PERCEPTION AND UTILIZATION OF INSTITUTIONAL-BASED FORESTRY: UNIVERSITY OF BENIN (UGBOWO CAMPUS) AS A CASE STUDY

BY

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FACULTY OF SOCIAL SCIENCES

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BENIN CITY

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AN ORIGINAL ESSAY SUBMITTED TO THE DEPARTMENT OF GEOGRAPHY AND REGIONAL PLANNING, FACULTY OF SOCIAL SCIENCES, UNIVERSITY OF BENIN, IN PARTIAL FUFILLMENT OF THE REQUIREMENTS FO THE AWARD OF BACHELOR OF SCIENCE DEGREE IN GEOGRAPHY AND REGIONAL PLANNING (B.Sc GEO. & REG. PLG)

AUGUST, 2016

CERTIFICATION

We, the undersigned, certify that this project was undertaken solely by **CHIMA CHARLES AGU**, in the Department of Geography and Regional Planning of the University of Benin, Benin City, Nigeria.

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DEDICATION

This research work is dedicated to God Almighty, the God who gives wisdom and who tells from the beginning to the finale.

ACKNOWLEDGEMENTS

I heartily appreciate all those I encountered during my academic endeavour here at the University of Benin. Big thanks to Mr. P. O. Orobator, my research supervisor, for spending stupendous time with me on this work that has proved successful. I also appreciate the Head of Department, Dr. (Mrs.) M. N. Ezemonye, and all other lecturers who imparted so much to me.

I acknowledge my family for their support throughout my B.Sc programme. Specially, I am grateful to my parents, Mr. and Mrs. Cletus Agu for their financial and moral supports. I also acknowledge my friends, viz. Valerie Olele, Ose, Donald Uyi-Oghosa Odobo, Ufuoma Lucky Okor, Rotimi Orowa, Roy Enahimion Okosun, and others not here mentioned. I appreciate you all.

Agu, Chima Charles
University of Benin,
August, 2016.

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ABSTRACT

Institutional based forestry is of primary interest because it provides numerous ecosystem, goods and services which benefit humankind. On that premise, this study a imed at deciphering people perceptions and levels of utilization of institutional -based forestry using the university of Benin (ugbowo campus) as a case in point. Employing mean Analyses and Frequency Analyses, the study revealed that the University commu nity is aware of the existence of institutional -based forestry in the Ugbowo Campus. A lso revealed is the fact that tree of different species are located almost everywhere in t he Ugbowo Campus of the University of Benin, and are used for different purposes, vi z. relaxation, aesthetic and shades for vehicles. Conversely, the study revealed that tre es are poorly maintained. Similar to this is the finding that areas where there are trees are often affected by storms where roofing sheets are blown -off by the wind. The stu dy recommended amongst other things that, specialized personnel be employed to cart er for the trees, funds be provided by the University authority, trees be treated regular ly with pesticides and insecticide, and crucially areas currently lacking trees be provid ed with such.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Forests, according to Chima and Ihuma (2014), provide sources of livelihood like food, shelter, clothing and heating, and majority of people living in poverty depend on forests to generate income through employment and through the sales of forest goods and services. According to World Bank (2001) reports, more than 25% of the world's population relies on forest resources for their livelihoods. However, as a result of rapid increase in population in Nigeria and other developing countries, forest and its resources are depleting owing to indiscriminate use. Despite government efforts to preserve the forest for future generation, deforestation has continued unabated with little or no consideration for the short and long term socio-economic, ecological and environmental consequences associated with it.

According to Ikhuoria & Ero (2006) quoted by Chima and Ihuma (2004), Nigerian forests provide invaluable services to the nation. But sadly, over the last half century, the Nigerian rain forest has experienced unprecedented reduction due to deforestation and degradation which now pose intractable ecological land use. The negative implications of this ugly development is not only great but worrisome. Various reasons have been held responsible for this loss of forest vegetation and their

resources. One of such reasons is farming activities such as bush fallowing, bush burning and rapid urbanization. However, in view of the numerous roles that forestry plays in the socio-economic lives of people in any region as well as environmental development of urban areas, many governmental authorities, public institutions and stakeholders in the forestry sector have been evolving ways of arresting the menace of deforestation caused by population increase and urbanization. One of the new approaches emerging in response is the concept of urban forestry.

