CONFLICTS BETWEEN FORESTRY AND AGRICULTURAL LAND – USES IN OGUN STATE

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DEDICATION

This research is dedicated to the Glory of GOD and benefit of Humanity.

ABSTRACT

Clash of interests between custodians of government Forest Reserves (FRs) in Ogun State and farmers operating within them, often results in conflicts causing disruption of socio-economic activities and sometimes loss of lives. Information on the causes and effects of these clashes would better inform policy makers and forestry professionals on workable and sustainable land-use practice. Therefore, factors responsible for such conflicts and their effects were investigated. Seven hundred and fifty farmers were randomly selected based on probability proportionate to size from 72 enclaves. This represents 30% of the total number of enclaves in the nine FRs in the State. In addition, 30% of staff of Ministries of Forestry and Agriculture (72 and 32 respectively) were randomly selected for questionnaire administration. Furthermore, 30% (32) of the timber contractors operating within the FRs were randomly selected for interview using an interview schedule. Data were collected on existence, causes and effects of conflicts, land hunger, accessibility to forestland and farming systems practised. Secondary data on the thrust of subsisting forestry and agricultural policies were obtained from the State Agricultural Policy, Federal land-use Act of 1978 and reports from the State Ministry of Forestry. Data were analyzed using descriptive statistics and logit model at $p<0.05$. Among the farmers, descriptive statistics revealed that 74.3% had unauthorized access to FRs, 68.1% were resident within FRs while 55.4% utilized lands approved by government for farming. Furthermore, 68.7% of the farmers identified *taungya* system and shifting cultivation as the prevalent farming systems practised. An average of two forest land encroachment cases were reported at each of Arakanga and Edun stream FRs yearly in the last 10 years while an average of 24 forest land encroachment cases was reported yearly in the last 10 years in Omo FR. Also, results of logit regression analysis revealed that the location of FRs where farmers operate (odds ratio = 2.39), rights of farmers to use forestland for farming (odds ratio = 2.19) and farm size (odds ratio = 1.52) are factors that are likely to cause conflicts over the use of forest lands in Ogun state. Furthermore, descriptive analysis of timber contractors' response revealed that, 72.6% identified destruction of cash crops during timber exploitation as cause of conflicts between them and farmers. State Ministries of Forestry and Agriculture officials identified loss of forests (27% and 25.2%), species (25.5% and 24%) and lives (22.5% and 22%), as effects of conflicts in the FRs. The thrust of the extant agricultural land-use policy made no provision to

penalize forestland encroachers. Conflicts in the use of forest land ensued between farmers and timber contractors on one hand and farmers and forest custodians on the other. The existence of land hunger in the forest reserves host communities, unauthorized access to forest land and absence of provision for penalty in the extant agricultural land use policy for forest encroachers encouraged activities engendering conflicts over the use of forest land.

Keywords: Land-use conflicts, Forest policy, Forest reserves, Land hunger

Word count: 481

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ACRONYMNS

WWF	World Wild Life Fund for Nature
FAO	Food and Agricultural Organisation of the United Nations
MAB	Man and Biosphere Programme
UNESCO	United Nations Education, Scientific and Cultural Organisation
UNEP	United Nations Environmental Programme
USAID	United State Agency for International Development
NGO	Non-Governmental Organizations
ITTO	International Tropical Timber Organization
FDF	Federal Department of Forestry
SDF	State Departments of Forestry
LGAs	Local Government Areas
FME	Federal Ministry of Environment
SFM	Sustainable Forest Management
NPC	National Population Commission
FRs	Forest Reserves
MANR	Ministry of Agriculture and Natural
OGSG	Ogun State Government

CHAPTER ONE

1.0. INTRODUCTION

1.1. Background to Relationship between Forestry and Agriculture

Conflict over natural resources such as land, water and forest is ubiquitous (Anderson *et al*. 1996; Ayling, 1997). Societies everywhere have competed for natural resources to enhance their livelihoods. Although. competition is often confused with conflicts, there are important differences between the two concepts. Mack (1969) illustrates the difference between competition and conflict by discussing a foot race: 'as long as the participants are running without interfering with each other, competition exists. If the runner 'pokes his foot between the other fellow's legs' the nature of the interaction has changed and conflict exists. Several authors have defined conflicts based on the study context and among them is Schmid (1998) who refers to conflict as the situation where two or more parties perceive their interests as incompatible and express hostile attitudes or pursue their interest through actions that damage other parties.

According to WWF/IUCN (2002) agriculture production and forest conservation are vital natural resources in the rural land use development and are closely integrated with each other in a long history of human civilization. However, the promotion of one often leads to destruction of the other. Higher agricultural production improves farmers' well-being as well as higher economic growth (World Bank, 1991; Angelsen and Kaimowitz 2001). On the other hand, there is international concern about the adverse consequences of tropical deforestation resulting from forest clearing which contribute to climate change, biodiversity loss, reduced timber supply, flooding and soil degradation that in turn affect economic activity as well as people's livelihoods. In Nigeria, the situations on conflicts between agriculture and forestry land uses and its consequent causes and effects are not different from what Angelsen and Kaimowitz (2001) stated. These have been re-echoed in many studies such as Zhaohua (1991); Smith (1994); Inkoom (1999); Reardon and Barret (2001); and Marfo (2006). They identified that land use conflicts mostly are caused by single or combination of factors. Among key factors pointed out are land hunger, poverty, demand for land for farming, unsustainable farming practices, unfair benefit sharing, ownership rights and control,

inappropriate policies, poor management, weak cross-sector harmonization and high population growth.

For instance, the population of Nigeria is over one hundred and forty million people (NPC, 2007); therefore, the need to produce enough food is perhaps, one of the most pressing of the various challenges facing the country. This is pertinent, if the Federal Government's desire to achieve agricultural sustainability by the year 2020 is to become feasible. Another concern centres on the growing demand for wood products, with the need to increase the productivity of the land which carries the forests as well as the desire to use forest as one of the bases of industrial development. This may be achieved through massive forest regeneration for fibre production as well as conservation, with enlightment and education of all concerned stakeholders. The achievement of the first Millennium Development Goal which aims to "Eradicate Extreme Poverty" will be greatly enhanced by industrial development in the country going by the large number jobs to be created. Nigeria's annual growth rate according to Population Reference Bureau (2002) was +2.5%. The advantages of rapid population growth such as huge manpower availability and large consumer base has been rubbished by the planlessness of government which encouraged dereservation for building of housing estates, even at the expense of agriculture thereby stimulating increase in forest estate degradation and contributed to agricultural stagnation relative to population size. The situation of this unprecedented population growth rate has been such that Nigerians will be unable to adapt their traditional agricultural land use and wood use practices fast enough to respond to the pressure of more people in the future. These conflicting needs call for the evolvement of more efficient land-use management for an effective and sustainable forestry and agricultural development in the face of increased population and demand for land.

The key 'pillar' of most natural resources (e.g. forest, mineral) and agriculture production is land. It is therefore, essential for the survival and prosperity of humanity, and for the maintenance of all terrestrial ecosystems (FAO/UNEP, 1999). The resources of land are finite while human beings are not, thus leading to high demand of land and its resources for man's survival. The effect of these excessive pressure, competition and fast population growth result in imbalance between mankind and land

resources. Issues such as degradation of forest and agriculture lands, competition among people for land and its resources and land scarcity most often lead to conflicts.

1.2. Conflicts between Forestry and Agricultural Land Uses in Nigeria

In Nigeria, the relatively quick and sometimes high returns which accrue from agricultural crops to farmers and the resultant revenue that accrues to government in terms of tariffs are incentives encouraging conflicts in the use of forestland. However, slower return on investment, the possibility of the forest trees competing with the agricultural crops (including those planted on forestland) coupled with lack of scientific and proactive approach in the use of forest resources and weak land tenure systems serve as disincentive to forestry development. These scenarios have therefore, 'due to the conflicting interest in forest land-use' led to removal of some areas from the forest and their conversion to agricultural use. All over the world, the use and management of natural resources have been a source of tension between different actors (Ongugo *et al.*, 2008). Conflicts in the forestry and agricultural sectors revolve around questions of control, access to the forest and forest products and historical claims over the forests. However, according to Buckles and Rusnak (1999), the dimensions, level and intensity of conflict vary greatly. Also, Loomis and Loomis (1965) echoed that conflict is an ever–present process in human relations. Thus, conflicts may not completely be eliminated but it could, however, be minimized. Sadly, in Nigeria today, there does not seem to be an end in sight for the numerous conflicts occuring as a result of forest land use as these conflicts appear to be on the increase. They stem from massive forest loss basically, as a result of conversion to agricultural purposes and unsustainable logging practices. In spite of the steady increase in demand for forest products, the area of forests continues to experience a decline, posing serious threat to sustainable forest management in the state. However, land use conflicts are not limited to forest areas/reserves alone, for instance, a study carried out on Conflicts in Hadejia-Nguru wetlands, Nigeria" by Oduntan *et al.* (2010) revealed that farmers using wetlands for farming had conflicting interests with other stakeholders such as government and environmentalists as a result of their unsustainable farming practices due largely to their impressions about the presence of wild birds and animals in their respective farming communities. Also, in another study carried out in north central Nigeria by Adekunle and Adisa, (2010) it was revealed that violent conflicts took place more frequently in resource-rich areas like the Fadama

(flood plains) and river valleys than resource-poor areas between farmers and herdsmen.

1.3. Concept of Conflicts and Land-Use

1.3.1. Conflict Issues

Conflicts often erupt as a result of farmers using forestland for agriculture. These conflicts are mostly due to breaches in the agreements reached on the part of farmers while government on the other hand fail to optimally manage the available land. The *taungya* system of multiple land use, as lofty as the concept is, is not without its own problems. In Ogun state, conflicts occur between forest managers and farmers over the indiscriminate conversion of forestland to agricultural purposes. For instance, planting of cocoa in the forest reserves has become a very sensitive issue between the agricultural and forestry sectors in the state from the economic point of view.

The relatively quick and sometimes high returns which accrue from cocoa to farmers and the resultant revenue that accrues to government in terms of tariffs are daunting incentives on one hand, while the possibility of the forest trees providing some competition on forest land use for the cocoa crops on the other hand, leads to the excision of those areas from the forest and their conversion solely to cocoa use. This singular trend has led to the de-reservation of a vast proportion of some forest reserves in Ogun State and has consistently resulted in conflicts between foresters and farmers. These conflicts sometimes, take very dangerous dimensions through the use of dangerous weapons such as guns and machetes by the illegal cocoa farmers. This is probably one of the reasons why some countries do not allow the planting of some of these agricultural crops in their forest reserves.

As recorded by King (1968) in countries such as Nigeria, Cote d'Ivoire, Ghana, Gambia and Congo, the planting of bananas and plantain is permitted. More specifically, in Nigeria and Cote d'Ivoire, but there do not appear to be any special provision with regards to the numbers of suckers allowed. Other staple foods such as Cassava and Maize are also permitted in Nigeria.

With a population of over One hundred and forty million people (NPC, 2007). The need to produce enough food in Nigeria is key and central to its agricultural agenda. In addition to this is the growing demand for wood products and the need to increase the

productivity of the land which carries the forests. These conflicting needs therefore call for the evolvement of more efficient land-use management for an effective and sustainable forestry and agricultural development in the face of increased population and demand for land. In view of these pressing needs, single use must give way to multiple uses, such as the *taungya* system. It may suffice to mention that the term agroforestry/*taungya* system has been used severally to cover many systems and activities. It is used to describe any situation in which agricultural crops are grown as a part of the process of plantation establishment or for the purpose of forest development. This system of land-use is usually found desirable in areas experiencing land hunger. King (1968) further defined Land hunger as a situation created as a result of a shortage or shortfall in the availability of arable land for agricultural purposes. Also, according to Field (1963) land hunger occurs when there is forced industrialisation drive and urbanisation as it was experienced in the Soviet Union which therefore evoked a steady exodus of migrants from the country to the city.

In Ogun State, for instance, the mismanagement (on the part of government) of the *taungya* system had led to the present situations causing conflicts in the forests due to lack of appropriate policy guidelines on this issue. The food crop species that are officially authorized to be planted by farmers in the forest reserves are: Cassava, Maize and other similar food crops, aside the statutory plantation species i.e. *Tectona grandis* and *Gmelina arborea* tree species. However, over the years, due to poor management of the system, some farmers operating within forest reserve in Ogun State had taken advantage to plant permanent cash crops such as Cocoa and Oil palm.

An analysis of the population densities of the countries in which agri-silviculture is successful has revealed that in many of them, particularly in Africa, the overall population density is surprisingly low. If, however, the reserved areas of high forest are subtracted from the total areas of those countries, the density with respect to available land outside the reserves increases considerably and becomes extremely high. There is no doubt therefore, that there must be land hunger in areas where the soil is suitable either for short or long-term agriculture, but is reserved for forestry. King (1968) further stated that this type of reservation has often led to a local shortage of agricultural land, and where the system of shifting cultivation is still practised , to a reduction of the fallow period with its attendant evils.

1.4. Statement of the Problem

In Ogun State, the conflicts between forestry and agriculture are very diverse and often lead to loss of lives and properties (government and individual) but unfortunately, these factors are not scientifically documented. This study therefore seeks to identify these factors with a view to unveiling possibilities of prospects for reconciling both the forestry and agriculture sectors.

Lack of sustained commitment and political will of the Ogun State government to effectively manage the land use systems especially pertaining to *taungya* in its forest reserves coupled with the ignorance and indiscipline of other stakeholders has facilitated activities leading to several conflicts. As the demand to meet the agricultural needs of the State increases, so does the demand on forestland for this purpose intensifies. The need therefore, arises for the State to have a system of forest land use and tenure arrangement that will accommodate the need of all stakeholders with interest in forest land use with a view to eliminating or drastically reducing the prevailing conflicts as a result of forest land use.

To date, in spite of the numerous incessant conflicts that occur between agricultural and forestry on the account of land uses in Ogun State forest reserves, there is no detailed documentary evidence on the causes of these conflicts. What is known is that scarcities of land which exist as a result of shortage in supply to meet the increasing demand for land outside forest reserves to accommodate development, make farmers without secure rights of access to land see the reserves as a favourable alternative in view of the ease of access. This has however, not been scientifically proven. Therefore, generating baseline information on the extent of land hunger in the State forest reserves and the causes of the emanating conflicts will give insight into these issues and assist in proffering intervention programmes or processes to amend the situation thereby helping to reconcile the two sectors.

The capacity of Ogun State Forestry and Agricultural policies as instruments to address the challenges facing the sectors is in doubt. The first and only policy in the forestry and agricultural sectors in Ogun State is the 'Agricultural Policy for Ogun State of 1989' and since its formulation thirteen years after the creation of the state in

1976; it is yet to be reviewed. To date, the forestry sector in the state has no substantive forest policy; hence it is merely guided by the provisions encapsulated under the subsisting agricultural policy. Similarly, the land use decree No. 6 of 1978 operating in the State has also not been reviewed. There is therefore, no doubt that the Agricultural Policy of the State is obsolete and can no longer be used as a tool to address the challenges posed by the current developments in technology and socio-economic needs of the people. This failure is ultimately an indication of the need for an urgent review of the policy to accommodate provisions to guide stakeholders on forest land uses between agriculture and forestry amongst other issues in the state.

1.5. Main Objectives

The main objective is to investigate relationships between Forestry and Agricultural land uses in Ogun state with a view to recommending and disseminating strategies on policy options for reconciling the conflicting areas between the two sectors.

1.6. **Specific objectives** include to:

1. Identify factors fuelling conflicts between forestry and agricultural forestland uses in Ogun state.
2. Identify the prevailing forestry/agricultural land-use systems in the study area.
3. Assess the extent of land hunger among farmers in the study area.
4. Evaluate prevailing causes of the conflicts in the study area.
5. Identify the effects of conflicts on forestry development in Ogun State.
6. Review existing forestry and agricultural policies in Ogun state.

1.7. Research Questions

The various procedures employed to complete the study answered the research questions formulated.

These were:

1. Are forestry and agricultural policies responsible for prevailing conflicts in land-use systems within and around forest reserves in the study area?
2. Is land hunger the key factor causing the conflicts within and around forest reserves?

1.8. Justification of the study

Millions of rural people in Ogun state practise subsistence agriculture. They reside outside and within forest reserves that have been gazetted since colonial administration. However, as access to privately owned land reduces, the farmers rely more on the remaining government land for food, fuel, shelter and cash incomes. In spite of the prevalence of conflicts in forest land use in Ogun State forest reserves, there is no scientific documentation of the causes of these conflicts. However, Enabor (1986) in Ozo-eson (1999) argued that deforestation in Africa will probably persist unless national planning in various countries is oriented towards giving the highest priority to agriculture. Forestry including private and commercial forestry must be given its due recognition in the improved agricultural practices in Nigeria and Africa in general. Socio-economic effects of deforestation as climatic changes, poor yield or loss of planted crops due to faster rate of soil impoverishment, loss of wild-life which provide the main source of animal protein, particularly for rural dwellers and desert encroachment with associated and dune movements and disappearance of villages were pointed out. UN (2006) in a report titled, 'Natural Resources and Conflict in Africa: Transforming a Peace Liability into a Peace Asset' asserted that most of the conflicts over land can be linked to the inability of African countries to evolve a land tenure system that is acceptable to the population. The difficulty of harmonizing land tenure systems that are incompatible and for which the population have varying degrees of recognition and respect, remains a major challenge of many African countries and this had led to series of conflicts; in many cases, armed conflicts.

Therefore, for Ogun State to achieve sufficiency in food production to feed the growing population as well as ensuring sustainable forestry practise, there is need for consensus between agriculture and forestry land-use systems as a prerequisite for sustainable land management. For this to be successful, stakeholders from both sectors must be educated on the need to balance individual and collective socio–economic goals (such as, food production, timber exploitation and environment protection) in the interests of all. New and effective policy environments need to emerge both at State and Local government levels that will empower rural farmers, by giving more power and responsibility to local communities. This study is therefore, appropriate and compelling, in view of the conflicts that has often emanated between the forestry administrators and rural farmers, on land within and around the forest reserves in Ogun

state without appropriate corresponding interventions that could have brought prospects for reconciliation some years back.

1.9. Limitations of the study

Major constraints faced were difficulties in getting to some of the villages where the farmers live due to far distance and very bad terrain. The reluctance of some farmers to respond to some of the questions for the fear of being dislodged from the reserves was another source of hindrance.

1.10. Scope of the Study

This study was focused on the prevalence of forestry and agricultural land use conflicts within Ogun State Government forest reserves (Table 1.1) that is, strict natural forest reserves and forest plantations. Respondents from field study included, Foresters, Agricultural officers, Farmers and Timber contractors.

Farmers sampled for the study were those in communities within forest reserves and some living in communities within 500m radius outside the forest reserves but were involved in farming activities within the forest reserves.

Table 1.1.: **FOREST RESERVES IN OGUN STATE: THEIR LOCATIONS AND SIZES**

S/N	RESERVE	LOCATION	SIZES (Km^2)	SIZES (Ha)
1	Omo Forest Reserve (Area J1, J3, J4 & J6)	Ijebu East and Ijebu North Local Govts.	1368.06	136,806
2	Olokemeji Forest Reserve	Odeda Local Govt.	58.88	5,888
3	Arakanga Forest Reserve	Odeda Local Govt.	2.39	239
4	Ilaro Forest Reserve	Yewa South Local Govt.	46.08	4,608
5	Edun Stream Forest Reserve (Ilaro Township)	Yewa South Local Govt.	0.79	79
6	Eggua Forest Reserve	Yewa North Local Govt.	41.47	4,147
7	Ohumbe Forest Reserve	Yewa North Local Govt.	46.08	4,608
8	Aworo Forest Reserve	Yewa North Local Govt.	212.99	21,299
9	Imeko Game Reserve	ImekoAfon Local Govt.	954.88	95,488
	TOTAL		**2731.62**	**273,162**

Source: Ministry of Forestry, Ogun State, 2006

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1. Definition of Conflict

Different authors have specific definitions for conflict. Some defined it according to the context of the issues in question. According to Schmid (1998), conflict is the situation where two or more parties perceive their interests as incompatible and express hostile attitudes or pursue their interest through actions that damage other parties.

