 1995

Fig. 5:1:2
Marital status of women involved in farming in Imo State



Source: Drawn from survery data, 1995.

Table 5.1:2:MARITAL STATUS OF THE RESPONDENTS (n=490)

MARITAL STATUS	FREQUENCY (f)	PERCENTAGE (%)
Single	13	2.7
Married	395	80.6
Divorce	8	1.6
Widow	51	10.4
Separated	23	4.7
Total	**490**	**100**

Source: Field survey, 1995

As shown in table 5:1:2, 80.6% of the respondents were still married. Meaning that apart form their farming activities, a good number of them still carry out matrimonial duties. A total of 1.6% were living outside their matrimonial homes for divorces reasons. This shows that there is a low rate of divorce among the women. only a minute number, 2.7 were yet to get married. The modal marital status was "Married women". This level of marital status exhibited by the women could be as a result of the

high premium the Igbo society places on marriage. Moreover, the group discussion with women revealed that by the age of 25 years, the rural society they live in expects them to be married. It would be very difficult for them not to succumb to societal pressures to conform to expectations.

Table 5.1:3

Level of Education (n= 490)

LEVEL OF EDUCATION	FREQUENCY (F)	PERCENTAGE (%)
No formal education	180	36.7
Primary education	235	48.0
Secondary education and above	75	15.3
Total	**490**	**100**

Source: Field survey, 1995

Table 5.1:3 shows that approximately 36.7 percent of the respondents have no formal education. A majority, 48.0 percent has just primary education, while 15.3 percent attained secondary school and above. The modal educational level is primary education.

This low literacy level, agrees with the assertion of Otite (1990) that Nigerian rural societies are characterized by illiteracy. The low literacy level could also explain the reason why 98.9% of the respondents still stick to traditional tools like hoes, cutlasses and machetes for cultivation because according to them these had been their tools since ages and they could not afford not to use them.

Table 5.1:4

Family Size of the Respondents (n=490)

Family Size Interval	Frequency (f)	Percentage (%)
0 -2	8	1.6
3 - 4	46	9.4
5 - 6	64	13.1
7 - 8	119	24.3
9 - 10	178	36.3
above 10	75	15.3
Total	**490**	**100**

