ASSESSMENT OF FOREST GOVERNANCE IN SOUTHWESTERN NIGERIA

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DEDICATION

This work is dedicated to the immortal, invisible, the only wise God, creator of all that exist and possessor of the heavens and earth; whose love is everlasting, to my Lord and Saviour Jesus Christ; the author and finisher of my faith and the blessed Holy Spirit; my companion and the ever present one.

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CERTIFICATION

I certify that this research work was carried out by Theophilus OWESE in the Department of Social and Environmental Forestry, University of Ibadan, Nigeria.

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ABSTRACT

Forest Governance (FG) is the process of making and implementing decisions on forests. This comprises policy, legal and administrative frameworks that determine how forests are managed. Its quality is central to the enhancement of forest benefits. In Nigeria, poor FG has been linked with forest loss and degradation with dire consequences. However, information is limited in tackling this problem in southwestern Nigeria. Therefore, the elements of forest governance were investigated in Southwestern Nigeria.

Two forest reserves were purposively selected in each of the six states with the exception of Lagos where the only one (Ogun River Forest Reserve (ORFR)) under some form of management was sampled. The other selected forest reserves were: Ogbese and Ikere (Ekiti); Aworo and Olokemeji (Ogun); Oluwa and Akure (Ondo); Shasha and Ago-Owu (Osun); Gambari and Osho (Oyo). Landsat satellite imagery was used to determine the extent of forest cover, changes in cover and rate of deforestation in the selected forest reserves from 1987 to 2017, using supervised classification method. An established sampling proportionate to size was used to select timber contractors (n=82), saw millers (n=152), plank dealers (n=110), forest community dwellers (n=149) and forest plantation owners (n=40). All the forestry staff in Lagos State due to their limited number and fifty percent of forestry staff (n=175) in other states were sampled for questionnaire administration. Data obtained on staffing, policy, management plan, forest law enforcement, planning, decision-making processes, factors negating good forest governance and stakeholders' willingness to own forest plantation were analyzed using descriptive statistics, chi-square and logistic regression at $\alpha_{0.05.}$

Forest cover was highest in Oluwa (686.7km^2) and least in ORFR (5.2km^2) in 2017. Percentage change in forest cover was highest in Ogbese (16.8%) and least in Ago-Owu (-89.1%). Annual rate of deforestation was highest in Akure (2.3%) and least in Ikere (0.2%) between 1987 and 2017. Four forest reserves (ORFR, Oluwa, Akure and Shasha) had no technical staff while Ikere forest reserve recorded the least deficit in technical staff (66.7%). The highest deficit in professional staff was recorded in Shasha (96.0%) while no deficit was recorded in Ikere and ORFR. Stakeholder's knowledge on forestry issues had no significant relationship with involvement in forest policy formulation (χ^2=1.2). Management plans were perceived to be obsolete in all the states except in Ekiti State (18.9%). Existence of forest law had no significant relationship with crime prevention (χ^2=1.4) and detection (χ^2=0.1). Perception on existence of checks and balances was highest in Ekiti (54.5%) and least in Osun State (18.2%). There was significant relationship between forest policy institutional framework support and planning (χ^2=11.68) but not with decision-making processes (χ^2=3.5). The forestry sector lacked transparency (Odd ratio (OR) =94.5) and participation (OR=79.3) which negatively influenced good forest governance. Provision of seedlings (OR=12.9) and capacity building (OR=2.3) influenced stakeholders' willingness to own forest plantation.

Checks and balances in extant state forest policies were weak and forest management plans were obsolete in Southwestern Nigeria. These could negatively affect the effectiveness of forest governance.

Keywords: Forest policy, Forest law, Forest Reserve, Forest cover

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LIST OF ACRONYMS

FG – Forest Governance

FR – Forest Reserve

CIFOR – Center for International Forest Research

FAO – Food and Agriculture Organization (United Nations)

IUFRO - International Union of Forest Research Organizations

CBD – Convention on Biological Diversity

GEF - Global Environment Facility

UN – United Nations

UNCCD - United Nations Convention to Combat Desertification

IUCN - International Union for Conservation of Nature

CPF- Collaborative Partnership on Forests

UNFF - United Nations Forum for Forests

CICI - International Conference on Criteria and Indicators in Guatemala

FAO – Food and Agriculture Organization

ITTO – International Timber Tropical Organization

SFM – Sustainable Forest Management

SDF – State Department of Forestry

PROFOR – Programme on Forests

WRI – World Resources Institute

USAID – US Agency for International Development

IIED – International Institute for Environment and Development

ICPC - Independent Corrupt Practices and other related offences Commission

EFCC – Economic and Financial Crime Commission

FFGR - Framework for Forest Governance Reforms

UNCED – United Nations Conference on Environment and Development

IPCC - Intergovernmental Panel on Climate Change

NPC – National Population Commission

FCT – Federal Capital Territory

USGS – United State Geological Survey

FCTU – Forest Cover Type Use

IPs – Indigenous peoples

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CHAPTER ONE

INTRODUCTION

1.0 Background

Competing demands for food, fuel and profit are driving the loss and degradation of the world's remaining forests. Governments, the private sector and citizens in many countries are struggling to manage the conflicts among these priorities while also protecting long term public interests. For example, the large scale conversion of forests to timber and agriculture can generate short term income for governments, the private sector and communities. But if unchecked, these trends are leading to a loss of national wealth, natural habitats and livelihoods - particularly for forest dependent communities and indigenous people. Many of these challenges stem from underline weaknesses in the way the forest resources are governed (Mohanty and Sahu, 2012). Conflicts in forestry amongst stakeholders seem to be resolvable through a governance system which accommodates the interest of these stakeholders and with the ethos gendered towards good forest governance. This is when the ideals of sustainable forest management could be realised.

FAO (2010) stated that "forest governance is influenced by a range of factors, such as decentralisation, trade liberalisation globalisation, changing demand for forest products and services. The climate change mitigating effects underscore the global attention accorded forestry, aside its immense contribution as provider of essential goods and services and therefore heightened the need for a governance system that is collaborative in nature.

Weak governance or poor governance; which is the absence of the fundamental principles of good governance in the forest sector has been linked with illegal logging and uncontrolled

deforestation both locally and internationally. These concerns have led many countries to rethink the role of government in managing their forest resources and actively step away from centralised decision-making processes and direct government implementation of forest programs (Gregersen *et al*., 2004). Governance is an essential part of sustainable forest management (ODI, 2006). "The quality of forest governance in the forest sector has begun to attract greater attention, including its recognition as a central aspect of sustainable forest management, according to the World Bank (2004)." There is general consensus that improving forest governance would be necessary in order to handle competitive forest demand. The forestry administration has been monopolised within the federal system in Nigeria by the state government for the last forty years. The exclusion, directly or indirectly, of stakeholders such as (local community dwellers, hunters, fishermen, timber contractors and other non-timber resource users) from forest management has led to weak forest governance and consequent forest reserve crises in Nigeria (Akinola, 2007)

Larson and Petcover (2011) opined that the transition from state control and hard law to deregulation and soft law in the early 1980s was the most dramatic change in forest governance over the last few decades. This has been called the transition from government to governance, which has had a large effect on forest governance, both globally and nationally. The concept of governance, and particularly good governance, has become an important factor in the discourse on international development.

An aspect related to policies, legal and institutional structures and forest governance was included in several regional processes in the mid-1990s in their monitoring and reporting frameworks (Marjo *et al*., 2012). This portion was later recognised by the UN General Assembly in 2007 as a thematic element of sustainable forest management (UN, 2008) and was taken up in the United Nations Global Forest Resources Assessment (FAO, 2011).

Weiland and Deduerwaerdere (2010) defined forest governance as “the process of making and implementing decisions on forest. This comprises policy, legal and administrative frameworks that determine how forests are managed. It generally refers to the quality of decision-making

processes, their transparency, accountability and equity, rather than the formal political structures of government.

In forestry, sustainable forest management is a state of idealism, where

According to FAO (2018), “forest governance is the way in which public and private actors, including formal and informal institutions, smallholder and indigenous organisations, small, medium-sized and large enterprises, civil-society organisations and other stakeholders negotiate, make and enforce binding decisions about the management, use and conservation of forest resources”.

The aim of monitoring the extent and characteristics of forest resources is to understand and reduce unplanned deforestation, restore and rehabilitate degraded forest landscapes, evaluate the important function of carbon sequestration by forests, other wooded lands and trees outside forests, and designate forests for different purposes. The extent of forest resources is the first parameter in measuring sustainable forest management. Information on the extent of forest resources has formed the backbone of all global forest resources assessments and continued to be a major topic in forest resources assessment. Forest area is an easily understood baseline variable, which provides a first indication of the relative importance of forests in a country or region. Estimates of change in forest area over time provide an indication of the demand for land for forestry and other land uses (Global Forest Resources Assessments, 2010)

1.1 Statement of Problem

Nigeria falls short of the basic standard of acquiring regular and up to date data on the forest resources. The available information on the forests is either obsolete or based on extrapolation from very old data. With the last national forest inventory dating back to 1997, most of the information documented may not properly reflect the actual situation but merely indicative. The total forest area in Nigeria has been decreasing at an increasing rate and the demand for wood raw materials by industries and citizens in recent times in Nigeria has outstripped the production capacity of both the natural and plantation forests.

Brilliant forest policies have been formulated in Nigeria over time, a case in point is the approved national forest policy (2006) and the state forest policies of the state department of forestry in Southwestern Nigeria but the paradox is that only a negligible part of the policy are implemented. To this end there is no apparent and significant forestry development to show for this. This suggests that mere formulation of forest policy should become not the major issue but rather their effective implementation, as it is only effectively implemented policies that can bring about forestry development. There is policy failure when there is a sizable gap between a policy decision and its implementation. Implementation problem do arise from the policy itself since they emanate from government rather "than from the target groups. By this, it means that planning is top-down and by implication, the target beneficiaries who are the stakeholders are not allowed to contribute to the formulation of the policy that affect their lives. Hence, the resultant effect of the weakness in the decision-making apparatus of the government.

In the protection of existing forest reserves, forest law enforcement has been very challenging, especially where forest guards and security operatives have been said to be constantly involved in issuing false permits in cooperation with other officials in the Ministry of Agriculture and Natural Resources. Both forest guards and officials have also been reported to be conniving and giving permission to foreigners to illegally control the forest through local agents. Many have lost their lives to real forest guards who are up and doing their work as a result of forest offenders having tip-offs about scheduled checks and raids.

Poor governance in the forest sector impedes its optimum development. Various factors combine to negate good forest governance which is the absence of accountability, respect for the rule of law, effectiveness, transparency, efficiency and participation. These are evident in the ineffectiveness of checkpoints manned by forest authorities, non-compliance with rules and regulations which is frequently either not detected, or, if detected, the necessary corrective actions and penalties are often not enforced or avoided through corruption. Wrong doing in forests do take a number of forms. It involves the ignoring of rules and regulations, the application of corrupt practices, the abuse of power, and the illegal harvesting and trading of products. It also involves the illegal conversion of forests into other land uses (deforestation) and

the irrational use of forests in general (leading to forest degradation). Corruption as a sign of poor governance is a common phenomenon in most African countries.

The source of timber is gradually being restricted to the forest reserves and worst still, the reserves are being depleted unabatedly. Forest plantation establishment in Southwestern Nigeria is predominantly a government affair, few individuals are involved. This was corroborated by Ajewole *et al*., (2005) who stated that private investments in forestry has been at an all-time low ebb because of lack of some micro-economic policy incentives such as tax relief, low interest in long term loan and facilitation of acquisition of land.

1.2 Research questions

- What is the extent of forest cover in the selected forest reserves between 1987 and 2017 in Southwestern, Nigeria?
- What are the institutional frameworks of forest governance in Southwestern Nigeria?
- Is there forest law enforcement in conserving the existing forest reserves in Southwestern, Nigeria?
- What are the factors negating good forest governance in Southwestern, Nigeria?
- Are forestry stakeholders willing to own forest plantation in Southwestern, Nigeria?

1.3 Main Objective

- The main objective of this study was to assess forest governance with a view to ensuring sustainable forest management in Southwestern, Nigeria.

  Specific Objectives are to:

  - determine the extent of forest cover in selected forest reserves between 1987 and 2017 and
  - examine the institutional framework of forest governance;
  - assess forest law enforcement in conserving the existing forest reserves;
  - identify the factors negating good forest governance;

- investigate stakeholders' willingness to own forest plantation in Southwestern, Nigeria.

1.4 Justification

The extent of forest cover is of utmost importance to any competent forest manager either privately owned or public forest reservation area. Forest size information based on up-to-date data allows for the proper preparation and use of and management of forest resources. Successful forest managers track changing conditions and make wise choices for sustainable management of forests. Sustainable forest management can flourish where sufficient inventory data for the creation and periodic review of forest management and work plans are available. Only if forest policy and management decisions are based on a monitoring framework that provides up-to-date and statistically credible data on forest resources and their changes can sustainability be achieved in forest management. Knowledge of the extent and trends in forest cover is clearly a key element of good forest governance. Geospatial records provide forest managers with baseline information for evaluating plans. The extent or size of the forest reveals a good governance or otherwise. Information on the extent of forest cover in the forest reserves in Southwest Nigeria is scarce.

The existence of policy, with adequate provision for planning, decision-making processes and stakeholders' participation; which provide institutional framework is fundamental facets of forest governance. The preponderance of forest policy is to provide guidelines for forest managers which in turn would be a catalyst for the management and harvesting of forest resources in a sustainable manner. Expansive stakeholder involvement becomes very necessary in order to ensure sustainability in forest management.

Forest crime is not only limited to illegal harvesting as implied by forest law enforcement where illegal harvesting is the only preoccupation of the government in cubing this menace . Enforcement expectedly should not only target field workers in the forest sector but should extend to all the persons within the value chain in the forestry industry cutting across from the field to the office workers. For a forest law enforcement strategy to be good, it should be

expansive and diverse, with consideration for adequacy of sanctions, adequacy of staff for effective coverage, adequacy of equipment, effective coverage of assigned land area, effective measures for crime prevention, effective measures for crime detection, effective measures for crime suppression, regular investigation of serious forest crimes, extent of coverage against forest crime with modern techniques for detecting, preventing and vigorous suppression of crimes.

Emphasis on silvicultural aspect of forestry is well appreciated in Nigeria but its success or otherwise is largely dependent on governance factors. Factors militating against good forest governance in Southwestern Nigeria will be addressed. The study will expose good forest governance principles that should be put in place to ensure sustainable forest management.

Early work on plantations in Nigeria started at the beginning of the 20th century in Southwestern, Nigeria. This region should still maintain her leadership role and a force to reckon with as far as forest plantation establishment is concerned in Nigeria. Southwestern Nigeria is a rapidly developing region, with a huge demand for wood and its products. The wake of privatization in Nigeria is a demonstration of the conviction that the government is a bad manager and so, common property such as the forest is better-off in the hands of private individuals. A segment of the society recognized as forestry stakeholders have some form of involvement. There is therefore a dare need to ascertain their challenges and willingness to establish private forest plantation given the necessary support.

The beneficiaries of this study will cut across all forest users both directly and indirectly. These will include rural and urban dwellers, forest managers, forest officials, policy makers, researchers in forestry, Non-Governmental Organisations interested in forestry and generality of the people who rely on forest and / or forest products in one way or the other. The outcome of this study will articulate the missing link in the operation of the state departments of forestry, Southwestern, Nigeria from forest policy formulation to implementation of their task. This study therefore is intended to recommend the outcome of the assessment of forest governance for the promotion of sustainable forest management in Southwestern, Nigeria.

1.5 Scope of the study

The study was conducted in Ekiti, Lagos, Ogun, Ondo, Osun and Oyo states. These six states are contiguous in terms of boundary and they are located in the same geo-political zone in Nigeria. Respondents were drawn among the state departments of forestry, saw millers, timber contractors, plank dealers, private forest plantation owners and community dwellers in adjoining forest reserves. The study also employed the use of Landsat Satellite imagery in Ogun River, Ogbese, Ikere, Aworo, Olokemeji, Oluwa, Akure, Shasha, Ago-Owu, Onigambari and Osho forest reserves; all domiciled in Southwestern, Nigeria from the year 1987 to 2017.

CHAPTER TWO

LITERATURE REVIEW

2.1. Governance

The root word governance is the Greek word “kubernan” meaning “to pilot or steer”. An agreement of the precise definition of governance has not been reached by scholars in the field. Governance was once used to imply government but it becomes delineated as governance encompasses other stakeholder participation, like civil society and Non Governmental organizations that are involved in policy formulation, administration and implementation. Governance can be used in several contexts such as corporate governance, international governance, national governance and local governance. This term is likely to be treated as a synonym for government (Kjaer, 2004).

However, the concept of governance is distinct from government, because it involves a complex interplay among various stakeholders in the public arena (Clayton, 1994). Many scholars characterize governance as a "new governance process in which, through mutual interaction, a variety of actors govern the public arenas" (Kjaer, 2004), while some author's concept of governance emphasizes its utility and components (Rhodes, 1996). Other authors conceptualize governance in the context of its “shifting paradigms and discourses, they highlight the processes of change from governance by government, to governance with government and governance without government” (Rosenau, 2002 and Rhodes, 1996).

Governance can be conceptualized as a mechanism requiring the involvement of multiple actors to influence decision-making, including state, private and civil society. It is a multi-actor,

interactive decision-making mechanism that includes power resource mobilization and deployment. This understanding is in line with the ideas of working definitions proposed by Bila *et al*. (2006), using governance as a term to describe the informal and formal rules and the relationships of power that decide who makes decisions, about whom and how those decisions are taken at the global, national and local levels of society. Put clearly, "governance" means: the decision-making process and the process by which decisions are taken (or not implemented).

2.2 Good governance

By setting down a collection of values and beliefs in the form of good governance principles or codes, many scholars have described good governance. Examples include calls for transparency, fairness, efficiency, accountability and equity in decision-making and policy implementation (FAO and PROFOR, 2011). Good governance ensures that corruption is minimized, that minority opinions are taken into account and that the voices of the most vulnerable in society are heard in decision-making, so that the larger majority of society is still satisfied. Also, it is open to the present and future needs of society.

Blair (2000) claimed that "what is good has not reached a global consensus so far, as the debate is ongoing, attracting social theory among other schools of thought, thereby snowballing the complexity of the term." Decentralisation and devolution are at the intersection of several debates on good governance and development in the sense of social theory. It is claimed that decentralization would bring politics closer to the people, increase policy effectiveness, and strengthen sub-national democratic controls and balances; which are also essential prerequisites for good governance (Ribot *et al*., 2010).

Table 2.1: Principles of Good Governance

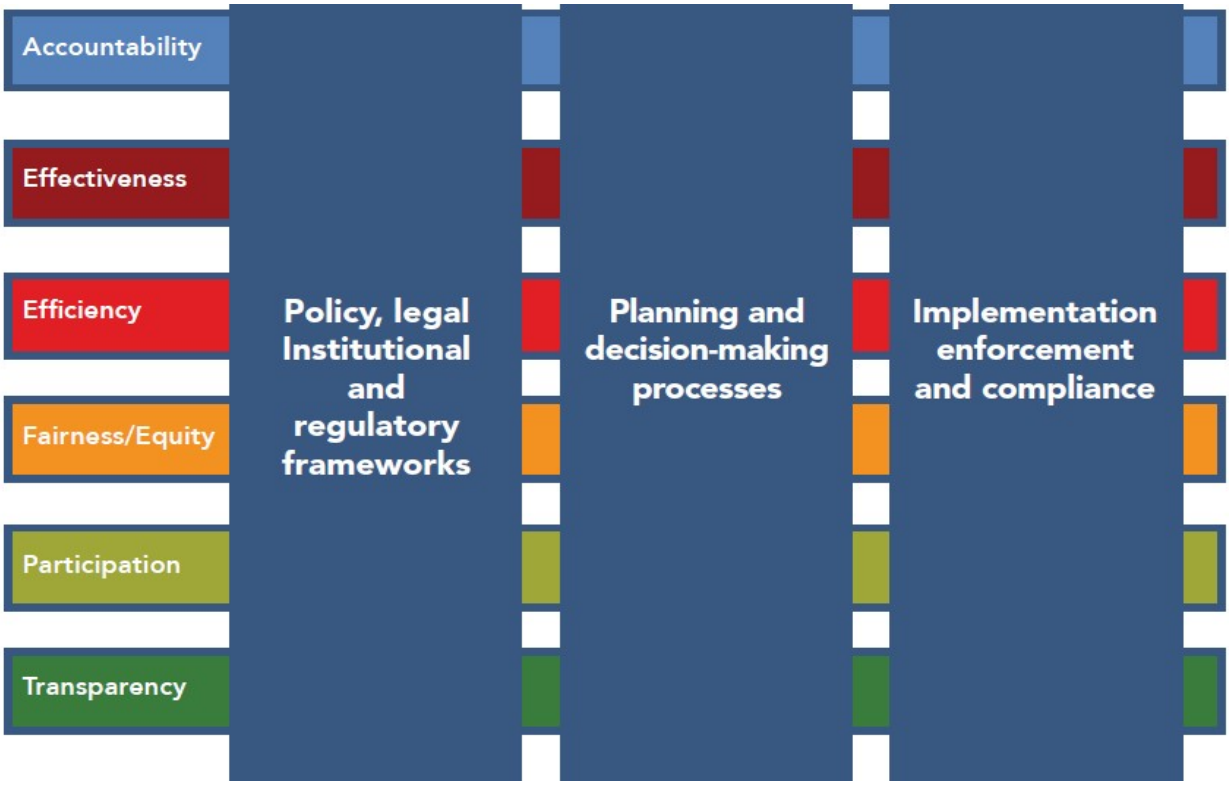
Variables	Definition/Description
Accountability	People and institutions should be accountable for their actions.
Effectiveness	Governance mechanisms should achieve the ends they are intended to achieve.
Efficiency	Governance should work with a minimum of resources.
Participation	All interested people should have an opportunity to be consulted / participate in key decisions affecting forests.
Respect for the rule of law	Good governance requires fair legal frameworks that are enforced impartially.
Transparency	Information about forests and how they are governed should be reasonably available to all.

Source: PROFOR (2011) and UNESCAP (2006)

2.3 Forest governance

Forest governance comprises all formal and informal, public and private regulatory structures, i.e. institutions consisting of rules, norms, principles, decision procedures, concerning forests, their utilization and their conservation, the interactions between public and private actors therein and the effects of either on forests. Forest governance is a technique by which officials and institutions acquire and exercise authority in the management of forest resources. It entails application of government regulation and law enforcement for sustainable management within the political, organizational and cultural frameworks through which diverse interests in the resources are coordinated and controlled (Weiland and Deduerwaerdere, 2010). Forest governance process includes a lot of actors from statutory and customary government, the private sector and civil society, which are operating at different levels of scale.

According to Larson and Petkova (2011), achieving good governance dominates today's development agenda. Good forest governance means that laws and rules are enforced equitably. Corruption and illegal logging, and particularly the vested interests behind them, foster bad governance and obstruct efforts to promote sustainable forest practices. Hence, it is through good forest governance sustainable forest management is ensured.



Source: FAO and PROFOR (2011)

Figure 2.1: Pillars and Principles of Forest Governance

Forest is a natural resource that serves the interest of all stakeholders. Democracy popularly conceived as a people-centric phenomenon succinctly describes the forest governance as the management of the forest estate by the people for the people. Like democracy with varying forms and distinctions that are structured by cultures of the people practicing it, forest governance approaches have varied across countries. Democracy in whatever forms it is practiced is aimed at good governance.

Good forest governance is characterized by the prevalence of the rule of law, low levels of corruption, robust institutions, high competence of officials and other functionaries who implement rules, willingness to address forest sector issues, sanctity of critical legal elements such as enforcement of property right and voluntary contracts, etc. (World Bank, 2008). Good forest governance supports and encourages the implementation of sustainable forest management. At the same time, forest managers who implement sustainable forest management can themselves help bring about better forest government. According to World Bank (2004) "poor forest governance can have significant negative impacts on development outcomes in all the three pillars of the World Bank forest strategy: the environment, poverty reduction and social development and economic growth".

In view of the forest's significance and contribution to virtually every facet of human life, forests have a range of features that make them problematic from a governance point of view.

The essence of the resource, according to Brown *et al*. (2002), is the nature of the rights and value of forest resources. Despite these obstacles, Ros-Tonen and Kusters (2011) are of the opinion that improved governance at local, national and global levels is reflected by the forest sector.

According to Brown *et al.* (2002), these are the nature of the resource the nature of the rights and the value of forest resources. In spite of these challenges, Ros-Tonen and Kusters (2011) opined that the forest sector represents improved governance at the local, national and the global levels. Governance, or lack of it, is a core problem in forestry that affects millions of people at all levels engaged in forest-related livelihood activities. Good forest governance is therefore important for

protecting the livelihoods of people, improving their well-being and protecting them from the adverse effects of illegal logging.

2.4 Review on selected major forest countries with federal systems of government on forest governance

A review of the federal governments of Australia, Canada, Brazil, India, Malaysia, Russia, Nigeria and the United States of America by Gregersen *et al*. (2004). (Major decentralization projects have been pursued by Bolivia, Indonesia, and Nepal and are thus also included, even though they do not have federal government systems):

- Over 60 percent of the world's forests are domiciled in these countries.
- Mode of ownership of forest land is the government with exception to the United State.
- In countries such as Australia, Canada, Malaysia, and Nigeria, the state or province that owns the majority of all forest lands.
- Federal ownership is substantial even in the United States where the federal government owns about 35 percent of all forests, the states own about 5 percent and the private sector owns the majority, about 60 percent is private property.
- The number of other industries active in the forest industry is in the hundreds.
- Nigeria and Russia, where the central/federal government "owned" a majority of the forest land, tend to be countries where central agencies and public forest land control are weak.
- Canada and India where a majority of forest lands are publicly owned, but "owned" by state, or provincial level governments (e.g.) tend to have a better record of effectively controlling the public forest estate.
- Proper management of inter-sectorial and interagency linkages in most federal nations is challenging and often not satisfactorily accomplished.
- In countries where most forest land is owned by the central government (Indonesia, Nepal, Nigeria and Russia), the relative power of the federal public administration of the forest is low, and forest agencies have historically been unable to control the key course of events.

- The relative power of the federal public forest administration is poor in countries where the central government controls most forest lands (Indonesia, Nepal, Nigeria and Russia), and forest agencies have traditionally been unable to control the key course of events.
- Weak administrative and technical capacity at the local government level, e.g., in the cases of Bolivia, Brazil, India, Indonesia and Nigeria, often prevented effective function delivery.
- Nigeria clearly highlights the reality that it is impractical to decentralize administrative functions without having commensurate financial support.

2.5 Challenges of good forest governance in Africa

Strong forest governance in Africa is impeded by a variety of factors, according to Counsell (2009). The following include these:

- Inadequate knowledge of most of the main forest resource data is available,
- As a result, external drivers have strongly shaped forest governance and forest management paradigms, policies and programs have often been skewed to the demands of foreign actors rather than what has been important or useful to local stakeholders.
- The vision for forests lacks clarification and there is also a lack of appropriate policy and regulatory structures.
- In general, the more forests play a role in producing hard currency earnings, the less participatory the processes of government are, and the more direct the role the state plays.
- There is a lack of clarification about the laws and procedures of tenure and rights.
- There is tension between the claims of the state to possession and systems of traditional/customary rights.
- In organizational decisions concerning forest resources, 'governmental interference' is direct and indirect.
- Everywhere on the continent, there are a few models of good forest governance and very few others to choose from.
- Overall, it is hard to escape the conclusion that there has always been an inverse relationship between government involvement in the forestry sector in much of Africa and good governance.

2.6 Continental-Scale of Forest Area and Gross Forest Cover Loss

Asia and South America are the continents with the largest area of forest cover, each with one-quarter of the global total. North America has the greatest area of (GFCL), followed by Asia and South America. North America alone accounts for nearly 30% of global GFCL and features the highest proportional GFCL of 5.1%. Africa has the lowest proportional GFCL of 0.4%, reflecting a lower overall use of forests for commercial development. South America has the largest remaining intact forests within the tropics, areas that are under increasing pressure from agro-industrial development (Hansen, 2010).

Table 2.2: Continental-scale forest cover and GFCL, 2000–2005

Continent	Year 2000 forest cover (km^2)	% of total forest cover	Year 2000 - 2005 GFCL (km^2)	GFCL as % of 2000 forest cover	% of total GFCL
North America	5,829,000	17.8	295,000 (15,000)	5.1	29.2
Asia	8,442,000	25.8	240,000 (28,000)	2.8	23.7
South America	8,414,000	25.7	228,000 (21,000)	2.7	22.6
Africa	5,635,000	17.2	115,000 (21,000)	2.0	11.4
Europe	3,099,000	9.5	86,000 (11,000)	2.8	8.5
Australia/Oceania	1,268,000	3.9	47,000 (13,000)	3.7	4.6
Total	32,687,000	100	1,011,000 (45,000)	3.1	100

Source: Hansen, 2010

2.7 Forest policy

The word "policy" is not specifically defined according to FAO (2010) "but is used on various occasions in various ways." Often, "a course of action adopted and pursued" may mean. It is possible to specifically state a policy or not. It can also be scheduled or it can occur by apparent actions. It is therefore often perceived either as a logical mechanism focused on deliberate objectives and strategies or as a function of a set of decisions resulting from political action. In any event, to be effective, a policy needs to offer clarity and a sense of direction over a certain period of time.

A policy document is a series of painstaking activities. FAO (2010) further described these facts:

- A national forest policy is an adopted shared vision and goals negotiated among stakeholders for the forests and trees of a country.
- Forest policy priorities resolve key social concerns and align with the development goals of a nation.
- Initiation of policy requires a clear understanding of the nation's local situation.
- Proper planning, including communication and capacity building, leadership support and sound information on forest status and future trends and the social, political, economic, environmental and technological factors that decide their use, is significant.
- Participation by stakeholders is important.
- Different forestry priorities must be discussed in the production of forest products.
- Workable strategies, with implementation in mind, must be planned.
- Forest policy communication is essential for awareness and comprehension of it.
- A high degree of government commitment to the current forest policy and implementation strategy is vital.
- On a regular basis, forest policy should be driven.