2.1.1. Other Definitions of Conflicts

Fisher *et al.* (2000) defined conflicts as a relationship involving two or more parties who have, or perceive to have, incompatible interests or goals. Loomis and Loomis (1965) also echoed that conflict is an ever–present process in human relations. Thus, conflicts may not be eliminated but could be minimized. FAO (1998) referred to land conflict as a natural phenomenon that refers to the legitimate but opposing interests, activities and impacts on the environment resulting from the different goals and objectives of the many groups and individuals involved or affected by the use and exploitation of land.

2.2. Conflicts as a Result of Natural Resources Use

Conflicts may arise due to the effects or impacts of resource use or when one party‘s actions affect another party‘s interests (Schweithelm and Kanaan, 2006).FAO (2005) made mention of four important conditions that may facilitate natural resources conflicts as (i) scarcity of natural resources; (ii) the extent to which the supply is shared by two or more groups; (iii) the relative power of those groups, as well as (iv) the degree of dependence on a particular resources or the ease of access to alternative sources. Many authors according to the study contexts or area of research have mentioned different types of conflicts. According to Buckles and Rusnak (1999) natural resource conflicts could be distinguished in terms of dimensions, level and intensity and these characteristics of conflicts vary greatly. In terms of dimension, they mentioned class, political, social and cultural dimensions. Robinson (1972) identified

two types of dimensions of conflicts as threats or disputes over territory, whether the boundaries of the territory are physical, social or work boundaries; and threats to values, goals and policies as well as threats to behaviour. It is therefore not surprising that natural resources management has been associated with conflicts due to the multiple actors or stakeholders with diverse interests, perceptions, values and claims involved in the use and management of these resources (Marfo, 2006). Buckles and Rusnak (1999) were of the opinion that conflicts over natural resources do take place at a variety of levels, which is from within the household to local, regional, societal and global scales. According to Buckles and Rusnak (1999) sometimes their intensity may be enormous from confusion and frustration among members of community over poorly communicated development policies.

2.3. Causes of Natural Resources Conflicts

Renner (2005) stated that abundant natural resources such as oil, minerals, metals, diamonds and other gemstones, timber, and agricultural commodities including drug crops have fuelled a large number of violent conflicts due to their exploitation and have played a role in about a quarter of the roughly fifty (50) wars and armed conflicts, in which, according to him, more than five (5) million people were killed in the 1990s in countries like: Afghanistan, Angola, Cambodia, Sudan, Colombia, Nigeria, Papua New Guinea's Bougainville island, and Indonesia's Aceh province. As different cases of forest degradation due to agricultural development continue unabated, illegal logging and other forest-degrading vices also escalate. So the emanating conflicts are just as diverse as the causes. UNEP (2009) stated that environmental factors are rarely, if ever, the sole cause of violent conflict; ethnicity, adverse economic conditions, low levels of international trade and conflict in neighbouring countries are all significantly correlated as well. However, it is clear that the exploitation of natural resources and related environmental stresses can become significant drivers of violence. Akinola (2006) expressed his opinion that forests are centres of conflicting interests, which are all legitimate. The forces of conservation of forests and the need to farm in new fertile land due to increasing population, opposes one another in forest management. Forest conflict results from poor governance, specifically the lack of accountability and corruption and the failure to establish and enforce laws that grant access to forest resources and forestland in a way that is transparent and seen as legitimate by all

stakeholders (USAID, 2006).

2.4. Effects of Conflicts over Natural Resources

Conflicts over natural resources have negative impacts. However, people who study conflict also recognise its value as a catalyst for positive social change. Robinson (1972) said 'not all conflict is bad and not all cooperation is good' implying that conflict can be harmful to groups but may also serve some potential positive functions, depending upon the type of groups within and between which it occurs. Conflicts over natural resources as stated by authors such as Walker and Daniels (1997); Buckles and Rusnak (1999) and Castro and Nielsen (2003) have negative and undesirable impacts such as social and political tensions and violence, resource degradation and mistrust among stakeholders. Despite the negative impact of conflict over natural resources, Buckles and Rusnak (1999); Castro and Nielsen (2003) and Marfo (2006) perceived conflicts as a catalyst for positive social transformation.

2.5. Managing Conflicts over Natural Resources

Robinson and Clifford (1974) proposed that conflicts should be managed towards constructive action since a conflict can seldom be completely resolved'. Parker (1974) also notes that 'conflict not managed will bring about delays, disinterest, lack of action and in extreme cases, a complete breakdown of the group or withdrawal of individuals to participate or assist in group action programs. Boulding (1962) suggested that as a result of delay in identifying conflict in its young stage, it becomes difficult for it to be resolved by peaceable and procedural means. Loomis and Loomis (1965) in their own opinion said conflicts are ever present processes in human relations. Thus, conflicts may not be completely eliminated but could be minimized through effective management. Many natural resource conflicts experts believe that the best solution to conflict issues is through management as opposed to resolution.

Conflict management seeks to transform conflict into a search for mutual understanding of interests and solution. It implies promoting constructive dialogue and helping stakeholders to explore a multiplicity of option for agreement and subsequently selection of option that everyone can live with. Kotey *et al.* (1998) emphasized that there are various conflict management strategies, which vary in terms of:

- The legal recognition of process and outcome;
- The privacy of the approach;
- The specialisation required of the third party that might be assisting in conflict management;
- The role and authority of the third party that might be involved;
- The type of decision that will result and;
- The amount of coercion that is exercised by or on the disputing parties.

However, there are also other strategies proposed by other authors (Table 2.1.).

Table 2.1.: Summary of Identified Conflict Management Strategies in Ghana by Different Authors

Source	Conflict Management Strategies (in stepwise order)	No. of Stages
Boulding (1962)	1. Avoidance 2. Conquest 3. Procedural resolution of some kind including reconciliation or compromise.	3
Moore (2003)	1. Avoidance 2. Negotiation 3. Mediation 4. Arbitration 5. Adjudication 6. Coercion	6
Ossimitz (2000)	1. Escape: run away 2. Destruction: kill your opponent 3. Submission: subordinate your opponent 4. Delegation: an independent authority (judge) decides the conflict 5. Compromise: an arrangement between two positions 6. Consensus: seeking for a dialectical synthesis.	6

Source: Report on the Causes and Effects of Forest and Agriculture land use conflicts Ghana (2008)

2.6. Forests and Armed Conflicts

Renner (2005) submitted that, in Liberia, Cambodia, Afghanistan, Sudan, Angola, Colombia, Uganda, Sierra Leone and the Democratic Republic of the Congo, more than 5 million people were killed in resource-related conflicts during the 1990s. In places like Afghanistan, the pillaging of resources allowed violent conflicts to continue that were initially driven by grievances or secessionist and ideological struggles. Revenues from resource exploitation replaced the support that extended to governments and rebels groups by superpower patrons but largely evaporated with the end of the cold war. Renner (2005) further stated that in countries such as Sierra Leone, predatory groups initiated violence not necessarily to gain control of government, but rather as a means of seizing control of a prized resource. Close to 6 million fled to neighbouring countries, and anywhere from 11-15 million people were displaced inside their own countries. For a vast majority of the population in affected countries, these conflicts have brought a torrent of arms trafficking, human rights violations, humanitarian disasters, and environmental destruction. Ample endowments of coveted resources have helped push these countries to the bottom of most measures of human development.

Jong *et al.* (2005) stated that three quarters of Asian forests, two thirds of African forests and one third of Latin American forests have been affected by violent conflicts. The last remaining tropical forests are located in areas that over the past two decades have been subjected to violent conflicts. However, Melnyk *et al.* (.2005) in their submission stated that conflicts financed or sustained through the harvest and sale of timber, or conflict emerging as a result of competition over timber or other forest resources is a major challenge to development, further impoverishing and contributing to instability in many countries in Asia, Africa and Latin America. They further said that to protect nature in war situations, all stakeholders must get involved. The issue of nature conservation during conflicts is often neglected, since the human tragedy and the necessary humanitarian aid are given preference over conserving ecosystems and species.

2.7. Avoiding Conflicts through Sustainable Forest Management Practices

Global forest sector outlook studies provide countries with critical information to

manage their forests to avoid conflicts while secure forest tenure and access to forest resources are prerequisites to sustainable forest management (FAO, 2007). The process of national development today entails finding solutions to the problems of planed exploitation of natural resources amongst others, for better and more meaningful life (Harris, 1997). This emphasizes the importance of involving local communities in any development project or programme meant for the improvement of their welfare, hence the need for community participation.

Community participation on its part is meant to; involve farmers and communities in the management, development and maintenance of their natural resources and environment for their sustainable development (Wily, 2003). The contribution of communities in various resource-use and environmental programme has been documented (Adebayo, 1997; Meregini, 1997; and Nkefor *et al.*, 2000).

The involvement of local people in the design of strategies and management of natural resources is paramount to the success of any conservation project (Grazia *et al.*, 2000). In fact, any programme that fails to recognize the needs and values of the local population is bound to fail or at best meet with strong local resistance. This point is succinctly emphasized by Kenneth *et al.* (1956) who opined that: "the ways of life of a people present a body of imponderables that must be continuously taken into account by those who would bring about change in any phase of their life".

According to Wily and Mbaya (2001) local communities' involvement in the management of natural resources will enable forest dwellers have their share in the "benefits of sustainable forest management". This will also enable the local communities to appreciate the value of the resources and consequently fight against any form of misuse. Buckles (1999) corroborated this saying,involving local people in the management of timber resources can be beneficial to both the government and the forest dwellers especially as the government (in developing countries) hardly have adequate resources (personnel, infrastructure and logistics) to ensure strict control of the use of these resources. More importantly is the fact that in most cases, the promises made to indigenous landowners are not fully fulfilled (Osemeobo, 2006). The revenue accruing from the Nigerian forests contribute substantially to the National Gross

Domestic Product and sustenance of the livelihood of the people (Agbeja and Verinumbe, 2006). In corroboration of Agbeja and Verinumbe's views; Ajala *et al.* 2006 were of the opinion that forests make valuable contributions to the development of the national economy and to the general standard of living of the population. Forestry development depends on social factors, which comprise of the ways of life of a people that is, their attitude to the environment and their thoughts towards enhancing it.

Harris (1997) observed that involving local communities in the management of natural resources is an invaluable innovation in the management of such resources. In fact according to Sada (1988), the essential approach to conservation and exploitation is to educate man about his responsibilities in producing for his welfare as well as ensuring that the environmental equilibrium is not disturbed to the extent of threatening the very existence of man. This stresses the need for sensitization and awareness campaigns.

2.8. Policy Implications on Conflict in Natural Resource Management

Conflicts over natural resources have always played a role in human society, but recent conditions have led to an increase in their intensity, public profile and complexity. Policies have paid relatively little attention to the broader perspective of conflict management (Tyler, 1999). In addition to this, it was revealed that the policy environment for natural resources management has changed with increased population growth, agriculture, settlement and investment among others resulting in increased pressure on the resources. However, conflict management strategies have not found its way in most public policies. Public policy, to Tyler, is a curse to natural resource conflicts either through actions or inactions of policy–driven government agencies. Among the curses cited were:

- Uncoordinated planning and investment;
- Inadequate information or consultation;
- Discriminatory tenure polices;
- Population displacement and migration;
- Vague policy direction;

Therefore, he was of the opinion that an effective policy framework for management of natural resources conflicts should include:

- Administrative coordination;
- Information sharing and communication;

- Stakeholder identification and analysis;
- Engagement of a legitimate intermediary;
- A process of integration;
- A legal framework and procedural equity;
- Research;
- Strong local government and;
- External support.

2.9. Importance of Forests to Mankind

Diouf (1997); Butcher (2001); and Agyemang *et al.* (2003) asserted that forests are the most important terrestrial gene banks on Earth. Forests are nature's bountiful and versatile renewable resources and are an integral part of the environment. The relationship between man and forests has always changed with socio-economic development and will certainly continue to change (Blauberg, 1997; Ruf, 2001). As the natural forest base declines and the economies of countries expand, livelihoods for forest fringe communities or forest dependent communities move to a transitional period (Wollenberg *et al*., 2002). Therefore, there is increasing evidence of complex dependency of a growing number of world's poorest communities on forests. According to ICRAF, (2002) Ecosystems provide many valuable services such as water and air purification on which we depend. Perhaps these assertions may be presented in more current context in terms of the relevance of forests to climate change and carbon sequestration as opined in the following research outcomes. According to Gorte (2009) forests are a significant part of the global carbon cycle. In agreement with this, Moura-Costa (2000) opined that the most obvious approach to achieve the fixation of carbon is to plant trees. However, FAO (2012) elaborately stated that Forests have four major roles in climate change: they currently contribute about one-sixth of global carbon emissions when cleared, overused or degraded; they react sensitively to a changing climate; when managed sustainably, they produce wood fuels as a benign alternative to fossil fuels; and finally, they have the potential to absorb about one-tenth of global carbon emissions projected for the first half of this century into their biomass, soils and products and store them - in principle in perpetuity.

However, because these services are often used free of charge, their true value is underestimated. As a result, ecosystem degradation goes unchecked, leading to losses that threaten nature and undermine economic and human development.

2.10. Importance of Forest Policy as a Tool for a Sustainable Forest Land Use Management

Policy is seen as a desirable plan of action, statement of ideas or strategy for development; packaged to enable man use his resources judiciously with the aim of attaining a certain level of development overtime. A policy stipulates what in the first place constitutes a resource; how to harness and use it overtime to satisfy desire. A forest policy is a continuous process rather than a discrete procedure with a definite beginning and end (FAO, 2002b). A forest policy is a framework that charts the way for man to attain a higher level of development at the shortest possible time by the efficient use of one's resources. Without a well-articulated forest policy, people may not be able to know the true nature of the problems facing the forestry sector and their effects on its development. To this end, a forest policy helps stakeholders to know the causes of forestry problems and the appropriate steps to take to redress the issues. This can effectively be done by conscious efforts to ascertain the cause/s of the problems in the first place and then come up with possible solutions. FAO (2002b) further stated that forest policy of any given country is a system that embraces many inputs that establishes the way the government carries out its programmes, how forest practitioners operate and how the rest of the society uses forest resources. A policy is therefore seen as an expression of a number of decisions based on the exigencies of the time the policy is formulated. However, it should be flexible enough to accommodate likely changes in the course of its use. Forest policy makers should be conscious that the future is different from the present, therefore efforts must be made to adapt, as the true nature of those future conditions become more apparent.

An ill-conceived policy has a detrimental effect on both government and the public that depends on government for lead. This could result in government or its agencies taking decisions that may run counter to the intentions of government. Therefore, it is worthless having a policy decision, which cannot and will not be implemented.

The extent to which a well-formulated forest policy is executed depends on the political and socio-economic system of a State. Implementation requires the ready acceptance and participation of the people concerned as well as the government officials responsible for its implementation. A forest policy that is not sensitive to the aspirations of the local communities is prone to fail provided the aspirations of the local community concerned are positive.

Forest management is not carried out in a vacuum; the procedure chosen depends on the physical, socio-economic and the institutional context in which it is implemented. The real purpose of forest management is to satisfy people and not the environment though care of the environment must be noted to ensure the availability of these resources for management to thrive (ITTO, 2005).

An inappropriately formulated or badly implemented forest policy may give rise to conflicts among the various stakeholders (ITTO, 2000).

Presently in West Africa, per capita food production has declined, food imports have increased, agricultural exports have stagnated or declined and environmental degradation has become more widespread (FAO, 2000 and FAO, 2001). These situations have been attributed to various causes, including inappropriate agricultural development policies pursued in these countries (Smith, 1994; Reardon and Barrett, 2001). Therefore, achieving development and welfare improvement for rural dwellers seems to be a herculean task and these problems seem to be more worrisome. McCalla (2000) observed that the first and continuing challenge facing world agriculture and in particular Africa is to produce enough food to feed the ever-growing population. Elliot and Mwangi (1998) and McCalla (2000) have obseved that groups of people that lack assets also tend to lack voice, security and a stake in the larger society, thereby hampering the ability of institutions to perform their necessary functions. This can result in vicious, self-reinforcing circles; biased institutions implementing policies that lead to more inequity asset distribution and greater polarization of society leading to social strife. Agbeja (2003) reported that discordant state forest and agricultural policies in Nigeria have led to land use conflicts, confusion, duplication of effort and uncoordinated strategies. In a situation of inconsistent and inappropriate agricultural and forest policies, almost all the objectives laid down in these related sectors are thwarted as well as haphazardly implemented. The effect of these changes has negative

consequencies on agricultural productivity and level of wood fibre supply in the future date. In addition to these challenges, many forest reserves in West Africa bear the impact of conflicts and internal strife, that have significant direct and indirect negative impacts.

FAO (2002a) indicates that policies imposed without participation will end up creating problems. This is because it frequently fails to take into account local rights to forest land-use practices regarding natural resources.Therefore, it is no longer a secret that both land and majority of people in West Africa are suffering (Prah, 1994; Adu-Anning *et al.*, 2004) as a result of conflicts between forestry and agricultural policies. It is high time the policy-makers in forestry, agriculture, environment and other related sectors rose to the rescue and stem down the forest degradation, food insecurity and declining per capita forestry and agricultural productivity.

To reduce conflicts over forest land use, Kasim-Kasanga (1994) and Adu-Anning *et al.*,(2004) proposed that, attention must be given to formidable subsistence agriculture and forest resources management problems that are both causes and consequences of these ills. The mechanisms such as land sharing to forestry and rural farmers, good governance, agricultural intensification (Reardon and Barrett, 2001) and the role of agricultural technologies in tropical deforestation (Angelsen and Kaimowitz, 2001; Holden, 2001), should be reviewed in order to pave way for peaceful resolution between forestry and agricultural land uses. The key forestry and agricultural policy issues relate to macro-economics, demography, forest resources and farming systems. Information generation and dissemination have been, and will continue to be, a major factor in efforts to address these issues and inform the policy-making process.

2.11. A Brief Chronology of Forest Administration in Nigeria

The creation of forest reserves shortly after the commencement of colonial administration in Nigeria was guided by one single objective of producing timber for consumption in metropolitan countries (Adeyoju, 1995). In Nigeria, early legislations were instrumental in laying the cornerstone of forest policy for the creation of forest reserves. The first forest reserve, Mamu forest reserve was constituted in 1899, followed by Olokemeji forest reserve in 1901, which later became the headquarters of forestry department for the whole of Nigeria in 1902 (Adeyoju, 1975). Forest proclamations, bills and legislations followed each other in rapid succession. The forest ordinance of 1916 was made operative for all forestry laws in the country and

the procedures for constituting forest reserves. In the high forest of Nigeria, the reservation was substantially completed between 1920 and 1930 (Adeyoju, 1994).

The initial efforts of forestry practice were geared at the constitution of forest reserves ostensibly to build up a forest estate that would account for about 25 percent of the total land area of the country. Today, only about 6 percent of the land area of Nigeria is under reservation (Bada, 1996). However, a vast proportion of the six percent have been de-reserved through the prevalent forest offences in the forest reserves, such as: incessant illegal logging, forest fires and the menace of forest conversion to agricultural uses. Some of these offences are responsible for the various conflicts experienced in the state forest reserve these days. Sadly, no documented knowledge of the de-reserved proportion is available. Forest administration in Nigeria is at the three tiers of government i.e. Federal, State and the Local Government.