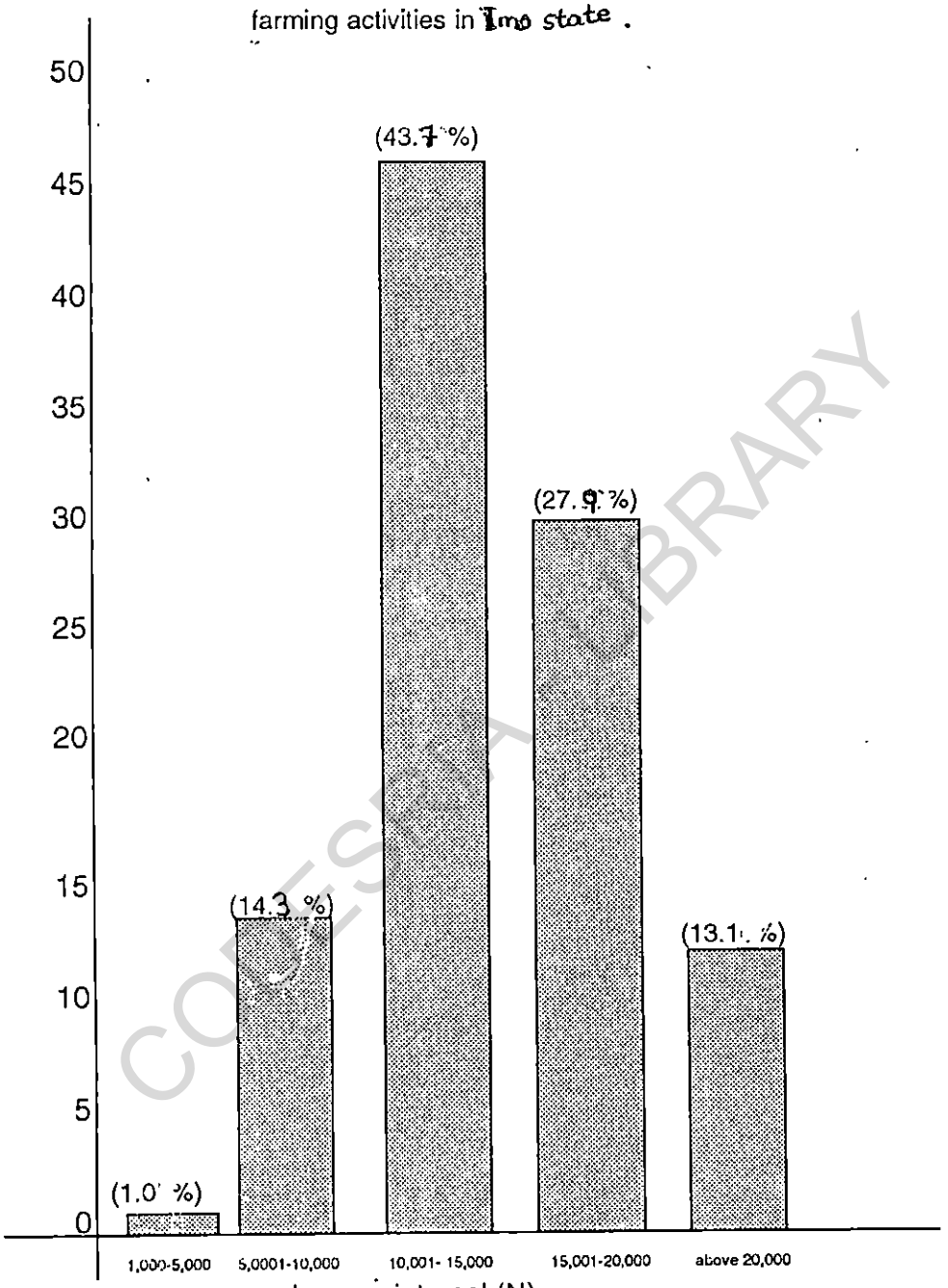
Source: Field survey 1995

As depicted in table 5.1:4, above 88 percent of the women had a family size of 5 members and above. Out of this percentage, 13.1 has a family size of 5 - 6, 24.3 percent had 7-8 family members, 36.3 percent had 9-10 family members and 15.3 percent had a family size of more than 10 members. Approximately,only 11% had a family size of between zero and four members (0-4). The modal family size interval was 9-10, while the mean was 8.0.

This high family size amongst the respondents correspondents with data gathered from the group discussion with women which revealed that women in this community gain prestige and status from the number of children, especially male children they have. Moreover, lack of education could also be another factor responsible for this large family size, since majority of the respondents (approximately 85 percent) had no more than primary school education.

This high family size amongst rural populace in recent times, is probably due to government emphasis on rural development, rural health condition had much improved that lesser death rates are now witnessed.

Fig. 5.1.5
Income level of women involved in farming activities in Imo state.



Source: Drawn from Field survery data, 1995

Table 5.1:5

Income Distribution of Respondents

(n = 490)

Income Interval in Naira/annum	Frequency (f)	Percentage (%)
1,000 - 5,000	5	1.0
5,001 - 10,000	70	14.3
10,001 - 15,000	214	43.7
15,001 - 20,000	137	27.9
above 20,000	64	13.1
Total	**490**	**100**

Source: Field survey, 1995

As the income table shows (Table 5.1.5) 59% of the respondents had annual income of N15,000 and below, 27.9% had income between, N15,001 to N20,000, while approximately 13% of the respondents had income of above N20,000.

Majority of them (43.7%) had their annual income falling into the class (N10,001 - 15,000) being the modal interval, the mean annual income is N13,742. This mean income when compared with

current government level salary structure is equivalent to grade level 05. Considering the family size of women, with an average of 8 members and the present high cost of living, it become doubtful whether this level of income affords the women and the families a balanced mean. Invariably,poor women would probably over-exploit the land in order to survive. A higher income earned by the women's husbands may not even solve the situation as it has been observed that the ratio of the women's income involved in family feeding is most likely to be more (FAO, 1986).

Table 5.1:6

Access to Land (n=490)

Sources of Land	**Frequency (f)**	**Percentage (%)**
Purchase	21	4.3
lease	178	36.3
Pledge	8	1.6
Gift from husband	281	57.3
Inherited	2	0.5
Total	**490**	**100**

Source: Field survey, 1995.

As indicated in table 5.1:6, 4.3% of the respondents had access to land by purchase, 57.3 percent got land through gift from their husbands, 36.3 per cent got land through lease, while 0.5 percent had access to land through inheritance. This therefore shows that, women farmers had no land of their own to farm. This could be as a result of the native (Igbo) custom which do not allow women to own land (Nwogugu 1974). Moreover, only a few women (4.3%), were able to purchase land. This shows that, despite the fact that women can have access to land through purchase, only a few women were economically buoyant to afford it. During the group discussion, women revealed that, the native custom does not sanction the purchase of land by a woman without the consent of her husband, or the oldest male member of the household. Such a custom could pose more barrier to women's access to land.

Table 5.1:7

Major Occupation of Respondents

(n = 490)

Major Occupation	Frequency (f)	Approximate (%)
farming	405	82.7
trading	49	10.0
civil servants	26	5.3
others	10	2.0
Total	**490**	**100**

Source: Field survey, 1995

As shown in table 5,1:7, despite the fact that all the respondents partake in farming activities, 82.7 percent are primarily occupied with farming, 10 percent are occupied with trading, 5.3 percent are civil servants, while 2.0% are mainly preoccupied with other jobs (hair weaving and dress making). In addition to these all the respondents partake in gathering/selling of forest produce and livestock rearing. The respondents mean income from gathering and selling of forest produce was N2,553.13, their mean income from Agricultural/farming activities was N8;481.8, while that from trading and other non agro-allied activities was N2,707.72 representing 18.5%, 61.7% and 19.7% of their mean annual income respectively.

Table 5.1:8

Average Farm Size of Respondents in the Past (10 years ago) and at Present

X^1 No of respondents in the categorised farm sizes in the past

X^2 No of respondents in the categorised farm size at present.

X^1	3	62	309	88	28	490
X^2	139	268	78	5	0	490
	142	330	387	93	28	980

X^2 Calculated = 27.1

X^2 Tabulated df 4 at 0.05 level

X_2 Tabulated = 9.488

Results = $X^2 = 27.1 > X^2$ 0.05 df 4 = 9.488

This result is highly significant, since x^2 calculated is greater than tabulated X^2 at 0.05 and 4 degree of freedom. This result revealed that there is a high significant different between farm sizes of women in Imo State in the past (10 years ago),and at present.

This conforms with the responses given by the respondents, which revealed that,76.3 per cent of the respondents had average farm size of 0.02 < 0.5 hectares,while approximately 24.4% of the respondents had average farm size of 0.5 - 1.5 hectares.