2.8 Sustainability in forest management

Sustainability in forest management has been defined as "the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, and vitality and their potential to fulfill, now and in the future, relevant ecological, economic, and social functions at local, national, and global levels" (MCPFE,1993). Sustainable forest management has also been described as forestry's contribution to sustainable development. This is development which is economically viable, environmentally benign and socially beneficial, and which balances present and future needs. Seven key components of sustainable forest management (SFM): afforestation and reforestation project in order to increase the forest resources, biological diversity in strengthening and expanding non forest components such as wildlife and NTFP's, forest health and vitality through silvicultural practices, productive functions through funding and silvicultural practices, protective or environmental functions, socio-economic functions of forest to sustainable livelihoods of forest dependent communities/general public and institutional framework support.

The core goal of the CPF is to "increase cooperation and coordination on forests" (CPF, 2010) this is accomplished by collaborating with fourteen (14) International organizations and secretariats with substantial programmes on forests such as CIFOR, FAO, ITTO, IUFRO, CBD, GEF, UNCCD, UNFF, UNFCCC, UNDP, UNEP, the World Agroforestry Centre, the World Bank and IUCN (CPF 2010). The CPF Task Force on Streamlining Forest-Related Reporting analyzed the nine criteria and indicators processes and found that all shared in common "seven thematic areas of sustainable forest management". These thematic areas have since been endorsed by the UNFF, the International Conference on Criteria and Indicators in Guatemala and the FAO Committee on Forestry (International Conference on Criteria and Indicators). Likewise, the FAO/ ITTO Expert Consultation on Criteria and Indicators formally recognized the importance of the seven thematic areas in facilitating international communication on forest-related issues.

2.9 Benefits of implementing sustainable forest management

FAO (2013) highlights the benefits of implementing the seven key components of sustainable forest management:

- forms an overarching framework for forestry development;
- heightens political commitment to SFM at the national level;
- increases focus on the social, economic and environmental contributions of forests at
- the national level and to internationally agreed development and environmental goals
- provides a single framework for the coordination of national and international forest related actions
- provides a holistic and comprehensive “360 degree” view of forests that reduces the fragmentation of efforts and programmes;
- provides a tool for assessing progress towards SFM at the national level.

CHAPTER THREE

METHODOLOGY

3.1 The Study area

The study area is Southwestern Nigeria, which consists of Lagos, Ogun, Oyo, Osun, Ondo and Ekiti States (Figure 1). It lies between longitude 2^0 31' and 6^0 00 'East and latitude 6^0 21' and $8^0$37' North having land area of 77,818 Km^2 with a projected population of 38,257,260 in 2016 (NBS, 2007).

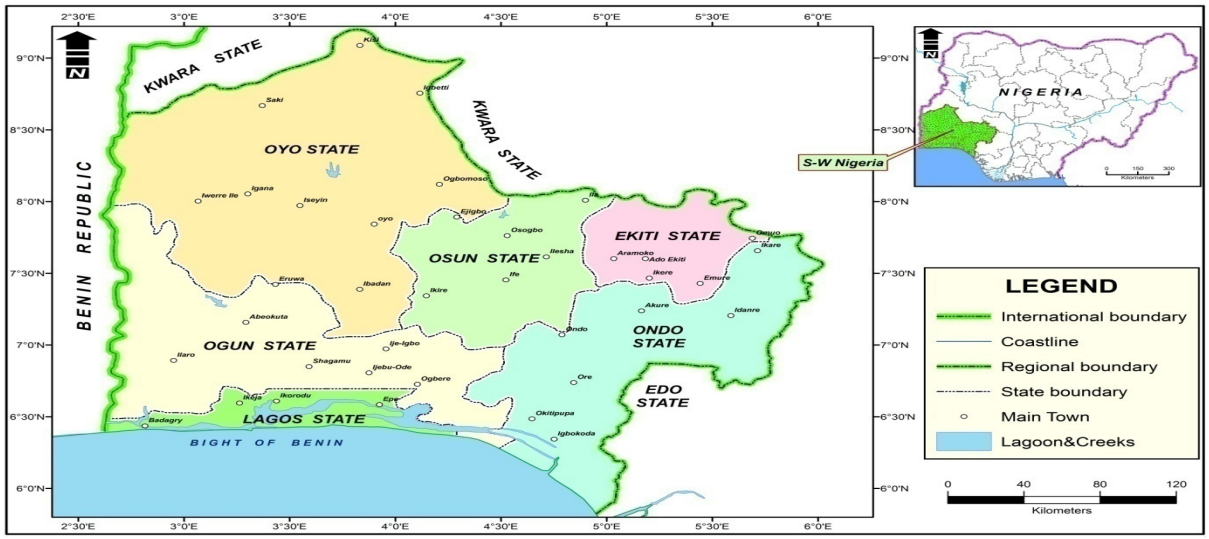


Figure 3.1: Map of Nigeria showing the study area

3.2 Study Design

The study is socio-economic and observational in nature.

3.3 Data collection and procedures

Landsat satellite images (1987, 1997, 2007 and 2017) from US Geological Survey were utilized. The study area is located in the Landsat paths 190/191 and row 55. The pixel sizes of the images were 30×30m (Chander, 2003). All the images were obtained in the same season (dry). Also, fiel d work, with an assessment of forest governance objectives, was conducted using questionnaire to generate data from forestry stakeholders domiciled in Southwestern, Nigeria. Respondents were forest officers, forest superintendents and forest guards, saw-millers, timber contractors, plank dealers, private forest plantation owners and community dwellers adjoining forest reserves. Personal observations were used to augment data generated through questionnaire. Also, Secondary data was obtained from state forestry offices, technical publications, journals, research reports, library, internet and other relevant literature that supplements the primary data.

A common practice in estimating manpower requirements for forestry is to develop empirical norms of technical staff per unit area of forest. The estimated requirements represent the minimum number of staff of each category that should be available to cater for the management of the forest reserves. Estimates of professional staff requirements are then derived from the numbers of technical staff using supervision ratio. For each of the state departments in southwestern Nigeria, the empirical norm;1 Technical staff/300ha, while Professional/Technician ratio of 1: 4 in forest plantation management for selected forest reserve was adopted (FAO, 1970). According to O'Toole and Meier (2009) staff shortfall (deficit) estimation is a management tool used to determine the exact percentage of manpower shortage. Below fifty percent there is no need for employment of additional staff, at fifty percent management may or may not employ because half of the workforce required are available; above fifty percent there is a need to increase the staff strength for optimal performance and to prevent the overworking of the available staff caused by inadequate manpower staff shortfall percentage which indicates the magnitude of staff deficiency. The higher staff shortfall percentage, the urgent the need for additional recruitment and vice versa.

3.4 Sampling Size

Six sets of structured questionnaire were administered to the specified respondents and a check list was administered to each state in which a representative in the various headquarters filled questionnaire based on the existing state record. The six sets of structured questionnaire were administered with oral interviews to 37 professionals, 57 technical staff, 81 uniform staff, 82 timber contractors 152 saw-millers, 110 plank dealers, 40 private forest plantation owners and 149 community dwellers (these are people living within 3km radius of the Forest Reserves boundaries) in all the six states. A total of 708 respondents were selected in the study area. The first set of questionnaire was administered to forest official within professional and technical cadre, the second set of questionnaire was to forest officials within the Uniform staff cadre, the third set to timber contractors and saw-millers, the fourth set to plank dealers, the fifth set to private forest plantation owners while the sixth set to community dwellers in adjoining forest reserves. Diaw *et al.* (2002)'s sampling method was used, were ten, five, two and half percent sampling intensity were used to choose respondents from 500 and below, between 500 and 1000 and 1000 and above respectively with exception to professional and technical staff where 50 percent sampling intensity was used and in Lagos State where total enumeration was carried out considering their limited number of staff.

3.5 Sampling Intensity

Fifty percent of professional and technical staff was randomly selected across the six states. However, 10% sampling intensity was applied to uniformed staff, saw millers, timber contractors and plank dealers, respectively. One major plank market each was selected from across the state and 2.5% of the plank dealers from each market were selected. Ten percent of the registered private forest plantation owners were selected across the state. Two forest reserves were choosing from each state. Ten percent of each of the community dwellers in adjoining forest reserves was chosen.

Table 3.1: Total Number of Sampled respondents in the Study Area

State/Respondents	Ekiti	Lagos	Ogun	Ondo	Osun	Oyo	Total
Professional	5	6	5	9	7	5	37
Technical	6	1	15	19	4	12	57
Uniformed	9	5	29	19	10	9	81
Timber Contractors	10	5	16	17	19	15	82
Saw millers	20	25	18	29	32	28	152
Plank sellers	10	13	23	21	10	33	110
Private Plantations	7	3	8	10	4	8	40
Village dwellers	26	20	28	17	26	32	149
TOTAL	**93**	**78**	**142**	**141**	**112**	**142**	**708**

Source: Field Survey, 2015

3.6 Data analysis

The data obtained were subjected to descriptive and inferential analysis. Tools such as tables, percentages and frequency were used in the presentation of the findings as descriptive statistics while Logistic regression and chi-square test inferential statistics were used in the presentation of the findings of the study. Details of the analytical tools used in the data analyzed are presented below:

Logistic regression

The logit of a response *p* between 0 and 1 is given as:

Logit (p) = log (p) – log (1 - p)

The simplest form of logit model is expressed as:

Logit (p_i) = a + bx ……..Equation 1

Where xi = independent variable

*p*i = probability of respondent indicating presence or absence

The factors negating Good Forest Governance (GFG - Dependent variable) were investigated (Presence = 1; Absence = 0)

Factors investigated {Independent variable} were

Lack of accountability (*LACC*), Ineffectiveness (*IEFV),* Inefficiency (*IEFC*), Lack of respect for the rule of law (*LRRL*), Lack of participation (*LPAT*) and Lack of transparency (*LTRC*)

The Chi-square test is a non-parametric test used to test for independence or association of variables in contingency tables, given by

$$X^2 = \sum (O_{ij} - E_{ij})/E_{ij}$$

Where chi square value = X^2

$X^2 = \sum (Oij - E_{ij})/E_{ij}$ …….Equation 2

- $\sum$= Sum
- O_{ij} = Observed cell frequency
- E_{ij}= Expected cell frequency
- Degree of freedom (df) = (r-1)(c -1),
- Where r = number of rows and c = number of columns

Planning, decision-making, stakeholders' participation and perception on enforcement were tested.

CHAPTER FOUR

RESULTS

4.1 Respondents in the study area

Table 4.1 Indicated that 13.1% of the respondents were from Ekiti state, 11% of the respondents were from Lagos state, 20.1% of the respondents were from Ogun state, 19.9% were from Ondo state, 15.8% were from Osun and 20.1% respondents from Oyo state.

4.2 Categories of Respondents in Southwestern, Nigeria

Table 4.2 showed that 5.09% respondents were professional staff, 8.19% of the respondents were technical staff, 11.44% of the respondents were uniform staff, 21.47% of the respondents were saw-millers, 11.58% of the respondents were timber contractors, 15.54% respondents were plank dealers, and 5.64% respondents were private forest plantation owners while 21.05% respondents were community dwellers.

4.3 Information on Demography of Respondents in Southwestern, Nigeria

Table 4.3 indicated that majority of the respondents were males (82.6%). About 30% of the respondents were between 41 – 50 years old (the largest age range), while 1% were between 21 – 30 years old (the least age range). About 5% were older than 70 years old. It also showed that 11.3% had no primary education, 22.3% had primary education, 30.1% had secondary education, 12.3% had diploma, 0.8% had National Certificate Examination, 8.9% had Bachelor's degree, and 2% had Master's degree while 0.1% had Ph.D.

4.4 Community dweller's State of Origin

Table 4.4 revealed that higher percentage of the respondents were from the area of study; 21.48% in Oyo, 16.77% in Ogun, 14.09% in Osun, 10.74% in Ondo, 6.04% in Ekiti, 4.03% in Lagos, while Kogi (9.4%) and Benue (7.38%) were the highest percentages outside the study area.

Table 4.1: Number of Respondents per State

State	Frequency	%
Ekiti	93	13.1
Lagos	78	11.0
Ogun	142	20.1
Ondo	141	19.9
Osun	112	15.8
Oyo	142	20.1
Total	**708**	**100.00**

Source: Field survey, 2016

Table 4.2: Categories of Respondents in Southwestern, Nigeria

Category	Frequency	Percentage
Professional staff	36	5.09
Technical staff	58	8.19
Uniform staff	81	11.44
Saw-millers	152	21.47
Timber contractors	82	11.58
Plank dealers	110	15.54
Private forest plantation owners	40	5.64
Community dwellers	149	21.05
Total	**708**	**100.00**

Source: Field survey, 2016

Table 4.3: Demographic Information

Demographic Variables	F	%
Gender		
Male	585	82.6
Female	123	17.4
Total	**708**	**100.00**
Age Distribution		
21 – 30	7	1.0
31 – 40	117	16.5
41 – 50	212	29.9
51 – 60	201	28.4
61 – 70	137	19.4
>70	34	4.8
Total	**708**	**100.00**
Educational Distribution		
None	80	11.3
Primary	158	22.3
Secondary	213	30.1
ND	87	12.3
NCE	6	0.8
HND	56	12.1
B.Sc	63	8.9
M.Sc	14	2.0
Ph.D	1	0.1
Total	**708**	**100.00**

Source: Field Survey, 2016

Table 4.4: Frequency Analysis of the Community dweller's State of Origin

State	Ek	Lag	Og	On	Os	Oy	Total	%
Abia	0	0	0	0	0	1	1	0.67
Akwa-Ibom	1	0	0	0	0	0	1	0.67
Anambra	1	1	0	0	0	0	2	1.34
Benue	4	1	1	3	0	2	11	7.38
Delta	1	0	0	0	0	0	1	0.67
Edo	1	2	1	0	0	0	4	2.69
Ekiti	8	0	0	1	0	0	9	6.04
Imo	0	1	0	1	1	2	5	3.36
Kogi	2	1	1	5	2	3	14	9.40
Lagos	0	5	1	0	0	1	6	4.03
Niger	0	1	0	0	0	0	1	0.67
Ondo	5	2	0	6	2	1	16	10.74
Ogun	0	3	20	0	1	1	25	16.77
Osun	2	1	1	1	15	1	21	14.09
Oyo	1	2	3	0	5	21	32	21.48
Total	**26**	**20**	**28**	**17**	**26**	**32**	**149**	**100.00**

Source: Field Survey, 2016

Ek – Ekiti

Lag – Lagos

Og – Ogun

On – Ondo

Os –Osun

Oy - Oyo

4.5 Forest cover class and definitions for supervised classification

Table 4.5 showed the forest cover class and definitions for supervised classification for spatial distribution of forest cover types between the year 1987 and 2017 in Southwestern, Nigeria for the three categories that were used; these include built up/bare surface, shrubs and forest.

able 4.5: Forest cover class and definitions for supervised classification

Forest Cover	Description
Built up	Residential, commercial, transportation, communications, utilities, and industrial areas
Bare surface	Sandy areas, bare exposed rock, transitional area and open land
Shrubs	Cropland and pasture/ grass land
Forest	Nurseries, Plantation and mixed forest.

Source: Field Survey, 2017

4.5.1 Forest cover type use in Ogbese forest reserve from 1987 – 2017 in Ekiti State

Table 4.6 (as captured in Figures 4.1, 4.2, 4.3 and 4.4 respectively) indicated that built up, shrubs and forest areas constituted 2.11km^2 (2.96%), 13.19km^2 (18.87%) and 56.10km^2 (78.57%) of land area, respectively in 1987; 5.45km^2 (7.63%), 16.88km^2 (23.64%) and 49.084km^2 (68.73%) of land area, respectively in 1997; 3.96km^2 (5.54%), 14.88km^2 (14.10%) and 52.57km^2 (73.62%) of land area, respectively in 2007; and 8.56km^2 (11.98%), 23.33km^2 (32.67%) and 39.52km^2 (53.35%) of land area, respectively in 2017.

4.5.2 Forest cover type use in Ikere forest reserve from 1987 - 2017 in Ekiti State

Table 4.6 (as captured in Figures 4.5, 4.6, 4.7 and 4.8 respectively) indicated that built up, shrubs and forest areas constituted 0.83km^2 (6.34%), 4.00km^2 (30.67%) and 8.22km^2 (62.99%) of land area, respectively in 1987; 0.85km^2 (6.48%), 0.87km^2 (6.69%) and 11.33km^2 (86.83%) of land area, respectively in 1997; 0.75km^2 (6.10%), 2.9km^2 (21.90%) and 9.40km^2 (72.00%) of land area, respectively in 2007; and 0.66km^2 (5.08%), 2.79km^2 (21.36%) and 9.60km^2 (73.56%) of land area, respectively in 2017.

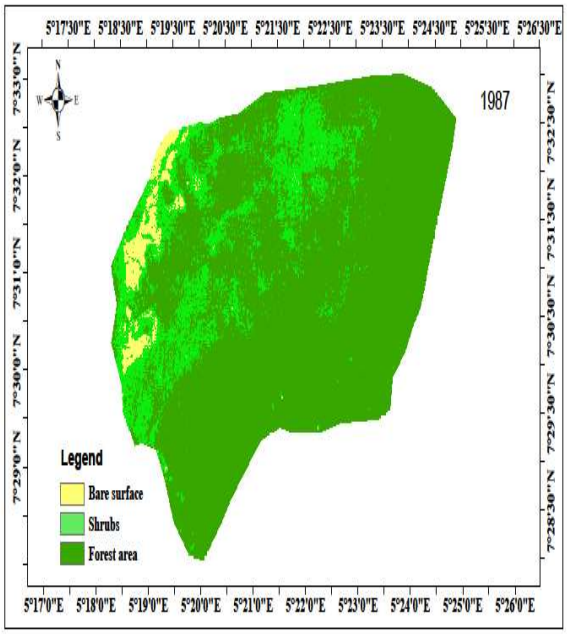


Figure 4.1: Map showing FCTU in Ogbese Forest Reserve Ekiti State for 1987

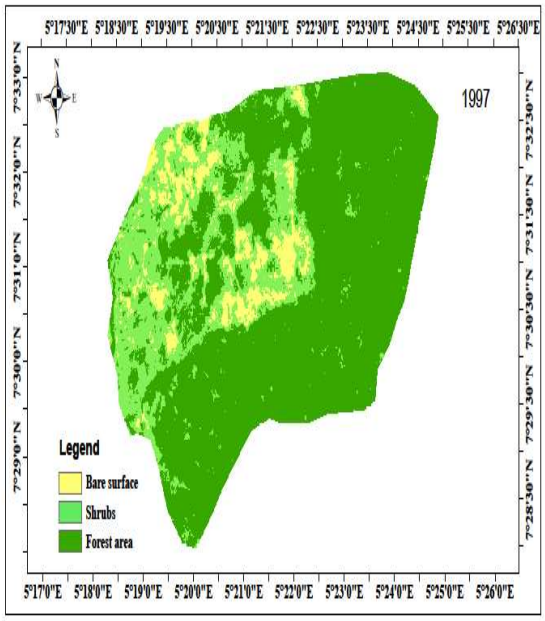


Figure 4.2:Map showing FCTU in Ogbese Forest Reserve Ekiti State for 1997

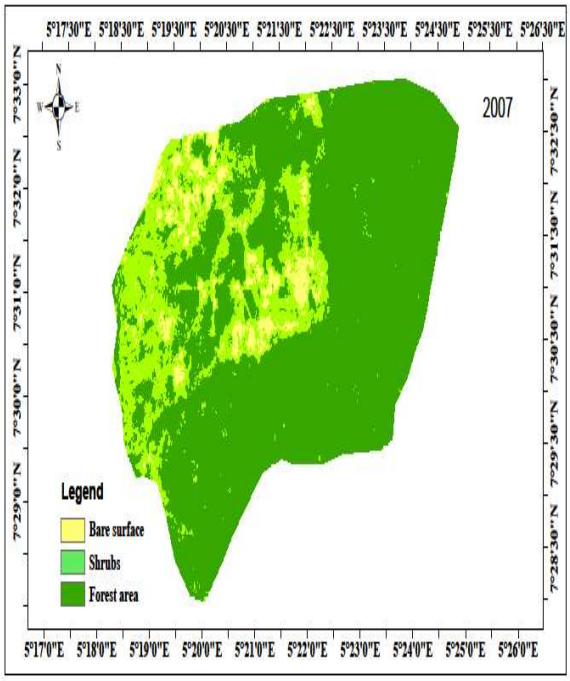


Figure 4.3: Map showing FCTU in Ogbese Forest Reserve Ekiti State for 2007

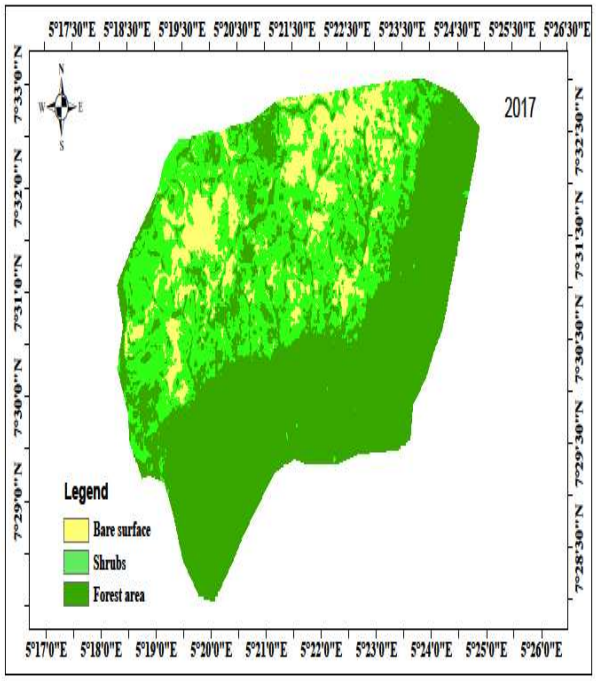


Figure 4.4: Map showing FCTU in Ogbese Forest Reserve Ekiti State for 2017

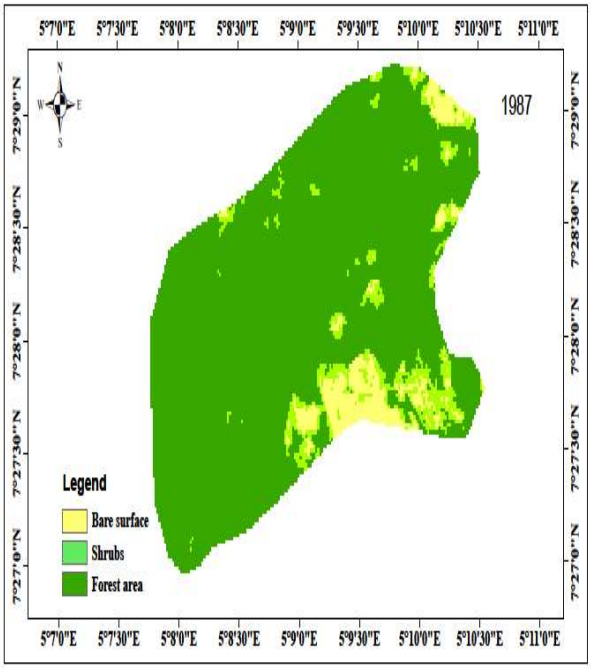


Figure 4.5: Map showing FCTU in Ikere Forest Reserve, Ekiti State for 1987

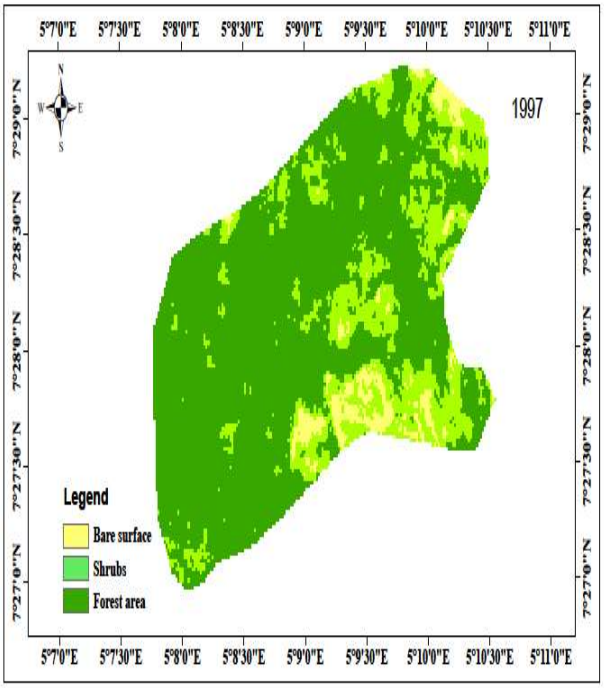


Figure 4.6: Map showing FCTU in Ikere Forest Reserve, Ekiti State for 1997

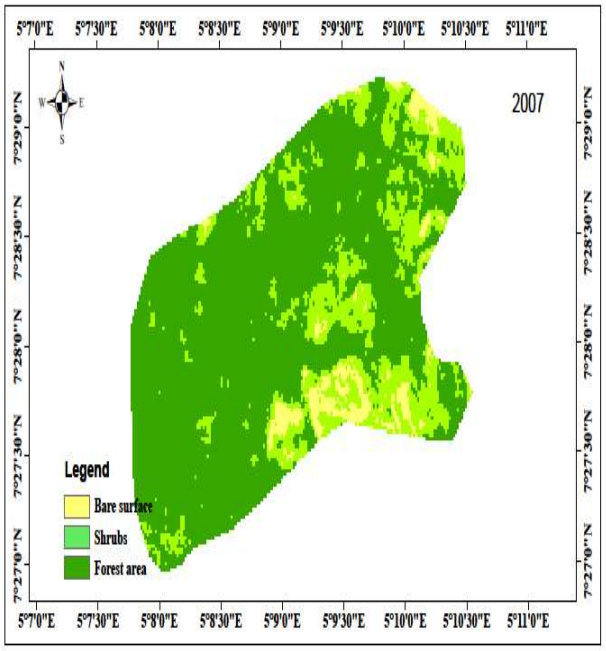


Figure 4.7: Map showing FCTU in Ikere Reserve in Ekiti State for 2007

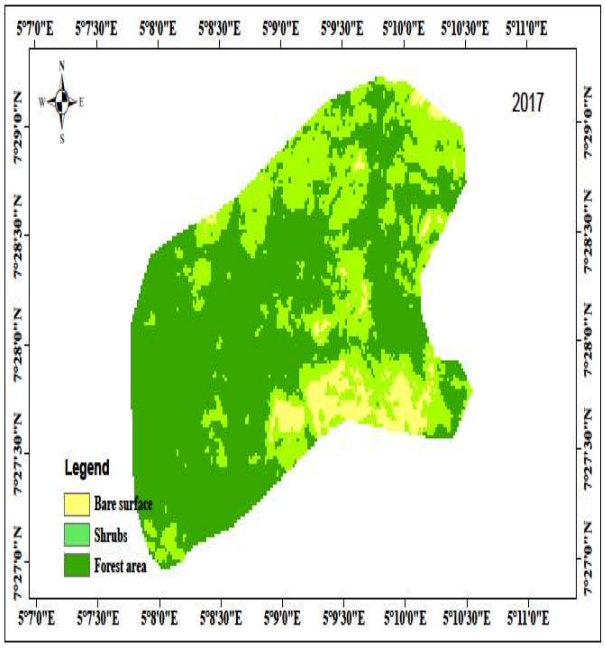


Figure 4.8: Map showing FCTU in Ikere Forest Forest Reserve in Ekiti State for 2017

4.5.3 Forest cover type use in Ogun River forest reserve from 1987 - 2017 in Lagos State

Table 4.6 (as captured in Figures 4.9, 4.10, 4.11 and 4.12 respectively) indicated that built up, shrubs and forest areas constituted 0.14km^2 (0.87%), 0.22km^2 (1.44%) and 15.89km^2 (97.69%) of land area, respectively in 1987; 1.684km^2 (10.86%), 0.994km^2 (6.40%) and 12.784km^2 (82.74%) of land area, respectively in 1997; 1.984km^2 (12.83%), 2.184km^2 (14.10%) and 11.294km^2 (73.07%) of land area, respectively in 2007; and 3.79km^2 (24.52%), 6.42km^2 (41.57%) and 5.24km^2 (33.91%) of land area, respectively in 2017.