Urban forestry, according to the society of American foresters, is a specialized branch of forestry that has as its objectives in the cultivation and management of trees for their present and potential contribution to the physiological, sociological and economic wellbeing of urban society. This implies that urban forestry is a comprehensive program designed to educate the urban populace on the role of trees in the urban environment (Faleyime, 2014).The scope of urban forestry is wide and complex, encompassing community forestry, institutional based forestry among others. Institutional based forestryfocuses on cultivating and managing planted trees and naturally occurring trees within an institution for the overall wellbeing of the institution and the community within which the institution is located (Tyrvainen, Paulet, Seeland, & Vries, 2005).

Institutional based forestry is of primary interest because it provides numerous ecosystem goods and services which benefit humankind. It also offers a variety of

benefits such as providing institutions with some forest benefits, mitigating the ecological effect of urban sprawl and improving the quality of the living environment of the institutions. Other benefits include climate modification, control of air pollution, scenic beauty, habitat for wildlife and recreational opportunities (Tyrvainen *et al*, 2005). Orobator and Asikhia (2013) note that both the public and private sectors are almost totally unaware of the social, cultural, economic and environmental benefit of urban forestry. Hence Faleyimu (2014) reports that it is important to understand the public shared belief and attitude towards trees that promote their care management and protection. Institutions involvement is critical to the continued vitality of its trees.

As a branch of urban forestry, Institutional based forestry attempts to compensate for the loss of natural forests, loss resulting from population increase and urbanization (Tyrvainen *et al*, 2005). Furthermore, it's important to assess the utilization of trees in public institutions.

1.2 Statement of Research Problem

Institutional based forestry involves the planting and maintaining group of trees within the boundary of an institution such institution could be schools-primary, secondary or tertiary, or other establishment. It is one of the promising strategies to address myriads of problems associated with urbanization (Ezeabasili, Iloghalu, Okoro, & Manafa, 2015). The immediate challenge of rapid urbanization is the demand for land by rural-urban immigrants for housing projects, thus leading to destruction of

trees gardens, recreational parks, peri-urban plantations for establishment of housing units, and to create land for infrastructural development (Ezeabasili, *et al*, 2015).

However, sustainable institutional based forestry implies managing naturally occurring and planted trees in institution to provide economic, social, environmental and ecological benefits to the institutions both in the present and in the future by way of appropriate strategies and integration of institutional based forestry initiatives into the overall urban planning program (Etim, Umazi, & Ufot, 2012). This calls for the recognition of the technical needs as well as the financial, human and institutional resources requirement, while means of involving and forging links between the private, public and academic sectors must be intensified (Aslin, 2004).

Institutional based forestry practice requires adequate knowledge of the ecological, environmental, social, aesthetic and economic factors of the institution concerned. Consequently, the success or failure of institutional based forestry practice depends on the sivicultural knowledge of the manager institution involved (Etim *et al*, 2012). Similarly, the perception of other stakeholders in the institutions towards institutional based forestry cannot be relegated.

A considerable number of studies have been carried out on urban forestry. For example, Ezeabasili *et al* (2015) examined the strategies for sustainable urban forestry in Nigeria, Faleyimi (2014) examined public perception of urban forestry and its implication for environmental conservation, Eleanya (2014) also investigated the