But at present 98.9 per cent had average farm size of 0.02 < 0.05 hectares, while 1.1% of the respondents had average farm size of 0.5-1.5 hectares.

The group discussion with women also corroborated this reduction in farm sizes. They revealed that the farm sizes had been fragmented as a result of increase in population and other government development projects which have taken most of their land.

Table 5.2:1

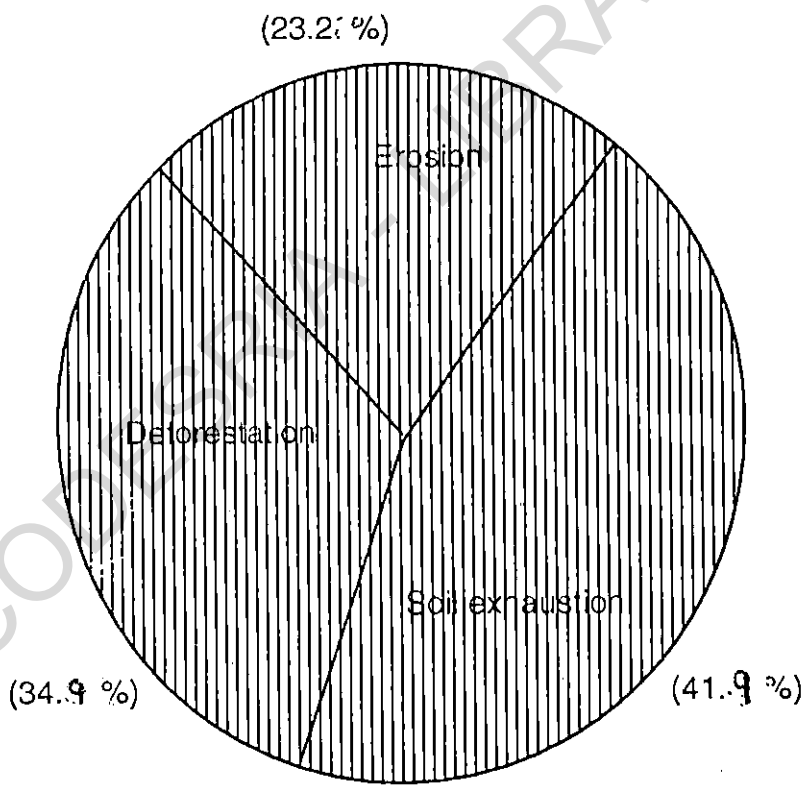
Various Patterns of Land Degradation Experienced by the Respondents (n = 490)

Pattern of land degradation	Frequency of responses (f)	Percentage (%)
soil exhaustion	360	41.9
deforestation	300	34.9
soil erosion	200	23.2
Total	**860**	**100**

Source: Field survey, 1995

Fig. 5:2:1

Patterns and severity of land degradation experienced by women in Imo state



Source: Drawn from field survery data 1995

As shown in table 5.2:1, 41.9% of the respondents revealed that they experience soil exhaustion in the study area, 34.9% experience deforestation, while 23% experience soil erosion. This shows that majority of the respondent experience soil exhaustion and this conforms with the responses got during the group discussion with women which revealed that, soil exhaustion with its associated low yield was the most prevalent problem women encounter.

Table 5.2:2

Availability of Natural Forest

(n = 490)

Natural forest	In the past frequency	Percentage %	At present frequency	Percentage (%)
Existent	472	96.3	62	12.7
Almost extinct	18	3.7	193	39.4
Non Existent	0	0	235	47.9
Total	**490**	**100**	**490**	**100**

Source: Field survey, 1995

N/B past as used in this study means ten years ago.

As table 5.2:3 depicts, 96.3% of the respondents revealed that natural forest was existing in the past, 3.7 percent indicated that it was almost extinct, but none of the respondents indicated that the natural forest was none existent. For the availability of the natural forest at present approximately 12.7 percent said that it was existent, 39.4 responded that it was almost extinct, while 47.9% indicated that it was non existent.

In responses to the question on availability of shades on the farmland in the past, 98% indicated that it was existent, 1% said that it was almost extinct,while approximately 1% indicated that is was non existent. But on the availability of shade on farmland at present, approximately 9% responded that it was existent, 56 percent indicated that it was almost extinct, while 34 percent indicated that it was non existent. This information conforms to the data gathered during the focus group discussion, where women revealed that most of their natural forest had either been cleared completely,or had been encroached upon due to either population pressure which has led to the fragmentation of land or as a result of developmental projects. Moreover, since most of the respondents, 87.3%, were Christians, as against 12.6% who practice African Traditional Religion, less emphasis is being placed on sacred forest. The focus group discussion also attributed the disappearance of shades in the farm to the above-mentioned reason (population pressure and government projects).

According to them the trees that used to serve as shades on farmland have been used as wood for different purposes. This situation they revealed was worsened by the fact that less emphasis is being placed on yam and "AKPU". People now prefer to fry 'gari' which is more convenient to prepare than pounded yam or "AKPU" but unfortunately, 'gari' frying consumes much fuelwood, and this is done on weekly basis by most of the respondents. This probably accounts for the extinction of most of the shades on farmland.

Table 5.2:3
Severity of Soil Erosion
(n = 490)

Soil Erosion	Frequency (f)	Percentage (%)
Severe	41	8.4
not severe	428	87.3
no erosion at all	21	4.3
Total	**490**	**100**

Source: Field survey, 1995.