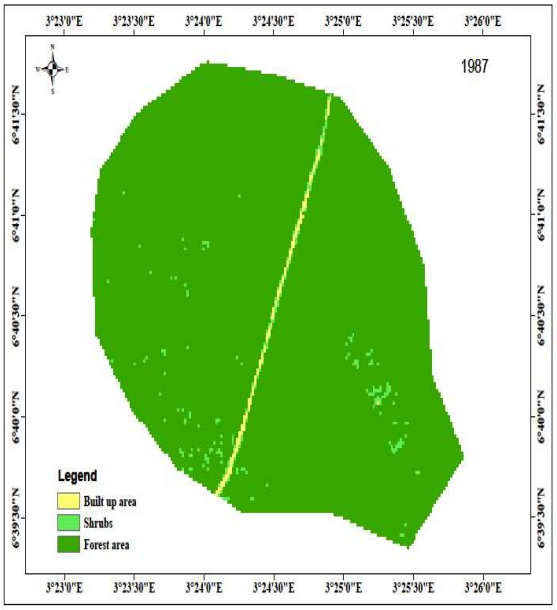


Figure 4.9: Map showing FCTU in Ogun River Forest Reserve Lagos for 1987

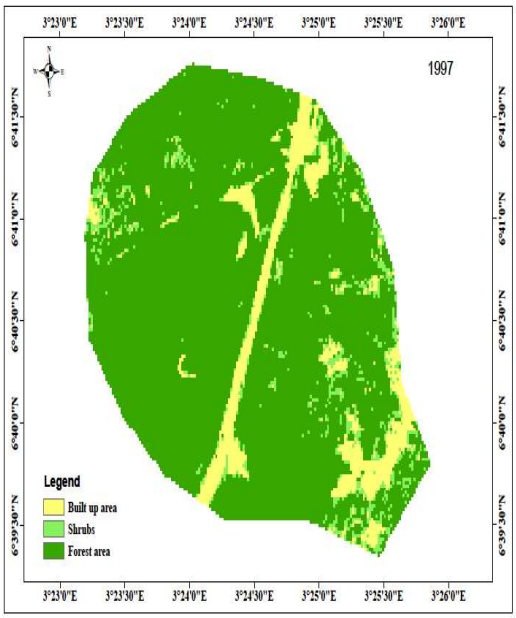


Figure 4.10: Map showing FCTU in Ogun River Forest Reserve, Lagos for 1997

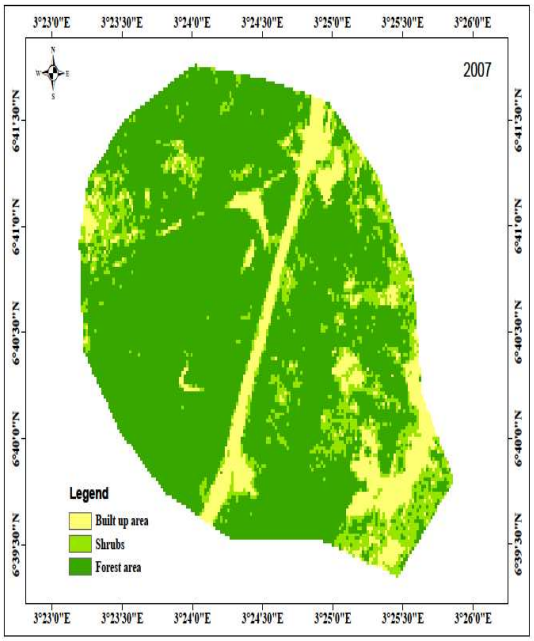


Figure 4.11: Map showing FCTU in Ogun River Forest Reserve Lagos for 2007

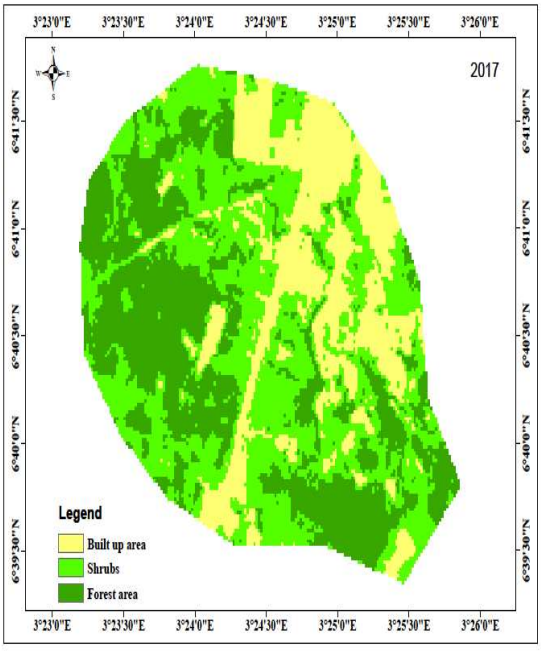


Figure 4.12: Map showing FCTU in Ogun River Forest Reserve Lagos State for 2017

4.5.4 Forest cover type use in Aworo forest reserve, Ogun State from 1987 - 2017

Table 4.6 (as captured in Figures 4.13, 4.14, 4.15 and 4.16 respectively) indicated that built up, shrubs and forest areas constituted 1.71km^2 (0.72%),1 0.10km^2 (4.27%) and 224.92km^2 (95.01%) of land area, respectively in 1987; 2.95km^2 (1.25%), 35.18km^2 (14.86%) and 198.59km^2 (83.89%) of land area, respectively in 1997; 5.44km^2 (2.29%), 11.68km^2 (4.94%) and 219.60km^2 (92.77%) of land area, respectively in 2007; and 7.69km^2 (3.25%), 64.42km^2 (27.21%) and 164.61km^2 (69.54%) of land area, respectively in 2017.

4.5.5 Forest cover type use in Olokemeji forest reserve, Ogun State from 1987 to 2017

Table 4.6 (as captured in Figures 4.17, 4.18, 4.19 and 4.20 respectively) indicated that built up, shrubs and forest areas constituted 0.37km^2 (0.40%), 3.25km^2 (3.61%) and 86.53km^2 (95.99%) of land area, respectively in 1987; 0.91km^2 (1.00%), 12.94 km^2 (14.36%), 76.30 (84.64%) of land area, respectively in 1997; 1.90km^2 (2.12%) 4.00km^2 (4.44%) and 84.25km^2 (93.44%) of land area, respectively in 2007; 1.14km^2 (1.26%), 15.45km^2 (17.14%) and 73.56km^2 (81.60%) of land area, respectively in 2017.

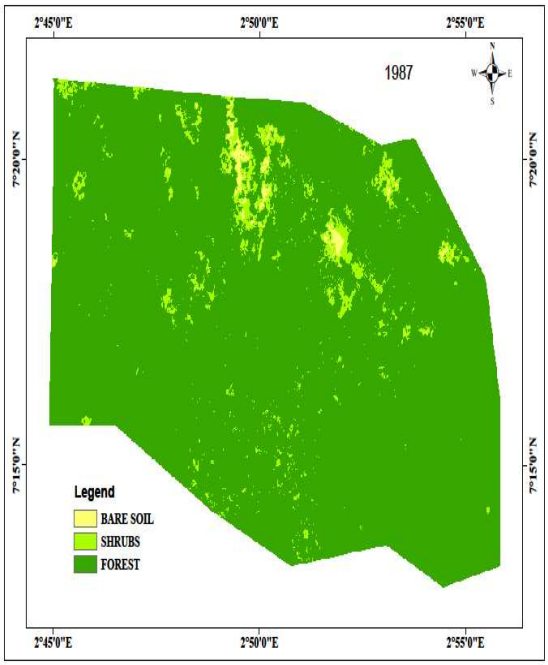


Figure 4.13: Map showing FCTU in Aworo Forest Reserve in Ogun State for 1987

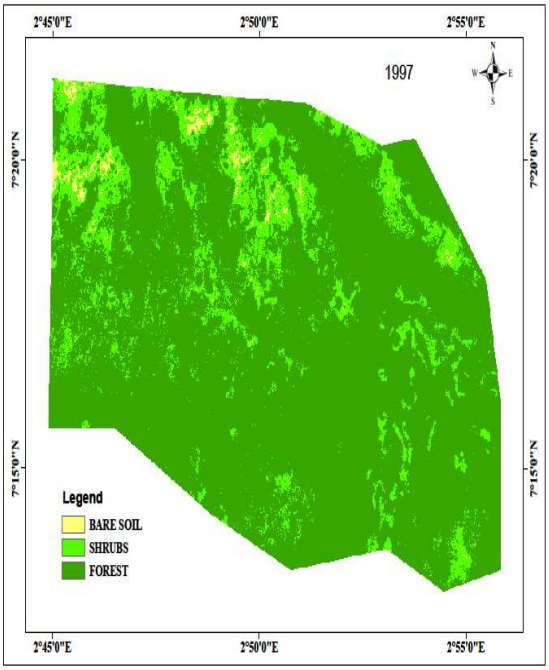


Figure 4.14: Map showing FCTU in Aworo Forest Reserve in Ogun State for 1997

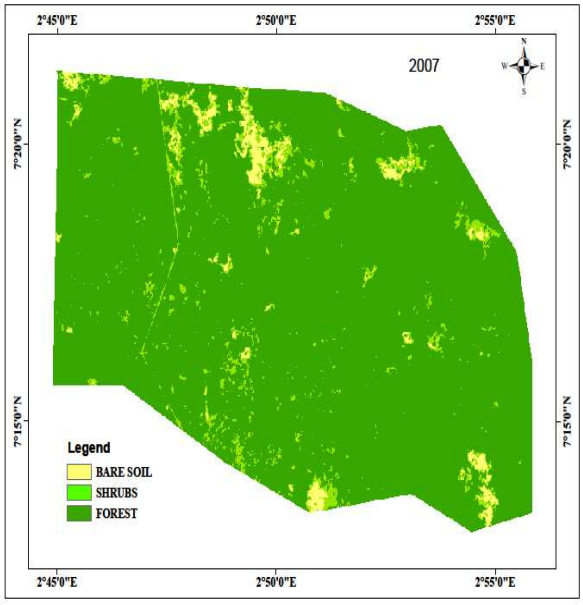


Figure 4.15: Map showing FCTU in Aworo Forest Reserve in Ogun State for 2007

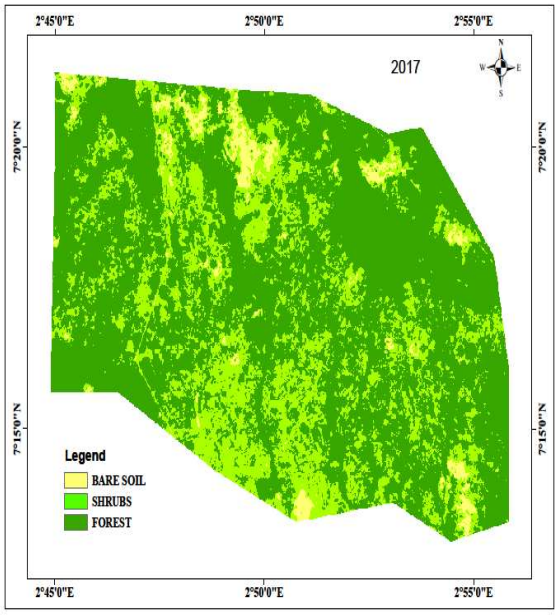


Figure 4.16: Map showing FCTU in Aworo Forest Reserve in Ogun State for 2017

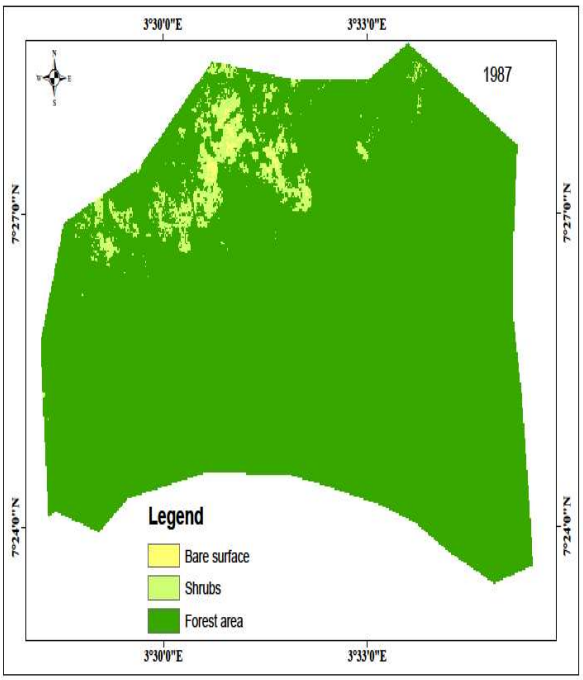


Figure 4.17: Map showing FCTU in Olokemeji Forest Reserve in Ogun for 1987

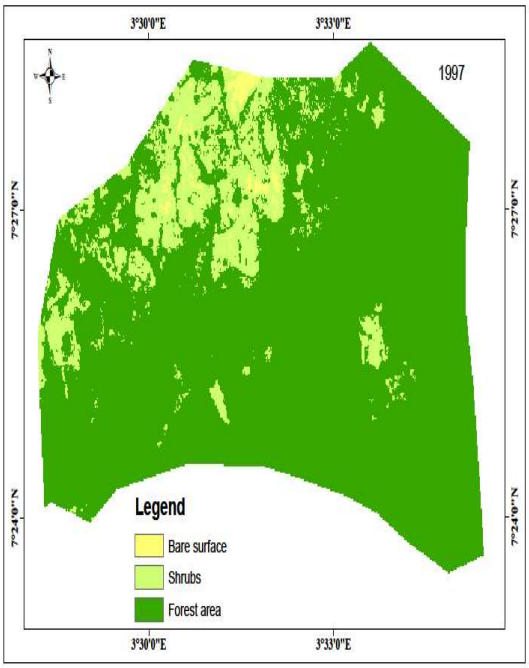


Figure 4.18: Map showing FCTU in Olokemeji Forest Reserve in Ogun for 1997

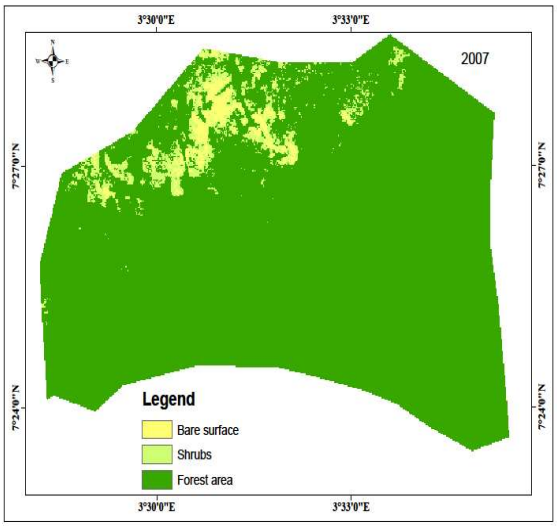


Figure 4.19: Map showing FCTU in Olokemeji Forest Reserve in Ogun for 2007

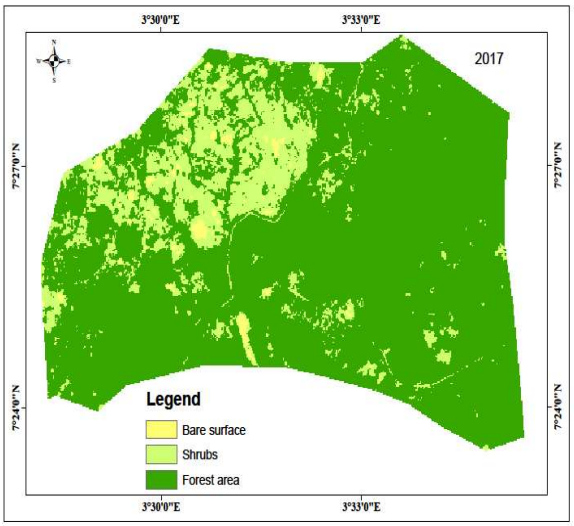


Figure 4.20: Map showing FCTU in Olokemeji Forest Reserve in Ogun for 2017

4.5.6 Forest cover type use in Oluwa forest reserve, Ondo State from 1987 to 2017 Table 4.6 (as captured in Figures 4.21, 4.22, 4.23 and 4.24 respectively) indicated that built up, shrubs and forest areas constituted 0.25km^2 (0.03%), 78.08km^2 (9.08%) and 781.54km^2 (90.89%) of land area, respectively in 1987; 8.21km^2 (10.86%), 131.39km^2 (15.28%) and 720.27km^2 (83.76%) of land area, respectively in 1997; 17.22km^2 (2.00%), 146.22km^2 (17.00%) and 696.43km^2 (81.00%) of land area, respectively in 2007; and 17.67km^2 (2.05%), 155.47km^2 (18.08%) and 686.43km^2 (79.87%) of land area, respectively in 2017.

4.5.7 Forest cover type use in Akure forest reserve, Ondo State from 1987 - 2017

Table 4.7 (as captured in Figures 4.25, 4.26, 4.27 and 4.28 respectively) indicated that built up, shrubs and forest areas constituted 0.01km^2 (0.02%), 0.70km^2 (0.95%) and 72.82km^2 (99.03%) of land area, respectively in 1987; 1.11km^2 (1.50%), 20.94km^2 (28.47%) and 51.48km^2 (70.03%) of land area, respectively in 1997; 5.54km^2 (7.53%), 45.21km^2 (61.48%) and 22.78km^2 (30.99%) of land area, respectively in 2007; and 7.82km^2 (%), 60.55km^2 (44.52%) and 23.26km^2 (31.63%) of land area, respectively in 2017.

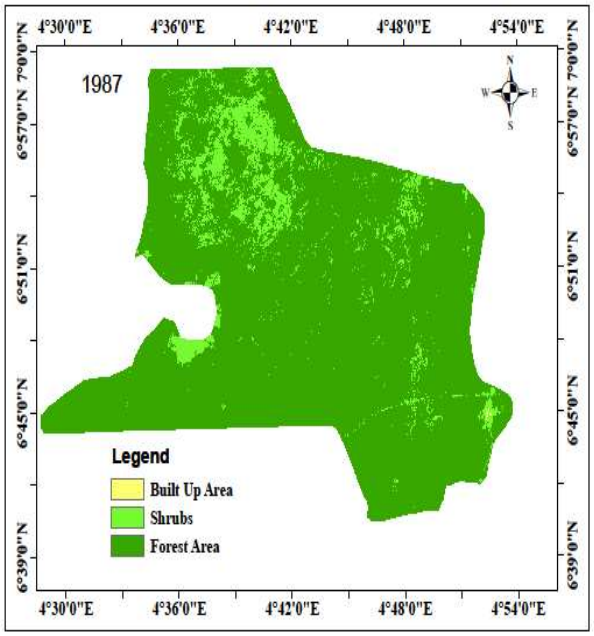


Figure 4.21: Map showing FCTU in Oluwa Forest Reserve in Ondo State for 1987

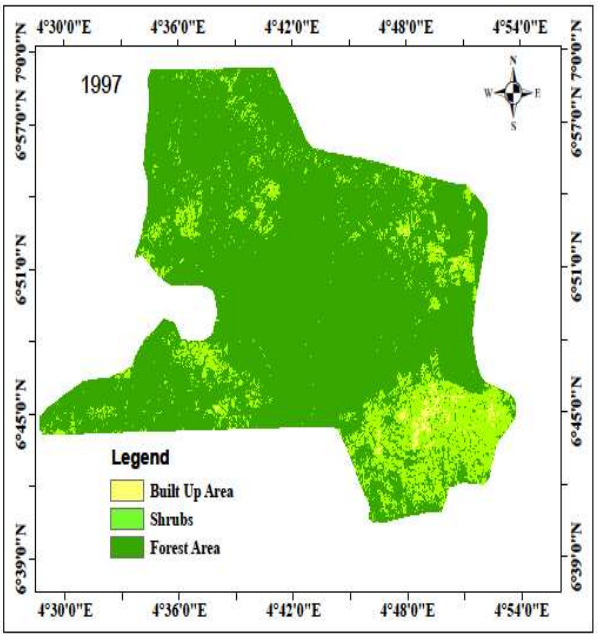


Figure 4.22: Map showing FCTU in Oluwa Forest Reserve in Ondo State for 1997

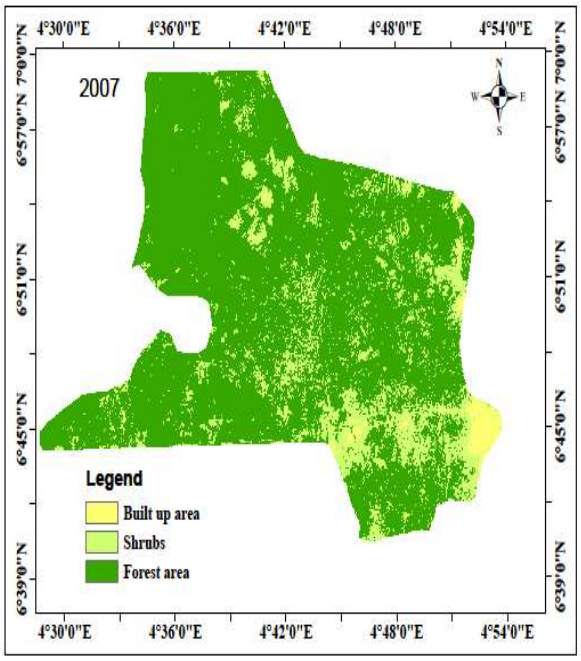


Figure 4.23: Map showing FCTU in Oluwa Forest Reserve in Ondo State 2007

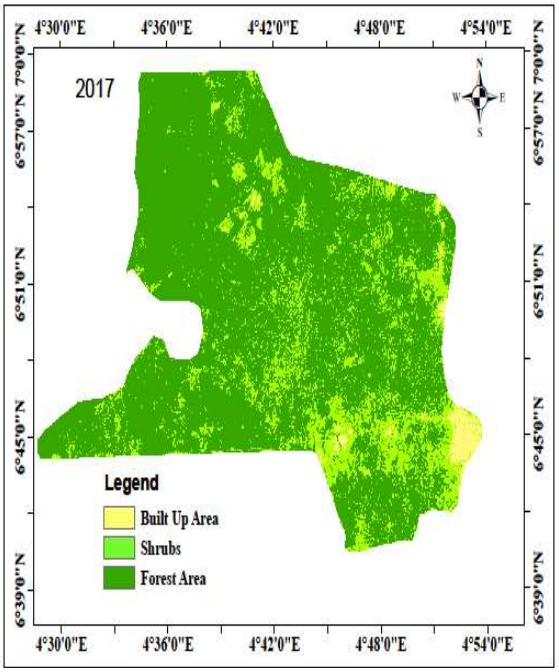


Figure 4.24: Map showing FCTU in Oluwa Forest Reserve in Ondo State 2017

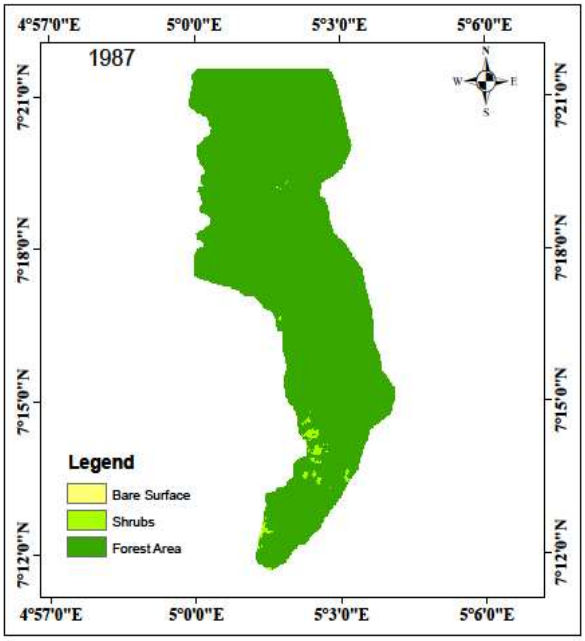


Figure 4.25: Map showing FCTU in Akure Forest Reserve in Ondo State for 1987

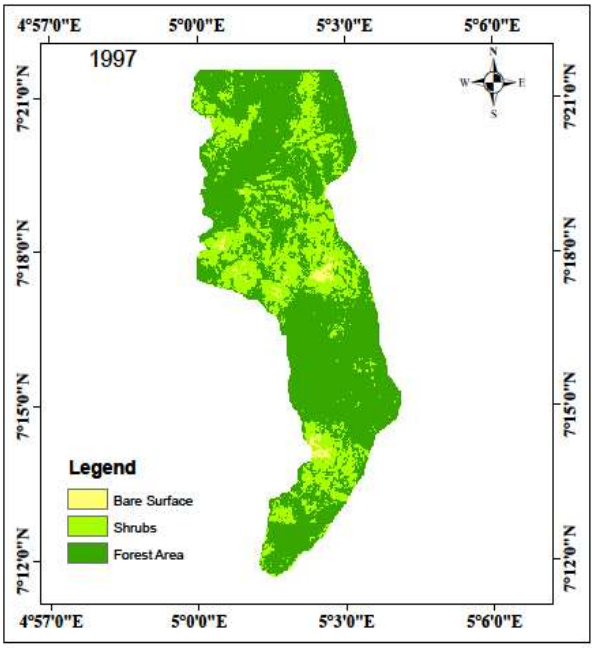


Figure 4.26: Map showing FCTU in Akure Forest Reserve in Ondo State for 1997

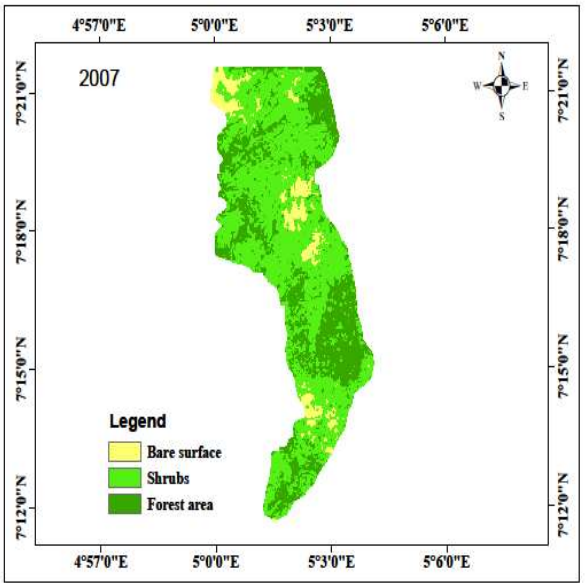


Figure 4.27: Map showing FCTU in Akure Forest Reserve in Ondo State for 2007

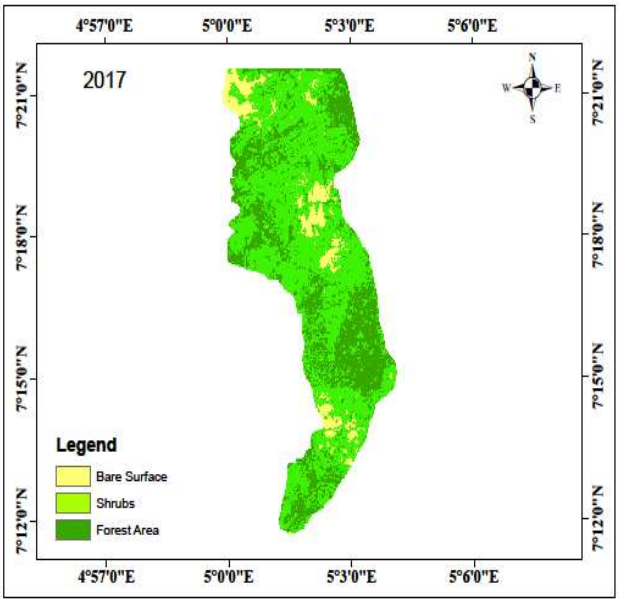


Figure 4.28: Map showing FCTU in Akure Forest Reserve in Ondo State for 2017

4.5.8 Forest cover type use in Shasha forest reserve, Osun State from 1987 to 2017

Table 4.7 (as captured in Figures 4.29, 4.30, 4.31 and 4.32 respectively) indicated that built up, shrubs and forest areas constituted 0.00km^2 (0.00%), 3.56km^2 (1.11%) and 316.12km^2 (98.89%) of land area, respectively in 1987; 0.20km^2 (0.06%), 14.30km^2 (4.48%) and 305.18km^2 (95.46%) of land area, respectively in 1997; 0.23.km^2 (0.07%), 23.21km^2 (7.26%) and 296.24km^2 (92.67%) of land area, respectively in 2007; and 0.34km^2 (0.11%), 26.18km^2 (8.19%) and 293.16km^2 (91.70%) of land area, respectively in 2017.

4.5.9 Forest cover type use in Ago-Owu forest reserve, Osun State from 1987 to 2017

Table 4.7 (as captured in Figures 4.33, 4.34, 4.35 and 4.36 respectively) indicated that built up, shrubs and forest areas constituted 0.05km^2 (0.11%), 2.70km^2 (6.15%) and 41.17km^2 (93.74%) of land area, respectively in 1987; 0.19km^2 (0.43%), 6.77km^2 (15.41%) and 36.96km^2 (84.16%) of land area, respectively in 1997; 0.44km^2 (12.83%), 8.14km^2 (18.53%) and 35.34km^2 (80.47%) of land area, respectively in 2007; and 2.59km^2 (5.89%), 9.46km^2 (21.54%) and 31.87km^2 (72.57%) of land area, respectively in 2017.