methods and strategies of promoting forests and forests products as a tool for infrastructural development in Nigeria. Similarly, Chomini *et al* (2013) examined rural poverty as a challenge to Green infrastructural development in Nigeria, Oyebade *et al* (2012) studied growth characteristic and diversity of urban tree species, Marien (2012) investigated urban and peri-urban forestry in Africa; the outlook for wood fuel. Borokini *et al* (2012) examined community-based forest resources management in Nigeria; case study of Ngel Nyaki Forest Reserve, Mambilla Plateau, Taraba state, Nigeria. Fuwape (2011) investigated the benefits and challenges of urban forestry in Nigeria. Fuwape and Onyekwelu (2008) examined trends in urban forest development as well as benefits and challenges of urban forestry. Macdermott (2007) studied urban forestry strategy for Walsal, and WOLF (2004) studied public value of nature, economics of urban trees, parks and open spaces. In an earlier study, Popoola and Ajewole (2001) examined public perceptions of urban forests in Ibadan, Nigeria and the implication for environmental conservation, Nygren (2005) investigated community based forest management within the contest of institutional decentralization, while Rouchiche (1991) studied urban and Peri–urban forestry in Africa. However, in spite of the numerous studies on urban forestry, there is paucity of scholarly information on institutional based forestry. It is important to note that very few studies on this branch of urban forestry have so emerged, notable among them is"Spatial Analysis of Trees Composition, Diversity and Richness in Built up Areas of University of port Harcourt, Nigeria" (Eludoyin *et al,* 2014). Furthermore, research on

perception and utilization of institutional based forestry have been lacking. It is this gap that this research work intends to fill. Consequently, this study is aimed at assessing the perception and utilization of institutional based forestry, using the University of Benin, Ugbowo Campus, as a case study. It is on the strength of the above that the following research questions are asked.

1). what is the perception of the University community towards institutional based forestry?

2). Where are trees located in the University?

3). what are the various ways in which trees are utilized in the study area?

4). what is the number and tree species found in the study area?

5). what are the Challenges of forestry in the institution?

6). How can institutional based forestry be sustained in the University of Benin?

1.3 Aim and Objectives

The goal of this study was to x-ray the perception and utilization of institutional based forestry in University of Benin. However, in order to achieve this aim, the objectives of the study included:

1).To find out what are the perceptions of people towards institutional based forestry in University of Benin.

2).To identify where trees are located in University of Benin.

3).To find out the various ways in which trees are utilized in University of Benin.

4).To take an inventory of the trees located in the University of Benin.

5).To examine the various factors militating against institutional based forestry in University of Benin.

6).To suggest the way forwards achieving sustainable practice in University of Benin.

1.4 Scope of the Study

The study will be carried out in the University of Benin, taking into consideration built up areas, and major roads. The built up areas will include hostels, car parks of faculties and offices and some specific buildings. The car parks that will be covered include those found in the following faculties within the University environment, i.e, College of Medical Science, School of Post Graduate, Basement, Pharmacy, Student Affairs, Auditorium, Main Gate, Engineering, Management

Sciences, New Lecture Theatre, Vice Chancellor's Office, June 12, Faculty of Agric., Faculty of law, Education, Faculty of Social Sciences, Health Centre, Geo science and petroleum engineering school, Main library, New pharmacy, Twin L.T and Sport Complex

The roads to be covered include Abuja Road,Akenzua Road, River Ethiope Road

And Ransome kuti road. The hostels to be covered include; Hall One (Queen Idia Hall), Hall Two (Madam Tinubu Hall), Hall Three (MallamAminukano Hall), Hall Four (Akanuibiam Hall), Hall Five, NDDC Hostel, Medical Hostel, Post Graduate Hostels.

Some specific buildings to be covered include; The Vice –Chancellors Lodge and the Energy Centre. The study will also take into considerations the locations of trees and the number of trees found at each study site or location within the university community.

1.5 Significance of the Study

This study is significant in a number of ways. First it would reveal the perceptions of students and staff of University of Benin towards Institutional based forestry. This study will also reveal various ways trees are utilized in University of Benin. It will also provide information on the species of trees found in the study area and where

such species are located. This investigation will help to give an up to date inventory of trees in University of Benin. The investigation will also recommend various methods of achieving sustainable forest practice in university of Benin. It will help to reveal the level of forestry practice in University of Benin, and this will serve as basis for policy making by the management of the institution. The study will expose staff and students of university of Benin to the dangers of destroying urban forests. Public institutions, educational institutions and other MDA at various levels will also benefit from the study as it will refine their understanding of institutional based forestry issue. Findings from this study will also be useful in planning and development of the institution.