Table 5.2:3 shows that 5.3 percent of the respondents do not experience erosion, 87.3 percent experience mild erosion, while only approximately 8.4% experience severe erosion. This confirms the fact that erosion is not the major land degradation problem encountered by the respondents.

Table 5.3:1

Erosion Control Measures Adopted by Women

(n=490)

Control measures	frequency response (f)	Percentage (%)
planting of trees	30	2.2
making of mounds	120	8.9
planting of cover crops	590	43.8
planting of grasses	512	38.1
planting of ridges across slopes	62	4.6
land reclamation	0	0
none of the above	32	2.4
Total	**1,346**	**100**

Source: Field survey, 1995

The above table 5.3:1 shows that 2.2 percent of the respondents indulged in planting of trees as an erosion control measure, 8.9% indulged in mounds making, 43.8, participate in planting of cover crops, 38.1% in planting of grasses, while 4.6 percent planted on ridges across slopes in order to control erosion. None of the respondents indulged in land reclamation as a way of controlling erosion. Only 2.4 per cent did not partake in any form of erosion control measures.

The low proportion of women participating in tree planting could be due to their culture which does not permit them to own land. Since most of the women are squatters on the land they farm, they may not be able to indulge in long tern control measures (Davidson 1993). Moreover, discussion with women group revealed that women are not culturally permitted to plant certain trees such as Iroko, palm tree etc these are regarded as men's trees. All the 2.22 percent of the women who planted trees , planted only economic trees such as mangoes, oranges, guava etc. This is probably due to their low level of environmental education, which has resulted in their perception of trees in terms of their economic value, rather than a conservation technique. Most of the respondents who partake in mounds making are mostly the educated (secondary and post secondary) ones and the high income earners. The others who could not make mounds confessed that it is expensive and time consuming. They had to hire more hands to make the mounds and this could be cost effective. The group discussion revealed that Imo state Agricultural development projects

introduced "the mound making technique" to women in the 80's but due to the above reasons they have not been able to indulge fully in it. Majority of the women, approximately 82% said that they indulged in planting of cover crops and grasses as an erosion control measure because it is more cost effective. The respondents who had not planted on ridges across slopes confessed that they do not know, it could serve as a control measure for erosion. None of the respondents used land reclamation as a control method because it involves a lot of money and efforts. The 2.4 percent who had not used any erosion control methods stated that erosion is a natural phenomenon and as such does not need to be controlled. This also revealed the fact that the level of environmental education among rural women in Imo State is low.

Table 5.3:2
Soil Exhaustion control measure adopted by the respondents (n = 490)

Control measures	Frequency of responses (f)	Percentage %
use of inorganic fertilizer	112	13.1
use of organic manure	718	83.7
Agro forestry	23	2.7
Increased fallow period	0	0
Crop rotation	5	0.5
Total	**858**	**100**

Source: Field survey, 1995.

Table 5.3:2 shows that 83.7% of the respondents used organic manure, 13.1% used inorganic manure, 2.7% practiced agro-forestry as a soil exhaustion control measure. None of the respondents adopted increased fallow period, while 0.5 percent practiced crop rotation as soil exhaustion control measure.

The lack of adoption of increase fallow period could be as a result of scarcity of land. Women might not have enough land to sustain themselves for the required years of fallow. The result gathered from the focus group discussion revealed that, the average years of fallow in the past (10 years ago) was six years but at present, the average years of fallow has reduced to two years. Most of the respondents used organic manure like animal dung, domestic and agricultural residues which according to them was more cost effective. Inorganic fertilizer is used by those who can afford it easily, Majority of the respondents could not indulge in crop rotation because it would not provide them with the diverse food required by their families. It is only those who have access to larger farmland that indulged in it. The women revealed that they were practicing agroforestry when yam was their staple food, but since cassava turned to their staple food, they have dropped the practice, it is only those who are economically buoyant that practice agro-forestry, since they still indulged in yam cultivation.

Any programme to be undertaken in order to correct soil exhaustion in Imo State must encourage, the production of yam which was their staple food. Yam cultivation as revealed, conserves

energy as less emphasis is placed on "gari" frying. It also encourages the practice of agroforestry by the local women,which serves as a good ameliorative measures,as well as,ensures fuelwood supply.

Table 5.3:3
Deforestation Control Measures Adopted by the Respondents (n=490)

Control measures	Frequency of responses (f)	Percentage (%)
Planting of trees	25	3.7
Rules and regulations against indiscriminate cutting and burning of bush	597	88.3
Agro-forestry	24	3.6
None of the above	30	4.4
Total	**676**	**100**

Source: Field survey 1995.

Table 5.3:3 depicts that 3.7% of the respondents engaged in tree planting as a deforestation control measure, 88.3 percent enacted rules and regulations against indiscriminate bush burning and bush cutting, 3.6% adopted agro-forestry, while 4.4% did not participate in any of the above measures.

The low percentage of respondents adopting tree planting technique, could be due to cultural barriers like the inhibition of women from land ownership, consequently, women could not plant trees on land that does not belong to them. Moreover, the group discussion with women revealed that most of them were yet to appreciate the importance of tree planting as a control measure for deforestation. To them, it has never been their tradition to plant trees. The trees were always there for them to utilize until some decades ago.

Table 5.4

Testing Yield Difference in the Past and Present with t-test (n = 490)

Past	**Present**
(A)	(B)
Total Σx 5439 t/ha	4116 t/ha
x 11.1 t/ha	8.4 t/ha

t(0.05 at 378 df) = 1.960

RESULT: Mean yield of 11.1 t/ha among the 490 respondents in the past is significantly different from the mean yield of 8.4 t/ha obtained at present at a probability level of 0.05 and t-value of 16.164.