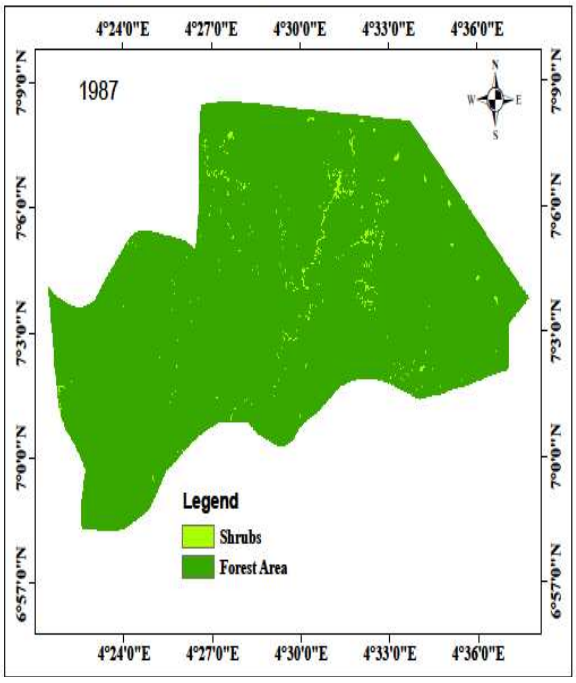


Figure 4.29: Map showing FCTU in Shasha Forest Reserve in Osun State for 1987

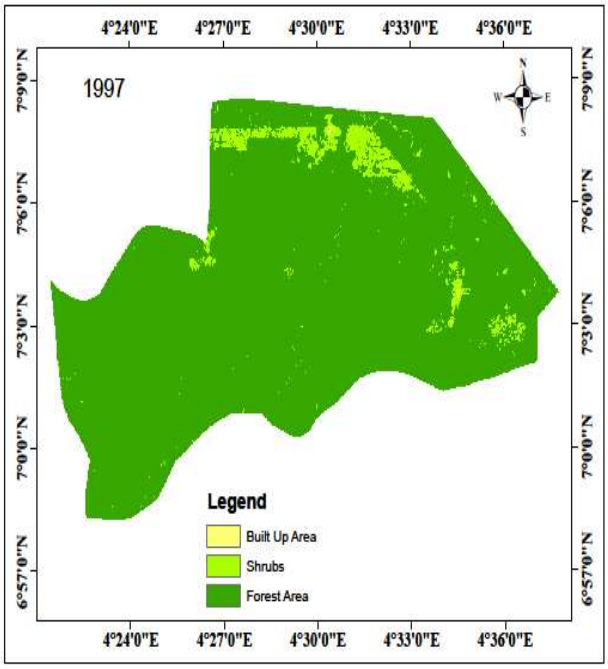


Figure 4.30: Map showing FCTU in Shasha Forest Reserve in Osun State for 1997

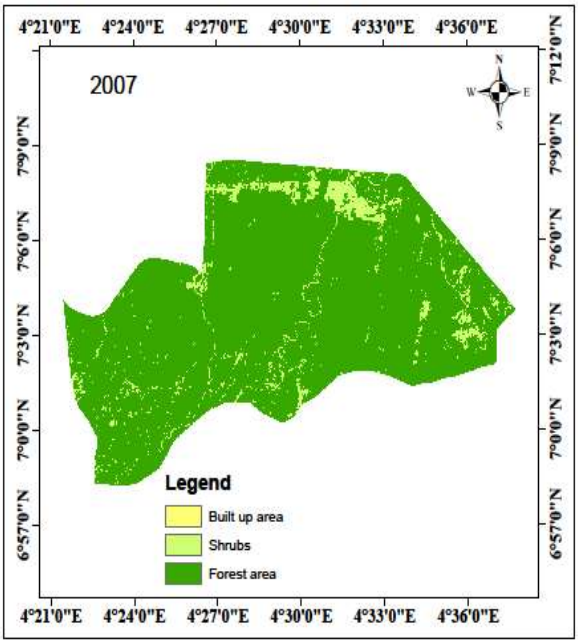


Figure 4.31: Map showing FCTU in Shasha Forest Reserve in Osun State for 2007

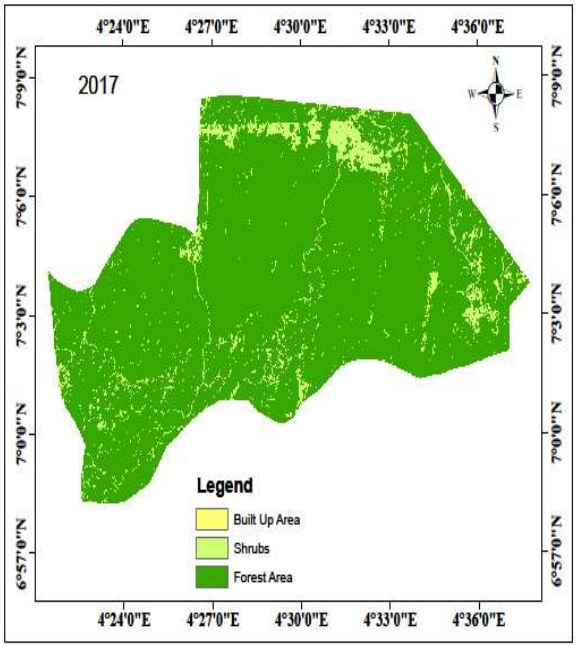


Figure 4.32: Map showing FCTU in Shasha Forest Reserve in Osun State for 2017

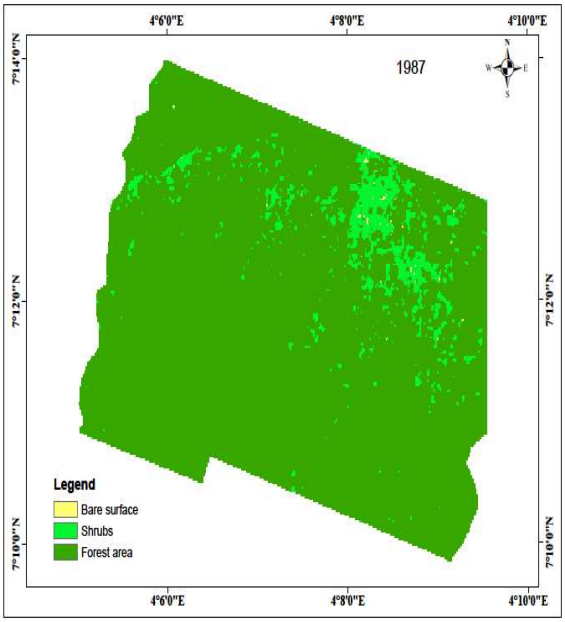


Figure 4.33: Map showing FCTU in Ago-Owu Forest Reserve in Osun State for 1987

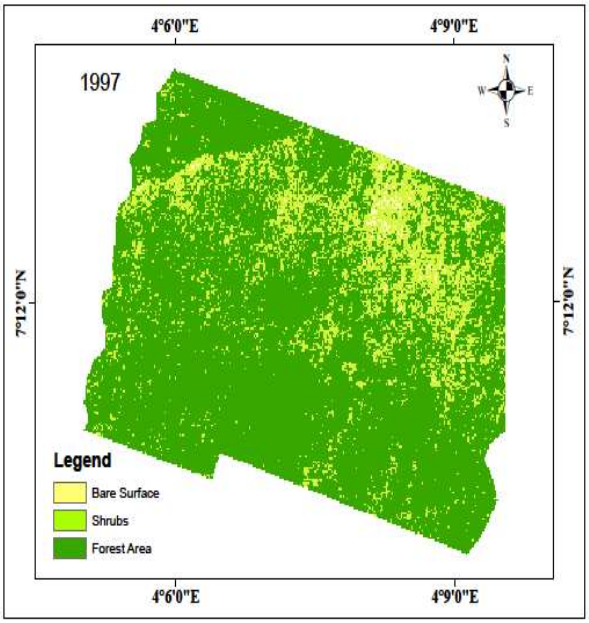


Figure 4.34: Map showing FCTU in Ago-Owu Forest Reserve in Osun State for 1997

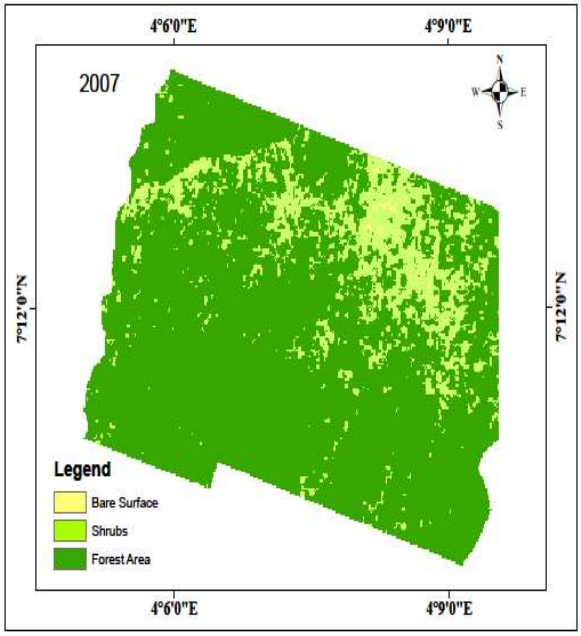


Figure 4.35: Map showing FCTU in Ago-Owu Forest Reserve in Osun State for 2007

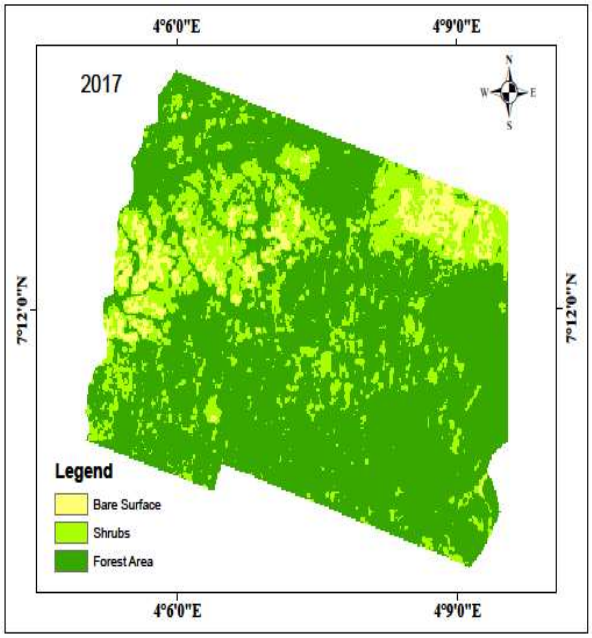


Figure 4.36: Map showing FCTU in Ago-Owu Forest Reserve in Osun State for 2017

4.5.10 Forest cover type use in Gambari forest reserve, Oyo State from 1987 to 2017

Table 4.7 (as captured in Figures 4.37, 4.38, 4.39 and 4.40 respectively) indicated that built up, shrubs and forest areas constituted 0.41km^2 (0.38%), 5.52km^2 (5.12%) and 101.98km^2 (94.50%) of land area, respectively in 1987; 1.91km^2 (0.84%), 40.84km^2 (37.85%) and 66.16km^2 (61.31%) of land area, respectively in 1997; 2.20km^2 (2.04%), 28.32km^2 (26.25%) and 77.39km^2 (71.71%) of land area, respectively in 2007; and 2.20km^2 (2.03%), 17.37km^2 (16.10%) and 88.34km^2 (81.87%) of land area, respectively in 2017.

4.5.11 Forest cover type use in Osho forest reserve, Oyo State from 1987 to 2017

Table 4.7 (as captured in Figures 4.41, 4.42, 4.43 and 4.44 respectively) indicated that built up, shrubs and forest areas constituted 1.27km^2 (1.95%), 3.57km^2 (5.49%) and 60.26km^2 (92.56%) of land area, respectively in 1987; 1.19km^2 (1.83%), 6.12km^2 (9.40%) and 57.79km^2 (88.77%) of land area, respectively in 1997; 4.36km^2 (6.70%), 6.93km^2 (10.63%) and 57.79.km^2 (73.07%) of land area, respectively in 2007; and 4.90km^2 (7.52%), 31.02km^2 (47.81%) and 29.08km^2 (44.67%) of land area, respectively in 2017.

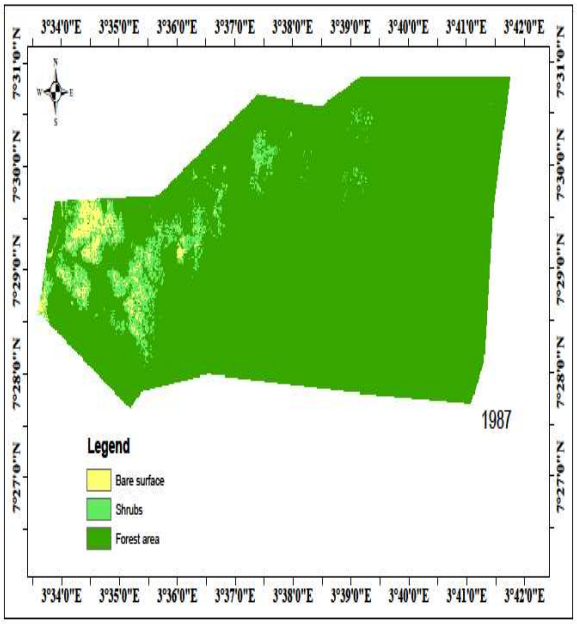


Figure 4.37: Map showing FCT in Gambari Forest Reserve in Oyo State for 1987

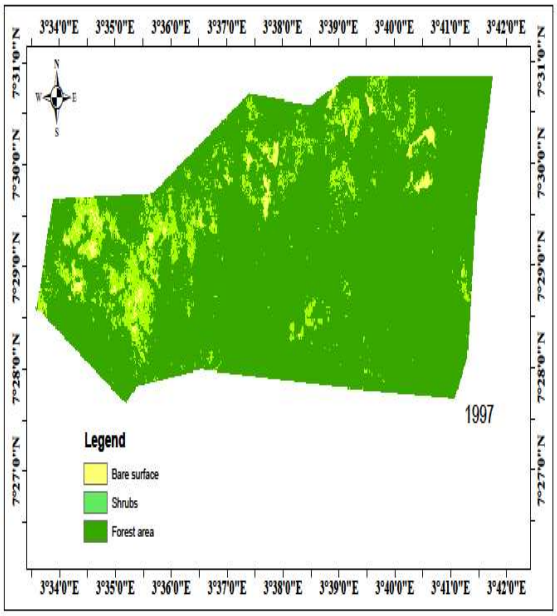


Figure 4.38: Map showing FCT in Gambari Forest Reserve in Oyo State for 1997

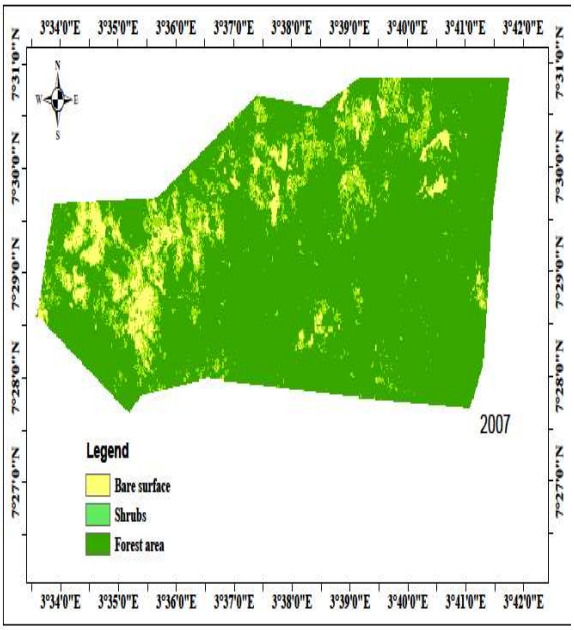


Figure 4.39: Map showing FCTU in Gambari Forest Reserve in Oyo State for 2007

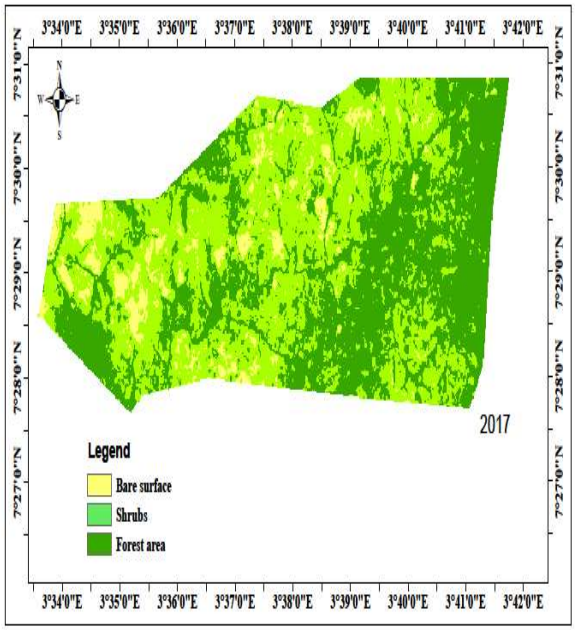


Figure 4.40: Map showing FCTU in Gambari Forest Reserve in Oyo State for 2017

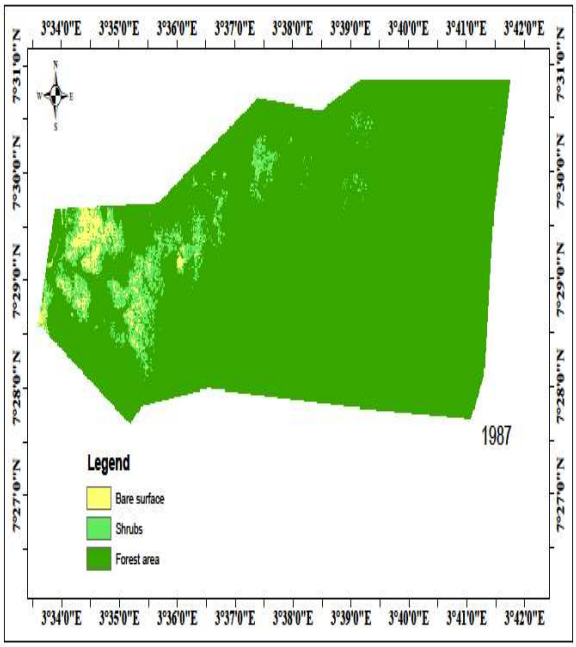


Figure 4.41: Map showing FCTU in Osho Forest Reserve in Oyo State for 1987

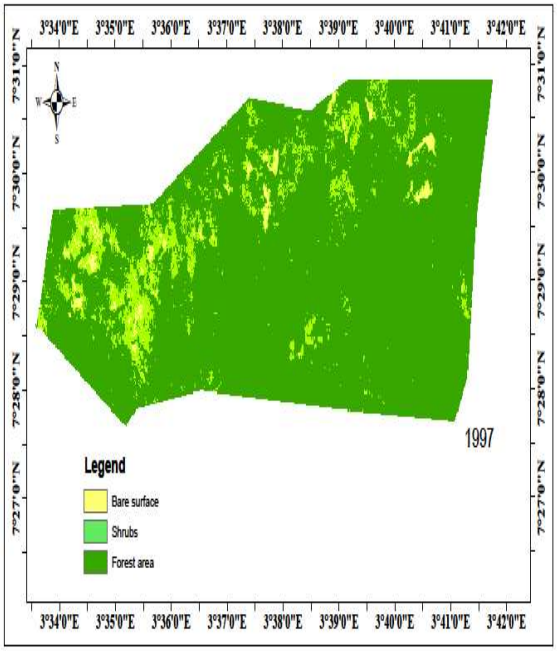


Figure 4.42: Map showing FCTU in Osho Forest Reserve in Oyo State for 1997

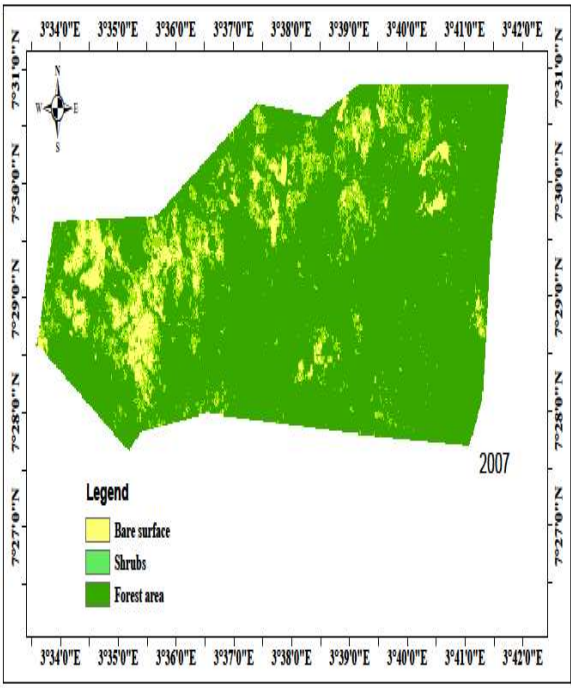


Figure 4.43: Map showing FCTU in Osho Forest Reserve in Oyo State for 2007

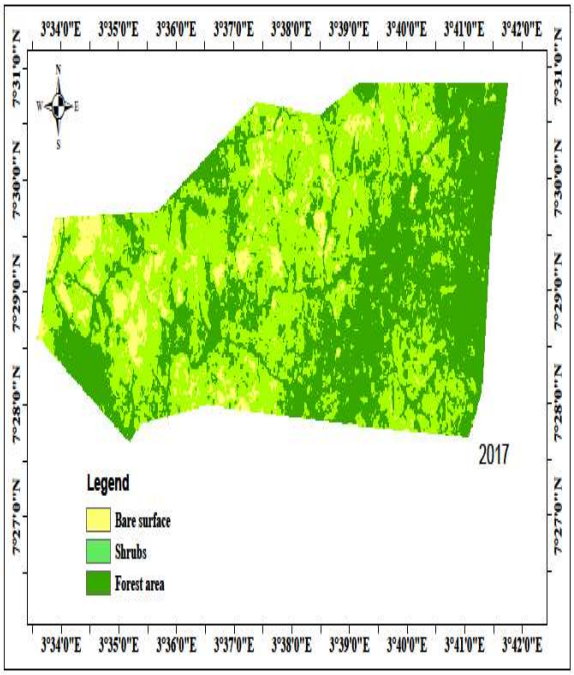


Figure 4.44: Map showing FCTU in Osho Forest Reserve in Oyo State for 2017

Table 4.6: Size and proportion of Forest Cover Type Use in Ogun River, Ogbese, Ikere Aworo, Olokemeji and Oluwa Forest Reserves from 1987 to 2017

FR		1987		1997		2007		2017	
	FCTU	Size (km^2)	% Size	Size (km^2)	% Size	Size (km^2)	% Size	Size (km^2)	% Size
Ogbese	Bare	2.11	2.96	5.45	7.63	3.96	5.54	8.56	11.98
	Shrubs	13.19	18.47	16.88	23.64	14.88	20.84	23.33	32.67
	Forest	56.1	78.57	49.08	68.73	52.57	73.62	39.52	55.35
	Total	71.41	100	71.41	100	71.41	100	71.41	100
Ikere	Bare	0.83	6.34	0.85	6.48	0.75	6.1	0.66	5.08
	Shrubs	4	30.67	0.87	6.69	2.9	21.9	2.79	21.36
	Forest	8.22	62.99	11.33	86.83	9.4	72	9.6	73.56
	Total	13.05	100	13.05	100	13.05	100	13.05	100
OgunRiver	Built up	0.14	0.87	1.68	10.86	1.98	12.83	3.79	24.52
	Shrubs	0.22	1.44	0.99	6.4	2.18	14.1	6.42	41.57
	Forest	15.09	97.69	12.78	82.74	11.29	73.07	5.24	33.91
	Total	15.45	100	15.45	100	15.45	100	15.45	100
Olokemeji	Bare	0.37	0.4	0.91	1	1.9	2.12	1.14	1.26
	Shrubs	3.25	3.61	12.94	14.36	4	4.44	15.45	17.14
	Forest	86.53	95.99	76.3	84.64	84.25	93.44	73.56	81.6
	Total	90.15	100	90.15	100	90.15	100	90.15	100
Oluwa	Built up	0.25	0.03	8.21	0.96	17.22	2	17.67	2.05
	Shrubs	78.08	9.08	131.39	15.28	146.22	17	155.47	18.08
	Forest	781.54	90.89	720.27	83.76	696.43	81	686.73	79.87
	Total	859.87	100	859.87	100	859.87	100	859.87	100

Source: Field Survey, 2018. FR-Forest Reserve; FCTU- Forest Cover Type Used

Table 4.7: Size and proportion of Forest Cover Type Use, in Akure, Shasha, Ago-owu, Gambari and Osho Forest Reserves from 1987 - 2017

FR	FCTU	1987	% Size	1997	% Size	2007	% Size	2017	% Size
Akure	Bare	0.01	0.02	1.11	1.5	5.54	7.53	5.75	7.82
	Shrubs	0.7	0.95	20.94	28.47	45.21	61.48	44.52	60.55
	Forest	27.82	99.03	51.48	70.03	22.78	30.99	23.26	31.63
	Total	73.53	100	73.53	100	73.53	100	73.53	100
Shasha	Built up	0	0	0.2	0.06	0.23	0.07	0.34	0.11
	Shrubs	3.56	1.11	14.3	4.48	23.21	7.26	26.18	8.19
	Forest	316.12	98.89	305.18	95.46	296.24	92.67	293.16	91.7
	Total	319.68	100	319.68	100	319.68	100	319.68	100
Ago-Owu	Bare	0.05	0.11	0.19	0.43	0.44	1	2.59	5.89
	Shrubs	2.7	6.15	6.77	15.41	8.14	18.53	9.46	21.54
	Forest	293.16	93.74	36.96	84.16	35.34	80.47	31.87	72.57
	Total	43.92	100	43.92	100	43.92	100	43.92	100
Gambari	Bare	0.41	0.38	0.91	0.84	2.2	2.04	2.2	2.03
	Shrubs	5.52	5.12	40.84	37.85	28.32	26.25	17.37	16.1
	Forest	101.98	94.5	66.16	61.31	77.39	71.71	88.34	81.87
	Total	107.91	100	107.91	100	107.91	100	107.91	100
Osho	Bare	1.27	1.95	1.19	6.7	4.36	6.7	4.9	7.52
	Shrubs	3.57	5.49	6.12	10.63	6.93	10.63	31.02	47.81
	Forest	60.26	92.56	57.79	82.67	53.81	82.67	29.08	44.67
	Total	65	100	65	100	65	100	65	100

Source: Field Survey, 2018 FR-Forest Reserve; FCTU- Forest Cover Type Used

4.5.12 Extent of Forest Cover in Forest Reserves from 1987, 1997, 2007 to 2017

Figure 4.45 indicated the extent forest cover in Ogbese forest reserve as 56.1km^2, 49.08km^2, 52.57km^2 and 39.52 km^2; Ikere forest reserve as

8.22km^2, 11.33km^2, 9.4km^2 and 9.6km^2; Ogun River forest reserve as 12.78km^2, 11.29km^{2,} 5.24km^2 and 52.2 km^2; Aworo forest reserve as 224.92km^2, 198.59km^2, 219.6km^{2,} and 164.61km^2; Olokemeji forest reserve as 86.53km^2, 76.3km^2, 84.25km^{2,} and 73.56km^2; Oluwa forest reserve as 781.54km^2, 720.27km^2, 696.43km^{2,} and 686.73km^2; Akure forest reserve as 27.82km^2, 51.48km^2, 22.78km^{2,} and 23.26km^2 ; Shasha forest reserve as 316.12km^2, 305.18km^2, 296.24km^2 and 293.16km^2; Gambari forest reserve as 101.98km^2, 66.16km^2, 77.39km^{2,} and 88.34km^2 and Osho forest reserve as 60.26km^2, 57.79km^2, 53.81km^2 and 29.08km^2 from 1987, 1997, 2007 and 2017 respectively.

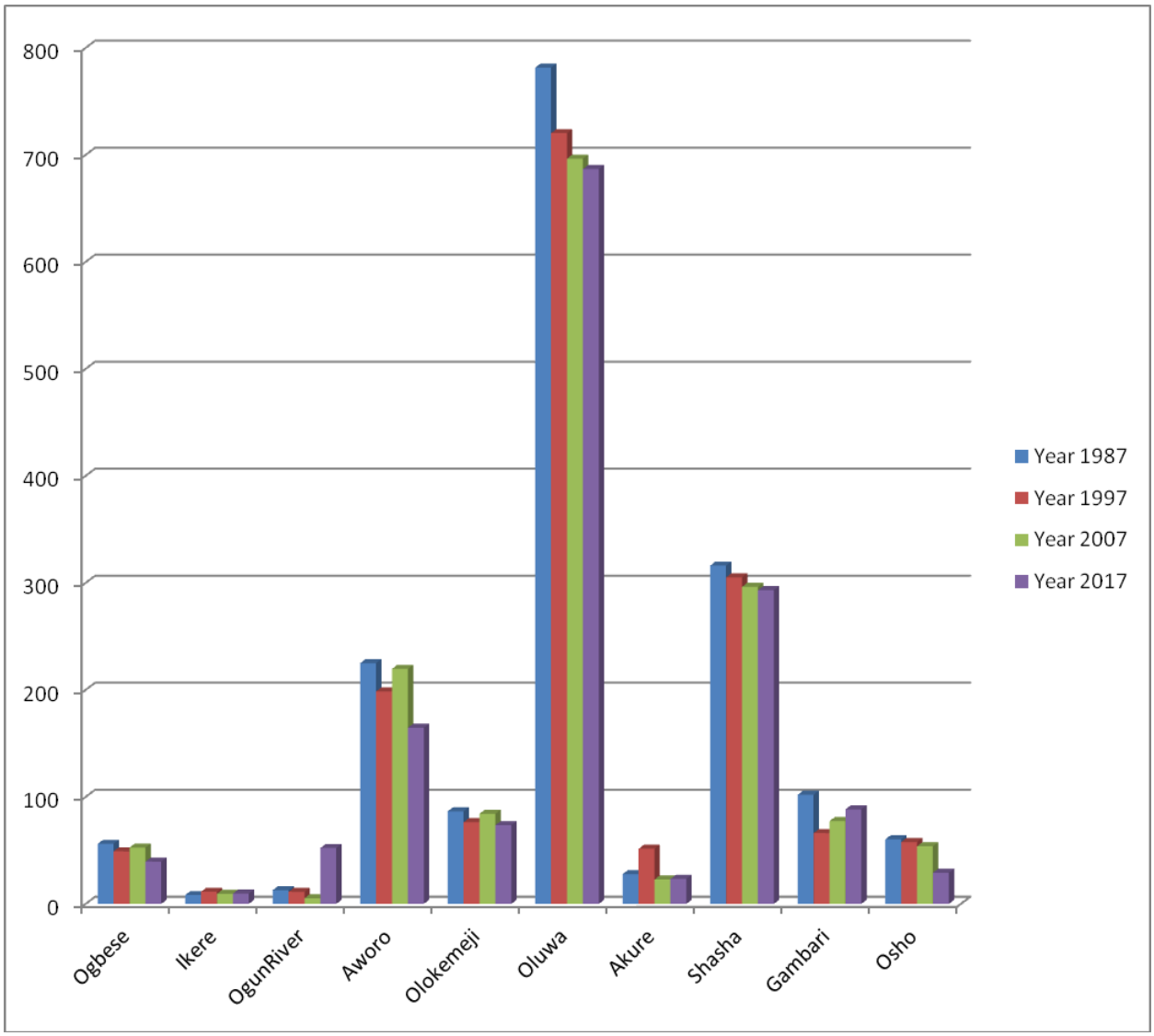


Figure 4.45: Extent of Forest Cover (ha) in Forest Reserves from 1987, 1997, 2007 to 2017.

4.5.13 Forest cover size, change and percentage change from 1987 - 2017

Table 4.8 indicated the forest cover change and percentage change in Ogbese, Ikere, Ogun River Aworo, Olokemeji, Oluwa, Akure, Shasha, Ago-Owu, Onigambari, Osho were, -16.58 km^2 and -29.55%, 1.38 km^2 and 16.79%, -9.85km^2 and -65.28%, -60.31 km^2 and -26.81%, -12.97 km^2 and -14.99%, -94.81 km^2 and-12.13%, -4.56 km^2 and -16.39%, -22.96 km^2 and -7.26%, -261.29 km^2 and -89.13%, -13.64 km^2 and -13.38%, -31.18 km^2 and -51.74% .

Table 4.8: Size of Forest Cover (Km^2) (1987 - 2017) in Selected Forest Reserves

Forest Reserve	1987	1997	2007	2017	Δ	% Δ
Ogbese	56.1	49.08	52.57	39.52	-16.58	-29.55
Ikere	8.22	11.33	9.4	9.6	1.38	16.79
Ogun River	15.09	12.78	11.29	5.24	-9.85	-65.28
Aworo	224.92	198.59	219.6	164.61	-60.31	-26.82
Olokemeji	86.53	76.3	84.25	73.56	-12.97	-14.99
Oluwa	781.54	720.27	696.43	686.73	-94.81	-12.13
Akure	27.82	51.48	22.78	23.26	-4.56	-16.39
Shasha	316.12	305.18	296.24	293.16	-22.96	-7.26
Ago-owu	293.16	36.96	35.34	31.87	-261.29	-89.13
Onigambari	101.98	66.16	77.39	88.34	-13.64	-13.38
Osho	60.26	57.79	53.81	29.08	-31.18	-51.74
Total	**1971.74**	**1585.92**	**1559.1**	**1444.97**	**-526.77**	**-309.88**

Source: Field Survey, 2018

4.5.14 Rate of deforestation in the forest cover in selected Forest Reserve, in Southwestern, Nigeria (1987 - 2017)

Table 4.9 showed rate of deforestation in Ogbese, Ikere, Ogun River, Aworo, Olokemeji, Oluwa, Akure, Shasha, Ago-owu, Gambari and Osho forest reserves in 1987, 1997 to 2007, 2007 to 2017 and 1987 to 2017 as 0.98%, -0.49%, 1.83% , 0.77%, -2.38%, 1.48%, 0.25%, -0.22% ,1.50%, 0.97%, 3.92%, 2.13%, 1.11%, -0.89%, 2.32%, 0.85%, 1.14%, -0.88%, 1.18%, 0.48%, 0.71%, 0.28%, 0.11%, 0.27%, 2.90%, 3.90%, -0.06%, 2.25%, 0.34%, 0.28%, 0.10%, 0.24% 0.96%, 0.37%, 0.79%, 0.71%, 3.32%, -1.04%, -1.02%, 0.42%, 0.38%, 0.61%, 3.80% and 1.60%, respectively.