2.11.1. Federal Government Level

The primary role of Federal Department of Forestry (FDF) is to formulate National Forest policy. In addition to this; it also plays an advisory role to the State Forest Departments by supporting the execution of Federal Government-funded projects and is responsible for liaising with International Development Agencies. The Federal Government has budgetary provision for forestry development but has no forests of its own. This provision is for financing forestry projects being executed by the State Forestry Departments, though this may sometimes be inadequate (FAO, 2003 and FAO, 2006). In spite of its supervisory and funding roles, the Federal Government is not noted to pay any attention to conflicts within forest reserves.

2.11.2. State Governments

The State Forestry Departments (SFD) on the other hand, manage the forest resources at the State levels. Though, inefficient management of the forestry sector has aided the occurrence of the incessant conflicts emanating from the forest reserves. They also undertake revenue generation from the forestry sector within the States. Like FDF, crippling financial resources have not allowed the SFDs to perform their functions optimally. Furthermore, their efficiency is crippled by manpower shortages, with most of the available personnel lacking adequate training and exposure to modern forestry techniques. This is in addition to the lack of political will for the development of the

sector by government authorities (FAO, 2003). The States themselves have budgetary allocations for forestry development but these are grossly inadequate to carry out meaningful projects and programmes. On the other hand, the revenue generated from the forest is nothing substantial compared with what is needed for a sustainable forestry development.

2.11.3. Local Government Authorities

The roles of Local Government Authorities (LGAs) differ from North to South. In the South, they have virtually no responsibility for managing the forest resources, while the contrary is the case in the North. The LGAs are equally constrained by lack of funds and personnel to carry out their mandate. In spite of the closeness of the Local Governments to the grassroots, they have failed to prove their importance at that level (especially in the Southern part of the country). This is more so because this is the arm of government that is closest to the people and should be at the forefront of actions against forest conflicts.

2.12. Forest Conversion to Agricultural Use

World Wildlife Fund for Nature (2007) defines forest conversion as an increasingly destructive practice whereby natural forests are chopped down to meet other land needs. According to Federal Ministry of Environment, Abuja (2006), the clearing of land for farming accounts for over 80% of total forest area deforested every year and majority of the farmers (more than 20 million) practice shifting cultivation. In line with this submission, Meine *et al* (2001) said the conversion of forests to other land uses carries with it severe environmental and social costs arising from forest clearing, uncontrolled burning, and disregard for the right and interest of local communities. Forest conversion is therefore, one of the major factors threatening the successful implementation of Sustainable Forest Management (SFM) in Nigeria.

However, land-use problems are not limited to Nigeria; for example, Melnyk *et al.* (2005) reported that in Lampung, Indonesia, local governments and farmer groups are engaged in policy dialogue on tenure and negotiations on land-use and this has begun to yield significant results.

Forest policy makers should be conscious that the future is different from the present and they should be well malleable as the true nature of those future conditions become

more apparent. For instance, there are factors other than population growth, causing depletion of forest resources; chief among which is the conversion of forests to agricultural uses.

According to Akachuku (2006), large-scale deforestation results in negative ecological, genetic and socio-economic consequences such as; depletion of soil and water resources, destruction of earths web-cycle, loss of biodiversity, its effects on endemism and on the environment. A significant share of net forest loss is reported from countries with the greatest extent of forests (FAO, 2007). The gains of forest management through reservation and the promises made during reservation exercise have largely been abandoned.

Forestry management systems which could have contributed to the sustainability of commercial forestry have been ignored or discarded in favour of other short-term practices that guarantee quick financial returns on capital-intensive operations and to satisfy other national and the international agricultural-produce trade (WWF, 2004 and WWF, 2005).

CHAPTER THREE

3.0. METHODOLOGY

3.1. Study Areas

Nine forest reserves (FRs) in Ogun State were selected for the study. These were: Arakanga, Aworo, Edun Stream, Eggua, Ilaro, Imeko Game, Ohumbe, Olokemeji, and Omo (Areas J1, J3, J4 & J6).

3.2. Ogun State

Ogun State lies within latitudes 7°N and 6°N and longitudes 2.5° E and 5° E (Figure 3.1.). It is a state in South-western Nigeria. It borders Lagos State to the South, Oyo and Osun States to the North, Ondo State to the east and the Republic of Benin to the west. The State has a total land area of 16,762sq.km (Oyesiku and Kojeku, 1992) out of which a total of 2,731.62sq.km constitutes its forest reserves (a vast proportion of which has been converted to agricultural and other uses over the years). Abeokuta is the capital and largest city in the State. Other cities and towns in the Ogun State are Ijebu-Ode, Sagamu, Ijebu-Igbo, Ilaro, Ayetoro and Ota.

The State was created in February 1976 from the former Western State; it has twenty Local Government Areas. The 2006 census recorded a total population of 3,751,140 residents (Wikipedia, 2005). The twenty Local Governments Areas (LGAs) are as follows: Abeokuta North, Abeokuta South, Ado-Odo/Ota, Ewekoro, Ifo, Ijebu East, Ijebu North, Ijebu North East, Ijebu Ode, Ikenne, ImekoAfon, Ipokia, Obafemi-Owode, Odogbolu, Odeda, Ogun Waterside, Remo North, Sagamu, Yewa North formerly Egbado North, Yewa South formerly Egbado South.

The vegetation of Ogun State is of high rainforest zone in the Southern part and predominantly savannah like vegetation in most of the northern part. The State has two main types of vegetation, namely, tropical rainforest and guinea-savannah. The tropical rain forest is found in the coastal areas in Ogun Waterside and the southern part of Yewa-South LGAs. Rain forests are found in some parts of the eastern LGAs; such as

ljebu-Igbo, Odogbolu, Sagamu and Ijebu-Ode. Guinea and derived savannah are found mostly in Yewa-North and South, Ifo, Ewekoro, Abeokuta, Owode and Ado-Odo/Ota.
The intensive interactions of man with his environment in the State have created some ecological problems (Zimmerer and Young, 1998). These include the destruction of the rain forests through lumbering and the annual bush burning, both of which are responsible for the growth of deciduous forests and derived savannah which have replaced the original virgin vegetation.
Quarrying, with the blasting of the rocks in Abeokuta and environments and the quest for limestone and other minerals for the cement factories at Ewekoro and Sagamu, have left huge excavations and degradation of the land. Water hyacinth (sea weeds) encroachment on the water ways on the major rivers, especially in Ogun Waterside LGA, is a pressing problem.

Ogun State has a wide area of undulating lowlands belonging to the coastal sedimentary rocks of western Nigeria. There are scattered hills that are interfluves between the different river valleys. Some remnants of a large plantation in the State include the out crop inselbergs found at Abeokuta, the Olumo Rock at the southern edge of the Western uplands.

One implication of this location of the State is seen in all the rivers that traverse the State which flow southward either as tributaries or main rivers into the coastal lagoons and the Atlantic Ocean. These include Ogun, Osun, Yewa, Yemoji, Ona, Sasa, Oni, Ohu, Ohia, Abafon, Oyan, Iju and others. Most of the State is well drained by these streams and rivers, much of which dry up during the dry season.

Ogun State has two main rock types. These are the basement complex rocks of the Pre-Cambrian age which are made up of the older and younger granites in the northern parts of the State, and the younger and older sedimentary rocks of both the tertiary and secondary ages in the southern parts (Castro and Ettenger, 1997).

Ogun State is located in the moderately hot, humid tropical climatic zone of south-western Nigeria. There are two distinct seasons in the State, namely, the rainy season which lasts from March/April to 0ctober/ November and the dry season which lasts for

the rest of the year, October/November till March/April. The temperature is relatively high during the dry season
with the mean about 30°C. The harmattan, brought in by the north-easterly winds from December-February, has ameliorating effects on the dry season which is usually with high temperatures; while on the other hand, there is a low temperature during the rains, especially between July and August when the temperatures could be as low as 24°C. The distribution of rainfall varies from about 1280mm in the southern parts of the State to 1050mm in the northern areas and 1000 mm in the western part to about 2000 mm the eastern part, especially Ijebu and Ogun Waterside LGAs.

Soils in Ogun State are varied according to the geological history and soil formation processes in the different localities. Soils in the northern part of the state are derived from the basement complex rocks and they belong to the red soils eastern part of the state, most especially Ijebu-East LGA which supports tree crops such as cocoa and coffee. Soils derived from sedimentary
rocks in the southern part of the state are also varied in the components and texture. Soils in the south-western part of the state and most of the western part are sandy and could only support savannah vegetation. Ifo LGA is noted for its limestone that is the base of Ewekoro cement factory. The river valleys have alluvial soils.

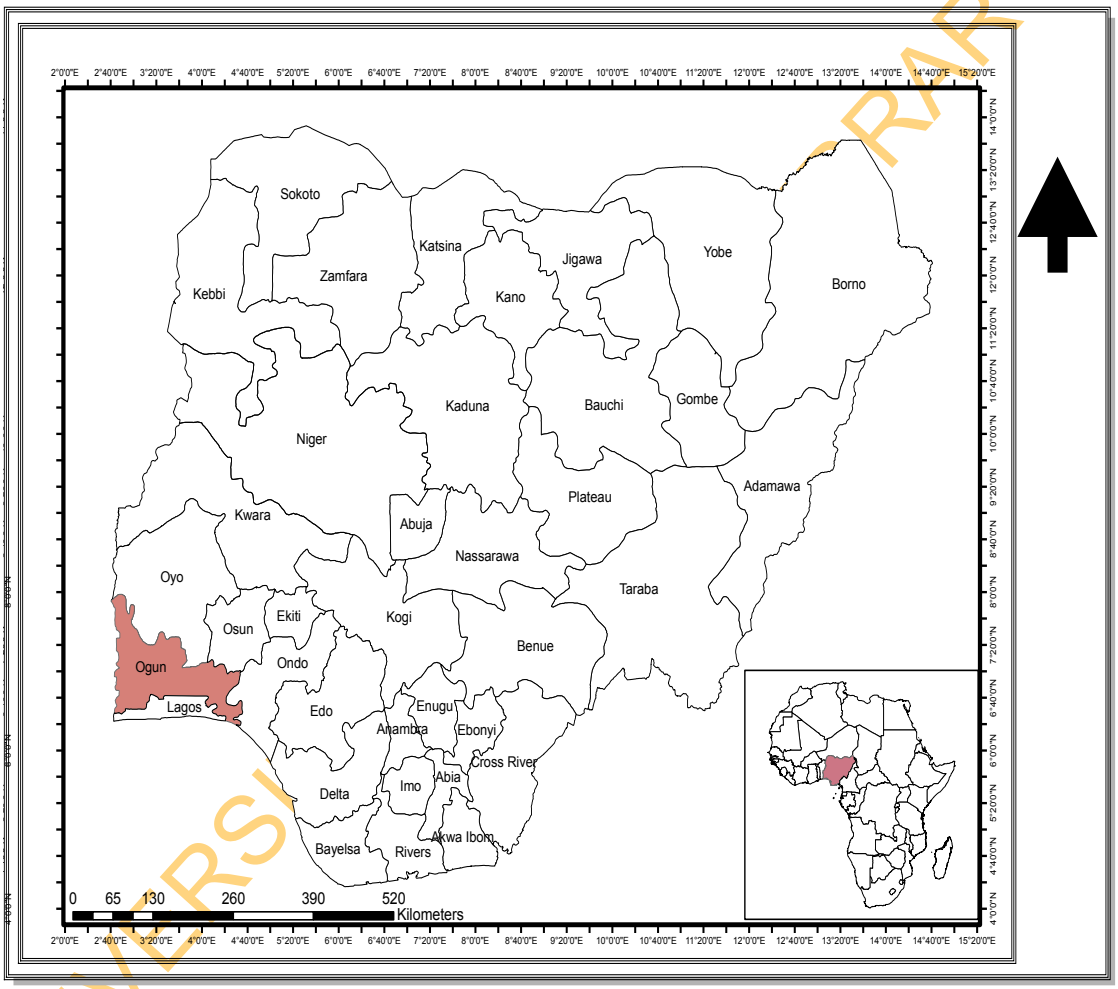

Figure 3.1.: Map of Nigeria Showing the Location of Ogun State. (Inset is the Map of Africa Showing the Location of Nigeria).

3.3. Instrumentation and Data Collection

The instruments used for the data collection were structured questionnaire and interview schedule. This contained a uniform set of questions to which all respondents in a particular category were subjected to, therefore making their views and opinions to be analysed at the same level. Some of the respondents, however, had the questions interpreted to them in the language they understood due to their literacy levels.

The questionnaires were divided into parts and sections for clarity and for ease of understanding. Some of the information collected on the issue of Conflict include:

* Knowledge of the existence of Forestry and Agricultural Policies in the State;
* Knowledge of the provisions of Forestry and Agricultural Policies in the State;
* Knowledge of the Forestry and Agricultural Policies in the State as causes of conflicts;
* Existence of conflicts in forest reserves;
* Types of conflicts experienced;
* Causes of conflicts;
* Availability of fallow land within the forest reserves;
* Land use systems practised by farmers operating within the forest reserves;
* Incentives for forestland encroachments;
* Effects of the conflicts on forestry development in the State;
* The importance of forestry to farmers;
* Extent of land hunger within the forest reserves; and
* Rights of farmers to operate within the forest reserves.

3.4. Sampling Technique

Each of the nine forest reserves (Figure 3.2.) was randomly stratified into two communities, 'within' and 'around' forest reserves. This was done to ensure that farmers living outside forest reserves but were involved in farming activities within forest reserves were not left out.

From each of these communities i.e. “within and around forest reserves”, 30% of the population was randomly selected for sampling based on probability proportionate to size for interviews. The results of the 1991 census figures were used as a guide of the numerical strength of each of the communities sampled.

Key informants from other stakeholders (timber contractors) were purposively selected

for interview to elicit their views. There were feedback meetings to cross check information collected across stakeholders in the communities to ascertain the validity of the response. An

iterative process was also incorporated into the information gathering procedure to collect new information on the basis of new development using checklist.

3.5. Sample Population

The population for the study comprised of (i) Forestry Staff, (ii) Agricultural Staff, (iii) Farmers and (iv) Timber Contractors. Seven hundred and fifty farmers were randomly selected based on

probability proportionate to size from 72 enclaves, representing 30% of the total number of enclaves in the nine FRs in the State. In addition, 30% of field staff of Ministries of Forestry and Agriculture (72 and 32 respectively) was randomly selected for questionnaire administration. Furthermore, 30% (32) of the timber contractors operating within the FRs were randomly selected for interview using an interview schedule (Tables 3.1, 3.2, and 3.3.).

Table 3.1.: Distribution of Respondents.

Group	Total Number of Respondents Sampled	Percentage (%) Representation of Respondents
Forestry Staff	72	30
Agric. Officers	32	30
Farmers	750	30
Timber Contractors	32	30
Total	**886**	

Source: Field Survey (2006)

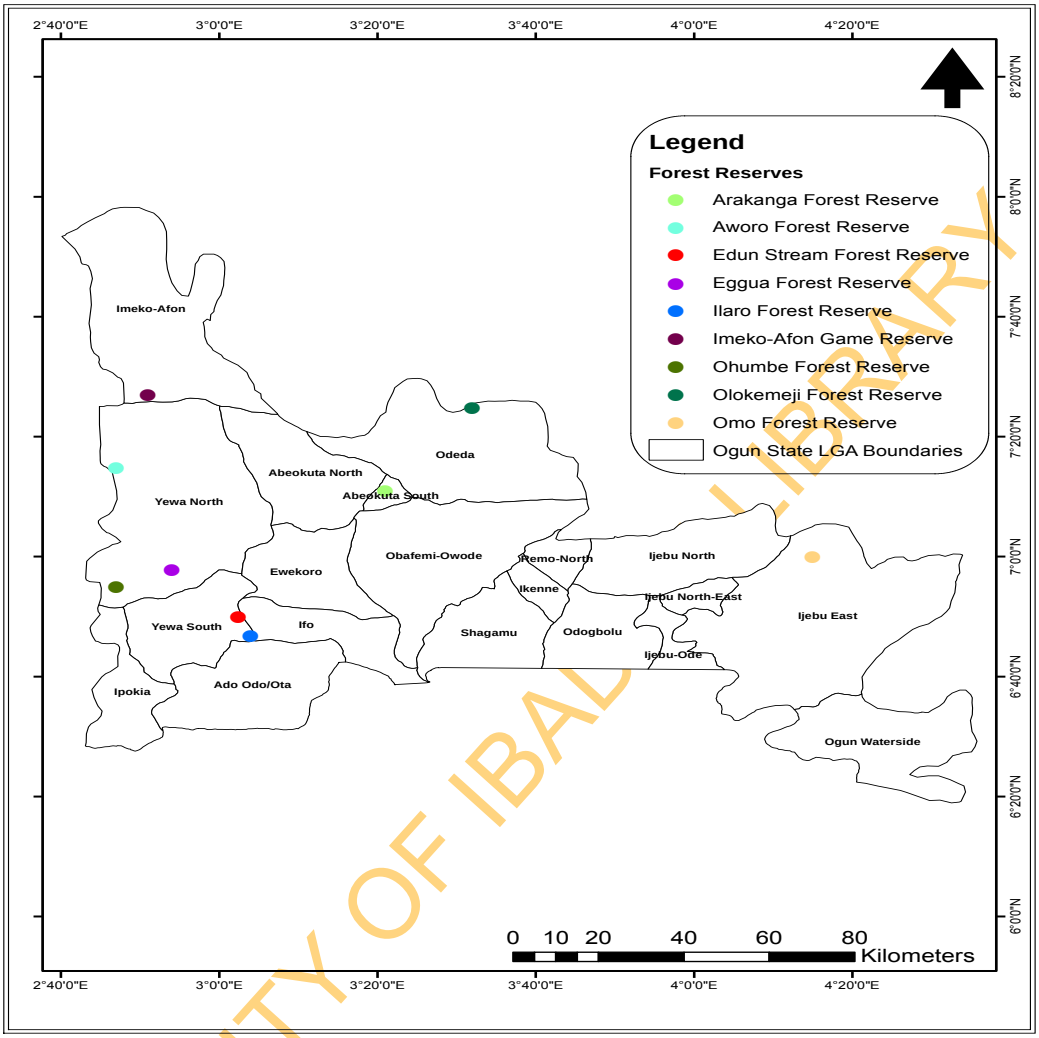

Figure 3.2.: Map Showing Locations of Forest Reserves in Ogun State

3.6. Data Types and Sources

3.6.1. Primary data

Information elicited from administered questionnaires is the primary source of data.

3.6.2. Secondary Data

The secondary data were sourced from Forest and Agricultural Policy documents, Annual reports, Journals, Internet materials, Situation reports, Newspapers and Textbooks.

3.7. Data Analysis

Data were analysed using descriptive and Logit regression analysis at 5% level of significance. Based on the stated objectives, the following were used to realize the objectives:

3.7.1. Objectives 1, 2 and 5: Data collected on these objectives were analysed using descriptive statistics.

3.7.2. Objective 3: Data collected for this objective were analysed using both descriptive statistics and population density estimates (as proposed by King, 1968).

3.7.3. Objective 4: Data collected from investigation on this objective were analysed using Logit regression analysis.

3.7.4. Objective 6: This objective was analysed using content analysis of the policy provisions in the Agricutural Policy of Ogun State as recorded by MANR (1989) and the Land Use Decree of Ogun State OGSG, (1978).