The past mean yield of 11.1 t/ha is close to (FAO 1991) cassava mean yield for Nigeria which is 11.7 t/ha. This drastic reduction in cassava mean yield of women in Imo State from 11.1 t/ha to 8.4 t/ha could be as a result of some of their unsustainable agricultural practices.

5.5 Test of Hypothesis

Hypothesis One

Ho: There is no significant relationship between land degradation and agricultural practice of the rural women in Imo State.

Test Statistic: X^2

critical level ( ): 0.05 (two way test degree of freedom (df): 2

X^2 calculated: 23.47

X^2 tabulated: 3.841

Decision: X^2 calculated is greater than X^2 tabulated

HO = rejected.

From the analysis made there is significant relationship between the agricultural practice of women and land degradation. In order words the agricultural practice of women in Imo State has significant effect on land degradation. Any programme to be undertaken in order to correct land degradation must consider their agricultural practices and the reason why they indulge in such practices.

Hypothesis Two

HO: There is no significant relationship between pattern of land degradation and its effects on rural women in Imo State.

Test Statistics: X^2

Critical level ( ): .05 (Two-way Test)

Degree of freedom (df): 2

X^2 calculated: 80.65

X^2 tabulated: 3.841

Decision: X^2 calculated is greater than X^2 tabulated

HO: rejected.

Since X^2 calculated is greater than X^2 tabulated at 0.05 level of probability. This means that patterns of land degradation has significant effect on rural women in Imo State. This revelation therefore informs government and development agencies that rural women in Imo State, face tremendous hardship as a result of various forms of land degradation.

Hypothesis Three

HO: There is no significant relationship between socio-economic characteristics of rural women and the coping strategies they adopt in land degradation.

(A) Income Level of Rural Women

Test Statistics: X^2

Critical level ( ) 0.05 (two way test)

degree of freedom = 2

X^2 calculated = 30.865

X^2 tabulated = 3.841

Since X^2 calculated is greater than X^2 tabulated Ho is rejected meaning that there is a significant relationship between income and coping strategies of rural faced with land degradation problem. It is clear that women with higher income cope better with land degradation problems than those with low income.

(B) Level of education of rural women

Test Statistics: X^2

Critical level ( ) 0.05 (two way test)

degree of freedom = 2

X^2 calculated = 88.29

X^2 tabulated = 3.841

H_A is accepted, since X^2 calculated is greater than X^2 tabulated. This entails that the level of education of rural women has significant relationship with their coping strategies in land degradation. With better education women can cope better with the consequences of land degradation since they would have more access to information and greater environmental awareness.

Table 5.5
Strategies adopted by women in Imo State According to Level of Education

Coping Strategies	Frequency of responses	%	Level of Education					
			No formal Education	%	Primary	%	Secondary and above	%
Use of alternative energy sources such as kerosine stove, gas, electricity	43	10.2	5	2.3	13	8.5	25	47.2
Use of alternative means such as palm fronds, kernel, chaffs	103	24.5	62	28.9	31	20.3	10	18.9
Other means such as use of tree stumps, cutting from trees in fallow	116	27.6	63	29.5	50	32.7	3	5.7
Indulging in labour in exchange of fuelwood	44	10.5	28	13.1	14	9.2	2	3.8
Cooking of foods that consume less fuel	81	19.3	40	18.7	32	20.8	9	16.9
Reduction in cooking time	33	7.9	16	7.5	13	8.5	4	7.5
Total	420	100	214	100	153	100	53	100

Source: Field survey, 1995

As indicated in table 5.5 above majority (47.2%) of the respondents who have secondary education and above make use of alternative energy sources, such as kerosine stoves, gas cookers and electricity. But only 2.3% of those with no formal education make use of these alternative sources, which exert less pressure on the forest. However majority (62.3%) of the less educated (primary level and below) use alternative means such as tree stumps, trees under fallow, which goes further to degrade the state of their

land. Most (22.3%) of the respondents with primary education and below have become so desperate that they presently serve as labourers in the neighbouring villages in exchange for fuelwood. This act may contribute to the spread of deforestation to these neighbouring village. These less educated women probably indulge in these negative acts because majority of them depend solely on land and its natural resources for fuel, food and fodder, since they have little alternatives sources of income.

It was in addition noted that 28.9% of the women with no formal education, 20.3% of those with primary education and 18.9% of those with secondary education and above make use of alternative means such as palm fronds, kernel and chaffs which are inefficient polluting fuel, that lead to visual impairment. Exposure to these pollutants also increases the risks of cataract and ultimate blindness. (Akinyele, 1994).

It was revealed that 26.2% of the women with no formal education and 29.3% of those with primary education have adopted energy saving methods, such as, reduction in cooking time, conscious efforts to avoid boiling water even when it is necessary, as well as,cooking of foods that consume less fuel, most of which are local proteinous foods like beans (Akidi) and "Uke".

The tree stone mud oven was seen in use in almost all the household visited. Women in Imo State have generally constructed this mud oven as a result of their wealth of indigenous knowledge which is common among them. This oven is constructed in order to conserve energy and to prevent fire from reaching them when they are processing their cassava, at the "gari" frying stage.

Chapter Six

Summary, Implications, Recommendations and Conclusion.