Table 4.9: Rate of deforestation in selected Forest Reserves in Southwestern Nigeria (1987 - 2017)

FOREST RESERVE	1987 Size (%)	1997 Size (%)	2007 Size (%)	2017 Size (%)	1987-1997 RD	1997-2007 RD	2007-2017 RD	1987-2017 RD
OGB	78.57	68.73	73.62	55.35	0.98	-0.49	1.83	0.77
IKR	62.99	86.83	72	69.54	-2.38	1.48	0.25	-0.22
OGR	97.69	82.74	73.07	33.91	1.5	0.97	3.92	2.13
AWR	95.01	83.89	92.77	69.54	-2.38	1.48	0.25	-0.22
OLM	95.99	84.64	93.44	81.6	1.14	-0.88	1.18	0.48
OLW	90.89	83.76	81	79.87	0.71	0.28	0.11	0.37
AKR	99.03	70.03	30.99	31.63	2.9	3.9	-0.06	2.25
SHA	98.89	95.46	92.67	91.7	0.34	0.28	0.1	0.24
AGO	93.74	84.16	80.47	72.57	0.96	0.37	0.79	0.71
GMR	94.5	61.31	71.71	81.87	3.32	-1.04	-1.02	0.42
OSH	92.56	88.77	82.67	44.67	0.379	0.61	3.8	1.6

Source: Field Survey, 2018

OGB – Ogbese, IKR – Ikere, OGR – Ogun River, AWR – Aworo, OLM – Olokemeji, OLW – Oluwa, AKR – Akure, SHA – Shasha, AGO - Ago-owu, GMR – Gambari, OSH – Osho, RD – Rate of Deforestation

4.6.1 Estimated Requirements of Technical Staff in selected Forest Reserve in Southwestern Nigeria, 2017

Table 4.10 indicated that the available technical staff in Ogbese, Ikere, Ogun River, Aworo, Olokemeji, Oluwa, Akure, Ago-owu, Shasha, Gambari and Osho forest reserves were 2, 1,0, 2, 2 0, 0, 1, 0, 1 and 1 respectively, while the estimated requirements of technical staff for these forest reserves were 13, 3, 2, 55, 25, 229, 8, 98, 11, 30 and 10 respectively, with the respective percentage deficit of 84.62, 66.67, 100, 96.36, 92, 100, 100, 98.98, 100, 96.67 and 90 and total deficit of 97.93%.

Table 4.10: Estimated Requirements of Technical Staff in selected Forest Reserve in Southwestern Nigeria, 2017

Forest Reserves	Size (ha)	Number of Technicians			Available (%)	Deficit (%)
		Required	Available	Deficit		
Ogbese	3,952	13	2	11	15.39	84.62
Ikere	960	3	1	2	33.33	66.67
Ogun river	524	2	0	2	0	100
Aworo	16,461	55	2	53	3.64	96.36
Olokemeji	7,356	25	2	23	8	92
Oluwa	68,673	229	0	229	0	100
Akure	2,326	8	0	8	0	100
Shasha	29,316	98	1	97	1.02	98.98
Ago-iwoye	3,187	11	0	11	0	100
Gambari	8,834	30	1	29	3.33	96.67
Osho	2,908	10	1	9	10	90
Total		**484**	**10**	**474**		

Source: Field Survey, 2018

4.6.2 Estimated Requirements of Professional Staff in selected Forest Reserve in Southwestern Nigeria, 2018

Table 4.11 indicated that the available professional staff in Ogbese, Ikere, Ogun River, Aworo, Olokemeji, Oluwa, Akure, Ago-owu, Shasha, Gambari and Osho forest reserves were 2, 1,1, 1, 1 3, 1, 1, 1, 1 and 1 respectively, while the estimated requirements for these forest reserves were 3,1,1, 14, 6, 57, 2, 25,3, 8 and 3 respectively, with the respective percentage deficit of 33.33, 0, 0, 92.86, 83.33, 94.74, 50, 96, 66.67, 87.5, and 66.67 and total deficit of 88.62%.

Table 4.11: Estimated Requirements of Professional Staff in selected Forest Reserve in Southwestern Nigeria, 2018

Forest Reserve	Size (ha)	Number of Professionals			Available (%)	Deficit (%)
		Required	Available	Deficit		
Ogbese	3,952	3	2	1	66.67	33.33
Ikere	960	1	1	0	100	0.00
Ogun river	524	1	1	0	100	0.00
Aworo	16,461	14	1	13	7.14	92.86
Olokemeji	7,356	6	1	5	16.67	83.33
Oluwa	68,673	57	3	54	5.26	94.74
Akure	2,326	2	1	1	50	50.00
Shasha	29,316	25	1	24	4	96.00
Ago-iwoye	3,187	3	1	2	33.33	66.67
Gambari	8,834	8	1	7	12.5	87.50
Osho	2,908	3	1	2	33.33	66.67
Total		**123**	**14**	**109**		

Source: Field Survey, 2018

4.7.1 Existing forest policies on sustainable forest management in Southwestern, Nigeria

Table 4.13 indicated that all the State Department of Forestry (Ekiti, Lagos, Ogun, Ondo, Osun and Oyo) in Southwestern, Nigeria acknowledged the fact that the following forest policies on sustainable forest management exist.

Table 4.12: Existing forest policies on sustainable forest management in Southwestern, Nigeria

S/N	Policies	Ekiti	Lagos	Ogun	Ondo	Osun	Oyo
i	Afforestation and reforestation project in order to increase the forest resources	√	√	√	√	√	√
ii	Biological diversity in strengthening and expanding non forest components such as wildlife, non timber forest products	√	√	√	√	√	√
iii	Forest Health and Vitality through silvicultural practices	√	√	√	√	√	√
iv	Productive functions through funding and silvicultural practices	√	√	√	√	√	√
v	Socio-economic functions of forest to sustainable livelihoods of forest dependent communities and the general public	√	√	√	√	√	√
vi	Protective or environmental functions	√	√	√	√	√	√
vi	Institutional framework support	√	√	√	√	√	√

Source: Field Survey, 2016

Key

√ Existence

4.7.2 Rating of implementation level of forest policies in the last 10 years

Table 4.14 indicated the rating on afforestation and reforestation project to increase the forest resources (46.17%) , biological diversity in strengthening and expanding non forest components (37.33%), forest health and vitality through silvicultural practices (41.50%), productive functions through funding and silvicultural practices (46.0%), protective or environmental functions (40.80%), social and-economic functions of forest to sustainable livelihoods of people whose livelihood depends on it (55.0%) and institutional framework support provided by the states (55.0) and sustainable forest management (45.0%).

Table 4.13: Rating (%) of implementation level of existing forest policies in the last 10 years

SFM/State	Ekiti	Lagos	Ogun	Ondo	Osun	Oyo	SW
Afforestation	50	30	60	60	42	35	46.17
Biodiversity	50	15	50	20	44	45	37.33
Silviculture	47	35	55	40	42	30	41.50
Funding	50	30	60	60	41	35	46.00
Protection	60	70	30	15	30	40	40.80
Socioeconomic	60	50	50	80	40	50	55.00
Support	55	30	60	60	45	50	50.00
SFM	53.14	37.14	52.14	47.86	40.57	40.70	45.00

Source: Field Survey, 2016

4.7.3 Rating of implementation level of forest policies in the last 5 years

Table 4.15 indicated the rating on afforestation and reforestation project to increase the forest resources (37.83%) , biological diversity in strengthening and expanding non forest components (38.67%), forest health and vitality through silvicultural practices (33.33%), productive functions through funding and silvicultural practices (47.33%), protective or environmental functions (47.83%), on social and economic functions of forest to sustainable livelihoods of people whose livelihood depends on it (37.00%) and institutional framework support provided by the states (37.00%) and sustainable forest management (39.64%).

Table 4.14: Rating (%) of implementation level of existing forest policies in the last 5 years

SFM/State	Ekiti	Lagos	Ogun	Ondo	Osun	Oyo	SW
Afforestation	25	30	50	40	37	45	37.83
Biodiversity	30	15	60	38	40	30	35.50
Silviculture	37	30	50	30	30	55	38.67
Funding	18	25	50	40	25	42	33.33
Protection	55	60	50	35	40	44	47.33
Socioeconomic	52	30	50	80	45	30	47.83
Support	25	25	50	40	37	45	37.00
SFM	34.57	30.71	51.43	43.29	36.29	41.57	39.64

Source: Field Survey, 2016

4.7.4 Rating of implementation level of existing forest policies in the last 2 years

Table 4.16 indicated the rating on the implementation level of forest policies in the last 2 years in Southwestern, Nigeria on afforestation and reforestation project to increase the forest resources (31.00%) , biological diversity in strengthening and expanding non forest components (35.50%), forest health and vitality through silvicultural practices (35.83%), productive functions through funding and silvicultural practices (29.17%), protective or environmental functions (43.33%), social and economic functions of forest to sustainable livelihoods of people whose livelihood depends on it (58.33%) and institutional framework support provided by the states (34.17%) and sustainable forest management (38.19%).

Table 4.15: Rating (%) of implementation level of existing forest policies in the last 2 years

SFM/State	Ekiti	Lagos	Ogun	Ondo	Osun	Oyo	SW
Afforestation	31	25	40	20	30	40	31.00
Biodiversity	35	10	60	30	48	30	35.50
Silviculture	35	25	40	35	30	50	35.83
Funding	30	20	40	20	25	40	29.17
Protection	45	60	40	25	45	45	43.33
Socioeconomic	52	70	50	80	58	40	58.33
Support	30	20	50	35	30	40	34.17
SFM	36.86	32.86	45.71	35	38	40.71	38.19

Source:FieldSurvey,2016

4.8.0 Planning in Forest Resources Management Southwestern Nigeria

4.8.1 Existence of planning

Table 4.17 showed that in Ekiti, Lagos, Ogun, Osun and Oyo states (100%) except in Ondo state, agreed that planning exist in the state departments of forestry while 92.9% in Ondo state conceded to this fact, with an exception of 7.1% who are of the opinion it does not exist. In Southwestern Nigeria, the aggregated data showed that 98.8 percent of respondents acceded to the evidence that there is planning while 1.2 percent disagreed. The chi-square test (Table 4.18) revealed that existence of planning have significant relationship with forest policy institutional framework support ($\chi^2 = 11.677$, $p < 0.05$).

4.8.2 Update on Plans.

Table 4.17 showed all the respondents in Ogun and Osun states (100%) while 85.7%, 82.1%, 81.1% and 58.8% in Lagos, Ondo Ekiti and Oyo states respectively disagreed with the fact that plans are current and regularly updated. The aggregated data revealed that 84.7% disagreed that plans are current and regularly updated while 15.3% concede with the fact that plans are current and are regularly updated The chi-square test (Table 4.18) revealed that update on plan have no significant relationship with forest policy institutional framework support ($\chi^2 = 0.367$, $p > 0.05$).

4.8.3 Existence of current management plan

Table 4.17 showed 100% of the respondents in Lagos, Ogun, Ondo, Osun and Oyo state disagreed with the fact that public forests have management plans while 18.9% in disagreed Ekiti disagreed. The aggregated data indicated that 96.9% disagreed that public forests have current management plan. The Chi-square test (Table 4.18) revealed that existence of current management plan have no significant relationship with forest policy institutional framework support ($\chi^2 = 0.130$, $p < 0.05$)

4.8.4 Check and Balances

Table 4.17 showed that 54.5%, 42.9%, 45%, 28.6%, 18.2% and 18.2% of the respondents in Ekiti, Lagos, Ogun, Ondo, Osun and Oyo state respectively agreed that there are check and balances that prevent arbitrary changes in laws, policies and plans in the forest sector. The aggregated data indicated that 63.6% disagreed check and balances that prevent arbitrary changes in laws, policies and plans in the forest sector that 36.4% agreed. The Chi-square test (Table 4.18) revealed that existence of check and balances that prevent arbitrary changes in laws, policies and plans in the forest sector have significant relationship with forest policy institutional framework ($\chi^2 = 3.506$, $p > 0.05$).

4.8.5 Support given to stakeholders in forest-related planning

Table 4.17 showed 100% of the respondents in Ekiti, Lagos, Osun and Oyo state and 80% and 82.1% in Ogun and Ondo respectively disagreed that stakeholder are engaged, given space and supported in participating in forest-related planning. The aggregated data indicated that 93.7% disagreed that stakeholder are engaged, given space and supported in participating in forest-related planning while 6.3% agreed. The Chi-square test (Table 4.18) revealed that support given to stakeholders in forest-related planning have no significant relationship with forest policy institutional framework support ($\chi^2 = 2.670$, $p > 0.05$).

4.8.6 Consideration for activities on private forestlands

Table 4.17 showed 82.2%, 80%, 72.7%, 64.3% 57.1% in Oyo, Ogun, Osun, Ondo and Lagos states respectively of the respondents agreed with the fact that there is consideration for activities on private forestlands, while 72.7% of the respondents in Ekiti state disagreed. The aggregated data indicated 68.1% agreed that there is consideration for activities on private forestland while 31.9% of the respondents differ. The chi-square test (Table 4.18) showed that consideration for activities on private forestlands have no significant relationship with forest policy institutional framework support ($\chi^2 = 0.109$, $p > 0.05$)

4.8.7 Mechanism for cross-sectorial forest-related policy and planning

Table 4.17 showed all the respondents in Ekiti and Lagos state (100%) disagreed with the fact that there are mechanism within the government to address policy and issues that cut across

forest and other sectors while 94.1%, 90%, 81.8%, 67.9% of the respondents in Ekiti, Lagos, Oyo, Ogun and Osun states respectively also disagreed. The aggregated data indicated 88.97% disagreed with the fact that there are mechanisms within the government to address policy and issues that cut across forest and other sectors while 11.03% of the respondents agreed. The chi-square test (Table 4.18) revealed that mechanism within the government to address policy and issues that cut across forest and other sectors have no significant relationship with forest policy institutional framework support ($\chi^2 = 2.428$, $p > 0.05$).

4.8.8 Recording and reporting management activities

Tale 4.17 showed all the respondents in Lagos, Ogun, and Osun states (100%) agreed with the fact that record and report of management activities are executed while 94.1%, 72.7% and 67.9% of the respondents in Oyo, Ekiti and Ondo respectively also acceded to this fact. The aggregated data indicated 89.1% agreed that recording and reporting of management activities are executed while 10.9% of the respondents differ. The chi-square test (Table 4.18) showed that recording and reporting management activities have significant relationship with forest policy institutional framework support ($\chi^2 = 18.059$, $p < 0.05$).

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Table 4.16: Distribution on Planning in Forest Resources Management Southwestern Nigeria

Factors	Ekiti	Lagos	Ogun	Ondo	Osun	Oyo	SW
Planning is actual made							
Yes	100	100	100	92.9	100	100	98.8
No	0	0	0	7.1	0	0	1.2
Plans are current and Updated							
Yes	18.9	14.3	0	17.9	0	11.2	15.3
No	81.8	100	100	73.3	71.4	100	80.6
Current management plan exist							
Yes	18.9	0	0	0	0	0	3.1
No	81.1	100	100	100	100	100	96.9
Check and balances exist							
Yes	54.5	42.9	45	28.6	18.2	29.4	36.4
No	45.5	57.1	55	71.4	81.8	70.6	63.6
Government support							
Yes	0	0	20	17.9	0	0	6.3
No	100	100	80	82.1	100	100	93.7
Consideration for private forest plantation							
Yes	27.3	57.1	80	64.3	72.7	82.2	68.1
No	72.7	42.9	20	35.7	27.3	17.8	31.9
Mechanism for cross-sectoral policy							
Yes	0	0	10	32.1	18.2	5.9	25.9
No	100	100	90	67.9	81.8	94.1	74.1
Recording & reporting							
Yes	89.1	94.1	100	67.9	100	94.1	89.1
No	10.9	5.9	0	32.1	0	5.9	10.9

Source: Field Survey, 2017

Table 4.17: Results of Test on Planning

Factors	Chi square (χ^2) value	DF	P-Value
Planning is actually made	11.677	1	0.001*
Plans are current and updated	0.367	1	0.545
Current management plan	2.146	1	0.130
There are check and balances	3.506	1	0.060
Government support participation	2.670	1	0.102
Consideration for private forests	0.109	1	0.741
Mechanism for cross-sectoral policy	2.428	1	0.119
Record and report management	18.059	1	0.000*

*= significant ($p < 0.05$)

4.9.0 Decision-making in Forest Resources Management Southwestern Nigeria

4.9.1 Decision-making on forestry issues based on supply and demand information

Table 4.19 showed all the respondents in Ekiti, Lagos and Osun states (100%) disagreed with the fact that the State Department of Forestry use supply and demand information in decision-making on forestry issues while 95%, 94.1% and 78.6% respondents in Ogun, Oyo and Ondo states disagreed. The pooled data for Southwestern Nigeria indicated that 95.4% disagreed that they use supply and demand information in decision-making on forestry issues while 4.6% agreed. The chi-square test (Table 4.20) revealed that the use of supply and information in decision-making on forestry issues have no significant relationship with forest policy institutional framework support **(**$\chi^2 = 3.525$, $p > 0.05$).

4.9.2 Formal mechanism in influencing forest policy by affected people

Table 4.19 showed that 100%, 81.1%, 71.4%, 67.9, 64.7 and 54.5% respondents in Ogun, Ekiti, Lagos, Ondo, Oyo and Osun state respectively agreed with the fact that there are formal mechanisms for stakeholders to influence it. The pooled data for Southwestern Nigeria revealed that 71.9% agreed with this assertion while 28.1 disagreed. The chi-square test (Table 4.20) revealed that formal mechanisms to influence forest policy have no significant relationship with institutional framework support for forest policy **(**$\chi^2 = 1.277$, $p > 0.05$).

4.9.3 Consultations with stakeholders and feedbacks used in decision-making

Table 4.19 showed that 100%, 90.9%, 82.3%, 81.8%, 71.4% and 67.9% of the respondents in Ogun, Osun, Oyo, Ekiti, Lagos and Ondo state respectively disagreed with the fact that consultations with stakeholders are made and feedback is used making decisions. The pooled data for Southwestern Nigeria indicated that 82.4% disagreed with the fact that consultations with stakeholders are made and feedback is used making decisions while 17.6% agreed. The chi-square test (Table 4.20) revealed that consultations with stakeholders are made and feedback is used making decisions have no significant relationship with forest policy institutional framework support ($\chi^2 = 3.451$, $p > 0.05$)

4.9.4 Support for stakeholders' participation in forest-related decision-making

Table 4.19 showed that all the respondents in Lagos, Ogun and Osun states (100%) disagreed with the fact that the state support for stakeholders' participation in forest-related decision-making. 94.1%, 90.9% and 89.1% respondents in Oyo, Ekiti and Ondo states also consented to this fact. The pooled data for Southwestern Nigeria indicated that 95.7% disagreed with the fact that the state support for stakeholders' participation in forest-related decision-making, while 4.3% agreed. The chi-square test (Table 4.20) revealed that support for stakeholders participation have no significant relationship with forest policy institutional framework support ($\chi^2 = 7.564$, $p > 0.05$).

4.9.5 Capacity in engaging stakeholders in making decision

Table 4.19 revealed that 100%, 72.7%, 64.7%, 54.5%, 7.1% and 0% respondents in, Lagos, Osun, Oyo, Ekiti and Ogun states disagreed with the fact that the state has capacity in engaging stakeholders in making decision and implementation. The aggregated data indicated that 49.8% disagreed with the fact that while 50.2% agreed. The chi-square test (Table 4.20) revealed that the state has capacity in engaging stakeholders in making decision and implementation have no significant relationship with forest policy institutional framework support ($\chi^2 = 0.390$, $p > 0.05$).

4.9.6 Opportunities for stakeholders to seek review

Table 4.19 revealed that 90.9%, 85.7%, 70%, 57.1%, 54% and 52.9% respondents in Ekiti, Lagos, Ogun, Ondo, Osun and Oyo states agreed that there are opportunities for reconsideration of the views and opinion of the State Department of Forestry. The aggregated data indicated that 68.5% disagreed that there are opportunities for reconsideration of the views and opinion of the State Department of Forestry while 31.5% agreed. The chi-square test (Table 4.20) revealed that there are opportunities for reconsideration of the views and opinion of the state have no significant relationship with forest policy institutional framework support ($\chi^2 = 1.351$, $p > 0.05$)

Table 4.18: Distribution on Decision-making in Forest Resources Management Southwestern Nigeria

Factors	Ekiti	Lagos	Ogun	Ondo	Osun	Oyo	SW
Supply and demand Information							
Yes	0	0	5	21.4	0	5.9	4.6
No	100	100	95	78.6	100	94.1	95.4
Mechanism to influence							
Yes	81.8	71.4	100	67.9	45.5	64.7	71.9
No	18.2	28.6	0	32.1	54.5	35.3	28.1
Consultation with Stakeholders							
Yes	18.2	28.6	0	32.1	9.1	17.7	17.6
No	81.8	71.4	100	67.9	90.9	82.3	82.4
Support for stakeholders' Participation							
Yes	9.1	0	0	10.9	0	5.9	4.3
No	90.9	100	100	89.1	100	94.1	95.7
Capacity to engage Stakeholders							
Yes	45.5	0	100	92.9	27.3	35.3	50.2
No	54.5	100	0	7.1	72.7	64.7	49.8
Avenue for stakeholders' Review							
Yes	90.9	85.7	70	57.1	54.5	52.9	68.5
No	9.1	14.3	30	42.9	45.5	47.1	31.5

Source: Field Survey, 2017

Table 4.19: Results of Test on decision making

Factors	Chi square (χ^2) value	DF	P-Value
Supply and demand information	3.525	1	0.060
Mechanism to influence decisions	1.277	1	0.258
Consultation with stakeholders	3.451	1	0.063
Support for stakeholders participation	7.564	1	0.182
Capacity to engage stakeholders	0.319	1	0.572
Avenue for stakeholders for review	1.351	1	0.245

*= significant ($p < 0.05$)

4.10.0 Stakeholders' participation in Forest Resources Management Southwestern Nigeria

4.10.1 Stakeholders' Involvement in forest policy formulation

Table 4.21 showed that 98.9%, 98.9%, 98.6%, 98.5%, 98.3% and 97.2% of the respondents in Ondo, Osun, Ekiti, Lagos, Oyo and Ogun state respectively disagreed with the fact that Stakeholders have the chance to engage in the formulation of forest policy. The aggregated data for Southwestern, Nigeria indicated that 98.5% disagreed with the fact that opportunity exist to contribute in forest policy and management plan while 1.5% agreed.

4.10.2 Formal mechanism in influencing forest Policy

Table 4.21 showed that 82.8%, 82.4%, 78.8%, 69.8% and 68.8% of the respondents in Ekiti, Osun, Lagos, Oyo and Ogun state respectively agreed with the fact that there are formal mechanisms to influence forest policy while 64.9% of the respondents in Ondo state disagreed. The pooled data for Southwestern, Nigeria indicated that 69.9% agreed with the fact that there are formal mechanisms to influence forest policy while 30.1% disagreed.

4.10.3 Gender sensitivity in forestry decision making

Table 4.21 showed that 97%, 93.2%, 83.5%, 77.4%, 76.7% and 50% of the respondents in Lagos, Ekiti, Osun, Ogun, Oyo and Ondo state respectively agreed with the fact that gender sensitivity in forestry decision-making exist. Southwestern Nigeria's aggregated data showed that 78.1 percent agreed with the fact that gender sensitivity occurs in decision-making in forestry, although 21.9 percent disagreed.

4.10.4 Access to information on forestry by stakeholders

Table 4.21 showed that 77.2%, 71.4%, 71.2%, 69.9%, 68.1% and 50% of the respondents in Lagos, Osun, Ekiti, Ogun, Ondo and Oyo state respectively disagreed with the fact that there was access to information on forestry by stakeholders. The pooled data for Southwestern, Nigeria indicated that 76.3% disagreed with the fact that there is access to Information on forestry by stakeholders while 28.7% agreed.

4.10.5 Public Notice on forest Policies, Laws and Projects

Table 4.21 showed that 95.5%, 89.7%, 89.3%, 83.5%, 77.3% and 71.3% of the respondents in Ekiti, Oyo, Ogun, Osun, Lagos and Ondo state respectively disagreed with the fact that the states give public notice of proposed forest issues and programmes. The aggregated data for Southwestern Nigeria indicated that 84.4% disagreed with the fact that stakeholders in the state give notice to the public on planned forestry matters and projects while 15.6% agreed.

4.10.6 Access to Loan for Investment in Forest-based Businesses

Table 4.21 showed that 94.6%, 91.8%, 89%, 88.8%, 87.9% and 72.3% of the respondents in Ondo, Osun, Ekiti, Lagos, Oyo and Ogun state respectively disagreed with the fact that access to loan exist for investment in the forest-based businesses. The aggregated data for Southwestern Nigeria indicated that 87.4% disagreed with the fact that that access to loan exists for investment in the forest-based businesses while 12.6% agreed.

Table 4.20: Distribution on Stakeholders' participation in Forest Resources Management Southwestern Nigeria

Factors	Ekiti	Lagos	Ogun	Ondo	Osun	Oyo	SW
Stakeholders' Involvement							
Yes	1.4	1.5	2.8	1.1	1.1	1.7	1.5
No	98.6	98.5	97.2	98.9	98.9	98.3	98.5
Influence							
Yes	83.6	78.8	68.8	35.1	82.4	69.8	69.9
No	16.4	11.2	32.2	64.9	17.6	30.2	30.1
Gender							
Yes	93.2	97	77.4	50	83.5	76.7	78.1
No	6.8	3	22.6	50	16.5	23.3	21.9
Information							
Yes	83.6	72.7	51.6	42.5	62.6	73.3	64.4
No	16.4	27.3	48.4	57.5	37.4	26.7	35.6
Notice							
Yes	4.5	22.7	10.7	28.7	16.5	10.3	15.6
No	95.5	77.3	89.3	71.3	83.5	89.7	84.4
Loan							
Yes	8.2	12.1	5.4	27.7	11	11.2	12.6
No	91.8	87.9	94.6	72.3	89	88.8	87.4

Source: Field Survey, 2017

Table 4.21: Results of Test on Stakeholders' Participation

Factors	Chi square (χ^2) value	DF	P-Value
Involvement in Forest Policy formulation	1.189	1	0.275
Influencing Forest Policy	1.412	1	0.235
Gender sensitivity in Participation	2.229	1	0.135
Avenue for Review of Forest Policy	0.426	1	0.514
Access to Information	2.350	1	0.125
Public notification	0.989	1	0.320

*= significant ($p < 0.05$)

4.11.0 Stakeholders' perception on enforcement of forest law in Southwestern Nigeria

4.11.1 Adequacy of sanctions

Table 4.22 showed that respondents in the Lagos state (100 percent) denied that forest crime penalties are proportionate to crime while 89.6%, 88.9%, 84.2%, 80 and 77.8% of the respondents in Ogun, Oyo, Ondo, Osun and Ekiti respectively also acceded to this fact. The aggregated data from Southwestern Nigeria indicated 86.7% agreed while 13.3% of the respondents disagreed.

4.11.2 Adequacy of equipment

Table 4.22 showed that all the respondents in Ekiti, Lagos and Oyo states (100%) disagreed with the fact that equipment for operations by forest officials is adequate while 90%, 89.6% and 89.5% of the respondents in Osun, Ogun and Ondo respectively also acceded to this fact. The pooled data from Southwestern Nigeria indicated 94.85% agreed that equipment for operations by forest officials is adequate while 5.15% of the respondents disagreed. The chi-square test (Table 4.23) showed that adequacy of equipment for forest operations have no significant relationship with the existence and adequacy of forest law ($\chi^2 = 0.810$, $p > 0.05$).

4.11.3 Effective coverage of assigned land area

Table 4.22 showed that all the respondents in Ekiti, Lagos, Osun, and Oyo states (100%) disagreed with the fact that there is effective coverage of the assigned land area while 89.5% and 82.8% of the respondents in Ondo and Ogun state respectively also acceded to this fact. The pooled data from Southwestern Nigeria indicated 95.4% agreed that while 4.6% of the respondents differed. The chi-square test (Table 4.23) showed that effective coverage of assigned land area have no significant relationship with the existence and adequacy of forest law ($\chi^2 = 0.613$, $p > 0.05$)

4.11.4 Adequacy of staff for effective coverage of land area

Table 4.23 showed that all the respondents in Lagos, Ogun, and Osun states (100%) disagreed with the fact that staffs were adequate for effective coverage of land area within the forest reserve while 94.1%, 72.7% and 67.9% of the respondents in Oyo, Ekiti and Ondo respectively also acceded to this fact. The pooled data from Southwestern Nigeria indicated 92.8% differed, that staff was adequate for effective coverage of land area within the forest reserve while 7.2% of the respondents disagreed. The chi-square test (Table 4.23) showed that adequacy of staff for effective coverage of the land area have no significant relationship with the existence and adequacy of forest law ($\chi^2 = 1.018$, $p > 0.05$).

4.11.5 Forest crime prevention

Table 4.23 showed that all the respondents in Ekiti and Oyo states (100%) disagreed with the fact that there are effective measures for forest crime prevention while 84.2%, 80%, 79.3% and 60% of the respondents in Ondo, Lagos, Ogun and Osun respectively also acceded to this fact. The pooled data from Southwestern Nigeria indicated 83.9% differed, that there were effective measures for forest crime prevention while 16.1% of the respondents agreed. The chi-square test (Table 4.23) revealed that forest crime prevention have no significant relationship with the existence and adequacy of forest law ($\chi^2 = 1.354$, $p > 0.05$).