3.7.5. Research Questions 1 and 2: These two were analysed using descriptive statistics.

3.7.6. Logistic Analysis: To identify factors that are likely to cause conflicts in the forest reserve, a discrete variable logit analysis was carried out. The opinion of the participants as to the existence of conflicts was framed as binary-choice models which assume that individuals/farmers are faced with a choice between two alternatives (e.g.

existence of conflicts/nonexistence of conflicts) and the choice depends on identifiable characteristics. The estimation form of logistic transformation of the probability of participants' opinions on the existence of conflicts can be represented as:

$$P' = b_o + b_1X_1 + b_2X_2 + ...+ b_nX_n \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

Where:

P' = *Land Use Conflicts between forestry and agriculture in Ogun State*

$b_o, b_1, b_2 \ldots b_n$ = *regression parameters (a vector of unknown parameters).*

$X_1\ X_2 \ldots\ldots\ldots X_n$ = *factors responsible for conflicts in study area (a vector of explanatory variables).*

However, in order to estimate the parameters of the variables influencing the occurrence of conflicts in the forest reserves, maximum likelihood estimation was used as shown in equation (2) below.

3.7.7. Variables used in the model

The Outcome variable*:* The outcome variable is existence of conflicts, which is coded with the value 1 to indicate the farmer's opinion on existence of conflicts and zero otherwise.

Independent variables: It is assumed that the factors listed in Table 4.3. may likely influence occurrence of conflicts and thus the factors were included in the model as independent variables (Tables 4.1.and 4.2.).

3.7.8. Logit Regression Model

This was used to predict the likelihood of conflict eruption as a function of some activities of farmers operating within the forest reserves, such as: farm size, farming duration, forest reserve of operation and right of farmers to use forest land for farming among others. Given the above

hypothesized factors of farmers' opinions on the existence of conflicts, using the binary logistic models which are very useful in situations where the dependent or response variable is binary in nature, this implies that they can have only two possible

values. The models therefore describe the relationship between one or more continuous independent variable(s) to the binary dependent variable. The two common binary models are the logit and probit (Ostle, 1963). The logistic model is particularly preferred because of the unique information it provides. The distinct information provided by logit is the odds ratio. This is defined as the ratio of the odds of an event occurring in the group to the odds ratio of it occurring in another group (Deeks, 1996). Logit also provides information on the consequences of one variable on the other. Hence, it clearly indicated the variable(s) that mostly caused conflict between forestry and agricultural land uses.

The simplest form of logit model is expressed as:

$P' = b_o + b_1(NATV) + b_2(HHS) + b_3(FD) + b_4(LD) + b_5(FS) + b_6(FLAV) + b_7(VL)$ ..... (2)

where:

NATV = a dummy variable indicating whether the farmer is a native of the area or not;

HHS = a dummy variable indicating whether the household size is big or not;

FD = a dummy variable indicating whether the farmer had been operating within the reserve for over ten (10) years or not;

LD = a dummy variable indicating whether the land being used by the farmer was officially demarcated or not;

FS = a dummy variable indicating whether the farmer had exceeded the approved farm size or not;

FLAV = a dummy variable indicating whether farm land is available in the farmer's location or not;

VL = a dummy variable indicating whether the farm village is located within the forest reserve or not;

3.7.9. Population Density Analysis

As recorded by King (1968), the occurrence of land hunger is observed when the area reserved is subtracted from the total area of the host communities. The population density with respect to available land outside the reserved areas therefore, increases considerably and becomes extremely high. Population Density analysis is represented as follows:

Population Density (Before Reservation) = Population of Host Community / Land Area of Host Community before Reservation

Population Density (After Reservation) = Population of Host Community / Land Area of Host Community after Reservation

Source of Population Figures Used: Ogun State Health Bulletin (Vol.1) 2004

* Populations figures courtesy National Population Commission (Projections from 1991 Population Census)

** Land Area Courtesy, Ogun State Bureau of Survey

3.7.10. Data Presentation

Data were presented using text, frequency tables, bar, line and pie charts and pictures. The demographic characteristics of Farmers and Timber Contractors are as given on tables 3.2, 3.3. and 3.4.

Table 3.2.: Farmers Demographic Characteristics

Farmers		Arakanga	Olokemeji	Omo	Ilaro	Edun	Aworo	Eggua	Ohumbe	Imeko	TOTAL
Gender	M	36	89	133	200	35	49	48	58	97	**745**
	F	3	2	0	0	0	0	0	0	0	**5**
Age	1-30	0	27	13	15	6	10	0	8	10	**89**
	30>	39	64	120	185	29	39	48	50	87	**661**
Education	Yes	12	59	30	8	14	10	10	12	17	**172**
	No	27	32	103	192	21	39	38	46	80	**578**
Conflict Experience	No	13	80	13	182	19	0	28	41	97	**473**
	Yes	26	11	120	18	16	49	20	17	0	**277**
Farming Location	*A	11	39	8	32	18	10	10	5	31	**164**
	**B	28	52	125	168	17	39	38	53	66	**586**
Indigeneity	No	4	15	2	10	0	0	0	0	0	**31**
	Yes	35	74	131	190	35	49	48	58	97	**719**

Source: Field Survey (2006)

*A = Outside Forest Reserve

**B=Within Forest Reserve

Table 3.3.:Farmers' Demographic Characteristics in Percentages

Farmers		Arakanga (%)	Olokemeji (%)	Omo (%)	Ilaro (%)	Edun (%)	Aworo (%)	Eggua (%)	Ohumbe (%)	Imeko (%)
Gender	M	92.31	97.80	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	F	7.69	2.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Age	1-30	0.00	29.67	9.77	7.50	17.14	20.41	0.00	13.79	10.31
	30>	100.00	70.33	90.23	92.50	82.86	79.59	100.00	86.21	89.69
Education	Yes	30.76	64.83	22.56	4.00	40.00	20.41	20.83	20.69	17.53
	No	69.23	35.17	77.44	96.00	60.00	79.59	79.17	79.31	82.47
Conflict Experience	No	33.33	87.91	9.77	91.00	54.29	0.00	58.33	70.69	100.00
	Yes	66.66	12.09	90.23	9.00	45.71	100.00	41.67	29.31	0.00
Farming Location	*A	28.20	42.86	6.02	16.00	22.86	20.41	20.83	8.62	31.96
	**B	71.79	57.14	93.98	84.00	77.14	79.59	79.17	91.38	68.04
Indigeneity	No	4-10.25	16.48	1.50	5.00	0.00	0.00	0.00	0.00	0.00
	Yes	89.75	83.52	98.50	95.00	100.00	100.00	100.00	100.00	100.00

Source: Field Survey (2006)

*A = Outside Forest Reserve

**B=Within Forest Reserve

Table 3.4.: Demographic Characteristics of Timber Contractors

Farmers		Forestry Staff	(%)	Agriculture Staff	(%)	Timber Contractors	(%)
Gender	M	67	93.06	32	100.00	30	93.75
	F	5	6.94	0	0.00	2	6.25
Age	1-30	-	-	-	-	-	-
	30>	-	-	-	-	-	-
Education	Yes	72	100.00	32	100.00	32	100.00
	No	0	0.00	0	0.00	0	0.00
Conflict Experience	No	0	0.00	16	50.00	32	100.00
	Yes	72	100.00	16	50.00	0	0.00
Farming Location	*A	N/A	N/A	N/A	N/A	N/A	N/A
	**B	N/A	N/A	N/A	N/A	N/A	N/A
Indigeneity	No	0	0.00	0	0.00	0	0.00
	Yes	72	100.00	32	100.00	32	100.00

Source: Field Survey (2006)

*A = Outside Forest Reserve

**B=Within Forest Reserve

N/A = Not Applicable

CHAPTER FOUR

4.0. RESULTS

4.1. FACTORS FUELLING CONFLICTS BETWEEN FORESTRY AND AGRICULTURAL FOREST LAND USES IN OGUN STATE

Observations from this study revealed two basic factors fuelling conflicts in the study area. They are hereby presented under the following broad categories: (i) Discordance in Policy Provisions and (ii) Farmers Activities within the Forest Reserves.

4.1.1. Discordance in Policy Provisions

The discordance in provisions of the Agricultural and Forestry policies coupled with the ambiguity of the Land Use Decree creates challenges in the implementation of the policies and decree by forest managers due to the conflicting and vague provisions. For instance, the policies failed to clearly prioritise land use between the two sectors while the decree also failed to define what it meant by land declared urban in the State The void created by the ineffective policies and decree have encouraged encroachment and made prosecution of offenders difficult. For instance, in July 2005 when data collection for the this research work was still in progress, the convoy of a high powered delegation from the Forestry headquarters led by the former Commissioner for Forestry, Alhaji Dele Odulaja (on a mission to destroy fresh cocoa farms) assisted by the Permanent Secretary and Directors within the Ministry was shot at by illegal farmers around 'Temidire village' within "Area J1" of Omo Forest Reserve. This incidence saw one of the vehicles in the convoy (a Toyota Pick-up) badly damaged with bullets (Plates 4.1 and 4.2). Similarly, efforts by the government through the Ministry of Forestry to prevent further planting of cash crops within the Omo forest reserve were again met with stiff resistance. In an article titled "Evicted Oyo cocoa farmers demand justice from Daniel" published in the Daily Sun of Friday, May 23, 2008, Fabowale (2008) wrote of the present plight of some farmers (Messrs Adeyeye and Pa Masopa) whose eviction was alleged to have been as a result of disagreements over increases in tenancy fees.

Furthermore, information available at the Ministry of Forestry Headquarters indicated that an average of two forest land encroachment cases were reported at each of Arakanga and Edun Stream FRs yearly in the last 10 years while an average of 24 forest land encroachment cases was reported yearly in the last 10 years while an average of 24 was reported in Omo FR.

Plate 4.1.: Government Pick-up Van with Bullet Holes, Shot by Illegal Farmers

Plate 4.2.: Government Pick-up Van with Bullet Holes, Shot by Illegal Farmers

4.1.2. Farmers Activities within the Forest Reserves

4.1.2.1. Farmers' Understanding of Forest Importance

Out of the 750 farmers, the importance of forests was ascribed to their timber production function only by 4.8%, while 9.2%, 7.2%, 6.6% and 0.9% ascribed it to revenue generation for government, food and meat source, for future generation and their land bank function respectively. The rest of them perceived it to mean a varying combination of these factors. However, 13.0% of the respondents believed that forest importance meant a combination of the following: For timber production, Land bank and Revenue for Government (Table 4.1.).

4.1.2.2. Farmers' Rights to use Forestland for Farming

Seventy four percent of the farmers believed that the factor granting them the authority to farm in forest reserves in the state was the forestry law, while 5.6% and 0.5% believed that they are there at the instance of the Chief's authority and Land-owning rights respectively. The rest believed that varying combinations of these and other factors were responsible. It is a common feature, however, for farmers to gain access to forestland for agriculture through village Chiefs who allocate the land to them on their own volition for a fee; this is evident from the series of field reports forwarded to the Forestry headquarters on this account (Table 4.2.).

Table 4.1.: Farmers' Understanding of Forest Importance

Response	Frequency	Percentage (%)
a,b,c	27	4.3
a,c,f	26	4.2
a,c	22	3.5
a,c,d	50	13.0
a	71	4.8
c,d	22	3.5
a,b,g	12	1.9
a,b,c,g	8	1.3
a,b,f	6	0.9
a,d,g	44	7.1
a,c,g	7	1.1
a,g	43	6.8
a,e,g	10	1.6
a,f	2	0.3
a,e,f	10	1.6
c,g	23	3.7
c,f,g	20	3.2
c	6	0.9
c,f,a	1	0.1
f,g	48	7.8
a,c,f,g	1	0.6
d	69	9.2
a,d,e	5	0.8
a,d,g	2	0.3
a,d	6	0.9
d,e	2	0.3
a,d,e,g	1	0.1
G	54	7.2
a,g	1	0.1
e,g	8	1.3
d,g	6	0.9
F	50	6.6
e,d	1	0.1
TOTAL	**750**	**100.0**

KEY: RESPONSE

a. Timber production b. Wildlife sanctuary c. Land bank d. Revenue for government

e. Precipitation f. For future generation g. Food and Meat

Table 4.2.: Farmers' Rights to use Forestland for Farming

Response	Frequency	Percentage (%)
A	557	74.2
a,c	117	15.8
C	42	5.6
a,e	1	0.1
B	4	0.5
a,b	7	0.9
a,b,c	20	2.7
b,c	1	0.1
a,h	1	0.1
Total	**750**	**100.0**

KEY: RESPONSE

a. Forestry law
b. Landowning right
c. Chiefs' authority
d. No right or law

4.1.2.3. Farmers' Views on Expected Rights to Use Forestland for farming

Fifty one percent and 15.5% of the farmers believed that their expected rights to use forestland for farming where: Negotiating right for multiple uses only and that only government can decide what happens, respectively. Seven percent believed that only Government and Chiefs are to decide, while 3.4% had No idea. The rest believed that varying combinations of these factors would do (Table 4.3.). The choice of negotiating right for multiple land use by most of the farmers is an indication of their willingness to embrace multiple land use systems in the forest reserves.

4.1.2.4. Sources of Land

Seventy three percent of the farmers claimed to have sourced their "forest farmlands" through the Government, 25.0% from local Chiefs, 2.7% claimed to have bought them from another/other farmers and 0.1% claimed their farm land were sourced from both Government and Chief (Table 4.4.). This result reveals that almost three out of every four farmers sampled had government approval to work in the state forest reserves.

4.1.2.5. Land Demarcation

Forty four percent of the farmers claimed to be operating unofficially on the land in their possession, indicating that well over half of them, 55.4% were operating on land officially approved for their use by government (Figure 4.1.). Land demarcation, aside from indicating government approval, also stipulates the size of the land approved for farming.

4.1.2.6. Village Location

Sixty eight percent of the farmers sampled revealed that they had farms within the forest reserves while the remaining 31.8% said they farmed outside the forest reserves (Figure 4.2.).

Table 4.3.: Farmers' Views on Expected Rights to Use Forestland for Farming

Options	Count	Percentage (%)
A	386	51.4
a,d	79	10.5
a,d,e	82	11.0
D	116	15.5
C	25	3.4
a,e	7	0.9
E	55	7.3
Total	**750**	**100.0**

KEY: RESPONSES

a. Negotiating right for multiple use
b. No right
c. No idea
d. Government to decide
e. Government and Chief to decide

Table 4.4: Sources of the Land

Response	Frequency	Percentage (%)
b	188	24.9
a	544	72.4
c	17	2.6
a,b	1	0.1
Total	750	100

KEY: RESPONSES

a. Government
b. Chief / Land custodians
c. Bought from another farmer
d. Inherited

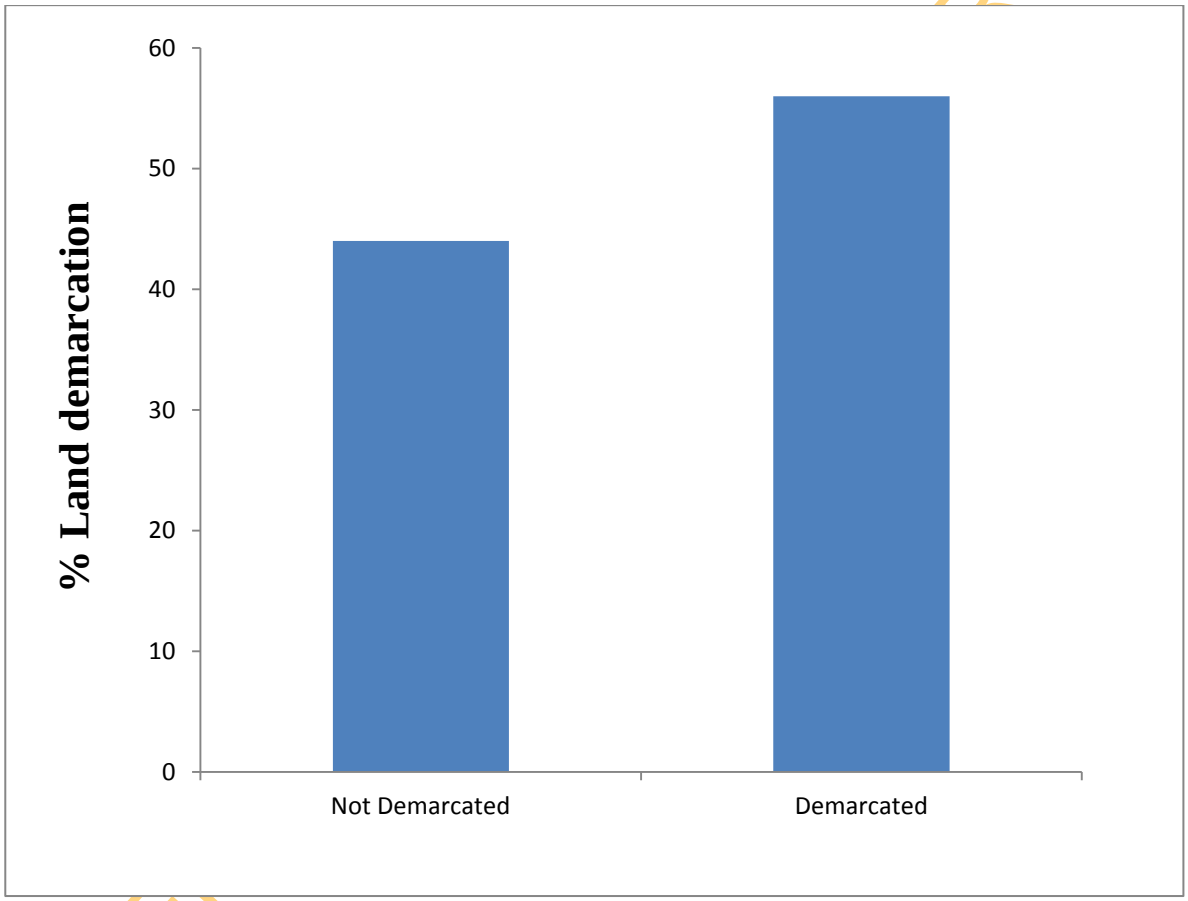

Figure 4.1.: Land Demarcation

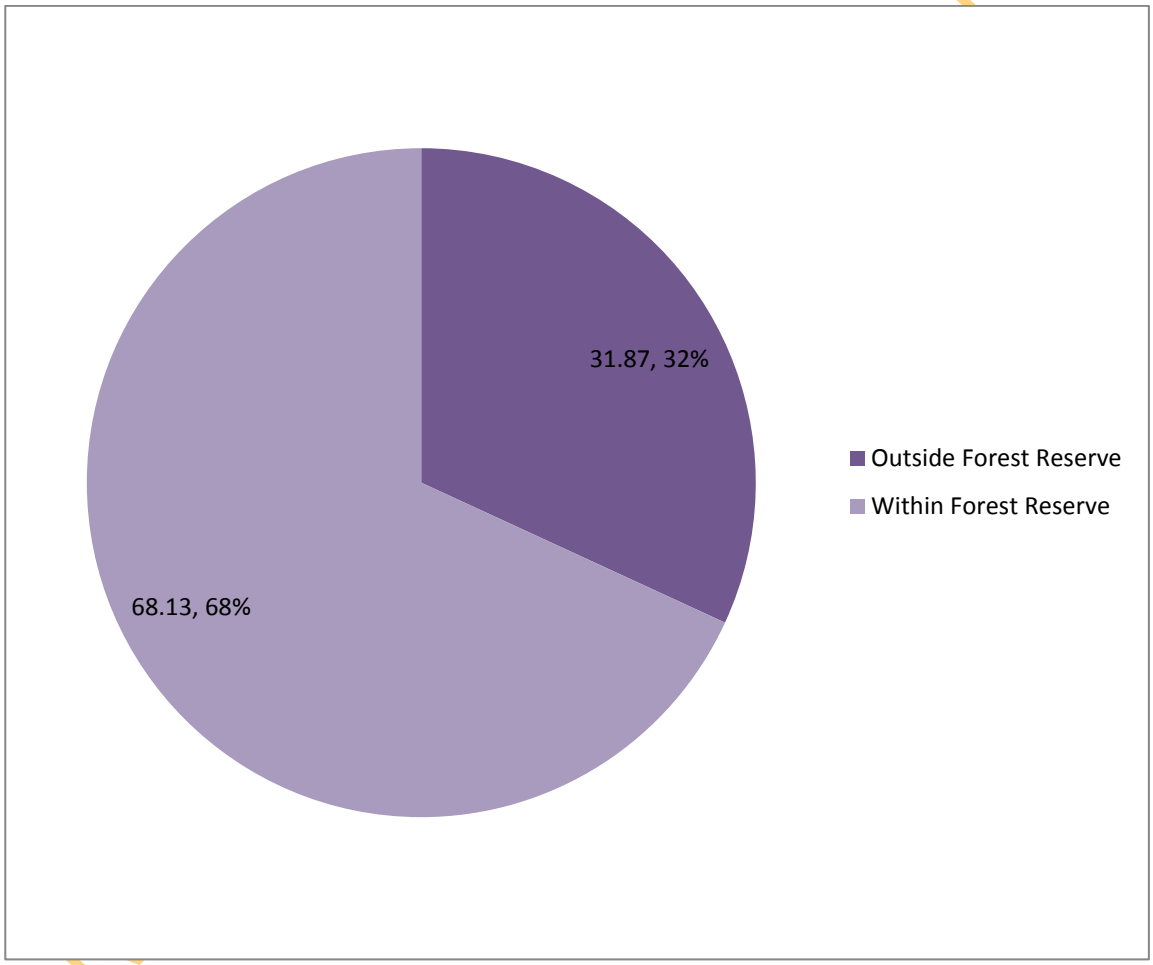

Figure 4.2.: Village Location

4.1.3. Other Related Activities

4.1.3.1. Rearing of Cattle in the Forest Reserves by Nomadic Herdsmen

(i) Another area of conflicts in forest land-use is the issue of cattle grazing by herdsmen in forest reserves. Their activities often result into very brutal violence both within and outside the forest reserves. These violent clashes are more predominant around Yewa North Local Government Area of the State where there had been cases of the herdsmen rapping women, killing people and setting properties on fire. A case of note occurred in December 2006 at Iselu, Yewa North Local Government Area of the State (the host Local Government Area of Eggua Forest Reserve, Plate 4.3) where cattle owned by nomadic herdsmen, (believed to have migrated from neighbouring Republic of Benin) grazed and destroyed agricultural farmlands cultivated by farmers from the village. This incidence resulted into a violent conflict leading loss of lives and properties (Tribune Newspaper, 2007).