6.1 Summary

Based on the foregoing analysis, the study revealed the following: that majority of women partaking in farming activities in Imo State are middle aged and constitute more of married women. Their farming activity is normally carried out on small scale and mainly at the subsistent level, with little capital outlay. It is more organised on individual level with the household as the production unit. Their sources of income include processing and selling of forest produce; trading and other non agro-allied activities; and also selling of other agricultural produce. Their income is relatively low resulting from low productivity, with which they cater for their large families. In addition to low income they also have low level of education, a large proportion of them, have no formal education while a larger proportion have just primary education. They make use of traditional tools in their farming activities.

The majority of the women do not own land and as such they are squatters on their farmland. They get access to land mainly from

their husbands and through lease. The rural women in Imo state have suffered drastic reduction in the sizes of their farmland; this is due to increase in population and government developmental activities which had taken place in their area. These activities are namely, the Imo Airport at Obiangwu/Umuohiagu, the Anambra-Imo River Basin development authority at Agbala and the Mater Dei Seat of wisdom seminary, Obube, as well as, other oil exploration activities. As a consequent of these, farmland in Imo state has been greatly fragmented and degraded. The result of the chi-square (x^2) statistical test for farm size in the past (10 years ago) and at present confirms this reduction. The result was highly significant showing that a high significant difference exist between farm size at present and in the past.

Due to this reduction in farm size, women have intensified their agricultural activities/practices in other to meet up with their families basic requirements. This has had a lot of implications on the state of their land. These agricultural activities and practices include: reduction in fallow period; inappropriate collection of fuelwood, collection of animal feeds; indiscriminate bush clearing and bush burning. All these as earlier stated, have constituted to land degradation problem with its resultant low productivity. The t-test statistics used to measure the difference in yield in the past

and at present confirm this, as well as the test of the first hypothesis on the study, which sought to reveal the relationship between women activity and land degradation.

This degradation of land has in turn great effect on the lives of women in Imo state, ~~Local Government Area.~~ Some of These effects as noted by the respondents are shortage of forest products (medicinal herbs and wildlife), scarcity of food and other environmental problems such as pollution of local streams, bad road network which has increased the effort and time spent in getting to the farm. The result of the second hypothesis of the study confirmed that there is a high significant relationship between pattern of land degradation and its effects on rural women. These pattern of land degradation as revealed in this study include soil exhaustion, deforestation and soil erosion, with soil exhaustion noted as the most prevalent. Deforestation for instance, has reduced the availability of fuelwood. Consequently, women trek longer distances in trying to provide fuelwood for their families.

Women have single handedly attempted the control of these land degradation problems, but their efforts have been met with a lot of cultural obstacles due to their perception in their community and their surbordinate position in the local community which debars them from engaging in long term conservation or control techniques.

In trying to cope with the consequences of land degradation and its effects, women in Imo state, have adopted several strategies which could have both positive and negative effect on them,as well as,their household and the general well-being of their community. These strategies are: use of alternative energy, (gas, kerosine stove, electricity) and other strategies such as collecting of fuelwood from fallow forest, using of tree stumps, use of palm fronds, kernels and chaffs, adoption of energy saving devices such as, reduction in the quantity and quality of food prepared for their family etc . Most of these as observed by (Rodda 1991) have some health implication on women. The respondents revealed that women with low education and income adopt these later negative strategies in battling with the problems of land degradation. This explains the reason for the high significant relationship that existed between income, education and coping strategies as revealed by the third hypothesis in this study.

6.2 Implications And Recommendations

The present small farm size of rural women which is a result of land fragmentation will mean that women in their bid to sustain their family will further degrade the land as well as their general environment. As a solution therefore, government should make appropriate use of the 1978 land use act. Since land is not evenly

distributed in Imo State, Government can recover some land from the local people who have more access to land, cultivate it on a large scale farming and sell at a highly subsized rate to the local women and their families. This would ease the excruciating difficulties women in Imo state face in trying to produce food on a degraded land with traditional tools and technology.

The women should on their own try to enroll in cooperative organisations, it is likely that the non enrollment of the women in cooperative organisations is due to their lack of awareness of the necessary benefits of cooperatives, especially in farming. Extension agents should therefore educate them on this issue.

The low income and educational level of women does not augur well with good resource management. As has been noted a strong significant relationship exists between income, education and coping strategies of women in land degradation, government agencies or other development agencies should try to diversify the resource base of the local women, so that they do not depend solely on land for survival, since quite a number of the women partake in trading and other non agro allied business, commercial banks could encourage them by specifying loan collateral which the women can actually afford and to help the women assist themselves financially, they should be well educated on how to

plough back part of their profit in their business.

There is also the need for a cultural re-orientation of the community as well as the entire Nigerian society, so as to enable a change in the cultural perception of women which among others militate against their education. Without education women would not have access to most information and would in addition be in a disadvantaged position as far as adoption of technology is concerned. It is the low level of education of the respondents that resulted to their mean family size of 8, if the women were highly educated, they would help to cut down on the pressure of population on land, since most of then would spend more time in school, rather than indulging in early marriages.

Since the study revealed that the 'gari' frying consume most of the fuelwood collected by women, development agencies can help conserve fuelwood by providing the women with 'gari' frying machines or provide financial support to women to encorage the cultivation of yam which used to be their staple food. This would help in no small measure in fuelwood conservation in Imo state, and would also ease the hardship women encounter in fuelwood collection.