4.11.6 Forest crime detection

Table 4.23 showed that all the respondents in Ekiti, Lagos, and Oyo states (100%) disagreed with the fact that there were effective measures for forest crime detection while 84.2%, 80% and 79.3% of the respondents in Ondo, Osun and Ogun respectively also acceded to this fact. The pooled data from Southwestern Nigeria indicated 90.6% disagreed there were effective forest crime detection while 9.4% of the respondents agreed. The chi-square test (Table 4.23) revealed that effective measures for forest crime detection have no significant relationship with the existence and adequacy of forest law ($\chi^2 = 0.053$, $p > 0.05$)

4.11.7 Forest crime suppression

Table 4.23 showed that all the respondents in Ekiti, Lagos, and Ondo states (100%) disagreed with the fact that there were effective measures for forest crime suppression while 80%, 79.3% and 66.7% of the respondents in Osun, Ogun and Oyo respectively agreed to the fact there is forest crime suppression. The pooled data from Southwestern Nigeria indicated 62.3% disagreed that there is forest crime suppression while 37.7% of the respondents agreed. The chi-square test (Table 4.23) showed that effective measures for forest crime suppression have no significant relationship with the existence and adequacy of forest law ($\chi^2 = 4.006$, $p > 0.05$).

4.11.8 Investigation of serious forest crimes

Table 4.23 showed that all the respondents in Ekiti and Oyo states (100%) disagreed with the fact that there were investigation of serious forest crimes while 68.4%, 60%, 60% and 58.6% of the respondents in Ondo, Lagos, Osun Ogun state respectively also acceded to this fact. that there is investigation of serious forest crimes The pooled data from Southwestern Nigeria indicated 68.3% disagreed that while 31.7% of the respondents agreed. The chi-square test (Table 4.23) showed that investigation of serious forest crimes have no significant relationship with the existence and adequacy of forest law ($\chi^2 = 0.067$, $p > 0.05$).

4.11.9 Extent of coverage against forest crimes

Table 4.23 showed that all respondents in the state of Lagos (100 percent) disagreed with the degree to which efforts against forest crime involved transportation, processing and trade. while 89.5%, 60%, 60%, 55.6% and 51.7% of the respondents in Ondo, Osun, Lagos, Ekiti and Ogun state respectively also acceded to this fact. Southwestern Nigeria's pooled data showed that 66.1 percent disagreed that transport, manufacturing and exchange covered the extent of the campaign against forest violence, while 33.9% of participants disagreed. The chi-square test (Table 4.23) showed that the spectrum of forest crime coverage has no substantial connection with the nature and adequacy of forest law. ($\chi^2 = 2.952$, $p > 0.05$)

Table 4.22: Stakeholders' perception on enforcement of forest law in Southwestern Nigeria

Factors	Ekiti	Lagos	Ogun	Ondo	Osun	Oyo	SW
Adequacy of sanctions							
Yes	22.2	100	10.4	15.8	20	11.1	13.3
No	77.8	100	89.6	84.2	80	88.9	86.7
Adequacy of equipment							
Yes	0	0	10.4	10.5	10	0	5.2
No	100	100	89.6	89.5	90	100	94.8
Coverage of assigned Forest cover							
Yes	0	0	17.2	10.5	0	0	4.6
No	100	100	82.8	89.5	100	100	95.4
Adequacy of staff							
Yes	0	20	20.7	15.8	40	0	16.1
No	100	80	79.3	84.2	60	100	83.9
Effective means for Crime prevention							
Yes	0	20	20.7	15.8	40	0	16.1
No	100	80	79.3	84.2	60	100	83.9
Effective means for crime detection							
Yes	0	0	20.7	15.8	20	0	9.4
No	100	100	79.3	84.2	80	100	90.6
Effective means for Crime suppression							
Yes	0	0	79.3	0	80	66.7	37.7
No	100	100	20.7	100	20	33.3	62.3
Regular investigation							
Yes	0	40	58.6	31.6	60	0	31.7
No	100	60	41.4	68.4	40	100	68.3
Effort against forest							
Yes	44.4	40	48.3	10.5	60	0	33.9
No	55.6	60	51.7	89.5	40	100	66.1

Source: Field Survey, 2017

Table 4.23: Results on Test on stakeholders' perception on enforcement of forest law

Factors	Chi-square (χ^2) value	DF	P-value
Adequacy of equipment	0.810	1	0.368
Coverage of the assigned land area	0.613	1	0.434
Adequacy of staff for effective coverage	1.018	1	0.313
Effective measures for crime prevention	1.354	1	0.245
Effective measures for crime detection	0.053	1	0.819
Effective measures for crime suppression	4.006	1	0.045
Regular investigation	0.067	1	0.796
Effort against forest crime coverage	2.952	1	0.086

* = significant at $p < 0.05$

4.12.0 Logistic regression analysis of factors negating good forest governance in Southwestern, Nigeria

Factors investigated were Lack of accountability (*LACC*), Ineffectiveness (*IEFV*), Inefficiency (*IEFC*), Lack of respect for the rule of law (*LRRL*), Lack of participation (*LPAT*) and Lack of transparency (*LTRC*)

4.12.1 Ekiti State

$GFG_{(Ekiti)} = 2.89 - 37.75IACC - 4.41IEFV - 2.40IEFC - 36.50LRRL - 2.40LPAT + 8.21LTRC$.....
……..Equation 3

n = 56, Final loss = 5.73, Chi square (df, = 6) = 57.33, p = 0.00

Odd ratio (Unit change): Constant (2.89); *LACC* (0.00); *IEFV* (0.01); *IEFC* (0.09); *LRRL* (0.00); *LPAT* (0.09); *LTRC* (3667.4)

Lack of transparency (*LTRA*) was the only odd-ratio of 3667.4

Where,

GFG= Good Forest Governance

IACC = Lack of accountability

IEFV = Ineffectiveness

IEFC = Inefficiency

LRRL = Lack of respect for the rule of law

LPAT = Lack of participation

LTRC = Lack of transparency

Table 4.24: Logistic binary nature of Good forest governance in Ekiti State

Dependent variable (GFG): Good Forest Governance (Present = 1; Absent = 0		
Independent variables	**Coefficient**	**Odds-ratio**
If *LACC* is present to negate Good Forest Governance	37.75	0.00
If *IEFV* is present to negate Good Forest Governance	- 4.41	0.01
If *IEFC* is present to negate Good Forest Governance	-2.40	0.09
If *LRRL* is present to negate Good Forest Governance	-36.50	0.00
If *LPAT* is present to negate Good Forest Governance	-2..40	0.09
If *LTRC* is present to negate Good Forest Governance	8.20	3667.4*
Model χ^2 (df = 6) = 57.33*		

* = significant at $p < 0.05$

4.12.2 Lagos State

$PFG_{(Lagos)}$ = 30.08 - 14.10*LACC* + 4.7*1EFV* - 31.30*IEFC* - 6.59*LRRL* - 4.71 *LPAT* - 14.10 *LTRC.*

……Equation 4

n = 50, Final loss = 5.89, Chi square (df, = 6) = 45.53, p = 0.00

Odd ratio (Unit change): Constant (30.08); *IACC* (0.00); *IEFV* (110.90); *IEFC* (0.00); *LRRL* (0.00); *LPAT* (110.90); *LTRC* (0.00)

Participation (*IEFV*) and Transparency (*LPAT*) had the same odd-ratio of 110.90 (Table 4.25).

Table 4.25: Logistic binary nature of Good Forest Governance in Lagos State

Dependent variable (PFG): Good Forest Governance (Present = 1; Absent = 0		
Independent variables	**Coefficient**	**Odds-ratio**
If *LACC* is present to negate Good Forest Governance	-14.10	0.00
If IEFV is present to negate Good Forest Governance	4.71	110.90*
If *IEFC* is present to negate Good Forest Governance	-31.30	0.00
If *LRRL* is present to negate Good Forest Governance	6.59	0.00
If *LPAT* is present to negate Good Forest Governance	4.71	110.90*
If *LTRC* is present to negate Good Forest Governance	-14.10	0.00
Model χ^2 (df = 6) = 45.53*		

* = significant at $p < 0.05$

4.12.3 Ogun State

$PFG_{(Ogun)}$= 2.94 + 7.77*LACC* - 7.12*IEFV* - 4.82*IEFC* - 20.30*LRRL* - 4.82*LPAT* -39.37*LTRC* ……
……Equation 5
n = 62, Final loss = 3.25, Chi square (df, = 6) = 77.11, p = 0.00

Odd ratio (Unit change): Constant (13.00); *LACC* (2972.02); *IEFV* (0.63); *IEFC* (0.00); *LRRL* (1229.86); *LPAT* (0.00); *LTRC* (0.00)

Lack of accountability (*LACC*) had the only odd-ratio of 2357.08 (Table 4.26).

Table 4.26: Logistic binary nature of Good Forest Governance in Ogun State

Dependent variable (PFG): Good Forest Governance (Present= 1; Absent = 0)		
Independent variables	**Coefficient**	**Odds-ratio**
If *LACC* is present to negate Good Forest Governance	7.77	2357.08*
If *IEFV* is present to negate Good Forest Governance	-7.12	0.00
If *IEFC* is present to negate Good Forest Governance	-4.82	0.00
If *IRRL* is present to negate Good Forest Governance	-20.30	0.00
If *LPAT* is present to negate Good Forest Governance	-4.82	0.00
If *L*TRC is present to negate Good Forest Governance	-39.37	0.00
Model χ^2 (df = 6) = 77.11*		

* = significant at $p < 0.05$

4.12.4 Ondo State

$PFG_{(Ondo)} = 2.73 - 5.56LACC - 0.79IEFV - 0.75IEFC - 30.01LRRL - 0.75LPAT - 3.97LTRC$....

……Equation 6

n = 63, Final loss = 5.73, Chi square (df, = 6) = 68.74, p = 0.00

Odd ratio (Unit change): Constant (44.00); *LACC* (0.00); *IEFV (*0.00); *IEFC* (0.47); *LRRL* (0.00); *LPAT* (0.47); *LTRC* (52.86)

Lack of Transparency (*LTR*) had the only odd-ratio of 52.86 (Table 4.27).

Table 4.27: Logistic binary nature of Good Forest Governance in Ondo State

Dependent variable (PFG): Good Forest Governance (Present = 1; Absent = 0		
Independent variables	**Coefficient**	**Odds-ratio**
If *LACC* is present to negate Good Forest Governance	-31.91	0.00
If *IEFV* is present to negate Good Forest Governance	-5.56	0.00
If *IEFC* is present to negate Good Forest Governance	-0.75	0.47
If *LRRL* is present to negate Good Forest Governance	-30.01	0.00
If *LPAR* is present to negate Good Forest Governance	-0.75	0.47
If *LTRA* is present to negate Good Forest Governance	3.98	52.86
Model χ^2 (df = 6) = 68.74*		

* = significant at $p < 0.05$

4.12.5 Osun State

$GFG_{(Osun)} = 2.93 - 36.90LACC - 26.82IEFV - 26.82IEFC - 4.24LRRL – 6.39LPAT + 7.35LTRC$...

……..Equation 7

n = 77, Final loss = 4.78, Chi square (df = 6) = 89.93, p = 0. 00

Odd ratio (Unit change): Constant (5.15); *LACC* (0.00); *IEFV* (0.00); *IEFC* (0.00); *LRRL* (0.01); *LPAT* (0.00); *LTRC* (1549.24)

Lack of Transparency had the only odd-ratio of 1549.24 (Table 4.28)

Table 4.28: Logistic binary nature of Good Forest Governance in Osun State

Dependent variable (PFG): Good Forest Governance (Present = 1; Absent = 0		
Independent variables	**Coefficient**	**Odds-ratio**
If *LACC* is present to negate Good Forest Governance	-36.90	0.00
If *IEFV* is present to negate Good Forest Governance	-26.82	0.00
If *IEFC* is present to negate Good Forest Governance	-26.82	0.00
If *LRRL* is present to negate Good Forest Governance	-4.24	0.01
If *LPAR* is present to negate Good Forest Governance	-6.39	0.00
If *LTRC* is present to negate Good Forest Governance	7.35	1549.24*
Model χ^2 (df = 6) = 89.93*		

* = significant at $p < 0.05$

4.12.6 Oyo State

$GFG_{(Oyo)} = 2.89 + 8.44LACC - 8.34IEFV - 1.61IEFC - 23.99LRRL - 1.61LPAT - 38.66LTRC$……

……Equation 8

n = 75, Final loss = 7.27, Chi square (df, = 6) = 83.46, p = 0.00

Odd ratio (Unit change): Constant (3.62); *LACC* (4616.85); *IEFV* (0.00); *IEFC* (0.20); *LRRL* (0.00); *LPAT* (0.20); *LTRC* (0.00)

Lack of Accountability (*LACC*) had the only odd-ratio of 4616.85 (Table 4.29).

Table 4.29: Logistic binary nature of Good Forest Governance in Oyo State

Dependent variable (GFG): Good Forest Governance (Present = 1; Absent = 0		
Independent variables	**Coefficient**	**Odds-ratio**
If *LACC* is present to negate Good Forest Governance	8.44	4616.85*
If *IEFV* is present to negate Good Forest Governance	-8.34	0.00
If *IEFC* is present to negate Good Forest Governance	-1.61	0.20
If *LRRL* is present to negate Good Forest Governance	-23.99	0.00
If *LPAR* is present to negate Good Forest Governance	-1.61	0.20
If *LTRC* is present to negate Good Forest Governance	-38.65	0.00
Model χ^2 (df = 6) = 83.46*		

* = significant at $p < 0.05$

4.12.7 Southwestern states in Nigeria

$GFG_{(SW)} = 2.62 - 31.17LACC - 29.14IEFV - 0.52IEFC - 5.80LRRL + 4.37LPAT + 4.55\ LTRC$....

……Equation 9

n = 383, Final loss = 58.21, Chi square (df, = 6) = 383.07, p = 0.00

Odd ratio (Unit change): Constant (2.34); *LACC* (0.00); *IEFV* (0.00); *IEFC* (0.59); *LRRL* (0.00); *LPAT* (79.36); *LTRC* (94.46)

Transparency had the highest odd-ratio of 94.46 followed by Participation (*LPAR*) with odd-ratio of 79.36 (Table 4.30).

Table 4.30: Logistic binary nature of Good Forest Governance in Southwestern, Nigeria

Dependent variable (GFG): Good Forest Governance (Present = 1; Absent = 0		
Independent variables	**Coefficient**	**Odds-ratio**
If *LACC* is present to negate Good Forest Governance	-31.17	0.00
If *IEFV* is present to negate Good Forest Governance	-29.14	0.00
If *IEFC* is present to negate Good Forest Governance	-0.52	0.59
If *LRRL* is present to negate Good Forest Governance	-5.80	0.00
If *LPAT* is present to negate Good Forest Governance	4.37	79.36*
If *LTRC* is present to negate Good Forest Governance	4.55	94.46*
Model χ^2 (df = 6) = 383.07*		

* = significant at $p < 0.05$

4.13.1 Implementation of Procurement Rules

Table 4.31 revealed, 100% of the respondents in Lagos, Ogun, Osun and Oyo state and 97.8% and 76.7% in Ondo and Ekiti respectively disagreed that procurement rules have been effectively implemented. The pooled data in Southwestern Nigeria indicated that 95.8% disagreed that procurement rules have been effectively implemented while 3.3% agreed and 0.9% were passive. Further test (Table 4.32) revealed, procurement rule have no significant relationship with transparent, corrupt free process on concession and sales ($\chi^2 = 2.921$, $p > 0.05$).

4.13.2 Opportunity to Report Corrupt Practices is Effective

Table 4.31 showed that 100% of the respondents in Lagos, Ogun, Ondo, and Osun state and 97.7% and 93.3% in Ondo and Ekiti respectively disagreed that there is opportunity to report corrupt practices are effective. The pooled data in Southwestern Nigeria indicated that 95.8% disagreed while 1.1% agreed and 0.4% non response. The chi-square test (Table 4.32) showed that opportunity to report corrupt practices have no significant relationship with transparent, corrupt free process on concession and sales ($\chi^2 = 1.245$, $p > 0.05$).

4.13.3 Systems Resistant to Corruption

Table 4.31 showed that 100% of the respondents in Ogun, Osun and Oyo state and 96.7% in Ekiti and Lagos state while 95.6% in Ondo state disagreed that systems re resistant to corruption. The pooled data in Southwestern Nigeria indicated that 99.4% disagreed while 0.4% agreed and 0.2% non response. The chi-square test (Table 4.32) showed that system are resistant to corruption, have no significant relationship with transparent, corrupt free process on concession and sales ($\chi^2 = 3.671$, $p > 0.05$)

Table 4.31: Results on stakeholders' perception on mitigating corruption

Factors	Ekiti	Lagos	Ogun	Ondo	Osun	Oyo	SW
Procurement							
Yes	23.3	0	0	2.2	0	0	4.2
No	76.7	100	100	97.8	100	100	95.8
Opportunity to report							
Yes	6.7	0	0	0	0	2.3	1.5
No	93.3	100	100	100	100	97.7	98.5
Resistant system To corruption							
Yes	18.2	28.6	0	32.1	0	0	0.6
No	81.8	71.4	100	67.9	100	100	99.4

Source: Field Survey, 2017

Table 4.32: Results of Test on stakeholders' perception on mitigating corruption

Factors	Chi-square (χ^2) value	DF	P-value
Procurement	2.921	2	0.232
Opportunity to report corrupt practices	1.245	2	0.537
System resistant to corruption	3.671	2	0.160

* = significant at $p < 0.05$

4.14.1 Challenges of saw-millers in Southwestern, Nigeria

Table 4.33 showed the response of saw-millers on the array of challenges they face in Southwestern, Nigeria: power failure (19.7%), high cost of machines/replacement (13.8%), scarcity of wood (11.8%), expensive spare parts (8.6%), High cost of fuel and maintenance (7.2%), finance (4.6%), unfavourable government policy (4.6%), environmental pollution (4.6%), closure of government forest during raining season (4.6%), scarcity of labour (4.6%) obsolete machines (3.3%) and lack of access to loan (2.6%).

4.14.2 Challenges of timber contractors in Southwestern, Nigeria

Table 4.34 showed the response of timber contractors on the challenges they face in Southwestern, Nigeria: scarcity of choice timber species/closure of the forest during raining season (52.4%), High cost of transportation/difficulty in accessing the forest in raining season/high cost of transportation (12.2%), illegal activities in the forest (15.9%), high cost of machines/replacement (13.8%), finance (8.5%), (4.6%), incessant tariff increment/multiple way-billing (4.9%), Indian Hemp planters/poachers (4.9%), loss of logs on water-ways (1.2%).

4.14.3 Challenges of plank dealers in Southwestern, Nigeria

Table 4.35 showed the response of plank dealers on the challenges they face in Southwestern, Nigeria: lack of funds (17.3%), scarcity of choice timber species (14.5%), poor infrastructure (11.8%) multiple way billing (7.3%) high cost of transportation (7.3%), difficulty in accessing the forest during raining season (6.4%), poor sales (5.5%) insecurity (5.5%), exploitation by timber contractor (4.5%) environmental pollution (4.5%) closure of government forest during raining season (3.6%), bad road (3.6%), high cost of timber (2.7%), debt of customers (2.7%) , seizure of hammer (0.9%), lack of access to loan (0.9%), arbitrary change in tariff (0.9%).

4.14.4 Challenges of private forest plantation owners in Southwestern, Nigeria

Table 4.36 showed the response of private forest plantation owners on the challenges they face in Southwestern, Nigeria: lack of funds (97.5%), seedling/seed procurement (80%), high cost of land (60%) no assistance from the government (30%), land tenure issues (47.5%), fire outbreak (35%), illegal logging (30%), low pricing (27.5%), lack of technical skills (20%) and urbanization (20%).

Table 4.33: Distribution of saw-millers on their challenges

Challenges	Frequency	Percentage
Finance	7	4.6
Scarcity of wood	18	11.8
Government policy	7	4.6
Obsolete machines	5	3.3
High cost of machines / replacement	21	13.8
Expensive spare parts	13	8.6
Power failure	30	19.7
High cost of fuel and maintenance	11	7.2
No access to loan	4	2.6
Environmental pollution	3	2.0
Scarcity of labour	7	4.6
Closure of the forest during raining season	7	4.6
Total	**152**	**100**

Source: Field Survey, 2016

Table 4.34: Distribution of Timber contractors on their challenges

Challenges	Frequency	Percentage
Finance	7	8.5
Scarcity of choice timber species	43	52.4
Incessant tariff increment / multiple way billing	4	4.9
Loss of logs on water-ways	1	1.2
Indian hemp planters / poachers	4	4.9
Difficulty in accessing the forest in raining season / high cost of transportation	10	12.2
Illegal activities in the forest	13	15.9
Total	**82**	**100**

Source: Field Survey, 2016

Table 4.35: Distribution of Plank dealers on their challenges

Challenges	Frequency	Percentage
Lack of Funds	19	17.3
Scarcity of Choice timber species	16	14.5
High Cost of Timber	3	2.7
Debt from Customers	3	2.7
Exploitation by timber contractors	5	4.5
Multiple way billing	8	7.3
Environmental pollution	5	4.5
Poor Sales	6	5.5
Difficulty in accessing the forest during raining season	7	6.4
Closure of government forest	4	3.6
Poor Infrastructure	13	11.8
Insecurity	6	5.5
Bad road	4	3.6
High cost of transportation	8	7.3
Seizure of hammer	1	0.9
Lack of access to loan	1	0.9
Arbitrary change in tariff	1	0.9
Total	**110**	**100**

Source: Field Survey, 2016

Table 4.36: Distribution of Private Forest plantation owners on their challenges

Challenges	Yes	%Yes	No	%No	Total	Cum %
Finance	39	97.5	1	2.5	40	100
High cost of land	24	60	16	40	40	100
Land tenure issues	19	47.5	21	52.5	40	100
Lack of technical skills	8	20	32	80	40	100
Seedling / seed procurement	32	80	8	20	40	100
Fire outbreak	14	35	26	65	40	100
Illegal logging	12	30	18	70	40	100
Low pricing	11	27.5	29	72.5	40	100
Urbanization	8	20	32	80	40	100
No government assistance	12	30	28	70	40	100

Source: Field Survey, 2016

Cum % - Cumulative percentage

4.15.0 Plantation issues among Stakeholders in Southwestern, Nigeria

4.15.1 Ownership of Forest Plantation among Saw millers

Table 4.37 showed the distribution of saw millers that own forest plantation and those that do not own. Among the saw-miller interviewed in Ekiti, Lagos and Ogun States, none of them own forest plantation while 6.9%, 6.3% and 10.7% own forest plantation in Ondo, Osun and Oyo States respectively.

4.15.2 Ownership of Forest Plantation among Timber contractors

Table 4.37 showed the distribution of timber contractors that own forest plantation and those that do not own. Among the timber contractors interviewed in all the states; Oyo, Ogun, Ondo, Osun, Ekiti and Lagos, none of them own forest plantation.

4.15.3 Ownership of Forest Plantation among Plank dealers

Table 4.37 showed the distribution of plank dealers that own forest plantation and those that do not own. Among the plank dealers interviewed in all the states, 25% in Ekiti state own forest plantation while none among the remaining states own a forest plantation.

Table 4.37: Distribution of Stakeholders on ownership forest plantation (%)

Ownership	SM	TC	PD	Total
Ekiti	0	0	25	25
Lagos	0	0	0	0
Ogun	0	0	0	0
Ondo	6.9	0	0	6.9
Osun	6.3	0	0	6.3
Oyo	10.7	0	0	10.7

Source: Field Survey, 2016

SM – Saw millers

TC- Timber contractors

PD – Plank dealers

4.16.0 Logistic regression analysis of stakeholders' willingness to establish forest plantation in Southwestern, Nigeria

To investigate incentives which could influence stakeholders' (saw millers, timber contractors and plank dealers) willingness to establish forest plantation (*WTEFP*), logistic regression analysis was used. The incentives were: Training (*TRNG*), Provision of Seedlings (*PSDLNS*), Provision of Fast Growing Species (*PFGS*) and Favourable Government Policy (*FGP*).

4.16.1 Saw millers

WTEFP $_{(saw\ millers)}$ = 15 + 10.98*TRNG* - 2.70*PSDLNS* + 10.98*PFGS* - 70.78*FGP*……Equation 10

n = 145, Final loss = 0.00, Chi square (df, = 4) = 186.81, p = 0.00

Odd ratio (Unit change): Constant (3876081); *TRNG* (58864.95); *PSDLNS* (0.07); *PFGS* (58864.95); *FGP* (0.00)

Training (*TRNG*) Provision of Fast Growing Species (*PFGS*) had the same odd-ratio of 58864.95 (Table 4.38).

Table 4.38: Logistic binary nature of saw millers' willingness to establish forest plantation in Southwestern Nigeria

Dependent variable (*WTEFP*): Willingness of saw millers to establish forest plantation (Present = 1; Absent = 0		
Independent variables	**Coefficient**	**Odds-ratio**
If *TRNG* is present to ensure forest plantation establishment	10.98	58864.95*
If P*SDLNS* is present to ensure forest plantation establishment	-2.70	0.07
If *PFGS* is present to ensure forest plantation establishment	10.98	58864.95*
If *FGP* is present to ensure forest plantation establishment	-70.78	0.00
Model χ^2 (df = 4) = 186.81*		

* = significant at $p < 0.05$

4.16.2 Timber contractors

WTEFP $_{(contractors)}$ = 36.24 - 5.32*TRNG* - 16.01*PSDLNS* - 16.01*PFGS* - 28.35*FGP*....Equation 11

n = 82, Final loss = 2.25, Chi square (df, = 4) = 92.82, p = 0.00

Odd ratio (Unit change): Constant (0.00); *TRNG* (0.00); *PSDLNS* (0.00); *PFGS* (0.00); *FGP* (0.00)

None of the variables is significant (Table 4.39).

Table 4.39: Logistic binary nature of timber contractors' willingness to establish forest plantation in Southwestern Nigeria

Dependent variable (WTEFP): Willingness of timber contractors to establish forest plantation (Present = 1; Absent = 0)		
Independent variables	**Coefficient**	**Odds-ratio**
If *TRNG* is present to ensure forest plantation establishment	-5.32	0.00
If *SDLNS* is present to ensure forest plantation establishment	-16.01	0.00
If *PFGS* is present to ensure forest plantation establishment	-16.01	0.00
If *FGP* is present to ensure forest plantation establishment	-28.35	0.00
Model χ^2 (df = 4) = 92.82*		

* = significant at $p < 0.05$

4.16.3 Plank dealers

WTEFP $_{(dealers)}$ = 15.0 + 6.07*TRNG* + 7.39*PSDLNS* + 8.08*PFGS* - 39.60*FGP*……Equation 12

n = 110, Final loss = 18.77, Chi square (df, = 4) = 98.51, p = 0.00

Odd ratio (Unit change): Constant (4626856); *TRNG* (430.58); *PSDLNS* (1613.56); *PFGS* (3230.31); *FGP* (0.00)

Provision of Fast Growing Species (*PFGS*) had the highest odd-ratio of 3230.31 followed by Provision of Seedling (*PSDLNS*) with odd-ratio of 1613.56 and Training (*TRNG*) with odd-ratio of 430.58 and (Table 4.40).

Table 4.40: Logistic binary nature of plank dealers' willingness to establish forest plantation in Southwestern Nigeria

Dependent variable (WTEFP): Willingness of plank dealers to establish forest plantation (Present = 1; Absent = 0		
Independent variables	**Coefficient**	**Odds-ratio**
If *TRNG* is present to ensure forest plantation establishment	6.07	430.58
If *PSDLNS* is present to ensure forest plantation establishment	7.39	1613.56
If *PFGS* is present to ensure forest plantation establishment	8.08	3230.31*
If *FGP* is present to ensure forest plantation establishment	- 39.60	0.00
Model χ^2 (df = 4) = 98.51*		

* = significant at $p < 0.05$

4.16.4 All Stakeholders

WTEFP $_{(\text{All Stakeholder})}$ = 2.72 + 8.30*TRNG* + 10.17*SDLNS* + 5.99*FGS* -40.20*FGPL*…Equation 13

n = 373, Final loss = 6.44, Chi square (df, = 4) = 408.35, p = 0.00

Odd ratio (Unit change): Constant (6.58); *TRNG* (2.34); *PSDLNS* (12.87); *PFGS* (1.31); *FGP* (0.00)

Provision of Seedlings (*PSDLNS*) with odd-ratio of 12.87 followed by Training (*TRNG*) with odd-ratio of 2.34 (Table 4.41).

Table 4.41: Logistic binary nature of all stakeholders' willingness to establish forest plantation in Southwestern Nigeria

Dependent variable (WTEFP): Willingness of all stakeholders to establish forest plantation (Present = 1; Absent = 0)		
Independent variables	**Coefficient**	**Odds-ratio**
If *TRNG* is present to ensure forest plantation establishment	0.85	2.34
If *PSDLNS* is present to ensure forest plantation establishment	2.56	12.87
If *PFGS* is present to ensure forest plantation establishment	0.27	1.31
If *FGP* is present to ensure forest plantation establishment	- 36.32	0.00
Model χ^2 (df = 4) = 408.35*		

* = significant at $p < 0.05$

CHAPTER FIVE

DISCUSSION

5.1 Demographic information

Male gender is in the majority both among the forestry officials and other stakeholders (saw-millers, timber contractors, plank dealers, private forest plantation owners and farmers). This does not necessarily make forestry the exclusive preserve of men. Forestry jobs are laborious, remote and risky. For these reasons, choice of forestry jobs and businesses is skewed to men. Women in forestry most times are perceived as brave and adventurous and in some extreme cases are seen as men, since when duty calls they will be expected to brace up and meet these conditions. This therefore implied that forest governance in Southwestern Nigeria, is male dominated. This is corroborated by USAID (2013) that from local to international level, the absence of equal numbers of men and women, regardless of stakeholder group, have been noted. Women from indigenous and other forest-dependent communities are particularly underrepresented and also by Sunderland and Achdiawan (2014) referred to the fact that, with strong disparities across tropical Asia, Africa, and Latin America, men play a much more important and diverse role in the contribution of forest products to rural livelihoods than previously recorded.

The numbers of respondent across the age classes consistently rose until it hits the peak and begun to fall. That is, it rose from new entrant, lower middle age, upper middle age, and then began to decline at advanced age class and further declined at the more advanced age class. The availability of active work force implied capable hands for forest governance which ideally

should culminate to sustainable forest management in Southwestern Nigeria, all things been equal. This is in agreement with Nzeh *et al.* (2010) with emphasis on the fact that forest products provide employment more for able-bodied men then the younger and older men. The reason for both the younger men and older men not having higher employment from forest product may be connected to lots of energies required to handle these products, especially forest wood products.