1.6 Study Area

Location

University of Benin is located at Ovia North-east Local Government Area of Edo State. The university is located in 6. 337^0N, $5^0.6002^0$E (Fig 1.1). The University of Benin was founded in 1970; the idea behind it was to provide an innovative educational programme of high standard that is relevant for national development. The university of Benin also known as Uniben started as institute of technology and was accorded the status of full-fledged university by national universities commission (NUC) on July 1,1971.The university of Benin was located at Ekenhuan at inception and was moved to its permanent site (Ugbowo campus) where the institution is still currently located .the university of Benin operates a faculty system with eleven facilities except

for the school of medicine, dentistry, basic medical sciences and the institute of child health which operate a collegiate system since 1999. Similarly, the co-ordinates that define the locations of the respective study sites within the study area are presented in Table 1.1 below

Table 1.1: Location of the different study sites

S/N	Study sites	Coordinates
1	Pharmacy car park	5°36'45.638"E 6°23'42.219"N
2	Medical car park	5°36'54.204"E 6°23'42.362"N
3	N.D.D.C car park	5°37'3.627"E 6°23'42.219"N
4	New pharmacy car park	5°37'17.191"E 6°23'38.792"N
6	College of medicine car park	5°37'26.471"E 6°23'45.36"N
7	Energy centre car park	5°37'34.324"E 6°23'49.929"N
8	Basement car park	5°36'46.923"E 6°23'45.217"N
9	Library car park	5°36'54.775"E 6°23'45.217"N
10	New management science car park	5°37'2.913"E 6°23'49.643"N
11	Hall one car park	5°37'6.483"E 6°23'49.929"N

12	Hall three car park	$5^0$37’14.621”E $6^0$23’54.069”N
13	Hall two car park	$5^0$37’11.051”E $6^0$23’57.21”N
14	Hall four car park	$5^0$37’23.33”E $6^0$23’52.07”N
15	Hall five car park	$5^0$37’27.471”E $6^0$23’52.07”N
16	Post graduate hostel car park	$5^0$37’29.612”E $6^0$23’54.498”N
17	Student affair car park	$5^0$36’41.783”E $6^0$23’47.359”N
18	June twelve car park	$5^0$37’19.047”E $6^0$24’2.636”N
19	Faculty of law car park	$5^0$37’18.761”E $6^0$24’5.491”N
20	Faculty of agric. Car park	$5^0$37’24.329”E $6^0$24’3.35”N
21	Faculty of education car park	5^0 37’12.194”E $6^0$24’6.062”N
22	Sport complex car park	$5^0$36’41.925”E $6^0$23’55.354”N
23	Main auditorium car park	$5^0$36’48.636”E $6^0$241.351”N
24	V.C office	$5^0$36’47.065”E $6^0$24’6.776”N
25	Maingate car park	$5^0$36’33.644”E $6^0$24’5.491”N
26	Engineering car park	$5^0$36’48.779”E

		$6^0$24’11.059”N
27	New lecture theatre	$5^0$37’15.049”E $6^0$24’9.489”N
28	Twin L.T car park	$5^0$37’20.046”E $6^0$24’9.489”N
29	Faculty of social sciences car park	$5^0$37’19.618”E $6^0$24’15.771”N
30	Health centre car park	$5^0$37’25.614”E $6^0$24’15.343”N
31	Geo-science car park	$5^0$37’33.182”E $6^0$24’14.343”N
32	V.C lodge	$5^0$37’37.179”E $6^0$24’12.487”N

Vegetation

During the establishment of the University of Benin, several large forested trees endemic to the rain forest belt were felled and replaced with exotic trees of foreign descents. Hence the vegetation characteristics of the area today are a mix-breed between the local tropical forest trees and foreign exotic trees.