Government could in addition to setting up a large scale farm, also establish a forest reserve in the locality. Most forest reserve

programmes in Nigeria,largely have a top-to-bottom approach to development. Generally, the local inhabitants especially women are not involved in its planning, implementation and monitoring. The local women as well as the members of their families should be fully integrated in the programme. They should be well informed of the need for the programme, the use of the conserved forest,and be fully integrated and in addition these group (local women) who are usually deprived of the use of those resources,must benefit from this conservation programme. This is the only means of ensuring the success of this forest reserve programme. Women should be given job opportunity in both the forest reserves and the large scale farms. This may entail the giving of some initial training to women in order to enable them cope with the job requirements.

From the analysis it was observed that the respondents were religious, 83.7% of them were Christians,while only 17.3 per cent practice African Traditional Religion. Environmental education units and other NGOs could utilize this revelation. An appeal could be made to this attribute in order to implement conservation policies or creation of environmental awareness. Since most of the women worship in religious houses (churches),environmental awareness and knowledge of conservation, as well as,the efficient management of environmental problems could be spread through these religions

assemblies.

It is the conviction of the investigator that if these recommendations are properly and efficiently implemented, the present degraded state of land would be improved. The burden of women in trying to generate food and energy for the members of their families would also reduce and women would have more time and attention to the upkeep of their families. This would led to improvement in the health and well-being of the members of their families, the entire community and the nation at large.

6.3 Conclusion

In view of the evidence revealed in this study, a cyclical relationship exists between women and land degradation. As a result of scarcity of land and its natural resources, women in their struggle for the upkeep of their families, over exploit the land, subjecting it to degradation. But regretly the degradation of land exert more pressure on women,as it increases their work loads and also adds to their domestic chores which also have implications on their health and well-being.

To break this vicious circle therefore, there is need for government, non-government organisations, as well as, other development agencies to adopt the above enlisted recommendations.

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QUESTIONNAIRE

I am a postgraduate student of the Department of Sociology, University of Ibadan, conducting a detailed study of land degradation in part of Imo State. The main objective is to examine the relationship between women and land degradation. We shall be very grateful if you can kindly assist in this project by supplying the information required in this questionnaire.

N/B: Past in this questionnaire means 10 years ago.

SECTION A: PERSONAL DATA

1. Age: _____

2. Marital Status: (i) Single ( )
   (ii) Married ( )
   (iii) Divorced ( )
   (iv) Widow ( )
   (v) Seperated ( )

3. Migrant Status: (i) Native ( )
   (ii) Non Native ( )

4. Religion: _____

5. Level of Education:

(i) Primary ( ) (ii) Secondary ( )

(ii) Other specify _____

6. Functional Literacy:

(i) ability to read and write

(ii) ability to communicate orally only

(iii) others (specify) _____

7. Number of dependants: _____

(b) Relationship with dependants:

(i). Children (Male Female)

( ) ( )

(ii) Relative (Male Female)

( ) ( )

8. Major Occupation: _____

(b) Other income generating activities

(i) gathering forest products ( )

(ii) process/sell of forest/farm product ( )

(iii) livestock rearing ( )

(iv) selling cooked food ( )

(v) trading ( )

(vi) others (specify): _____

9. List the type of crops you produce in your farm?

(a) (i) _____

(ii) _____

(iii) _____

(iv) _____

(v) _____

(vi) _____

(vii) _____

(viii) _____

(ix) _____

(x) _____

(b) What is the average annual income generated from forest activities, agricultural activities and other non-agro allied activities.

(i) ₦1,000 - ₦5,000 ( )

(ii) ₦5,001 - ₦10,000 ( )

(iii) ₦10,001 - ₦15,000 ( )

(iv) ₦15,001 - ₦2),000 ( )

(v) above ₦20,000 ( )

10. Source of land?

(i) inheritance ( )

(ii) purchase ( )

(iii) lease ( )

(iv) pledge ( )

(v) gift from husband ( )

( ) others specify _____

11. Farm size: In the past (10 years ago)

(i) 0.02 - less than 0.1 ha ( )

(ii) 0.1 ha - less than 0.5 has ( )

(iii) 0.5 - less than 1 ha ( )

(iv) 1 ha - less than 1.5 ha ( )

(v) 1.5 ha and above. ( )

12. Do you find it difficult to acquire more land?

(i) Yes ( ) (ii) No ( )

B. If yes state reasons _____

SECTION B: PATTERN OF LAND DEGRADATION

13. Indicate the types of land degradation problem you experience in your area _____

_____

b. State this pattern of land degradation, according to severity _____

14. Availability of Natural forest reserve:

	Existent	Almost Extinct	Non-Existent
(i) In the past	( )	( )	( )
(ii) At present	( )	( )	( )

b. Availability of shades in the farm.

	Existent	Almost Extinct	Non-Existent
In the past	( )	( )	( )
At present	( )	( )	( )

15. Years of fallow

	In the past	At present
(i) ≤2 years	( )	( )
(ii) 2 - 4 years	( )	( )
(iii) 5 - 7 years	( )	( )
(iv) Above 7 years	( )	( )

16. Severity of erosion:-

(i) Severe ( ) (ii) Not Severe ( )

(iii) No erosion at all ( )

17. What is the average annual yield per plot:

	No of Baskets
In the past (ten years ago)	( )
At present	( )

18. Cultivation Practice:

(a) Implements used: (i) hoe and cutlass ( )

(ii) shovel or spade ( ) (iii) digger ( )

(iv) mechanical implement ( )

(v) other (specify) _____

(b) Method of seed bed preparation:

(i) mound ( ) (ii) ridges or beds ( )

(iii) flat ( ) (iv) others specify) _____

(c) State reason for the implement used and the method of seed bed preparation

Reason for the use of implement	Reason for the method of seedbed
_____	_____

19a Is any part of the degradation problems in your village caused by any external factor? (i) Yes (No ( )

b. If yes indicate how it happened: _____

_____

SECTION C: Women and Land Degradation: Causes and Effects.