(ii) Similar to this is another case of Fulani herdsmen encroaching upon forestland at Olokemeji forest reserve 'destroying young forest-tree saplings and agricultural crops' in November, 2007. Tragedy was averted by the government officials there who swiftly moved to chase away the perpetrators to avoid any form of breakdown of law and order in the area (Plate 4.4.).

Plate 4.3.: Farmers at Eggua Forest Reserve in a Group Photograph with the Student/Researcher

Plate 4.4.: An interview session with some farmers at Olokemeji Forest Reserve

4.2. PREVAILING FORESTRY AND AGRICULTURAL LAND-USE SYSTEMS IN THE STUDY AREA

The data collected on this objective were analysed using the following parameters: (i) The prevailing farming system practised, (ii) The land preparation methods adopted by farmers, (iii) The types of crops planted by farmers and (iv) The land tenure arrangement in the forest reserves.

4.2.1. Prevailing Farming Systems

Observation from this study indicated that collectively, 68.8% of the farmers identified *taungya* system (30.7%) and shifting cultivation (38.1%) as the prevailing farming systems practised in the study area. Also, 9.6% of the farmers practised bush fallow, 5.1% practised bush fallowing and *taungya*, 3.5% embrace shifting cultivation, bush fallowing and *taungya* system practices while 1.3% practised shifting cultivation and bush fallowing. 11.7% however practised shifting cultivation and *taungya* system (Table: 4.5). The practice of *taungya* system of farming corroborates the farmers response on their expected rights to use forest land for farming when 51.4% of them responded in support of negotiating right for multiple use only, meaning that most farmers farming within forest reserves in Ogun State are in support of multiple land use system.

Table 4.5.: Prevailing Forestry and Agricultural Land Use Systems

Response	Frequency	Percentage (%)
Agroforestry/*Taungya* system	230	30.7
Shifting cultivation and Agroforestry/*Taungya* system	88	11.7
Shifting cultivation	286	38.1
Bush fallowing	72	9.6
Shifting cultivation and Bush fallowing	10	1.3
Bush fallowing and Agroforestry/*Taungya* system	38	5.1
Bush fallowing and Agroforestry/*Taungya* system	26	3.5
Total	**750**	**100.0**

4.2.2. Land Preparation Techniques

Seventy three percent of the farmers prepare their land using both bush clearing and bush burning practices, while 24.0% and 3% prepare theirs using bush clearing only and bush burning only respectively (Table 4.6.). Most farmers who practise bush burning at Omo forest reserve usually do so with the intension of destroying economic trees to pave way for planting of cash crops such as cocoa.

4.2.3. Types of Crops Planted by Farmers

Eighty two percent of the farmers cultivated only annual crops, while 17.3% cultivated perennial crops only. The remaining 0.9% of them cultivated both perennial and annual crops (Table 4.7.). The response of farmers to types of crops planted reveals that the devastation observed in the forest reserves are perpetrated by 17.2% of farmers cultivating perennial crops.

4.2.4. Land Tenure Arrangement in Ogun State Forest Reserves

The land tenure arrangement within the State's forest reserves needs to be readdressed in view of the in the submissions made by farmers and common knowledge of existence in the forest reserves. Out of the 750 farmers sampled, 72.5% are government tenants. However, no other official rights are accorded farmers besides the 60 hectares (ha) of land allocated to each officially recognised enclave. The high percentage of farmers who

declared that they obtained their farmlands from the government, may be an indication that the 60ha of land allocated to each approved enclave is taken as a right of occupancy that empowers all those willing to establish farms to do so without recourse to applying individually for their portions on such lands.

Table 4.6.: Land Preparation Techniques

Response	Frequency	Percentage (%)
Bush clearing and Bush burning	547	73.0
Bush clearing	180	24.0
Bush burning	23	3.0
Total	**750**	**100.0**

Table 4.7.: Types of Crops Planted by Farmers

Response	Frequency	Percentage (%)
B	613	81.8
A	130	17.3
a,b	7	0.9
TOTAL	**750**	**100.0**

KEY: RESPONSE

a. Cash Crop b. Food crops

c. Trees

4.3. EXTENT OF LAND HUNGER AMONG FARMERS IN THE STUDY AREA

This objective was addressed using the following factors:

4.3.1. Fallow-Land Availability within Forest Reserves

Approximately 73.0% of the farmers observed the existence of fallow-land in the forest reserve where they operate, while the remaining 27% claimed that there was no available fallow-land (Figure 4.3.). Availability of fallow land or unplanted land within the forest reserves is an incentive that stimulates encroachment. The non-existence of it may therefore be an indication of the existence of land huger.

4.3.2. Scarcity of Land within Forest Reserves

Thirty percent of the farmers observed increase in population as the main cause of land scarcity. However, 16.1%, 3.3% and 17.2% of them were of the opinion that the fixed areas of the forest estate, expansion in the area cultivated by them respectively were responsible (Figure 4.4.). As the availability of fallow land may indicate the existence of land hunger, so does scarcity of land which may arise as a result of the factors mentioned above.

4.3.3. Incentives for Encroachment into Forest Reserves

Factors observed by farmers as responsible for forest estate encroachment for farming activities were easy accessibility 14.3%, fertile soil 12.3%, unavailability of fallow land outside the estate 9.1%, land tenure right 2.3% and allocation of land by community heads 1.2% (Table 4.8.).

4.3.4. Existence of Conflicts within Forest Reserve

Sixty percent of the farmers claimed non-existence of conflicts in the forest reserves where they operated, while 40.0% admitted existence of conflicts (Figure 4.5.). The submission of 60% of the farmers of non-existence of conflicts in their areas of operation is contrary to expectation as one form of conflict or the other exists in all forest reserves as indicated in table 4.2.0.

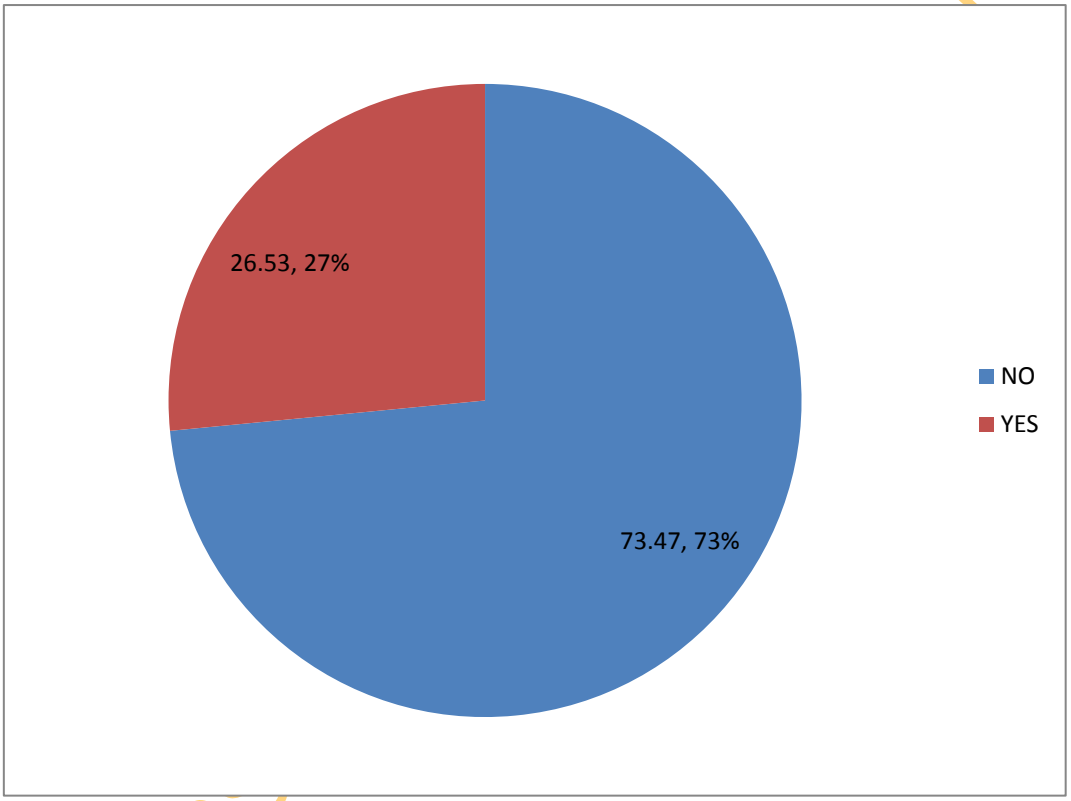

Figure 4.3.: Fallow-Land Availability within Forest Reserves

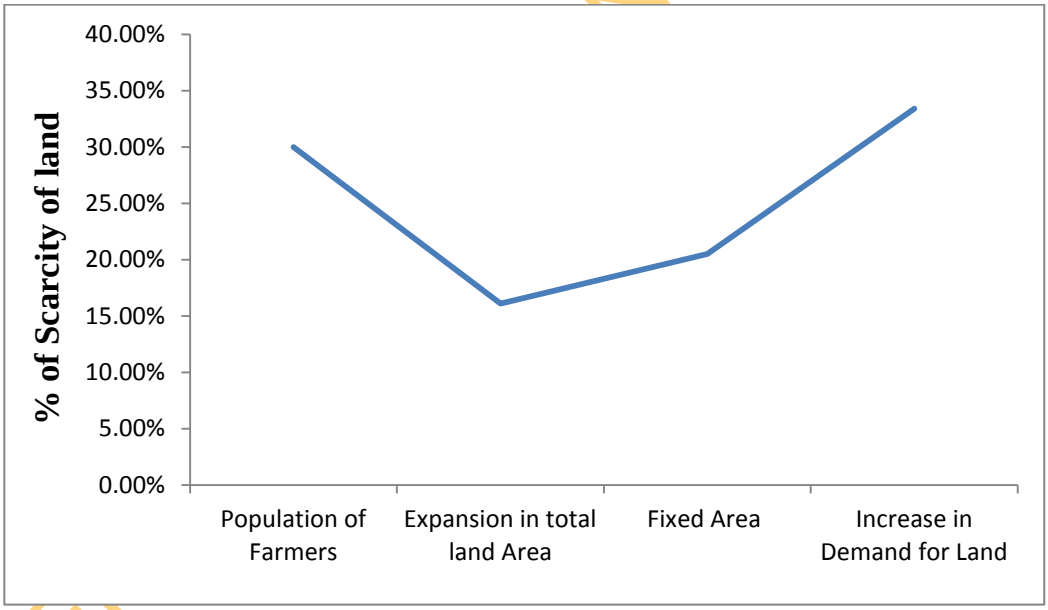

Figure 4.4.: Scarcity of Land within Forest Reserves

Table 4.8.: Incentives for Encroachment into Forest Reserves

Responses	Frequency	Percentage (%)
c,e	20	2.7
E	107	14.3
C	9	1.2
A	68	9.0
a,d	45	6.0
a,c,d,	75	10.0
c,d	56	7.5
a,c	15	2.0
D	92	12.3
B	17	2.2
a,b	34	4.5
a,d,e	55	7.3
d,e	84	11.2
c,d,e	41	5.5
a, f	11	1.5
a, g	11	1.5
a,e	10	1.3
Total	**750**	**100.0**

KEY: RESPONSES

a. Unavailability of fallow-land outside FR
b. Landowning right
c. Given by the chiefs
d. Good soil fertility
e. Easy accessibility

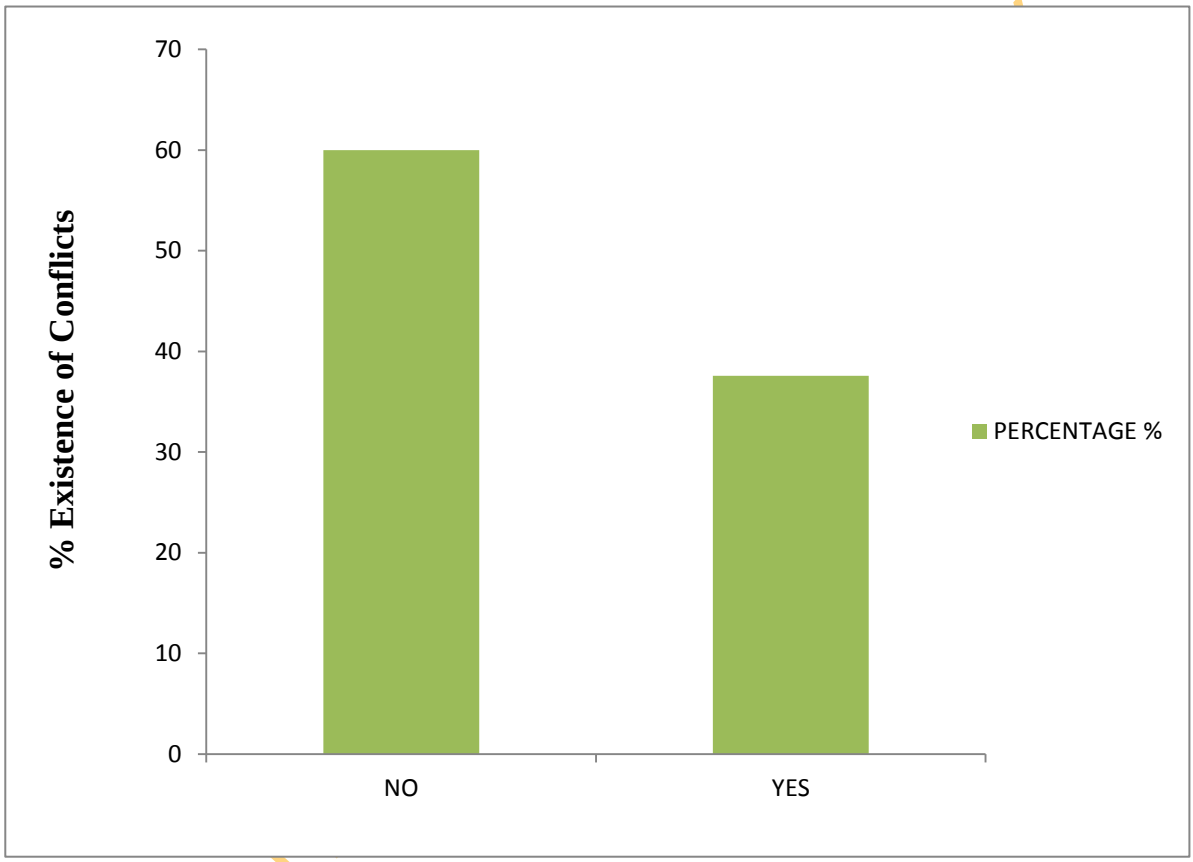

Figure 4.5.: Existence of Conflicts within Forest Reserve

4.3.5. Timber Contractors' Views on Farmers Tenancy

Ninety eight percent of the 32 timber contractors operating within the Omo forest reserve as at the time of collecting data for this research were interviewed. Their unanimous opinion was that farmers involved in the planting of cocoa and other perennial cash crops within the reserves should be ejected and their farms destroyed in view of their threat to expansion of the forest estate. The remaining 2.0% was of the opinion that they could be left alone provided they won't establish fresh cash crop plots(Table 4.9.).

Table 4.9.: Timber Contractors' Views on Farmers Tenancy

Response	Frequency	Percentage (%)
Eject Farmers	31	98.0
Don't Eject Farmers	1	2.0
TOTAL	**32**	**100.0**

From King's (1968) analysis of average population densities of communities around forest reserves after reservation referred to in 3.7.9., observations from this study clearly indicates forest reserves where there are shortages of cultivable land for agriculture as a result of reservation (Table 4.10.).

Table 4.10.: Population, Land Areas and Average Population Densities of Local Government Areas (LGAs) in Ogun State

LOCAL GOVERNMENT AREAS	*POPULATION	**LAND AREA (KM^2)	AVERAGE DENSITIES (KM^2)
Abeokuta North	131,735	723	182
Abeokuta South	396,651	57	6,915
Ado-odo/Ota	328,961	885	372
Ewekoro	152,148	631	241
Ifo	172,392	487	354
Ijebu-East	85,686	1985	43
Ijebu-North	207,969	969	215
Ijebu North East	83,761	124	673
Ijebu-Ode	191,008	209	913
Ikenne	90,054	137	657
Imeko/Afon	93,114	1711	54
Ipokia	196,504	576	341
Obafemi-Owode	192,154	1430	134
Odeda	125,466	1547	81
Odogbolu	143,789	568	253
Ogun Waterside	86,811	860	101
Remo North	66,582	195	342
Sagamu	224,500	640	351
Yewa North	227,888	2043	111
Yewa South	181,891	585	311

Source: Ogun State Health Bulletin (Vol.1) 2004

* Populations figures courtesy National Population Commission (Projections from 1991 Population Census)

** Land Area Courtesy, Ogun State Bureau of Survey

4.3.6. Extent of Land Hunger among farmers in each of the Forest Reserves

4.3.6.1. Egba Region

In Abeokuta North LGA, only 0.3% of the land area was reserved for the Fuel wood plantation called Arakanga Forest Reserve (Table 4.11.). Therefore, the percentage of the resultant land area of the Abeokuta North LGA after reservation was 99.7% with this resulting in an average population density of 182.81 as against 182 before reservation (Table 4.12.). However, since all farmers who responded to the questionnaires claimed that there was no available fallow land within the reserve for agriculture (Table 4.13.) and information obtained from the Ministry of Forestry revealed that the reserve, even though developed as a fuel wood reserve, no exploitation of any form is allowed therein let alone agricultural activities, the local land hunger being experienced amongst farmers in the area had arisen as a result of the contiguity of the reserve to the Abeokuta metropolis due to pressure on land for further development.