Most respondents had primary and secondary education. This is clearly expressed by the fact that this is the level of education available within most rural areas. This indicated that they only sort for education within their vicinity (Plates 5.1 and 5.2) considering the attendant difficulty inherent in furthering their education elsewhere. More than ten percent of the respondents had no formal education. The essence of higher education is the acquisition of higher level of enlightenment which enhances productivity and better sense of judgment. This in no small measure should advance the course of good forest governance. The implication of most respondents having primary and secondary education is remaining at the crude subsistence level and poor forest governance. This agrees with UNESCO (2000), which stated that "educational access is more difficult in rural areas, as there are fewer schools and fewer resources, in addition to the tradition that rural children are often kept from attending school to help with agricultural or house chores".

Plate 5.1: School Children in Aworo Primary School, Ogun State

Plate 5.2: A village School in Aworo Village, Ogun State.

5.2. Technical and professional staff deficit in selected Forest Reserves in Southwestern, Nigeria

The estimated requirements represent the minimum number of staff of each category that should be available to cater for the management of the forest reserves. All the forest reserves had a serious deficiency with respect to technical staff while most of the forest reserves are also deficient of professional staff with exception to Ogbese, Ikere and Ogun river forest reserves. This implies that adequate technical and professional staff is not on ground to execute the mandate of state departments of forestry with respect to forest reserves in Southwestern Nigeria. This agrees with the study of Enabor (1981) that Ogun, Benue and Borno states experienced serious shortages of staff in forestry which will be aggravated by the planned intensification of forest management during 1981 – 1985. This is corroborated by Bettinger *et al.* (2009) who observed that "there is an acute shortage of manpower in the forestry sector in many developing countries".

5.3.1 Extent of forest cover in forest reserves in Southwestern, Nigeria from 1987 to 2017

The aim of this study was to gain quantitative understanding of the size of the forest reserves over a thirty-year period (1987 – 2017) in selected forest reserves in Southwestern, Nigeria. The thirty-year period was classed from 1987, 1997, 2007 and 2017. The study area has been defined to have three forest cover types, which were built up / bare surface, shrub and forest areas. In Ogun River Forest Reserve which is situated in Lagos State, built up and shrub (non-forest vegetation) consistently increased while forest area consistently decreased over the period. This was attributed to massive deforestation activities over the years. According to the study, this forest reserve as at 2017 was only about 5.24km^2 (33.91% of the initial forest). The forest cover is fragile due to deforestation, degradation, illegal felling, encroachment, etc. as narrated by Giri *et al.* (2003) and Bolland *et al.* (2007) that "underlying causes of deforestation include rapid economic development, population growth and poverty".

Increase in non-forest vegetation is due to ever increasing number of people involvement in agriculture year in year out. Over this period of time, the influxes of people and increased commercial activity into Lagos State have undoubtedly made the State the commercial nerve centre of Nigeria. This development, however, also came with massive deforestation and de-

reservation of the existing forest reserves. Ogbese Forest Reserve in Ekiti, had consistent increase in built up areas with 2007 as the only exception, same goes with shrub areas while in forest area, the forest size diminished consistently with an exceptional case of increase in 2007. Most forest reserves (Aworo, Olokemeji, Oluwa, Akure, Ago-Owu, Onigambari and Osho) had consistent rise in built up area, this indicating increased human settlement and economic activities while increase in non-forest vegetation and decline in the sizes of the forest in the reserves were also observed over the period of study. The implication of this therefore is that all (without exception) these forest reserves had been encroached upon and unabated deforestation which is in variance with good forest governance was evident. Similarly, other researchers have revealed that the expansion of agricultural land has been at the expense of lands with natural vegetation cover (Amsalu *et al.,* 2006; Woldeamlak (2002), Schneider and Pontius (2001).

5.3.2 Forest cover change in selected forest reserves in Southwestern Nigeria from 1987 to 2017

Forest cover change in the forest cover and percentage change in Ogun River, Ogbese, Aworo, Olokemeji, Oluwa, Akure, Shasha, Ago-Owu, Onigambari and Osho reflected negative change in the thirty-year period with only Ikere forest reserve with positive change under the same period. This implied that the rate of afforestation is lower than deforestation. This portends danger to posterity and contrary to everything sustainable forest management stands for. Brandy (1994) has observed that, continuous trend forest exploitation will result in diminishing the remaining tropical forest by the end of the 21st century.

5.3.3 Rate of deforestation in selected forest reserves in Southwestern Nigeria from 1987 to 2017

Rate of deforestation in Ogun River, Ogbese, Ikere, Aworo, Olokemeji, Oluwa, Akure, Shasha, Ago-Owu, Onigambari and Osho forest reserves indicated a trend of deficit in forest cover within the thirty-year period with exception to Ikere forest reserve in Ekiti State between 1987 and 1997. This implied that there was more deforestation than reforestation in the remaining forest reserves which is in variance with sustainable forest management and good forest governance. This assertion is corroborated by Kalu *et al*. (2014), who affirmed that “forest

exploitation has always been on geometric trend in most parts of Nigeria and has not been ever matched by afforestation efforts to enhance sustainable afforestation and tree planting programme in Nigeria. This was also emphasized by Akinbowale *et al*. (2019), who stated that nobody can dispute the fact that the rate of deforestation is far higher than that of tree planting, in the light of these circumstances, there is need to plant more trees in Nigeria.

5.4.1 Existence of forest policy on sustainable forest management in Southwestern, Nigeria.

The study shows that all the States (Ekiti, Lagos, Ogun, Ondo, Osun and Oyo) in the study area indicated the existence of forest policy elements on sustainable forest management. The existence of forest policy on sustainable forest management indicates political will to manage forests efficiently. Without the existence of forest policy on sustainable forest management, Southwestern, Nigeria is not likely going to conserve her forest resources. According to Kishor *et al.* (2012), enforcing forest law due to the existence of policy on sustainable forestry might not be guaranteed but fortunately, commitment by its handlers is created that cannot be easily reversed and also, when interpretation of the law is necessitated the courts will look at policy declarations.

5.4.2 Level of implementation of forest policy on sustainable forest management in Southwestern, Nigeria.

Existence of forest policy is one thing; implementation of the policy is another. The study probed into the level of implementation of the existing policy on sustainable forest management. The thematic elements of sustainable forest management were considered. They include afforestation and reforestation project, forest health and vitality, productive functions (through funding and silvicultural practices), protective or environmental functions, socio-economic functions of forest to sustainable livelihoods of forest dependent communities/general public and institutional framework support provided by the states. In all the ratings, in the last ten, five and two years, all fell below fifty percent level of implementation on the average. This left a lot to be desired, which simply implied, if this observed trend continues, sustainable forest management will be very difficult to accomplish in southwestern, Nigeria. This is corroborated by Famuyide and Adebayo (1993) that “there are many hindrances to effective implementation of the forest policy

in Nigeria which includes; resource allocation, revenue generation, forestry practices and land use, policy environment and policy enunciation".

5.5.1 Existence of planning

Most respondents in the study area are of the opinion that all the states considered planning very important. The fact that planning is perceived to exist in all the States implied that the States considered the long-term future of the forest, since forest management plans look is futuristic in its approach, without which ensuring sustainability is most unlikely. Planning is the foundation upon which forest management is built. However, planning is not an end in itself but a means to an end (forest policy implementation). Forest management planning ensures that forestry operations and related activities are carried out in ways that support the sustainable management of all forest resources for generations to come. US Forest Service (2012) affirms forest planning sets the overall management direction and guidance for the entire forest and the foundation of every decision made on the forest.

5.5.2 Updating of plans

It is not enough that plans exist, it is equally important for plans to be reviewed and revised regularly. Is one thing that plans exist to cater for the effective management of forest resources, it is another to review and revise the plans from time to time in other to cater for the present realities. If plans are rigid, it is a reflection that forest use, forest conditions and knowledge acquired over-time in managing the forest is static, which usually is not always the case. A lot of experience is acquired overtime in the practice of forest management and it is expected these experiences should better the lot of posterity. A good number of respondents disagreed with the fact that plans are updated in all the States. This implied that despite the fact, it is in the policy of the states to plan for forest management, regular updates of such plans are not made. This puts the entire system in a sort of "straight jacket" operation which lack dynamism; where lessons from previous mistakes and shortcomings become very difficult to be impacted on future operations due to the stereotype nature of management and could be a serious breach on sustainability of the forest.

5.5.3 Existence of current management plan

Ideally, the State forestry service should prepare current management plans otherwise known as working plan on the basis of long-term and short-term. Management plans refers to plans that deal with management operation and projects impacts over an appreciable length of time. Majority of the respondents in Southwestern, Nigeria opined that management plan does not exist. This implied that the management runs the forest on obsolete management plan. This de-emphasizes it, as a useful document for evaluating the present status of forests, past management and its impacts, and the prescriptions for future management interventions (NWPC, 2014).

5.5.4 Check and balances in forest policy

It is important that check and balances exist; this discourages rapid and arbitrary change in forest policy. Where there are rapid and arbitrary changes, forest resources management cannot be said to have policy or any sense of direction. Most respondents disagreed that check and balance which discourage rapid and arbitrary change in forest policy exist. This implied that some degree of predictability and stability cannot be achieved thereby giving room for corruption to thrive in the governance of forests in Southwestern, Nigeria. This negates Kishor *et al*. (2002). He was of the view that change is not bad in itself. Rather, after a thorough examination of the consequences, transition should not be subjective. A legislative act, taken after consultation or hearings and consideration of alternatives, should be viewed as a premeditative measure.

5.5.5 Support to stakeholders for active engagement in Forest-related Planning

Most respondents in Southwestern Nigeria, disagreed that stakeholders are engaged, given opportunity and allowed in participating in forest-related planning. This implied that forest governance is a state affair in Southwestern, Nigeria. It further explains the reason for myriads of challenges been faced and why massive destruction of forest is the order of the day and so much difficulty in cubing illegality in all of its forms.

5.5.6 Consideration for Private Forestlands

The role of government is to provide enabling environment for the private sector to thrive. Entrusting some specified functions to none government stakeholders allows the government to focus more on administrative matters. Most respondents agreed that there is consideration for activities on private forestland. This consideration though is limited to registration with the State, technical assistance and tariff paid during logging. Verbal enquiry revealed that all the State Departments of Forestry in the study area do not consider the private sector to function in the activities traditionally perceived to be the preserve of the Forest Department. This also buttresses the fact that forest governance in this region is a State affair. This agrees with Akinbowale *et al*. (2019), who stated that most of the private sector involvement in plantation establishment has been limited to individuals and schools as a result of inaction of the government towards private forest establishment.

5.5.7 Mechanism across forest related policy and planning

Forestry issues, tend to cut across different sectors. As long as other sectors exist, there will always be a need for cross-sectorial forest-related policy and planning. Most of the respondents disagreed with the fact that there are mechanisms within the government to address forestry issues that cut across other sectors. This implied that other forest-related sectors that are concerned with forest products and/or services are not involved in the policy and planning. This is the bane of forestry in Southwestern Nigeria. Forestry is too broad and inter-related to life than to be isolated. It is the isolation of forestry from these other entire sectors that confined forestry to its present state today. If from the inception of forestry practice in Nigeria, the entire related sectors are involved in forest-related policy and planning, the holistic nature of forestry would have been better appreciated and contribution from these sectors would have moved forestry way ahead of its present state. This negates Gregersen *et al*. (2004), which state that "cross-sectorial linkages and impacts are important in shaping forest governance approaches in most countries." Sectors such as the judiciary, agriculture, electricity, transport, environment, help each shape the approach of each country’s approach to forest conservation, management and use”.

5.5.8 Recording and Reporting Management activities

A way to check whether strategies are consistently followed involves good management. That implies that to fulfill its plans, the Forestry Department should keep a record of its operations. Records should be kept open for public inspection in order to stay accountable. Someone who reviews the records should be able to confidently determine what actions have been taken and whether management plans have been followed. It is document retention and efficient reporting that will reveal this. Most respondent agreed that recording and reporting of management activities are carried out. This implied it is verifiable if plans are being followed or otherwise and as a result enhancing effectiveness. This agrees with Gregersen *et al.* (2004) who stated that, if there are reporting mechanisms that are straightforward and readily understood by all, governance is likely to be more efficient, thereby increasing the need for transparency.

5.6.1 Supply and demand information

Most of the respondents disagreed with the fact that forest-related decisions are made using supply and demand information in State Department of Forestry. The implication of this is that markets for forest products are not studied so that market forces can determine forest product pricing. This introduces high level of arbitrariness in forest product pricing and as such forest product pricing are undervalued as this has always been the case. This is in agreement with Abu (2003), that the relatively low price paid for timber export goes to support the view that although forest products had at one time been on top as the nation's foreign exchange earner, its contribution to the nation's income was much lower than it would have been due to improper pricing in which no consideration was given to the cost of renewal and possible replacement.

5.6.2 Formal mechanism to influence decision

Most respondents agreed that formal mechanism by the State Department of Forestry to influence their decision by other stakeholders exist. This implied that stakeholders do formally lodge complaints on issues affecting them from time to time, thereby being able to alter afore-made decision of the forestry department. Moreover a participatory approach – involving stakeholder's decision-making process is a way to increase social sustainability and an important tool to support sustainable forest management (Kangas *et al*., 2006 and De Meo *et al*., 2011).

5.6.3 Consultation with stakeholders and feedback used in decision making

Majority of respondents disagreed with the fact that stakeholder meetings are held and feedback is used for decision-making. Consultation in this regard with stakeholders is quite minimal; reasons being that capacity is abysmally low coupled with fact that engagement with stakeholders is more often than not tariff related. Whereas, every policy is driven by stakeholders, hence their contribution is of immense value.

5.6.4 Support for stakeholder's participation in decision-making

Most respondents disagreed with the fact that the State Department of Forestry engages other stakeholders and give room for participation of forest-dependent communities in decision making is supported. Lack of support for stakeholders' participation in decision making may be an indicator to lack of respect for the rule of law evident in illegal logging.

5.6.5 Capacity to engage stakeholders in decision-making processes

Some respondents are of the opinion that the State does not have the capacity to engage stakeholders. This may be the cause for state centric forest governance. Building capacity to facilitate and strengthen the involvement of different stakeholders is an integral part of many forest policy development processes; for example, in Latvia, Serbia, Turkey and Uzbekistan, all working group members were trained to use a participatory approach to policy development from the onset.

5.6.6 Avenue for stakeholders in seeking review on decision

Most of the respondents disagreed with the fact that avenues for stakeholders in seeking review on decisions are practical and effective. Pockets of cases, where stakeholders seek review or reconsideration on decision exist but the point here is they are not seen as practical enough and as such they cannot be effective. Command-and-control measures alone have also been found to be ineffective in the management of valuable protected areas.

5.7.1 Involvement in creating forest policy and forest management plan

Most respondents disagreed with the fact that stakeholders have opportunity to be involved in creating forest policy, forest management plan or on any practical action taken to encourage involvement in this regards. The implication of this is participation of other stakeholders is thus restricted limited to forestry departments in the States. Throughout the process, involvement of key stakeholders at national and State levels is key, this results to mutual ownership of the resulting policy and shared responsibility for the implementation of the policy. In the protection of valuable protected areas, command-and-control measures alone have also been found to be ineffective.

5.7.2 Existence of formal mechanism in influencing forest Policy

Most respondents in all the States with the exception of Ondo State agreed with the fact that there are formal mechanisms to influence forest policy while majority disagreed with this assertion in Ondo state. Though, stakeholders have limited the scope of influencing government policy to tariff increment related issues. They are less concerned with other salient issues which have to do with ensuring sustainability of the forest products and the environment. They seem to only leverage the opportunity of dialoguing with the State on personal aggrandizement. Ondo State denial of the existence of such mechanism could be attributed to the fact that most of government policies have always remained the same over the years with little or no change irrespective of public complaints.

5.7.3 Gender sensitivity in participation in forestry decision-making processes

Most respondents in all the States agreed that decision-making processes in forestry are gender sensitive. Gender equity is of paramount importance more so in forestry but if there is no voice, how can one be heard. There seem not to be discrimination against women. It is equally important that women organize themselves and make deliberate efforts in participating in forestry at all levels. This will enable them to be a voice that could ensure fair hearing.

5.7.4 Access to information

Most respondents disagreed with the fact that access to information on forestry by stakeholders exist. If the stakeholders are oblivious of happenings in State Department of Forestry, it implied they have been edged out of participating in forest management in Southwestern, Nigeria. For there to be information sharing in the first place, it must exist. In some cases it is obvious this information is out rightly unavailable and when available, some of the information has been classified and when they are not classified, the bureaucratic procedures involved are breath taking. The researcher had his fair share in the course of this study. In order to engage stakeholders significantly, sound and accurate information and data on a variety of subjects are required.

5.7.5 Public notice on forest policies, laws and projects

The vast majority disagreed with the fact that the States give public notice on forestry matters. Ideally, it is the responsibility of the State to give periodic notices to the public on forestry matters. When stakeholders are denied the opportunity to contribute in making decisions that ultimately determine their well being, it is a clear evidence of failure in forest governance. Public notice serves as one of the 3 E's in forestry (enlightenment, engineering and enforcement). It is one thing the government should do to give the masses the required enlightenment needed to ensure understanding and robust contribution in forestry issues. There are several ways to connect and collaborate with stakeholders and the general public, including the internet, mobile telephone, radio, commercial or State television, village assemblies, town hall meetings and theatre. Experience shows that communication systems at the community level are the most effective for reaching local people.

5.7.6 Loan

Most respondents disagreed with the fact that there are loan facilities specifically for forestry investors. Most lenders would rather invest their money on ventures that could give a high turnover at the earliest possible period. Considering the environmental benefits of forestry especially in plantation establishment, it is expected that funds be made available in terms of loans on a single digit interest rate. The reason for limited number of investors in forestry is

likely associated with inadequate access to loan. This was corroborated by Castren *et al*. (2014) who stated that forestry businesses, except those interested in short-term returns irrespective of sustainability concern, have extreme difficulties raising finance.

5.8.1 Adequacy of Sanctions

Most of the respondents disagreed with the fact that sanctions imposed on offences are adequate. That is penalties for forest offences are not commensurate to these offences. Further enquiry revealed penalties such as arrest, detainment and payment of fines. Imprisonment for offences is rare; most of the penalties have been compounded (monetized). The reason for sanctions is to deter would-be offenders but if rather, it encourages offenders then it becomes counterproductive.

5.8.2 Adequacy of equipment

Forest equipment in executing forest operations ranges from wears (overall, belts, helmet, boot e.t.c) for covering and protection, to arms for defense and attack, to simple tools such as cutlass, whistle, binoculars, compass, walkie-talkie to the more sophisticated ones such as vehicle and helicopter. For a successful forest law implementation, skillful manpower, funds as at when needed and adequacy of equipment are indispensible. The vast majority of the respondents disagreed with the fact that equipment for forest operations was adequate in the study area. This is in line with Popoola (2011), who stated that, in sub-Saharan Africa, many governments lack the national capacity to monitor illegal logging. Patrol cars, security and communications facilities are missing in many cases. This often puts poorly trained and ill-equipped forestry workers at risk against the often more advanced illegal loggers." This explains the wanton deforestation and degradation of forests in such an alarming rate with little or no offenders to show for it. The fact still remains that offenders are humans and not spirits. All things being equal offenders are to be arrested and brought to book. If this were to be so, would-be offenders would be deterred.

5.8.3 Coverage of assigned land area

Protection of the forest reserve entails assigning areas of the reserves to staff that will be responsible for its protection. Most respondents disagreed with the fact that there is effective coverage of the assigned land area. This implied that the respondents considered the assigned land areas too large for effective coverage by the assigned staff.

5.8.4 Adequacy of staff for effective coverage

Most of the respondents disagreed with the fact that staff are adequate for effective coverage of the assigned land area within the forest reserve. The embargo on employment in the States occasioned by insufficient funds to pay workers salaries has gone a long way to reduce the manpower ratio in the study area. With this development, staff are demoralized in executing their function knowing the fact that they are expected to do much more than what they should. A demoralized staff will do far less than is been expected. This is the bane of forest reserve in Southernwestern, Nigeria. According to FAO (2003) there is shortage of manpower, in State Departments of Forestry in Nigeria, most of who lack adequate training and exposure to modern forestry techniques.

5.8.5 Effective measures for crime prevention

One key measure against forest crime is prevention. Prevention is better than cure, it is said. If so much is put into crime prevention, little will be left to be done but if little or nothing is done, fighting of forest crime could be a herculean task. Most respondents disagreed with the fact that there are effective measures for forest crime prevention. Virtually all the strategies that are needed to be in place as effective measures for crime prevention are lacking. Popoola (2011) has argued that the forestry sector is rife with vulnerability. State forestry authorities are almost exclusively concentrated on revenue collection and basically do not practice forest management. Owing to wide-spread corruption, regulation is almost non-existent or totally ineffective. Hence forest crime seems inevitable.

5.8.6 Effective measures for crime detection

Most of the respondents disagreed with the fact that there is forest crime detection. This agrees with Popoola (2011) posited that failure to comply with rules and regulations is often either not detected or the requisite corrective steps and punishments are either not imposed or prevented by corruption if detected. The implication of undetected crime is unabated crime. Early detection of forest crime and appropriate sanction will go a long way to checkmate crime.

5.8.7 Effective measures for crime suppression

Most of the respondents disagreed that there are effective measures for forest crime suppression. Though there are cases of arrest, fines and detention of offenders, seizure of timber felled illegally have also been presented as exhibit. The point here is, there are much more offenders who escape than those who are arrested. World Bank (2006), gave credence to this fact by asserting that, suppression of forest crime in developing countries is very limited and essentially ineffectual, providing very little deterrence to further crimes. Akella *et al.* (2004) disaggregate the deterrent effect into low probabilities of crime detection, prosecution, and conviction and, similarly, low expected sanctions and penalties. In sum, few forest crimes are prosecuted, and few offenders are punished.

5.8.8 Regular investigation of serious forest crimes

Higher percentage of the respondents disagreed that serious forest crimes are investigated. That is, regular investigations of serious forest crimes are not carried out. The implication of this is unabated crime. Offenders become embolden in all manner of offence being fully persuaded they will not be uncovered. According to World Bank (2006), forestry in many countries is in many ways excessively steeped in a para-military and policing mindset and the paraphernalia of uniforms, arms, and hierarchy. Even where these traditions have weakened, all modern forestry sectors are marked with more or less formal procedures, guidelines, and standards to guide routine operations of investigation, remedies, and sanctions that are evoked by deviations and abuse.

5.8.9 Extent of coverage against Forest Crime

Majority disagreed with the fact that extent of effort against forest crime covered transport, processing and trade are effective. Checkpoints staffed by forest authorities have been reported to be ineffective. According to Popoola (2011), a tree can, in principle, only be felled if a felling permit has been obtained and forestry employees can hammer, mark stumps and logs and issue waybills when felled. It would constitute a rudimentary technique for timber monitoring if this procedure was followed. However, forestry officials are rarely and possibly never, present at the stump and documents may be issued without adherence to procedures. It is therefore effectively impossible to verify the origin of any timber and therefore to determine its legality. There is currently no known intension to introduce timber tracking in Nigeria". This is responsible for the wide spread of forest crime cutting across business practices, processing and trade.

5.9.0 Factors negating good forest governance in Southwestern, Nigeria.

Factors negating good forest governance; lack of accountability, ineffectiveness, inefficiency, lack of respect for the rule of law, lack of participation and lack of transparency was examined in Southwestern, Nigeria.

5.9.1 Ekiti State

In Ekiti State Department of Forestry, lack of transparency (*LTRA*) is the only significant factor identified. It was evident the estimated coefficient for the criterion was more than zero. The implication is that the regression parameters in the model were significant. The higher the odd-ratios, the more probable the factors negate Good Forest Governance. It distinctly indicated the factors that mostly negate Good Forest Governance. This assertion was supported by Bland and Altman (2000) and Deeks (1996).

5.9.2 Lagos State

In Lagos State Department of Forestry, infectiveness (*IEFV*) and lack of participation (*LPAT*) were the significant factors identified were the significant factors identified. It was evident the estimated coefficient for the criterion was more than zero. The implication is that the regression parameters in the model were significant. The higher the odd-ratios, the more probable the

factors negate Good Forest Governance. It distinctly indicated the factors that mostly negate Good Forest Governance. This assertion was supported by Bland and Altman (2000) and Deeks (1996).

5.9.3 Ogun State

In State Department of Forestry Ogun, lack of accountability (*LACC*) was the only significant factor identified. It was evident that the estimated coefficient for the criterion was more than zero. These implying regression parameters in the model were significant. The higher the odd-ratios, the more probable the factors negate Good Forest Governance. It distinctly indicated the factors that mostly negate Good Forest Governance. This assertion was supported by Bland and Altman (2000) and Deeks (1996).

5.9.4 Ondo State

In State Department of Forestry Ondo, lack of transparency (*LTRA*) was the significant factor identified. It was evident that the estimated coefficient for the criterion was not zero. This implied regression parameters in the model were significant. The higher the odd-ratios, the more probable the factors negate Good Forest Governance. It distinctly indicates the factors that mostly negate Good Forest Governance. This assertion was supported by Bland and Altman (2000) and Deeks (1996).

5.9.5 Osun State

In State Department of Forestry Osun, lack of transparency (*LTRA*) was the significant factor identified. It was evident that the estimated coefficient for the criterion was more than zero. This implied the significance of the regressed parameters in the model. The higher the odd-ratios, the more probable the factors negate Good Forest Governance. It distinctly indicated the factors that mostly negate Good Forest Governance. This assertion was supported by Bland and Altman (2000) and Deeks (1996).

5.9.6 Oyo State

In State Department of Forestry Oyo, lack of accountability (*LACC*) was the significant factor identified. It was evident that the estimated coefficient for the criterion was more than zero. This implied the significance of the regressed parameters in the model. The higher the odd-ratios, the more probable the factors negate Good Forest Governance. It distinctly indicated the factors that mostly negate Good Forest Governance. This assertion was supported by Bland and Altman (2000) and Deeks (1996).

5.9.7 All Southwestern States Department of Forestry

The pooled result for the entire Southwestern indicated that lack of participation (*LPAT*) and lack of transparency (*LTRA*) were the significant factors identified. It was evident that the estimated coefficient for the criterion was more than zero. This implied the significance of the regressed parameters in the model. The higher the odd-ratios, the more probable the factors negate Good Forest Governance. This assertion was supported by Bland and Altman (2000) and Deeks (1996)

5.10.1 Implementation of Procurement Rules

Most of the respondents disagreed with the fact that procurement rules have been effectively implemented. This implied the presence of waste, fraud and abuse of power in the system. This was corroborated by Okeahalam (2004), that developing countries have weak procurement regulations that can present some avenues for corrupt practices.

5.10.2 Adequate opportunity to report corrupt practices

A good percentage of the respondents disagreed with the fact there are adequate opportunities to report corrupt practices. Detection and suppression of crimes becomes much more difficult when there are no adequate opportunities provided to report corrupt practices. Since forest crimes are joint effort by forest officials and the public, crimes continues unabatedly. This assertion was corroborated by Oso (2016) that “illegal forest activities in Southwestern, Nigeria were carried out by saw-millers, timber contractors, rural dwellers as well as forestry officials. Saw-millers and timber contractors were directly involved in tree felling and responsible for highest level of

forest offences. However, their activities were in most cases supported by the forest officials and in some cases rural dwellers".

5.10.3 Corruption resistant systems

Majority of the respondents disagreed with the fact that systems involved in collecting revenue, spending, financial planning, reporting, audit, allocation are resistant to corruption. Systems that are not resistant to corruption are synonymous to institutionalizing corruption. The forest industry has been hampered by huge deforestation anchored by illegal logging, resulting from weak governance and widespread corruption in the country. Dike (1999) corroborated this fact by stating that corruption occurs in many forms, and it has contributed immensely to the poverty and misery of a large segment of the Nigerian population. Corruption has become institutionalized in Nigeria.

5.11 Challenges of Forestry Stakeholders

The challenges of some stakeholders (saw-millers, timber contractors, plank dealers and private forest plantation owners) vary from one stakeholder to another.

The challenges of saw-millers ranging from the highest to the lowest are power failure, high cost of machines / replacement, scarcity of wood, expensive spare parts, high cost of fuel and maintenance. Others are finance, unfavourable government policy, closure of government forest during raining season, scarcity of labour, obsolete machines and lack of access to loan and environmental pollution. This assertion was corroborated by Larinde (2009), who stated that the main constraint militating against the smooth operation of the sawmilling in Nigerian industry apart from reliable energy supply is scarcity of economic timber resources in the forests.

The challenges of timber contactors ranging from the highest to the lowest are scarcity of timber species/choice specie, illegal operations in the forest, difficulty in accessing the forest in raining season/high cost of transportation, finance, incessant tariff increment/multiple way-billing, poachers/Indian hemp planters, loss of logs on water-ways. Seasonality of the timber business, low capital and high transportation cost has also been reported by Akinbani (2015) as major challenges of timber contractors in sawmilling business.

The challenges of plank dealers ranging from the highest to the lowest are lack of funds, scarcity timber/choice timber species, poor infrastructure (as indicated in Plate 5.3), multiple way billing,

Plate 5.3: Sinking vehicle; common occurrence in Plank Markets

difficulty in accessing the forest during raining season, insecurity, poor sales, exploitation by timber contractor. Others are environmental pollution, closure of government forest during raining season, bad road, high cost of timber, debt of customers, seizure of hammer, lack of access to loan, arbitrary change in tariff. Aiyeloja *et al*. (2016) also affirmed sustainable supply of timber as a major constraint to timber dealers in their trade.

The challenges of private forest plantation owners ranging from the highest to the lowest are lack of funds, seedling/seed procurement, high cost of land, land tenure issues, fire outbreak, no assistance from the government, low pricing, illegal logging, lack of technical skills, and urbanization. These challenges hamper the smooth running of operations in the forest sector, frustrate stakeholders out of the business and discourage new entrants into business, thereby, reducing this venture largely to the government agencies. Akinbowale *et al*. (2019) supporting this assertion opined that only government agencies have been majorly involved in forest development in Nigeria.

5.12.0 Factors influencing stakeholders' willingness to establish forest plantation in Southwestern, Nigeria

In this study, willingness to establish forest plantation was investigated among some forestry stakeholders (saw millers, timber contractors and plank dealers) to ascertain if incentives such as training, seedlings, provision of fast growing species and favorable government policy were provided.