20. Do you experience any form of reduction in yield in your agricultural production. Yes ( )
No ( )

b. If yes which of the following do you think is responsible for this (rank in order of importance)

(i) Deforestation ( )

(ii) Erosion ( )

(iii) Soil Exhaustion ( )

(iv) others (specify) _____

21. In which way do you enhance soildexhaustion or erosion through your various agricultural/domestic activities?

		Soil Exhaustion	Erosion
(i)	Fuelwood collection	( )	( )
(ii)	Collection of animal feed	( )	( )
(iii)	Collection of wood for fencing and building	( )	( )
(iv)	Bush burning	( )	( )
(v)	Indiscriminate cutting of bush	( )	( )
(vi)	Constant cropping and weeding	( )	( )

(vii) None of the above ( ) ( )

(viii) Others (specify) _____

22. Is any of the land degradation problems in your village caused by external factors?
Yes ( )

b. If yes indicate how it happened

_____

23. In which way do you enhance deforestation through your various agricultural/domestic activities?

(i) Fuel wood collection ( )

(ii) Collection of animal feed ( )

(iii) Collection of wood for building and fencing ( )

(iv) Indiscriminate clearing and burning of bush ( )

(v) None of the above

(vi) Others (specify) _____

24. What adverse effect does deforestation have on you and your household?

(i) More time and energy wasted in the search for fuel wood as a result of its shortage ( )

(ii) Reduction in crop yield ( )

(iii) Extinction of medicinal herb ( )

(iv) Reduction or Extinction of some wildlife ( )

(v) Shortage of animal feed ( )

(vi) Other (specify) _____

25. What adverse effect does Erosion have on you and your household?

(i) Shortage of food due to reduction in crop yield ( )

(ii) Pollution of local stream leading to health hazard ( )

(iii) Bad road network leading to extra time in getting to the farm ( )

(iv) Others (specify) _____

SECTION D: Control and Coping Mechanism

26. How have you helped to check deforestation in your area

(i) Planting of trees ( )

(ii) Rules and regulations against indiscrimate cutting of trees ( )

(iii) Agroforestry ( )

(iv) Increase fallow period ( )

(v) None of the above ( )

(vi) Others (specify) _____

27. How have you helped to check soil Erosion in your area? ( )

(i) Planting cover crops ( )

(ii) Making of terraces ( )

(iii) Making of mounds ( )

(iv) Planting of grassess ( )

(v) Planting of trees ( )

(vi) Planting or making of ridge, mound etc, across slopes ( )

(vii) Land reclamation ( )

(viii) None of the above ( )

(ix) Others please (specify) _____

b. If you have indulged in any of the following control mechanisms, state reasons _____

c. If you have indulged in them, in what way do you think your effort can be assisted?

_____

28. Have you ever planted a tree? Yes ( )
No ( )

b. If no state reason

_____

c. If yes, state the type you have planted _____

29. Do you generate waste in the process of your domestic or agricultural activities? Yes ( )
No ( )

b. If yes what do you do with them

(i) domestic waste .....

(ii) Waste from agricultural residue _____

30. When faced with the problems of land degradation and its adverse effects how do you survive or cope with the situation?

(i) Use of other energy sources such as kerosine, stove, gas ( )

(ii) Use of means such as palm fronts, kernel, chaff ( )

(iii) Other means such as use of tree stumps, cutting from trees in fallow ( )

(iv) Indulging in labour in other villages in exchange for fuelwood ( )

(v) Cooking of foods that consume less fuelwood ( )

(v) Making of mud oven ( )

(vii) Reduction in the quantity and quality of food cooked for the family ( )

(viii) Evacuation of farmland, compound etc ( )

(ix) Target trading ( )

(x) Others (specify) _____

31. Have government or any organisation embarked on any form of land degradation control measure in your village?

Yes ( ) No ( )

b. If yes is this control measure still practiced in your area? Yes ( )
No ( )

c. Presently does your village receive any form of assistance in their land degradation control efforts?

Yes ( ) No ( )

d. What is the nature of assistance

_____

_____

32. Do you need to be made aware of the implication of land degradation problems? Yes ( ).
No ( ).

TOPICS FOR FOCUS GROUP DISCUSSIONS

1. Forest - products of importance in your area
   How are they used (for food, medicine etc)

2. Are women allowed to plant trees?

   (i) in the compound?

   (ii) on their family farms?

   (iii) on their own plot of land?

3. Are there any restriction on women in tree planting in general or for specific species, or to perform any other agricultural activities? If any, what type of restrictions?

4a What type of land degradation problem do you experience? When were they first noticed?

b. Do you indulge in any form of land degradation?

c. What pushed you into this act? Is any of the problems of land degradation you experience caused by external factors other than your domestic or agricultural activities?

5. Do you have more access to farmland now than in the past? What is responsible for this restricted access to farmland?

6. Is there any Cultural inhibition preventing women from fully participating in sound environmental management?

7. What adverse effect does land degradation have on you and your household?

8. How do you cope with these adverse effects of land degradation?

9. How have you helped to check the problems of land degradation?

10. How easily available was fuelwood in the past (10 years ago) and at present?

11. How long do you leave your farm to fallow in the past ... and at present?.