Olokemeji forest reserve was only 3.8% of the Odeda LGA total land area (Table 4.11.). Therefore the resultant land area of the Odeda LGA after reservation was 96.2% with this resulting in a slight increase in the average population density to 84.3 as against 81 before reservation (Table 4.12.). There was, however, a divergent view on the issue of availability of fallow-land for agriculture; 46.5% of the farmers observed none availability, while 53.5% observed availability of fallow-land for farming. Thus, while some farmers were in dire need of more fallow-land for farming, others were contented with the supply at their disposal (Table 4.13.).

4.3.6.2. Ijebu Region

Forty six percent (about half) of Ijebu East and Ijebu North LGAs total land area was reserved to create the Omo forest reserve (Table 4.11.). Therefore, the combined percentage of the resultant land area of the two after reservation was 53.7% with this resulting in a sharp increase in the average population density to 185.16 after reservation as against 99 before reservation (Table 4.12.). However, farmers sampled through questionnaires responded that there was no fallow-land available within the reserve i.e. Areas J1, J3, J4 and J6 (Table 4.13.). Evidence of land hunger in this area

is made very obvious by the rate of the conversion of forestland to agricultural uses. In more specific terms, the reserve is bedevilled by the planting of Cocoa, Plantain and Oil palm by farmers. Cases of forest encroachment at the Omo forest reserve date back to over a decade, but the situation have been compounded by the migration of farmers from neighbouring States such as Ondo and Osun States. However, findings from this study revealed that 95.9% of the farmers involved in the conversion of forest land into cash crop farming fields at the Omo f/r were indigenes of Ogun State contrary to common public knowledge.

4.3.6.3. Yewa region

Yewa South LGA: Ilaro and Edun Stream forest reserves were 7.9% and 0.1% of the Yewa South LGA total land area (Table 4.11.). Therefore the percentage of the resultan.t land area of the LGA after reservation of Ilaro f/r was 92.1% and 99.9% for Edun Stream f/r, resulting in a minute increase in the average population densities to 337.51 with regards to Ilaro f/r as against 311 and an slight increase to 311.35 as against 311 in the case of Edun Stream f/r (Table 4.12.). Collectively, the resultant proportion of the

remaining land area after reservation of the two reserves was 91.9%, with a corresponding population density of 338.01 (Table 4.12.). This result clearly indicates that there was no pressing agricultural land hunger in this local government. Farmers sampled through questionnaires, however, indicated that there were no fallow-lands available within the reserves at the Ilaro f/r (95.9%) and Edun Stream f/r (100.0%) as shown on Table 4.13. However, the de-reservation encountered at Edun Stream Forest Reserve was as a result of urban expansion to accommodate a motor park.

Yewa Nouth LGA: Aworo, Eggua and Ohunbe f/rs were 10.4%, 2.3% and 2.3% respectively of Yewa LGA total land area (Table 4.11.). Therefore, the percentage of the resultant land area of the LGA after reservation were 89.6%, 97.9% and 97.7% for Aworo, Eggua and Ohunbe f/rs respectively, resulting in a slight increase in the average population density to 124.53, with regards to Aworo as against 111, and an insignificant increase to 113.86 and 114.12 with regards to Eggua and Ohunbe f/rs respectively as against 111 (Table 4.12.). Collectively, the resultant proportion of the remaining land

area after reservation of the three f/rs was 85.3%, with a corresponding population density of 130.79. This result clearly indicated that there is no pressing agricultural land hunger in this local government. However, 100.0%, 78.6% and 86.8% of the farmers sampled through questionnaires at the Aworo, Eggua and Ohunbe f/rs respectively, responded that there was no fallow-land available within the reserves (Table 4.13.).

Imeko Afon LGA: About 55.8% of the Imeko/Afon LGA total land area was reserved to create the reserve (Table 4.11.). The percentage resultant land area of the Imeko/Afon LGA after reservation was 44.2% with this resulting in a sharp increase in the average density from 54 to 123.15 (Table 4.12.). There was, however, a divergent view on the issue of availability of fallow land for agriculture indicating that all the farmers responded that there was the availability of fallow land for farming, indicating that all the farmers were contented with the supply of land at their disposal (Table 4.13.).

Table 4.11.: Percentages of Reserved Land area for each Forest Reserve within their Host Local Government Areas in Ogun State Nigeria

LOCAL GOVERNMENT AREAS		FOREST RESERVES		PERCENTAGE OF RESERVED LAND AREA (%)
NAMES	LAND AREA (KM^2)	NAMES	LAND AREA (KM^2)	
Abeokuta North	723	Arakanga	2.3	0.3
Odeda	1547	Olokemeji	58.8	3.8
Ijebu East and Ijebu North Local Govts.	2954	Omo Areas J1,J3,J4 and J6	1368.1	46.3
Yewa South	585	Ilaro	46.1	7.9
Yewa South	585	Edun Stream	0.7	0.1
Yewa North	2043	Aworo	212.9	10.4
Yewa North	2043	Eggua	41.5	2.0
Yewa North	2043	Ohunbe	46.1	2.3
Imeko/Afon	1711	Imeko Game	954.88	55.81

Source: Field Survey (2006)

Table 4.12.: Showing Resultant Average Densities of Each Local Government Area (LGA) Hosting Forest Reserves after Reservation

Forest Reserves	Local Govern Ment Areas	Land Areas Of Lgas Before Reservation (Km^2)	Land Areas Of Lgas After Reservation (Km^2)	Population Of Lgas	Percentage Of Resultant Land Area After Reservation	Average Densities Before Reservation	Average Densities After Reservation
Arakanga	Abeokuta North	723	720.6	131,735	99.7	182	182.8
Olokemeji	Odeda	1547	1488.1	125,466	96.2	81	84.3
Omo Areas J1,J3,J4 and J6	Ijebu East and Ijebu North LGAs.	2954	1585.9	293,655	53.7	99	185.2
Ilaro	Yewa South	585	538.9	181,891	92.1	311	337.5
Edun Stream	Yewa South	585	584.2	181,891	99.9	311	311.4
Aworo	Yewa North	2043	1830.0	227,888	89.6	111	124.5
Eggua	Yewa North	2043	2001.5	227,888	97.9	111	113.9
Ohunbe	Yewa North	2043	1996.9	227,888	97.7	111	114.1
Imeko Game	Imeko/Afon	1711	756.1	93,114	44.2	54	123.2

Source: Field Survey (2006)

Table 4.13: Farmers responses to the Availability of Fallow Land within Their Respective Communities/Forest Reserves

FOREST RESERVES	TOTAL NUMBER OF RESPONDENTS	MISSING	COUNT OF OPTIONS		PERCENTAGE	
			NO	YES	NO	YES
Arakanga	39	0	39	0	100.0	0.0
Olokemeji	91	0	33	58	36.3	63.7
Omo Areas J1	18	0	18	0	100.0	0.0
J3	38	0	38	0	100.0	0.0
J4	43	0	43	0	100.0	0.0
J6	34	0	34	0	100.0	0.0
Ilaro	200	0	191	9	95.5	4.5
Edun Stream	35	0	35	0	100.0	0.0
Aworo	49	0	49	0	100.0	0.0
Eggua	48	0	42	6	87.5	12.5
Ohunbe	58	0	53	5	91.4	8.6
Imeko Game	97	0	0	97	0.0	100.0
TOTAL	**750**	**0**	**575**	**175**		

Source: Field Survey (2006)

4.4. PREVAILING CAUSES OF THE CONFLICTS IN THE STUDY AREA

4.4.1. Parameter Estimates of the Logistic Regression Model

(i) Table 4.14 shows the logistic regression model with four independent variables. The results of the logistic regression analysis indicate that farmlands officially demarcated for farmers **(*LD*)** is significantly different from zero at 5% significance level of χ^2 value and has positive impact on the likelihood of the occurrence of conflicts in the study area. The odds-ratio indicates that areas (forest reserves) where land is not demarcated for farming are twice more likely to experience conflicts than areas with demarcated lands. Areas with farm lands that have exceeded the approved farm size **(FS)** is significantly different from zero at 5% significance level of χ^2 value and has positive impact on the likelihood of the occurrence of conflicts in the study area. The odds-ratio indicates that areas with farmlands that have exceeded the approved farm size are twice more likely to experience conflicts than areas with farmlands that have not exceeded the approved farm size. The availability of farmland/fallow land in an area **(FLAV)** is significantly different from zero at 5% significance level of χ^2 value and has negative impact on the likelihood of the occurrence of conflicts in the study area, indicating that farmland/fallow land availability in the area influences farmers' willingness to encroach. The location of farmland used by farmers **(VL)** is significantly different from zero at 5% is significance level of χ^2 value and has positive impact on the likelihood of the occurrence of conflicts in the study area. The odds-ratio indicates that farmlands located within forest reserves are twice more likely to experience conflicts than farmlands located outside forest reserves.

Table 4.14.: Logistic Regression Analysis

Dependent Variable: Existence of Conflicts (Presence =1; Absence =0)			
Independent variable	**Coefficient**	**Standard error**	**Odds-ratio**
Whether the land being used by the farmer was officially demarcated (LD)	.785	.317	2.19*
Whether the farmer had exceeded the approved farm size (FS)	.419	.068	1.52*
Whether there is farm land availability in the farmer's location (FLAV)	-1.959	.362	.140
Whether the farm village is located within the forest reserve (VL)	.869	.261	2.39*
Constant	-2.075		
Model χ^2	124.01		

Note. P< 0.05 *

(ii) Table 4.15 shows the logistic regression model with 3 independent variables. The results of the logistic regression analysis suggest that the nativity of the farmer **(NATV)**, house hold size **(HHS)** and farming duration **(FD)** are significantly different from zero at 5% significance level of χ^2 value and has negative impact on the likelihood of occurrence of conflicts in the study area.

Table 4.15.: Logistic Regression Analysis

Dependent Variable: Existence of Conflicts (Presence =1; Absence =0)			
Independent variable	**Coefficient**	**Standard error**	**Odds-ratio**
Whether the farmer is a native of the area (NATV)	-1.158	.764	.314
Whether the household size is big (HHS)	-.011	.040	.988
Whether the farmer had been operating within the reserve for over ten (10) years (FD)	-.015	.013	.984
Constant	-.941		
Model χ^2	61.71		

Note. P< 0.05 *

4.4.2. Government Officials' Responses on the Causes of Conflicts

All the forestry staff sampled agreed on the existence of forestland encroachment cases in the State's Forest Reserves as well as the existence of conflicts in forest land-use by farmers. This they adduce to inadequate State forest policy only (11.10%), land hunger only (22.23%), and a combination of inadequate State forest policy, poverty and land hunger (33.30%) as shown on (Tables 4.16 and 4.17.)

On the other hand, 75.0% of agricultural staff was aware of existing cases of forestland encroachment, which 20.0% of them adduced to connivance between farmers, villagers and forestry staff. Another 20.0% of them adduced it to destruction of forest trees by farmers (Table 4.18.)

4.4.3. Timber Contractors Responses on the Causes of Conflicts

On the issue of conflicts, 72.6% of the timber contractors identified destruction of cash crops during timber exploitation as cause of conflicts between them and farmers (Table 4.19.)

4.4.4. Types of Conflicts Peculiar to Each of the Forest Reserves

Conflicts occurring in the study area are of different types and vary according to the peculiarities of the forest reserves in the study. The types of conflicts and forest reserve where they are prevalent are as presented in (Table 4.20. and Plate 4.5. to 4.23.) below.

Table 4.16.: Forestry Officials' Responses on Encroachment

Response	Frequency	Percentage (%)
Encroachment	72	100.0
No Encroachment	0	0.0
TOTAL	**72**	**100.0**

Table 4.17.: Forestry Officials' Responses on Existence of Conflicts

Response	Frequency	Percentage (%)
YES	72	100.0
NO	0	0.0
TOTAL	**72**	**100.0**

Table 4.18.: Agricultural Officials' Responses on Encroachment

Response	Frequency	Percentage (%)
YES	24	75.0
NO	8	25.0
TOTAL	**32**	**100.0**

Table 4.19.: Timber Contractors Responses on the Causes of Conflicts

Response	Frequency	Percentage (%)
Destruction of Cash Crops	23	72.6
Destruction of Timber	9	27.4
TOTAL	**32**	**100.0**

Table 4.20.: Types of Conflicts Peculiar to Each of the Forest Reserves

Types of Conflicts	Number (%) of Reserves	Name/s of Reserves
Conflicts between Government officials and illegal firewood extractors operating in the reserve	9 (100.00)	All forest reserves
Encroachment into forestland through illegal subcontracting by farmers.	9 (100.00)	All forest reserves
Illegal felling of trees.	9 (100.00)	All forest reserves
Encroachment on the forest reserves due to urban expansion.	3 (33.33)	Arakanga, Edun, Ohunbe
Destruction of timber seedlings by grazing nomadic cattle.	3 (33.33)	Eggua, Ohunbe, Aworo
Destruction of economic trees by illegal farmers to plant agricultural crops (Plantain and Cocoa).	9 (100.00)	All forest reserves
Illegal excavation of sand from the forest reserve.	1 (11.11)	Ilaro
Erection of permanent building structures in the forest reserve.	3 (33.33)	Ilaro, Omo, Aworo
Illegal farmers utilizing forestland for agriculture.	9 (100.00)	All forest reserves
Destruction of agricultural and economic tree saplings by nomadic cattle.	3 (33.33)	Eggua, Ohunbe, Aworo
Planting of permanent cash crops in some of the forest reserves.	1 (11.11)	Omo
Illegal conversion of timber to charcoal	2 (22.22)	Imeko, Aworo
Illegal conversion of timber into flitches	(*M)	Most forest reserves
Boundary disputes between contiguous communities claiming ownership of forest resources existing therein	1 (11.11)	Omo

Source: Field survey 2006

*** Most Forest Reserves**

Plate 4.5.: Illegally Derived Fire Wood along Ajebandele Old Road, Area J6 of the Omo Forest Reserve

Plate 4.6.: Forestland converted to cocoa farm at Gbamugbamu, Area J3 of the Omo forest reserve

Plate 4.7.: *Gmelina arborea* Plantation destroyed by Illegal Cocoa Farmers at Ajebandele, Area J6 of the Omo Forest Reserve

Plate 4.8.: The Researcher in a *Tectona grandis* Plantation Converted to *Musa species* Use at Area J6 of the Omo Forest Reserve

Plate 4.9.: *Elaeis guineensis* planted inside a *Tectona grandis* Plantation at Area J6 of the Omo Forest Reserve

Plate 4.10.: Forestry staff on Official Patrol Duty of Area J6 of the Omo Forest Reserve. Behind them are Stands of *Musa species* Planted in the Reserve

Plate 4.11.: Some Stands of *Terminalia ivorensis* destroyed by Illegal Farmers at Area J6 of the Omo Forest Reserve

Plate 4.12.: *Musa species* stands on a Farmland at Aworo Forest Reserve

Plate 4.13.: Another *Gmelina arborea* Plantation destroyed by Illegal Cocoa Farmers at Ajebandele, Area J6 of the Omo Forest Reserve

Plate 4.14.: A Fresh *Gmelina arborea* Plantation destroyed by Illegal Cocoa Farmers at Area J4 of the Omo Forest Reserve

Plate 4.15.: Illegal *Musa species* Farm at Area J1 of the Omo Forest Reserve

Plate 4.16.: Another *Gmelina arborea* Plantation destroyed by Illegal Cocoa Farmers at Ajebandele, Area J6 of the Omo Forest Reserve

Plate 4.17.: Illegally Felled '*Gmelina arborea*' Logs Deposited along Ijebu-Ode/Ore Road, Area J6 of the Omo Forest Reserve

Plate 4.18.: Another Set of Illegally Felled *Gmelina arborea* Logs, Derived from Area J6 of the Omo Forest Reserve Along Ajebandele Old Road

Plate 4.19.: Illegally Felled Logs of Various Species Derived from Area J1 of the Omo Forest Reserve Hidden in the Forest

Plate 4.20.: Illegally Felled Logs of Various Species Derived from Area J1 of the Omo Forest Reserve

Plate 4.21.: Forestry staff taking inventory of Illegally Derived Flitches of '*Gmelina arborea'* Derived from Area J6 of the Omo Forest Reserve

Plate 4.22.: Another Illegally Derived Flitches of '*Gmelina arborea.'* from Area J6 of the Omo Forest Reserve

Plate 4.23.: Illegal charcoal production factory at Imeko

4.5. EFFECTS OF CONFLICTS ON FORESTRY DEVELOPMENT IN OGUN STATE

4.5.1. Ministries of Forestry and Agriculture Officials' Responses on Effects of Conflicts

State Ministries of Forestry and Agriculture officials identified loss of forests (27.0% and 25.2%), species (25.5% and 24.0%) and lives (22.5% and 22.0%), as effects of conflicts in the forest reserves. Each of these effects is irreparably devastating and inimical to a sustainable development of a renewable resource such as the forest (Table 4.21.).

4.5.2. Timber Contractors' Responses on Effects of Conflicts

Timber contractors' responses revealed the effects of the conflicts on forestry development as antagonism between timber contractors and farmers 65.6%, loss of species 18.7% and Loss of lives 9.4%. The remaining 6.3% believed that the effects were as a result of a combination of these factors (Table 4.22.).

Table 4.21.: Ministries of Forestry and Agriculture officials' Responses on Effects of Conflicts

Response	Frequency *(For.)	Frequency *(Agr.)	Percentage (%)	Percentage (%)
Loss of Forests	19	8	27.0	25.2
Loss of Species	18	8	25.5	24.0
Loss of Lives	16	7	22.5	22.0

KEY: RESPONSE

*(For.) = Forestry Officials

*(Agr.) = Agricultural Officials

Table 4.22.: Timber Contractors' Responses on Effects of Conflicts

Response	Frequency	Percentage (%)
B	21	65.6
A	6	18.7
D	2	6.3
C	3	9.4
TOTAL	**32**	**100.0**

KEY: RESPONSE

a. Loss of Species b. Antagonism between Timber Contractors and Farmers

c. Loss of lives d. Combination of all

4.5.3. Broad View of Causes and Effects of Agriculture and Forest Land Use Conflicts

In summary, the effects of conflicts caused by various factors identified are as presented below on (Tables 4.23. and 4.24).