5.12.1 Saw millers in Southwestern Nigeria

Amongst the saw millers in Southwestern, Nigeria, Training (*TRNG*), and Provision of Fast Growing Species (*PFGS*) were the significant factors identified. There was ample evidence to determine that the approximate coefficient for the criterion was not zero. The assumption is that the parameters of regression were important in the model. The greater the odd-ratios, the greater the probability, that the variables affected the willingness to set up forest plantings. This assertion was supported by Bland and Altman (2000) and Deeks (1996).

5.12.2 Timber contractors in Southwestern Nigeria

Amongst the timber contractors in Southwestern, Nigeria, no significant factor was identified. The estimated coefficient for the criterion was zero. The implication is that the regression parameters in the model were not significant. The higher the odd-ratios, the more likelihood the factors influenced Willingness to establish forest plantation. This assertion was supported by Bland and Altman (2000) and Deeks (1996).

5.12.3 Plank dealers in Southwestern Nigeria

Amongst the plank dealer in Southwestern Nigeria, Training (*TRNG*), Provision of Seedlings (*PSDLNS*) and Provision of Fast Growing Species (*PFGS*) were the significant factors identified. There was enough proof that the estimated coefficient for the criterion was not zero. This implied that the regression parameters in the model were significant. The higher the odd-ratios, the more likelihood the factors influenced Willingness to establish forest plantation. It distinctly indicated the factors that mostly influence willingness to establish forest plantation. This assertion was supported by Bland and Altman (2000) and Deeks (1996).

5.12.4 Pooled Forestry Stakeholders in Southwestern Nigeria

Amongst all the forestry stakeholders in Southwestern Nigeria, Training (*TRNG*) and Provision of Seedling (*PSDLNS*) were the significant factors identified. There was ample evidence to determine that the approximate coefficient for the criterion was not zero. The assumption is that the parameters of regression were important in the model. The greater the odd-ratios, the greater the probability, that the variables affected the willingness to set up forest plantings. This assertion was supported by Bland and Altman (2000) and Deeks (1996).

CHAPTER SIX

6.1.1 Summary of major findings

6.1.2 Forest cover in selected forest reserves in Southwestern, Nigeria in 2017

- Forest cover in the forest reserves; Ogun River, Ogbese, Ikere, Aworo, Olokemeji, Oluwa, Akure, Shasha, Ago-Owu, Onigambari and Osho in 2017 were: 5.24km^2, 39.52km^2, 9.6km^2, 164.61km^2, 73.56km^2, 686.73km^2, 23.26km^2, 293.16km^2, 31.87km^2, 88.34km^2, 2.08km^2 and 29.08 km^2, respectively amounting to 1444.97 km^2 in all the forest reserves.

6.1.3 Forest cover changes in forest reserves in Southwestern, Nigeria between 1987 and 2017

- Ogun River, Ogbese, Ikere, Aworo, Olokemeji, Oluwa, Akure, Shasha, Ago-Owu, Onigambari and Osho forest reserves, forest cover ranged as follows from 1987 to 2017; 97.69% - 33.91%, 78.57% - 55.35%, 62.99% - 69.54%, 95.01% - 69.54%, 86.53% - 81.60%, 90.89% - 79.87%, 99.03% - 31.63%, 98.89% - 91.70%, 93.74% - 72.57%, 94.5%, -81.87% and 92.56 - 44.67% while the forest cover changes and percentage changes in Ogun River, Ogbese, Ikere, Aworo, Olokemeji, Oluwa, Akure, Shasha, Ago-Owu, Onigambari , Osho from 1987 to 2017, were -9.85km^2 and -65.28%, -16.58 km^2 and -29.55%, 1.38 km^2 and 16.79%, -60.31 km^2 and -26.81%, -12.97 km^2 and -14.99%, -94.81 km^2 and-12.13%, -4.56 km^2 and -16.39%, -22.96 km^2 and -7.26%, -261.29 km^2 and -89.13%, -13.64 km^2 and -13.38%, -31.18 km^2 and -51.74% respectively.

6.1.4 Rate of deforestation

- Rate of deforestation in the selected forest reserves in 1987 and 2017 in Ogun River, Ogbese, Ikere, Aworo, Olokemeji, Oluwa, Akure, Shasha, Ago-Owu, Onigambari and Osho were: 2.13%; 0.77%; -0.22%; 0.85%; 0.48%; 0.37%; 2.25%; 0.24%; 0.71%; 0.42% and 1.60%. The trend in this reserve showed massive deforestation within the thirty year period with exception to Ikere forest reserve in Ekiti State which recorded -2.38% rate of deforestation between 1987 and 1997 this explains the reason for higher rate of reforestation than deforestation during the period. The forest reserves have been encroached upon and unabated deforestation which is in variance with good forest governance is evident.

6.1.5 Forest policy existence

- All the State Department of Forestry (Ekiti, Lagos, Ogun, Ondo, Osun and Oyo) in Southwestern, Nigeria acknowledged the fact that the following forest policies on sustainable forest management existed; afforestation and reforestation project in order to increase the forest resources, biological diversity in strengthening and expanding non forest components, forest health and vitality through silvicultural practices, productive functions through funding and silvicultural practices, protective or environmental social and economic functions of forest to sustainable livelihoods of forest dependent people for and institutional framework support provided by the states.

6.1.6 Level of implementation of forest policy

- Rating on the implementation level of forest policies in the last 10 years in Southwestern, Nigeria on afforestation and reforestation project in order to increase the forest resources (46.17%) , biological diversity in strengthening and expanding non forest components (37.33%), forest health and vitality through silvicultural practices (41.50%), productive functions through funding and silvicultural practices (46.0%), protective or environmental functions (40.80%), social and economic functions of forest to sustainable livelihoods of forest dependent people (55.0%) and institutional framework support provided by the states (55.0%) and sustainable forest management (45.0%).

- Rating on the implementation level of forest policies on sustainable forest management in the last 5 years in Southwestern, Nigeria on afforestation and reforestation project in

order to increase the forest resources (37.83%) , biological diversity in strengthening and expanding non forest components (35.50%), forest health and vitality through silvicultural practices (38.67%), productive functions through funding and silvicultural practices (33.33%), protective or environmental functions (47.33%) social and economic functions of forest to sustainable livelihoods of forest dependent people (47.83%) and institutional framework support provided by the states (37.00%) and sustainable forest management (39.64%).

- Rating on the implementation level of forest policies on sustainable forest management in the last 2 years in Southwestern, Nigeria on afforestation and reforestation project in order to increase the forest resources (31.00%) , biological diversity in strengthening and expanding non forest components (35.50%), forest health and vitality through silvicultural practices (35.83%), productive functions through funding and silvicultural practices (29.17%), protective or environmental functions (43.33%), socio-economic functions of forest to sustainable livelihoods of forest dependent people (58.33%) and institutional framework support provided by the states (34.17) and sustainable forest management (38.19%).

6.1.7 Planning in forest resources management

- Planning existed in all the State Department of Forestry in Southwestern, Nigeria.
- Despite the existence of plans, they were not current and regularly updated.
- Checks and balances that do not.
- Stakeholder were not engaged, given space and supported in participating in forest-related planning.
- Support was not given to stakeholders in forest-related planning.
- State Department of forestry took into consideration activities on private forestlands only on tariff related issues.
- Forest related issues that cuts across other sectors are not addressed.

- Recording and reporting management activities were carried out.

6.1.8 Decision-making processes

- Supply and demand on forest issues do not influence State Department of Forestry's decision making decisions.
- Opportunities exist for affected people to influence forest policy.
- No consultations with stakeholder
- The State Department of Forestry does not involve forest-dependent communities in forestry decision-making.
- The government does not have the capacity in engaging stakeholders in decision-making process and implementation.

6.1.9 Stakeholders' participation in forest resources management in Southwestern, Nigeria

- No opportunity for Stakeholders in the creation of forest policy.
- Formal mechanisms to influence forest policy exist except in Ondo state.
- Participation in forestry issues is gender sensitive except in Ondo state.
- There is no access to information on forestry issues by stakeholders.
- There are no public notices of forestry matters.
- No adequate access for Loan for Investment in Forest-based businesses.

6.1.10 Forest Law Enforcement

- Sanctions are not commensurate to forest offenses.
- Equipment for operations by forest officials is inadequate.
- The assigned land areas to forest officials are not effectively covered.
- Staff are not sufficient for effective coverage of land area.
- There are no effective measures for forest crime prevention.
- There are no effective measures for forest crime detection.
- There are no effective measures for forest crime suppression.
- Serious forest crimes are not investigated.
- Extent of effort against forest crime does not effectively cover transport, processing and trade.

6.1.11 Existence of Good Forest Governance

- The factors that influenced Poor Forest Governance in Southwestern, Nigeria were lack of transparency and lack of participation.

6.1.12 Effort in Mitigating Corruption

- Procurement rules are not being effectively implemented.
- There are no adequate opportunities to report corrupt practices.
- Systems in the State department of forestry are not resistant to corruption.

6.1.13 Challenges of stakeholders

- The challenges of saw-millers ranging from the highest to the lowest are power failure, high cost of machines/replacement, scarcity of timber, expensive spare parts, high cost of

fuel and maintenance, finance, unfavourable government policy, closure of government forest during raining season, scarcity of labour, obsolete machines and lack of access to loan and environmental pollution.

- The challenges of timber contactors ranging from the highest to the lowest are scarcity of timber/choice specie, illegal operations in the forest, difficulty in accessing the forest in raining season/high cost of transportation, finance, incessant tariff increment/multiple way-billing, poachers/Indian hemp planters, loss of logs on water-ways on.

- The challenges of plank dealers ranging from the highest to the lowest are lack of funds, scarcity timber/choice timber species, poor infrastructure, multiple way billing, difficulty in accessing the forest during raining season, insecurity, poor sales, exploitation by timber contractor, environmental pollution, closure of government forest during raining season, bad road, high cost of timber, debt of customers, seizure of hammer, lack of access to loan, arbitrary change in tariff.

- The challenges of private forest plantation owners ranging from the highest to the lowest are lack of funds, seedling/seed procurement, high cost of land, land tenure issues, fire outbreak, lack of assistance from the government, low pricing, illegal logging, lack of technical skills, and urbanization.

6.2.0 CONCLUSION AND RECOMMENDATIONS

6.2.1 Conclusion

- The extent of forest cover in Ogbese, Ikere, Ogun River, Aworo, Olokemeji, Oluwa, Akure, Shasha, Ago-Owu, Onigambari , Osho forest reserves in the year 2017 was about 1444.97 km^2 reflecting a deficit of 526.77 km^2 during a thirty year period (1987 – 2017)

- . The forest cover change and percentage change in all the forest reserve displayed a total of 526.77 km^2 deficit and 26.72% respectively.

- Adequate technical and professional staffs are not on ground to execute the mandate of state departments of forestry with respect to forest reserves in Southwestern Nigeria.

- All the States under study revealed that forest policy elements on sustainable forest management existed. Existence of forest policy on sustainable forest management implied political will to manage forests well. Ensuring sustainable forest management of course requires much more than political will. Political will to manage forests well, affords a good start.

- The study probed into the level of implementation of the existing policy on sustainable forest management considering the elements of sustainable forest management which. In all the ratings, in the last 10, 5 and 2 years. All fell below 50 percent level of implementation on the average. This left a lot to be desired. The implication is that sustainable forest management will be very difficult to accomplish in Southwestern, Nigeria if this trend observed continues.

- Planning, decision-making and stakeholders participation is at the lowest ebb in the study area. Planning is the brain work before eventual implementation. If anything goes amiss with planning failure is inevitable. In the same vein, all inclusive decision-making which reflects the yawning and aspirations of the people whose livelihood heavily rely on the forest and stakeholders' active participation are of utmost importance.

- Timber scarcity cuts across, as a major challenge among stakeholders who are tree takers (saw-millers, timber contractors and plank dealers) while lack of finance is a major challenge among private forest plantation owners. These challenges hamper the smooth

running of activities in forest sector, frustrate stakeholders out of the business and discourage new entrants.

- In terms of ownership of forest plantation among the stakeholders; less than 5 percent among saw-millers, none among timber contractors and less than 2 percent among plank dealers own forest plantation among those interviewed. Majority were willing to own forest plantation if necessary support was given, such as; introduction of fast growing tree species, provision of seedlings and training on forest plantation establishment.

- Lip service is being paid to forest law enforcement in Southwestern, Nigeria. Sanctions are not commensurate to forest offences. When pros and cons of breaking forest laws are weighed, it seems to pay-off breaking the law. Imprisonment seems to be a mere threat. Forest offenders do always have their way and go scot free, through compounding if by mistake they got caught. The institutional framework that should support the course of enforcement is lacking. Effort to handle big offenders proves to always be a lost battle in the light of the sophistication of the fire-arms of some offenders.

- Effective forest governance is not being practiced in Southwestern, Nigeria. The factors that influenced Poor Forest Governance were transparency and participation, with odd-ratios of 94.46 and 79.36 respectively.

- In State Department of Forestry Southwestern, Nigeria, the mode of operation is corruption infected. The system in itself is self destructive. Procurement rules are not being effectively implemented. There are no credible laid down ways of reporting corrupt practices.

- Saw millers, timber contractors and plank dealers were willing to establish their own forest plantation. The factors that influenced stakeholders' willingness to establish forest plantation were provision of seedlings and training with odd-ratios of 12.87 and 2.34.

6.2.2 Recommendations

- The National Forest Act which is a more robust policy document should be approved by the National Assembly since the forest law of the State is long overdue for review and revision.
- Adequate funds should be released as at when due to ensure effective forest policy implementation.
- Management plan in all the State Department of Forestry should be current and regularly updated.
- Forestry stakeholders should be engaged, given space and supported in participating in forest-related planning and decision-making processes.
- The government should come up with a system to fix forest problems that cut through other sectors.
- Supply and demand should inform decision making process.
- Stakeholders should be carried along and consulted in decision making processes.
- The government should increase her capacity in engaging stakeholders in decision-making processes and implementation.
- Stakeholders in forestry should be involved in the creation of forest policy.
- Provision of incentives for plantation establishment
- Forest law should be reviewed for lower tariffs for private plantation owners.
- Concessionary interest rates should be given for forest-based business loans.
- Forestry stakeholders should be encouraged to establish jointly owned forest plantation considering their level of organisation and their willingness to establish forest plantation.
- Sanctions for forest offences should be commensurate to forest offenses.
- Ensure adequate provision of equipment for operations by forest officials.

- The State Department of Forestry should ensure suppression, prevention and detection of forest crimes.

- The investigative apparatus of the Forestry Department should be well developed and investigation of serious forest crimes carried out.

- Extent of effort against forest crime should adequately cover transport, processing and trade.

- Public complaint office should be set-up whose office should be separated from the forest officials who are being reported and the complainant should be adequately protected from being witch-hunted.

- Inventory using GIS to reveal current extent of forest cover, forest cover changes and rate of deforestation of the forest reserves should be regularly carried out in all the State Department of Forestry.

- There is a dare need for reform in the State Departments of Forestry, Southwestern Nigeria to ensure effective forest governance

6.2.3 Contribution to Knowledge

- The extent of forest cover in Ogbese, Ikere, Ogun River, Aworo, Olokemeji, Oluwa, Akure, Shasha, Ago-Owu, Gambari, Osho forest reserves in the year 2017 was about 1444.97 km^2 reflecting a deficit of 526.77 km^2 and percentage change of -309.87% at 9.6% rate of deforestation during a thirty-year period (1987 – 2017) thus indicating Poor Forest Governance.

- Policies on sustainable forest management exist. Planning exist, though plans are not updated regularly. Decision-making processes are weak due to poor stakeholders' participation thus implying state-centric forest governance.

- Forest law enforcement is faced with the problems of inadequacy of sanctions, lack of equipment, deficiency of staff, limited extent of coverage against forest crimes

ineffective crime prevention and detection, hence encouraging lack of respect for the rule of forest law.

- Lack of transparency, which encouraged different shades of corruption and ensured systems not resistant to corruption, was prevalent in the state department of forestry southwestern, Nigeria.

- Good forest governance is not being practiced in Southwestern, Nigeria. The factors that influenced Poor Forest Governance were lack of transparency and lack of participation with odd-ratios of 94.46 and 79.36 respectively.

- About 68% of forestry stakeholders were willing to establish forest plantation. The factors that influenced their willingness were provision of seedlings and organizing trainings for them in forest plantation establishment with odd-ratios of 12.87 and 2.34 respectively.

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APPENDICES

Appendix 1: Faculty of Agriculture and Forestry

Department of Forest Resources Management

University of Ibadan, Nigeria.

Dear Respondent,

Thank you for making out time in filling this questionnaire as one of the stakeholders in forestry. This questionnaire is designed to gather data on "**Assessment of Forest Governance in Southwestern Nigeria**." It is strictly for academic purpose, so kindly feel free to answer the questions below. Any information given therefore will be kept confidential. **Thank you**.

Owese Theophilus

Checklist on Existing forest policies on sustainable forest management and their implementation

Which of the following forest policies on sustainable forest management and its elements exist, are being implemented and how would you rate the level of implementation in the past 10, 5 and 2 years on a scale of 0 – 100 % for these periods. On columns 1 and 2 (Existence and Implementation) tick Yes as (√) and No as (X), while for columns 3, 4 and 5 (10, 5 and 2 years respectively) rate the level of implementation on a scale of 0 – 100 % as the case may be.

S/N	**Forest Policy**	**Existence**	**Implementation**	**Level of Implementation in 10 years (%)**	**Level of Implementation in 5 years (%)**	**Level of Implementation in 2 years (%)**
1.	Afforestation and reforestation					
2.	Biological diversity					
3.	Silvicultural practices					
4.	Funding					
5.	Forest Protection and Environmental amelioration					
6.	Socio-economic functions					

Appendix II

Questionnaire for Professional and Technical Staff

A. Background Information

1) Gender: a) Male ( ) (b) Female ( )

2) Age _____

3) Qualification: _____

4) Years in service: _____

5) Cadre _____

6). State_____

S/N	**B. Planning Process**	Yes	No
7.	Plans are made		
8.	These plans are current and regularly updated		
9.	Management plans exist		
10.	Checks and balances are in effect to prevent sudden and unreasonable changes in forest regulations, policies and plans.		
11.	In making forest-related decisions, the forestry department uses supply and demand data		
12.	Forestry department gives opportunities, encourages the public, indigenous inhabitants, forest dependent settlements with planning associated with forests.		
13.	In policy making and planning for the forestry sector, forestry department takes account of private forestry operations.		
14.	Mechanisms exist within the government to tackle cross-sectorial strategy, planning, or practice matters related to forests.		
15.	State Department of Forestry record and report its management activities		
	C. Decision-making Process	Yes	No
16.	In making decisions linked to forests, forestry department make use of supply and demand data		
17.	Stakeholders have the opportunity to contribute to forest policy creation, public forest management plans and subsidiary laws.		
18.	There are official channels for individuals who are influenced by forest policy to influence it.		
19.	Consultations with stakeholders are conducted for public forests and the feedback is used in decision-making.		
20.	Forestry department creates opportunities and encourages the public, indigenous habitants and involvement of forest-dependent societies in forest-related decision making.		
21.	Forestry department have the ability to involve stakeholders in forest-re lated decision-making and execution processes.		

22.	Stakeholders have realistic and successful means of requesting review or reconsideration of forestry department decisions		

Appendix III

Questionnaire for Uniformed staff

A. Background Information

1) Gender: a) Male ( ) (b) Female ( )

2) Age _____

3) Qualification: _____

4) Years in service: _____

5) State_____

S/N	B. Capacity for Law enforcement	YES	NO
6.	Do forest laws exist and are adequate (i.e. penalties are adequate and graduated to suit the offense)		
7.	Do you have the necessary equipment for this job?		
8.	Can you effectively cover the land assigned to you?		
9.	Do you think there are enough staff to adequate cover the forest reserve?		
10.	In enforcing forest law techniques applied include successful forest crime reduction initiatives		
11.	The forest law enforcement policy requires proactive steps to identify forest crimes.		
12.	Forest Land law enforcement policy requires successful forest crime suppression initiatives		
13.	On a regular basis, allegations of serious forest crimes are investigated		
14.	Forestry department's efforts in tackling forest crime span the entire supply chain of trees, including shipping, production and trade.		
	C. Planning Process	**Yes**	**No**
15.	Plans are made		
16.	These plans are current and regularly updated		
17.	Management plans exist		
18.	Checks and balances are in effect to prevent sudden and unreasonable changes in forest regulations, policies and plans.		
19.	In making forest-related decisions, the forestry department uses supply and demand data		
20.	Forestry department gives opportunities, encourages the public, indigenous inhabitants, forest dependent settlements with planning associated with forests.		
21.	In policy making and planning for the forestry sector, forestry department takes account of private forestry operations.		
22.	Mechanisms exist within the government to tackle cross-sectorial strategy,		

	planning, or practice matters related to forests.		
23.	State Department of Forestry record and report its management activities		
	D. Decision-making Process	**Yes**	**No**
24.	In making decisions linked to forests, forestry department make use of supply and demand data		
25.	Stakeholders have the opportunity to contribute to forest policy creation, public forest management plans and subsidiary laws.		
26.	There are official channels for individuals who are influenced by forest policy to influence it.		
27.	Consultations with stakeholders are conducted for public forests and the feedback is used in decision-making.		
28.	Forestry department creates opportunities and encourages the public, indigenous habitants and involvement of forest-dependent societies in forest-related decision making.		
29.	Forestry department have the ability to involve stakeholders in forest-related decision-making and execution processes.		
30.	Stakeholders have realistic and successful means of requesting review or reconsideration of forestry department decisions		

Appendix IV: Questionnaire for Saw millers, Timber Contractors

Please tick the category you belong to among the following: Saw miller ( ) Timber contractor ( )

A. Background Information

1. Gender: a) Male ( ) b) Female ( ) 2. Age ___ 3. Qualification ____ 4. Years in Business: _____

5. What challenges are you faced with, in your business? _____

6. Do you own a forest plantation? a) Yes ( ) (b) No ( )

7. If No, why is it you do not own a plantation?
_____

8. Are you willing to own a forest plantation? (a) Yes ( ) (b) No ( )

9. If training is given, are you willing to own a forest plantation? (a) Yes ( ) (b) No ( )

10. If seedlings are given, are you willing to own a forest plantation? (a) Yes ( ) (b) No ( )

11. If fast growing species are given, are you willing to own a forest plantation? (a) Yes ( ) (b) No ( )

12. Given a favourable government policy are you willing to own a forest plantation? (a)Yes ( ) (b) No ( )

S/N	**B. Stakeholder's participation and perception**	Yes	No
13.	Stakeholders are involved in the creation of forest policies		
14.	Forest policy stakeholders have formal processes to influence forest policy.		
15.	Stakeholder meetings are held and feedback is used in decision making.		
16.	Participation in decision-making processes are gender sensitive		
17.	There are opportunities for stakeholders to review the Department's decisions.		
18.	Access information about forestry		
19.	Public notice of planned forest policies, services, laws and projects is provided by the relevant authorities.		
20.	stakeholders willing to invest in the forestry sector have ample access to credit.		
21	Stakeholders have knowledge on forestry issues		
	C. Factors influencing Good Forest Governance	YES	NO

21.	The State Department of Forestry is practicing good forest governance					
22.	The Department carries out its duty in its acts and decisions, i.e. they are accountable to all members of society.					
23.	The Department produces results that meet their desired goals i.e. they are effective.					
24.	Without undue waste or delay, the Department maximises the use of human, financial and other resources, i.e. They are effective,					
25.	The Department gives all members of society equal opportunities to enhance or preserve their well-being, including the impartial application of laws, i.e. respect for the rule of law.					
26.	The Department involves individuals and stakeholders in decision-making, either directly or through legal intermediaries who serve their interests, i.e. participation in decision-making.					
27.	The Department offers free data flow, allowing all members of society to access, understand and track processes, i.e. They're transparent about it.					
S/N	**D. Measures to address corruption**	SD	D	U	A	SA
28.	Public sector forest-related procurement regulations are efficiently applied					
29.	The Code of Ethics and staff training specifically address misconduct and corruption.					
30.	The public has a chance to report corrupt practices to a suitable authority					
31.	Alleged forest corruption allegations lead to investigation and appropriate penalties					
32.	Forest agency evaluations are carried out from time to time and action is taken to evaluate the results.					
33.	Corruption-resistant forest revenue collection, spending, budgeting, accounting, redistribution, and audit systems is carried out.					

Appendix V

Questionnaire for Plank dealers

.**A. Background Information**

1. Gender: a) Male ( ) b) Female ( ) 2. Age _____

3. Qualification _____

4. Years in Business: _____

5. What challenges are you faced with, in your business? _____

6. Do you own a forest plantation? a) Yes ( ) (b) No ( )

7. If No, why is it you do not own a plantation?
_____

8. Are you willing to own a forest plantation? (a) Yes ( ) (b) No ( )

9. If training is given, are you willing to own a forest plantation? (a) Yes ( ) (b) No ( )

10. If seedlings are given, are you willing to own a forest plantation? (a) Yes ( ) (b) No ( )

11. If fast growing species are given, are you willing to own a forest plantation? (a) Yes ( ) (b) No ( )

12. Given a favourable government policy are you willing to own a forest plantation? (a)Yes ( ) (b) No ( )

S/N	**B. Stakeholder's Participation and Perception**	Yes	No
13.	Stakeholders are involved in the creation of forest policies		
14.	Stakeholders who are affected by forest policy have formal mechanisms to influence it		
15.	Consultations with stakeholders are carried out and the feedback are used in decision making		
16.	Participation in decision-making processes are gender sensitive		
17.	There are avenues for stakeholders to seek review or reconsideration of the decisions of the forest agency		
18.	There is access to information on forestry		
19.	Relevant authorities give public notice of proposed forest policies, programs, laws, and projects		
20.	Private actors willing to invest in the forestry sector have adequate access to loan		
21.	Stakeholders have knowledge on forestry issues		

Appendix VI

Questionnaire for Forest Communities Dwellers

A. Background Information

1. Gender: Male ( ) Female ( )

2. Age: __

3. Qualification: ____

4. Nativity (a) Indigene ( ), (b) Non-indigene ( )

5. State of origin _____

6. Name of Forest Reserve _____

7. Name of Village_____

S/N	**B. Stakeholder's Participation and Perception**	Yes	No
8.	Stakeholders are involved in the creation of forest policies		
9.	Stakeholders who are affected by forest policy have formal mechanisms to influence it		
10.	Consultations with stakeholders are carried out and the feedback are used in decision making		
11.	Participation in decision-making processes are gender sensitive		
12.	There are avenues for stakeholders to seek review or reconsideration of the decisions of the forest agency		
13.	There is access to information on forestry		
14	Relevant authorities give public notice of proposed forest policies, programs, laws, and projects		
15.	Private actors willing to invest in the forestry sector have adequate access to loan		
16.	Stakeholders have knowledge on forestry issues		
	C. Capacity for Law Enforcement		
17.	Do forest laws exist and are adequate (i.e. penalties are adequate and graduated to suit the offense)		
18.	Do you have the necessary equipment for this job?		
19.	Can you effectively cover the land assigned to you?		
20.	Do you think there are enough staff to adequate cover the forest reserve?		
21.	In enforcing forest law techniques applied include successful forest crime reduction initiatives		
22.	The forest law enforcement policy requires proactive steps to identify forest crimes.		
23.	Forest Land law enforcement policy requires successful forest crime suppression initiatives		
24.	On a regular basis, allegations of serious forest crimes are investigated		
25.	Forestry department's efforts in tackling forest crime span the entire supply chain of		

	trees, including shipping, production and trade.		

Appendix VII

Questionnaire for Private Forest Plantation owners

A. Background Information

1) Gender: (a) Male ( ) (b) Female ( )

2) Age _____

3) Qualification _____

4) Years in Business: _____

5) What challenges are you faced with. in your business? _____

S/N	**B. Stakeholder's Participation and Perception on Forest Governance**	Yes	No
6.	Stakeholders are involved in the creation of forest policies		
7.	Stakeholders who are affected by forest policy have formal mechanisms to influence it		
8.	Consultations with stakeholders are carried out and the feedback are used in decision making		
9.	Participation in decision-making processes are gender sensitive		
10.	There are avenues for stakeholders to seek review or reconsideration of the decisions of the forest agency		
11.	There is access to information on forestry		
12.	Relevant authorities give public notice of proposed forest policies, programs, laws, and projects		
13.	Private actors willing to invest in the forestry sector have adequate access to loan		
14.	Stakeholders have knowledge on forestry issues		

Appendix VIII

Suggestions of forest community dwellers on what the government should do to enhance stakeholders' participation

S/N	Suggestion	Frequency	Percentage
1.	Review Forest Policy in favour of stakeholders	3	2.01
2.	Regular Up-to-date Dissemination of Information	6	4.03
3.	Giving Incentives in monetary, scholastic, technical, infrastructural , and material forms	47	31.54
4.	Organizing regular stakeholders meeting	16	10.74
5.	Organizing sensitization programmes	5	3.36
6.	Prohibiting indiscriminate grazing	18	12.08
7.	Collaboration with other stakeholders	1	0.67
8.	Employ qualified community members	12	8.05
9.	Solve stakeholders peculiar problems	3	2.01
10.	Facilitate community based forest management	11	7.38
11.	Involve stakeholders in policy formulation & decision making	5	3.36
12.	Enforcement of law	1	0.67
13.	Encourage community policing by paying them	6	4.03
14.	Organize trainings, seminars & workshops	7	4.70
15.	Pay royalty to forest communities	8	5.37
Total		**149**	**100.00**

Appendix IV

Plate 5.4: Timber contractor and saw-millers association office arena, Ife, Osun State.

Appendix 10

Plate 5.5: An Interview session with a farmer living within a forest reserve

Appendix 11

Plate 5.6: An interview session with a Plank dealer in Bodija Plank Market, Ibadan, Oyo State.

Appendix 12

Plate 5.7: A Village Community within Forest Reserve

Appendix 13

Plate 5.8: An Agroforestry Farm (Trees intercropped with *Musa paradisiaca*) in Ondo State.

Appendix 14

Plate 5.9: Sawmill in operation

Appendix 15

Plate 5.10: Forest Guards in Ekiti State filling Questionnaire being aided by the researcher

Appendix 16

Plate 5.11: Household of the Farmer's Leader in Tobolo village, Ogun State

Appendix 17

Plate 5.12: Serial Heavy logs of Lorry load from Forest Reserves