Table 4.23.: Broad View of Causes and Effects of Agriculture and Forest Land Use Conflicts

S/N	Causes	Effects
1	High population growth	Expansion of farms & villages in Forest Reserves, Poverty
2	Reservation process	Land hunger
3	No national land use policy/plan, agriculture & out-dated & poor implementation of forest land use plans	Ineffective conflict resolution mechanism, Poverty
4	High demand of forestland for farming and mining	Land hunger, Increased degradation
5	Unsustainable agriculture practices and technologies	Increased degradation
6	Absence of conflict management strategies in agriculture and forest policies	Ineffective conflict resolution mechanism, Increased competition over land
7	Poor documentation & records of admitted farms /villages	Low food productivity, Decline in soil fertility
8	Poor cross-sectoral integration among land use sectors	Ineffective conflict resolution mechanism, Increased competition over land, Ineffective conflict resolution mechanism

Source: Field study (2006)

Table 4.24.: Effects of Forest Land-Use Conflicts on Sustainable Forest Management in Ogun State

S/N	Types of Conflicts	Effects
1	Conflicts between groups of firewood extractors operating in the reserve	(i). Stagnation of operations resulting in loss of re-investable revenue to the government. (ii). Reduced level of trust amongst operators leading to hindrances in the smooth management of the reserves.
2	Encroachment into forestland through illegal subcontracting by farmers	(i). This leads to distortions in the accuracy of available records of recognized farmers. (ii). Illegal farmers are not interested in forest protection.
3	Illegal felling of trees	(i). Under-girth/ un-merchantable trees are usually involved leading to distortions in the ages of tree stands. (ii). Results in loss of revenue to the government.
4	Encroachment due to urban expansion	(i). Forest loss
5	Destruction of timber seedlings agricultural produce by grazing nomadic cattle	(i). Loss of investment to government. (ii). Leads to loss of replacement of felled trees. (iii) Loss of lives
6	Destruction of economic trees by illegal farmers to plant agricultural crops	(i). Loss of investment to government. (ii). Leads to loss of replacement of felled trees. (iii) Leads to reduced morale of timber contractors whose means of livelihood is being threatened. (iv) Loss of lives
7	Illegal excavation of sand from the forest reserve	(i). Forest destruction
8	Erection of permanent building structures in the forest reserve	(i). Forest destruction

9	Illegal farmers utilizing forestland for agriculture	(i). Forest loss (ii). Leads to reduced morale of timber contractors whose means of livelihood is being threatened. (iii) Loss of lives
10	Destruction of agricultural and economic tree saplings by nomadic cattle	(i). Loss of investment to government. (ii). Leads to reduced morale of farmers whose means of livelihood is being threatened.
11	Planting of permanent cash crops in some of the forest reserves	(i). Forest loss (ii). Leads to reduced morale of timber contractors whose means of livelihood is being threatened. (iii) Results in loss of revenue to the government.
12	Illegal conversion of timber to charcoal	(i). Forest loss (ii). Loss of species (especially those useful in building construction).
13	Boundary disputes between contiguous communities claiming ownership of forest resources existing therein	(i). Forest destruction due to lack of sense of belonging of parties involved. (ii) Loss of lives

Source: Field study (2006)

4.6. REVIEW OF EXISTING FORESTRY AND AGRICULTURAL POLICIES IN OGUN STATE.

Observations from the review of policies revealed that (a) There is no substantive forest policy in Ogun State, as the provisions for forestry are encapsulated in the subsisting agricultural policy of 1989 for the State. (b) The substantive agricultural policy has not been reviewed since its formulation. It is therefore obsolete and incapable of addressing present day challenges facing the sector. (c) The enforcement of objectives i, ii and iii in the Agricultural Lands Use Policy that seeks to expressly provide "whatever types of land" to interested parties for agricultural use and protects them from being dispossed of the lands are in conflict with the provisions for Forestry in the State's Agricultural Policy that otherwise seek to protect forest estates against encroachment, damage and distruction. (d) Similarly, the Land Use Decree No.6 of 1978 is full of ambiguities and is obsolete. (e) Land use rights in the Land Use Decree of Nigeria are contradictory in the policies enunciated in Agricultural and Forestry sectors while the two sectors have different goals and objectives that must be achieved, (f) The forestry sector has gazetted forest reserves, however, the Land Use Decree allows Local Government in rural areas to grant customary rights of occupancy to any person or organization for the use of forest land for agricultural and other purposes which always lead to de-reservation of forest reserves despite the forest gazette, (g) National Forest Policy of 2006 recognizes various land sectors with conflict management strategies. However, the implemetation of National Forest Policy of 2006 has not seen the light of the day due to lack of National Forestry Act.

4.6.1. Forestry and Agricultural Staff Awareness on Policy Provisions

Eighty-eight percent of forestry staff and all agricultural staff interviewed were aware of the existence and the provisions of policies guiding their respective professions. However, on the issue of awareness of any review of these policies, only 22.0% and 25.0% of forestry and agricultural staff respectively were aware of a review of the policies. Interviews conducted to crosscheck the views of a group of stakeholders, however, revealed that only 5.0% and 2.0% of agricultural and forestry staff respectively had ever sighted a copy of the policy document (Tables 4.25, 4.26 and 4.27.). This is a saddening indication of the level of publicity which the policy "document" has in government circles.

Table 4.25.: Forestry and Agricultural Staff Awareness on Existence of Policy

Response	Frequency *(For.)	Frequency *(Agr.)	Percentage (%)	Percentage (%)
Aware	63	32	88.0	100.0
Not Aware	9	0	12.0	0.0
TOTAL	**72**	**32**	**100.0**	**100.0**

KEY:
***(For.) = Forestry Staff**
***(Agr.) = Agricultural Staff**

Table 4.26.: Forestry and Agricultural Staff Awareness on Review of Policy

Response	Frequency *(For.)	Frequency *(Agr.)	Percentage (%)	Percentage (%)
Aware of Review	16	8	22.0	25.0
Not Aware of Review	56	24	78.0	75.0
TOTAL	**72**	**32**	**100.0**	**100.0**

KEY:
***(For.) = Forestry Staff**
***(Agr.) = Agricultural Staff**

Table 4.27.: Forestry and Agricultural Staff that have Sighted Existing Policy

Response	Frequency *(For.)	Frequency *(Agr.)	Percentage (%)	Percentage (%)
Have Sighted	1	2	2.0	5.0
Not Sighted	71	30	98.0	95.0
TOTAL	**72**	**32**	**100.0**	**100.0**

KEY:
***(For.) = Forestry Staff**
***(Agr.) = Agricultural Staff**

4.7. RESEARCH QUESTIONS

4.7.1. Research Questions 1: Are forestry and agricultural policies responsible for prevailing conflicts in land-use systems within and around forest reserves in the study area?

4.7.1.1. Forestry and Agricultural Staff Awareness on Policy Provisions

Only 22.0% and 25.0% of forestry and agricultural staff respectively reported to be aware of a review of the policies. Out of these only 5.0% and 2.0% of agricultural and forestry staff had ever sighted a copy of the policy document. The lack of awareness of the policy, coupled with the conflicting provisions are potential factors capable of encouraging action that may cause conflicts

4.7.1.2. Research Questions 2: Is Land hunger the key factor causing the conflicts within and around forest reserves?

Sixty five percent of Forestry staff sampled revealed that a combination of inefficient policy provisions, poverty and land hunger were factors responsible for farmers encroachment into forest reserves. However, 11.1 and 22.2% of them said it was as a result of policy and land hunger respectively. While the rest of them were of the opinion that encroachment was as a result of various combinations of these factors.

To buttress this, farmers on the other hand claimed that shortage of fallow land outside forest reserves 9.1% among other factors such as easy accessibility 14.3% and good soil fertility 12.3% were incentives for encroachment.

Therefore, the above factors coupled with poor land tenure arrangement and inefficient multiple land use system in the State forest reserves most likely create the atmosphere making land hunger a contributing factor to the conflicts occurring in the study area.

CHAPTER FIVE

5.0 DISCUSSION

5.1. Factors Fuelling Conflicts Between Forestry and Agricultural Forestland Uses in Ogun State.

The forestry sector in Ogun State is having its fair share of conflict issues that militate against its growth. A critical look into these revealed two key areas of conflict, which are: (i) Discordance in policy provisions and (ii) Farmers activities within her forest reserves.

5.1.1. Discordance in Policy Provisions.

Discordance in policy provisions between forestry and agriculture creates obstacles in forest management for those in charge of the forests due to the lack of clear-cut guidelines. These situations encourage actions that lead to conflicts thereby creating a herculean task for forest managers to tackle. Lack of provision for adequate training of forestry staff; low manpower and logistics problem (especially, lack of patrol vehicles for monitoring and protection duties and bureucracy) hinder sustainable forest management in the State.

High population in most communities and poverty among community members naturally increases pressure on the available forestland, thereby leading to land hunger, since this is likely to exist when there is a combination of high human population and available land reserved for alternative use. Invasion of non-indigenes in forest reserves; expansion of admitted farms or villages and increased competition on land are all natural subsets of land hunger which ultimately culminate into conflicts in the face of competition and conflict of interests.

The awareness level of the provisions of the subsisting State Agricultural Policy was very low. This implies that the policy "document" has very little and deficient publicity in government circles. A truncated awareness level of this nature poses grave danger to the development of any sector due to ignorance on the part of the

stakeholders, especially managers. FAO (1998) stated that many factors, other than population growth cause depletion of forest resources, chief among these is the implementation of inappropriately packaged policy which not only fail to aid decision making, but also goes a long way in misguiding units within the governmental forestry organization and the private sector operators in taking decisions that concern the use of resource allocation. Therefore an ill-conceived policy of this nature, coupled with low awareness of what is left of it has a detrimental effect on both government and the public that depend on it for guidance (Chevalier and Buckles, 1999). Zeide (2004) in his submission said; this could result in government or its agencies taking decisions that may run counter to the intentions of government. It is worthless having a policy decision, which cannot and will not be implemented. Therefore, the active involvement of intellectuals and experts in the fields relevant to that whose policy is under formulation or review must, and as a civic duty, be involved in the process in order to eliminate the excuse for ignorance.

5.1.2. Farmers Activities within the Forest Reserves

Majority of farmers operating within some of the forest reserves in Ogun State are non-indigenes of the State, most of who illegally gain access into the reserves to live and farm. Their knowledge of the importance of forests to man is very limited, indicating that they are primarily driven by the zeal to meet their economic needs. The implication of this is that Ogun State is fast moving in the same direction Ondo State moved until farmers destroying gazetted forests in the State were dislodged as indicated by Akinola, (2006). Furthermore, non-indigenous farmers often lack genuine emotional attachment to the area other than to possess it for selfish personal commercial gains, regardless of the implications of such actions for the future of the forest reserves concerned. Similarly, Fulani herds' men who often graze their cattle inside forest reserves are no better than the farmers. The ease with which farmers encroach on forestland for farming is disturbing. Their claim of legal right to use forestland without permission, believing that they are empowered to do so by the authority of the forestry law; presents a scenario that paint a gloomy future for the future of forestry in the State if their current perception persists.

Similarly, a large number of them who claimed to have government permission to use forestland for farming also believe that they have the right to use un-degraded land for

farming. Furthermore, it is very disturbing to note the claim by majority of them to be engaged only in the planting of food crops, however, generates suspicion, since this is contrary to common knowledge of the activities of many of them who are engaged in the planting of perennial tree crops (Cocoa) and obtain their portion of the forestland through subcontracting.

Many of the farmers also claimed to have acquired the land at their disposal officially from the government; meaning they have the permission to use the land for farming when in fact it is known that majority of them are there illegally. The fact that the farmers do not appear to have presented a true

picture of their engagement in the forest reserves via-a-vis what is known of their activities means that they will rather hide the truth in their own interest even at the expense of the forest.

5.2. Prevalent Forestry/Agricultural Land-Use Systems in the Study Area

Leaving the practice of the *taungya* system of farming inefficiently monitored has been a very costly error on the part of the Ogun State government. Today the State had lost vast proportions of its forest resources to forest conversion to agricultural uses and the trend will continue unless immediate action is taken to reverse the trend. Sadly, it does not seem that the State has learnt any lessons nor

benefited in any way from the experience of Ondo State that was at a time heavily bedevilled by this menace and the decisive actions taken to curb the situation. As reported by Akinola (2006), repeated conflicts between government officials and farmers at Orisunbare in Oluwa forest reserve, Ondo State, culminated in the forceful eviction of the farmers in March 1999. He further reported that all the houses in the village, Orisunbare, were demolished and properties set ablaze when the farmers were away to their farms.

The concerned farmers in Oluwa forest reserve migrated from various states of Nigeria to cultivate ground for the production of cash crops, mainly cocoa, kola-nut, fruits and food crops. It may be worth mentioning here that Orisunbare is a boundary village at Omo forest reserve in Ogun State where there are reports of vast forest conversion cases. It is therefore, not unlikely that some of the displaced farmers from Ondo State might have migrated to the Ogun State part of the village and from there moved to

colonise other parts of the reserve, taking advantage of the leniency of the Ogun State government.

5.3 Extent of Land Hunger among Farmers in the Study Area

The conflicting submissions of the farmers to questions raised on availability of fallow land, land scarcity and existence of conflicts within the forest reserves were quite revealing. Their stance simply implies that the farmers' responses on these issues were geared towards protecting self-interest; at the detriment of the forestland which is being destructively farmed. According to FAO (2006), in 1990, estimates indicated that 42% of arable land in the country was being cultivated at the time and much of this land was farmed under bush fallow, a technique whereby an area much larger than that under cultivation is left idle for varying periods to allow natural regeneration of soil fertility. This fallow period heightens the land hunger status of the area concerned, thereby increasing the likelihood of conflicts occurring.

5.3.1. Land Hunger-Status of Each Forest Reserve in Ogun State

The rapid communal development experienced around the Arakanga forest reserve over the years has been responsible for the local land hunger being experienced amongst farmers in the area. This is so because development in the Abeokuta metropolis has continued to increase over the years. This has therefore, mounted pressure on the available land in immediate vicinity of the reserve. However, the observation at Olokemeji is due to the availability of fallow land within and around the forest reserve.

The land hunger experienced in the Omo forest reserve is not surprising going by the resultant population density of the host local governments after reservation and the unrepentant rate of the conversion of forestland for agricultural purposes. To put it more specifically, for the planting of cash crops such as Cocoa, Plantain and Oil palm. Cases of forest encroachment at the Omo f/r dates back to over a decade, compounded by the migration of farmers from neighbouring states such as Ondo and Osun States. The safe haven found in Ogun State was due to the active connivance of some self-seeking indigenous land owners who engaged in rent-taking from the farmers with the support of corrupt government officials. This self-focused attitude has landed the State forestry sector in the mess it is today. The indication that there is no pressing

agricultural land-hunger in the Yewa South local government implies that there is ample alternative land sources for farmers for agricultural purposes. The case of Yewa North local government area is similar to this. This Local Government is naturally not expected to experience shortages of cultivable agricultural land, especially in the absence of a proximate large metropolis. Therefore, the views expressed by the farmers on the issue of fallow land availability is believed to be as a result of the ecological zone (Savannah) under which the area falls, as expressed by a large number of the farmers interviewed in the area. A peculiar reason given for the land hunger experienced at the Aworo f/r was, however, as a result of the creation of a concession for a private developer within the reserve thereby making access to land within the reserve more difficult. The Imeko-Afon local government is large and so is the reserve carved out of it (the second largest in the state). However, the divergent view on the issue of availability of fallow-land for agriculture indicates that those farmers were contented with the supply of land at their disposal.

5.3.2. Timber Contractors' Views on Farmers Tenancy

Timber contractors' request for the immediate ejection of farmers involved in the planting of cocoa and other cash crops within the reserves is an indication that they are in pursuit of securing their means of livelihood in the study area.

5.4. Prevailing Causes of the Conflicts in the Study Area.

Logistic regression analysis indicated that the official demarcation of land for farming or otherwise is a significant factor for the occurrence of conflicts in the forest reserves. This factor is particularly important because it presents a clear indication of the authority upon which the farmer is using the forestland for farming. Similarly, the size of farms cultivated by farmers is a function of their adherence to agreement reached with government on farm size which aggregates to 60 hectares per enclave.

Exceeding the approved farm size ultimately means farmers are moving beyond their approved boundaries. Not only does this lead to conflicts, it is also an indication of the inefficient monitoring of farming activities within the forest reserve. The location of village used for farming (within or outside forest reserves) is another significant factor indicating encroachment and thereby resulting in conflicts in the study area. According to Ejigu, (2005) a society becomes insecure in an environmental sense when severe deforestation and biodiversity loss threaten national, community and individual

welfare thereby making direct causal links between extreme violent-conflicts and tropical forests seem obvious.

5.5. Effects of Conflicts on Forestry Development in Ogun State

The effects of conflicts on forestry development in Ogun State are unquantifiable in terms of the human, biodiversity and economic losses incurred. Mostly, conflicts have negative effects on forestry development. In Ogun state, forest land use conflicts have often led to loss of forests, lives and disruption of normal channels of cooperation between the forestry and agricultural sectors. This implies that forestland in the State has been wrongly used for agricultural production, hence the far-reaching effects on environmental integrity. The unearthed critical effects of these conflicts should therefore, help to avoid these adverse consequences in the future for a balanced use of the States' forest land by linking agricultural practices with forestry sector for the protection and enhancement of the environment.

Conflicts over natural resources have negative impacts. However, people who study conflict also recognise its value as a catalyst for positive social change (Salam, 2005). Robinson (1972) however, said 'not all conflict is bad and not all cooperation is good' implying that conflict can be harmful to groups but may also serve some potential positive functions, depending upon the type of groups within and between which it occurs. Tshombe (2005) in his own submission reported that in conflict situations, food prices escalate and chiefs with land tenure authorities gain important short-term benefits, while UNEP/WMO (2003) said in such situations forest depletion escalates and wildlife is lost. The various land-use conflicts occurring within and around the Ogun State forest reserves leading to loss of forests, species and lives has brought about stagnation of operations resulting in loss of re-investible revenue to the government, reduced level of trust among operators leading to difficulty in the smooth management of the reserves, and to distortions in the accuracy of available records of recognized farmers. Illegal farmers are not interested in forest protection, and this has led to massive loss of investment to government.

5.6. Policy Review

Conflict, according to Anderson *et al*. (1996) and Ayling, (1997) over natural resources use is ubiquitous and is inevitable in natural resource management. In

Nigeria National Forest Policy of 2006, the review vividly indicated lack of holistic conflict management regarding land use in between Forestry and Agricultural sectors. Some of the extant laws are obsolete and piecemeal with several conflicting provisions and in all cases too mild in sactions against breach. All these together with the absence of an integrated land use policy for Forestry and Agricultural sectors are a very good policy restructuring starting points for policy makers in their pursuit of minimizing conflicts within and among these sectors. The view of Tyler (1999) that policies have paid relatively little attention to the broader perspective of conflict management is being demonstrated in the review. However, due to lack of National Forestry Act in Nigeria, all the objectives stated in the new National Forest Policy of 2006 are yet to be implemented and little attention paid to addressing the forest-related needs of the ever increasing population. This will continue to pave way for incursion into forest reserves in Ogun state. According to Adedeji (1997), good governance is expected to build an effective relationship between the people and their governments. However, Olajide (2005) in his opinion stated that unfortunately, we do not have forest governance in Nigeria but purely forest administration devoid of people or users' considerations.

CHAPTER SIX

6.0. SUMMARY OF MAJOR FINDINGS, CONCLUSION, RECOMMENDATIONS AND SUGGESTIONS FOR FURTHER STUDIES

6.1. SUMMARY OF MAJOR FINDINGS

Findings of this study have brought about some illuminating observations on the Conflicts in Agricultural and Forest policy provisions, land use systems, types, causes and effects of the prevalent land-use conflicts in the government forest reserves in Ogun State and the extent of land hunger experienced therein. Major findings from this study are as follows:

Factors Fuelling Conflicts

The confusion created by the discordance in the provisions of the state agricultural policy, forest policy and land use act; coupled with the prevailing land use systems practices in the forest reserves are the major factors encouraging conflicts in the study area.

Prevalent Forestry and Agricultural Land Use Systems

The prevailing farming systems in the forest reserves were shifting cultivation and the *taungya* system of farming. Other farming system practised was bush fallowing.

Extent of Land Hunger among Farmers

Land hunger was found to exist in both Arakanga forest reserve due to the expansion of the Abeokuta metropolis and Omo forest reserves due to reservation.

Prevailing Causes of the Conflicts

Analysis of the data collected revealed that the location of forest reserves where farmers operated, rights of farmers to use forestland for farming and farm size were likely causes of conflicts.

Effects of Conflicts on Forestry Development

These are numerous and have led to loss of re-investible revenue to the government, hindrances in the smooth management of the reserves, and distortions in the accuracy of available records of recognized farmers. Illegal farmers are not interested in forest protection; therefore, government loses its investment leading to reduced morale of timber contractors whose means of livelihood is being threatened by the farmers' activities.

Policy Provisions

Ogun State Forest Policy is encapsulated in the subsisting Ogun State Agricultural Policy of 1989 and has since not been reviewed. The contradictory provisions for both the agriculture and forestry sectors create difficulties for forest managers in the management of forest land-use. Also, the provisions of Land use decree conflicts with interests in forest conservation. The implementation of the new National Forest Policy of 2006 is yet to materialize.

6.2. CONCLUSION AND RECOMMENDATIONS

6.2.1. Conclusion

The interesting findings have provided the basis for drawing the following conclusions:

Discordance and inefficiencies in the provisions of the state agricultural policy, forest policy and land use decree; and the land use systems practices in the forest reserves were factors encouraging conflicts in the study area. Therefore, Government's ineptitudes in the management of the *taungya* system and the activities and insensitivity of the 'mostly' migrant farmers led to the vast conversion of the State forestland to agricultural use. Limited political will on the part of government to arrest the situation and connivance on the part of some indigenous/traditional land owners and government officials helped to compound the matter and these will continue unless drastic actions are taken to address them.

The land hunger that resulted due to urban expansion and reservation in two of State forest reserves manifesting as increase in demand and competition over the use of forestland, was partly responsible for the land use conflicts occurring in those forest reserves. The prevailing conflicts were however, caused by the location of forest reserves where farmers operated, rights of farmers to use forestland for farming and size of the farms cultivated by farmers. The far-reaching effects of the conflicts are without boundaries. All stakeholders are affected and the implications on forestry development are daunting. An urgent appraisal and reappraisal of the conflicts and the implementation of intervention programmes is therefore a must for the survival of the forestry sector in the State.

The incoherence of the subsisting State agricultural policy with the encapsulated forest policy was largely a source of conflicting interests between the two sectors. This led to forest managers and policy makers taking conflicting decisions and actions which are counterproductive to forestry interest. Lack of adequate knowledge of policy provisions of the two sectors amongst forest managers and their agricultural counterparts is unhealthy to the future of the forestry sector. Inadequacies of policies,

the land use decree and land use practices are the major factors inducing conflicts. The increasing occurrence of Fulani herdsmen encroaching on forestland and farms for grazing is becoming a constant threat to lives and properties in the areas affected.

6.2.2. Recommendations

The conclusions presented above have highlighted the situation of the Forest Reserves in Ogun State. The following recommendations are therefore, proffered:

- After a proper review of the subsisting forestry and agricultural policies in the State to address the various inadequacies, effort must be made to ensure strict adherence to the provisions of the revised policy. Similarly, farmers' activities within the forest reserves must be strictly monitored and all traces of deviation from agreed land use systems and land tenure arrangements should be addressed with their merits.
- Private sector, community involvement and their participation in forestry development must be encouraged as an imperative to a sustainable forest land-use management. Benefit sharing with local communities should be actualized to foster participatory forestry.
- An enduring multiple land use system that will cater for the interest of all those with interest in forest land use must be adopted for a sustainable forest land use. Alternative means of livelihoods for the inhabitants of forest communities must be seriously encouraged to tackle the problems of poverty and forest degradation. Those who have been involved in some form of ecosystem services need to be compensated, in line with the Compensation for Ecosystem Services (CES) initiative, while others must be encouraged to follow this direction.
- Special attention must be given to areas currently faced with the challenges of land hunger and monitoring machinery be put in place to ensure that the consequences being encountered by areas currently experiencing it may be averted or ameliorated. .There must be political will secured to address the causes of the prevalent conflicts and to ensure that Forest policies and initiatives are respected. Forestry officials should intimately interact with the political office holders and educate them through seminars, workshops and enlightenment programmes to support and pursue forestry development in the State.

- Advocacy must also be pursued to enlighten all stakeholders' appropriately about relevant government policies and decisions on forestry procedures.
- An effective conflict management mechanism must be adopted and pursued with all vigour. Various approaches could be adopted under this strategy, these include (but not limited to): Avoidance, Negotiation, Mediation, Arbitration.
- Ogun State government should put measures in place to pragmatically address the effects of conflicts on forestry development in the State. Efforts must be made to synchronize the interests of all stakeholders in forest land-use with particular attention paid to forestry and agricultural land-users. Government should therefore, increase funding for forestry projects aimed at fast-tracking forestry development in the State to mitigate these effects. In order to ascertain the precise status of each forest reserve and the extent of damage to the forest reserves, all forest reserves in the State must be surveyed and all boundaries cleaned with the view to carrying out a comprehensive inventory.
- To gain popularity for government policies and decisions, round table talks (Stakeholders Conferences) must be organized and held for all stakeholders and all agreements reached must be binding and adhered to by all parties. Awareness level of policy provisions in government circles must be raised to eliminate claims of ignorance and its attendant consequences.
- Staff welfare must be given very serious attention and effectively enhanced. Government therefore, needs to step up its resolve for effective policy and legislative engineering and re-engineering to address all forest land use challenges being faced.

6.3 SUGGESTION FOR FURTHER STUDIES

1. The exact extent of deforestation and threat to biodiversity on account of conversion to agricultural use is yet unknown. Further studies should therefore, assess the extent of deforestation.
2. The migrating pattern of farmers within and around the State forest reserves need to be studied for insight into their lifestyle and the way it may affect the forests in the future if they are not dislodged.

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APPENDIX

DEPARTMENT OF FOREST RESOURCES MANAGEMENT
UNIVERSITY OF IBADAN

TITLE: CONFLICTS BETWEEN FORESTRY AND AGRICULTURAL LAND – USE IN OGUN STATE

Dear Sir/Ma,

I am a PhD student in the above named department of the University of Ibadan. I am carrying out a study on **"CONFLICTS BETWEEN FORESTRY AND AGRICULTURAL LAND – USE IN OGUN STATE"**

Kindly fill in the information required of you in the questionnaire. All information is classified and will be treated as such. Therefore, the confidentiality of information supplied is guaranteed.

Thanks.

Yours truly,

OTESILE, A.A.

QUESTIONNAIRE ON

'CONFLICTS BETWEEN FORESTRY AND AGRICULTURAL LAND – USE IN OGUN STATE'

I thank you in advance for taking part of your productive and precious time to complete this questionnaire as one of the stakeholders of forestland uses in Ogun State. In an attempt to better understand your opinions on the past and current situation of land-use conflicts among the prevalent Forestland-users, as well as your ideas on the future changes and challenges, a set of questions have been designed to elicit your views on the following issues:

- Critical socio-economic factors causing conflicts among the prevalent forestland-users;
- The situation likely to emerge in the nearest future on account of prospects for reconciliation between Agriculture and Forestry sectors; and
- Your vision on how land use should be.

Instructions relevant for completing the questionnaire are given under each of the questions. All responses will remain strictly confidential and results will be tabulated based on all participants' responses.

After you have completed the questionnaire, your views will be analysed and the findings will form part of the recommendations to all stakeholders on how best conflict resolution could be proffered.

Forestry Staff

Please provide the following details to facilitate the analysis of information.

This will be treated as strictly confidential and will not be passed to anyone.

Sex: _____

Age: _____

Local Government: _____

Name of Present Duty Station _____

Name/s of forest reserve/s under you present duty station _____

Rank of Staff: _____

Educational Status: Primary _____ Secondary _____ tertiary _____

(ND, HND, BSc, MSc, PhD.)

Date of Completion: _____

Forestry Staff

Questions

Forest Reserve encroachment, conflicts, policy reform and reconciliation

1. Are you aware of the existence of any forest policy in the state?

Yes _____ **No** _____

2. If your answer to question (1) is yes, are you aware of the provisions of the policy?

Yes _____ **No** _____

3. Are you aware of any review of the original or subsisting policy document?

Yes _____ **No** _____

4. If your answer to question (3) is yes, please state when (date / year)

---

5. Has there been any land encroachment cases by farmers in the forest reserve in the past five years **Yes** _____ **No** _____

6. If yes to question 7, kindly give reasons for the land encroachment

a. Inadequacy of the state forest policy

b. Poverty

c. Land hunger

d. By error

e. Others (specify) _____

3. Do you have records of total areas of forestland that have been de-reserved for Agricultural activities or illegally occupied by farmers? Yes_____ No_____

4. If yes to question (9), could you state the total area and its ratio of the original forest reserve/s sizes under you division?_____

9. Are there any conflicts in the management of forest reserves as regards land-use by farmers for agriculture? **Yes** _____ **No** _____

10. What in your opinion are the causes of these conflicts?

a. Destruction of forest trees

b. Inadequate provision by the state forest policy to accommodate farming activities in forest reserves.

c. Others (specify) _____

11. The issue of land ownership is very serious because of the population pressure. Who is responsible for forestland allocation to farmers for agricultural purposes?

a. Government

b. Individuals/ indigenous land trustees

c. Both of the above

d. Others (specify) _____

12. Are there any benefit sharing mechanism between Government and the farmers cultivating on Government forest reserve? **Yes** _____ **No** _____

13. If yes to question (12), give the mechanism and the ratio in use _____

_____

14. What kind of readily enforceable land- use regulations should be put in place to promote reconciliation for a sustainable forest land use? (Please list three)

a. _____

b. _____

c. _____

15. What further role, if any, can the public sector usefully play to encourage reconciliation between forestry/ agriculture and other forestland users? Give list below…

a. _____

b. _____

c. _____

d. _____

e. _____

16. How far can assurance be given in the context of a landuse planning approach, that the location of investment in afforestation and reforestation would be selected for favoured areas?

_____

_____

17. How do you support research and technology that will ensure that the forestry sector can deal successfully with reduced land area?

_____

_____

_____

18. Do you believe in the possibility of reconciliation between existing forestry and Agricultural land use systems in the state? Yes_____

No _____

19. What are the barriers you foresee to reconciliation between forestry and Agricultural land uses? _____

_____

_____

QUESTIONNAIRE ON

'CONFLICTS BETWEEN FORESTRY AND AGRICULTURAL LAND – USE IN OGUN STATE'

I thank you in advance for taking part of your productive and precious time to complete this questionnaire as one of the stakeholders of forestland uses in Ogun State. In an attempt to better understand your opinions on the past and current situation of land-use conflicts among the prevalent Forestland-users, as well as your ideas on the future changes and challenges, a set of questions have been designed to elicit your views on the following issues:

- Critical socio-economic factors causing conflicts among the prevalent forestland-users;
- The situation likely to emerge in the nearest future on account of prospects for reconciliation between Agriculture and Forestry sectors; and
- Your vision on how land use should be.

Instructions relevant for completing the questionnaire are given under each of the questions. All responses will remain strictly confidential and results will be tabulated based on all participants' responses.

After you have completed the questionnaire, your views will be analysed and the findings will form part of the recommendations to all stakeholders on how best conflict resolution could be proffered.

Agriculture Staff

Please provide the following details to facilitate the analysis of information. This will be treated as strictly confidential and will not be passed to anyone.

Sex: _____

Age: _____

Local Government : _____

Name of Present Duty Station _____

Name/s of forest reserve/s under you present duty station _____

Rank of Staff: _____

Educational Status: Primary _____ Secondary _____ tertiary _____

(ND, HND, BSc, MSc, PhD.)

Date of Completion: _____

AGRICULTURE STAFF

QUESTIONS

Agricultural farm settlement, Forest Reserves, Conflicts, Policy reform and Reconciliation

1. Are you aware of any agriculture policy in the state?

Yes_____ No _____.

2. If your answer to question (1) is yes, are you aware of the provisions of the policy? Yes _____ No_____

3. Are you aware of any review of the original or subsisting policy document?

Yes_____ No _____.

4a If your answer to question "3" is yes, please state the date/year of review _____

4b. Is there any provision in the policy for the development of farm settlements in the state? Yes_____ No _____.

4c. If yes, under what arrangement?_____

5. Are agricultural farm settlements still in existence in the state?

Yes_____ No _____.

6. Are the farm settlement sited in free areas only? Yes_____ No _____

7. If you answer to question 6 is yes, is this the provision of the state agriculture policy? Yes_____ No _____.

8. If your answer to question "7" is yes, please state how many are under your present duty station_____

8b. Is there any provision of this policy that allows for the planting of economic (timber) species in the farm settlements?

Yes_____ No _____.

9. Are farmers allowed to plant economic (timber) trees in the farm settlement?

Yes_____ No _____.

9a. If your answer to question "7" is Yes, please state under which system

i. Taungya _____ ii. Other(s) (specify) _____

9b. If your answer to question "7" is No, why is this so?

i. Against government policy

ii. Lack of implementation of this aspect of the agriculture policy

iii. Lack of interest by farmers?

v) Other(s) (specify) _____

10. Is any of the farm settlements contiguously located to any of the forest reserves. Yes_____ No _____.

10b If yes please state which of the forest reserves _____

10c. If No please state why…

i. Not provided for in the state agriculture policy

i. Lack of proper implementation of the provision of the policy

iii Unavailability of fallow land

iv Others (specify) _____

11. Are you aware that farmers living within and around government forest reserves, use forest land for planting agricultural crops (cash crops and others)

Yes _____ No_____

12. To your knowledge, what is the involvement of the ministry of Agriculture in this arrangement?

(a)Direct involvement (b) Indirect involvement (c) No involvement

(d)Indifferent

13. Does the ministry of agriculture collect taxes on agriculture farm produce from these farmers farming within and around forest reserve?

Yes _____ No_____

14. Do you have records of total areas of forestland that have been encroached upon by farmers Yes _____ No _____

15. If yes to question (12) could you state the total area occupied by farmers

a. Under your present duty station _____ ha

b. under all stations _____ ha

16. Are you aware of any conflict in the management of forest land for agricultural purpose by farmers Yes _____ No _____

17. If yes, what is the cause of the conflicts? _____

18. Do you believe in the possibility of reconciliation between existing conflicts between forestry and Agricultural land-use systems in the state?

Yes _____ No _____

19. What are the barriers you foresee to reconciliation between forestry and Agricultural land-uses? _____

QUESTIONNAIRE ON

'CONFLICTS BETWEEN FORESTRY AND AGRICULTURAL LAND – USE IN OGUN STATE'

I thank you in advance for taking part of your productive and precious time to complete this questionnaire as one of the stakeholders of forestland uses in Ogun State. In an attempt to better understand your opinions on the past and current situation of land-use conflicts among the prevalent Forestland-users, as well as your ideas on the future changes and challenges, a set of questions have been designed to elicit your views on the following issues:

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- The situation likely to emerge in the nearest future on account of prospects for reconciliation between Agriculture and Forestry sectors; and
- Your vision on how land use should be.

Instructions relevant for completing the questionnaire are given under each of the questions. All responses will remain strictly confidential and results will be tabulated based on all participants' responses.

After you have completed the questionnaire, your views will be analysed and the findings will form part of the recommendations to all stakeholders on how best conflict resolution could be proffered.

Farmers

Please provide the following details to facilitate the analysis of information. This will be treated as strictly confidential and will be passed to anyone.

Sex: _____

Age: _____

Local Government: _____

Name of Community: _____

Name of Settlement: _____

Name/s of forest reserve/s _____

Indignity: a Indigene ____ b. Non Indigene _____ (state of origin) _____

Educational Status: Primary _____ Secondary _____ tertiary _____

Marital status: _____

Household size _

_____

Farmers

Questions

Farming Activities, Forest Reserves encroachment, Conflicts, Policy reform and Reconciliation

FARM AND LOCATIONS

1. Status (a) Group (family etc.) (b) Individual farmer (c) Both
   (d) Others specify _____

2. How long have you been farming in this area? _____ Years

3. Location

3 (A) Location(s) of individual farm

3 (B). If it is within forest reserve, is it demarcated? a. Yes___ b. No _____

3 (C) How did you get the land?

a. Government
b. Chief/land custodian
c. Bought from another farmer
d. Inherited
e. Others (specify) _____

4. Land Use

4i What is the size of your farm? _____ Ha

4ii Type of crops grown (names)

a. Cash crops b. food crops c. trees d. others (specify) _____

5. What land preparation systems do you practice?

a. Bush clearing only
b. Bush burning
c. Both
d. Others (specify) _____

6. What sort of farming system do you practice?

a. Shifting cultivation
b. Bush fallowing
c. Agroforestry/taungya system

d. Others (specify) _____

7. LAND POVERTY

a. Any available fallow – land for future use? a. Yes_____ b. No _____

8. Land availability in the area?

a, Much

b. Less

c. Limited

d. Not available

e. Others (specify) _____

10. What are some of the causes of land scarcity in the area?

a. Population increase
b. Farm expansions
c. Fixed area of the forest reserves
d. Others (specify) _____

11. Forest Reserves, encroachment, and conflicts

What is/are the importance of forest: to you?

a. Timber production
b. Wildlife sanctuary
c. Land bank
d. Revenue for Government
e. Assisting rainfall
f. For future generation
g. Food and meat
h. Other (specify)

13. What are the reasons of encroachment on forestlands for farming?

a. Unavailability of fallow land outside forest reserves
b Landowning right
c Given by the chiefs
c. Good soil fertility
d. Easy accessibility

13. Are there any rights or laws allow people to farm in forest reserve?

a. Forest law
b. Landowning rights
c. Chiefs authority
d. No right or law
e. Other (specify) _____

14. What right is expected under un- degraded forest reserve land use?

a. negotiating right for multiple use

b. Not right

c. No idea

d. Government to decided

e. Chiefs and government to decided

f. Other (specify) _____

15. Are there any major problem between Farmers and the Ministry of Forestry on Forestland use

16. In setting up of a commission to investigate land poverty in the area what do you expect them to do?

_____

17. Kindly provide recommendations for forestland use that hasten prospects for reconciliation

_____

Checklist for Timber Contractors

'CONFLICTS BETWEEN FORESTRY AND AGRICULTURAL LAND – USE IN OGUN STATE'

A. Checklist for Forestry, Agriculture.

1. Timber Contractors …….. Date……
2 Area of operation……
3. Number of forest reserves in the local government
4. Key land use systems in the area
5. Land use systems influencing the management of forest resources, please specify
6. Are there any conflict issues relating to forestry and agricultural activities?
7. In your opinion, what ways could forestry and agricultural activities be mutually integrated to bring harmony?
8. Are there any records of land encroachment?
9. Reasons for land encroachment
10. Are there any conflicts in the management on forestland encroachment in your area of operation?
11. Is there a possibility of reconciliation?
12. How can reconciliation be achieved?
13. What are the barriers you foresee to reconciliation between forestry and agriculture?
14. How many of these barriers can be reduced or overcome?
15. Is land hunger (inadequacy of cultivable land) in existence in your area of operation?
16. Recommendations and way forward for solving land hunger in the area.
17. Why no change in forest-land ownership to joint ownership?
18. Setting up a Commission to investigate land hunger (list some expected activities)
19. In your opinion, what ways could forestry and agricultural activities be mutually integrated to bring harmony?
20. Do you perceive agroforestry / taungya systems of farming to be a sustainable land use system in the local?