Climate

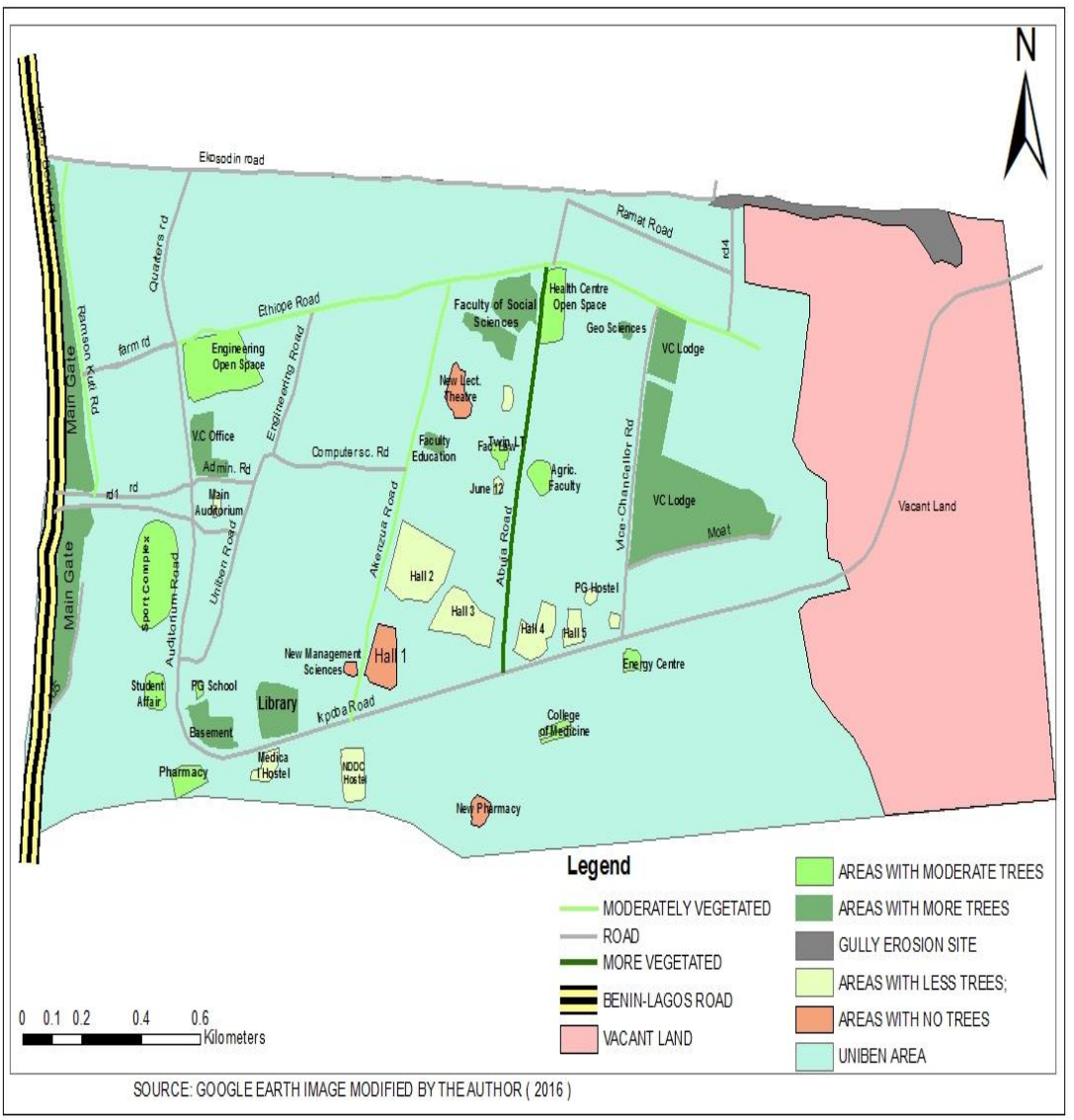
University of Benin falls within the tropical climate. The annual average temperature is about 27^0_C and the annual rainfall is about 2000mm. University of Benin experiences two major seasons, the wet season which last from March to October and the dry season which lasts for the remaining parts of the year. The influence of the cold, dry and dusty harmattan wind, which results in the considerable drop in the atmospheric humidity, is felt during the dry season between the months of October and February.

Topography and Drainage

University of Benin stands on slightly elevated piece of flat land about 85m above sea level, with the eastern edge steeply tilted towards Ikpoba River that drains the eastern portion of the city while the western edge slopes gently towards Ogba River that drains the western portion of the city.

Soil

The soil of University of Benin is similar to that of Benin City. Ferrasols are the major type of soil found in the university. Ferrasols are the deeply weathered red and yellowish brown soils. They have abundant free iron oxides but generally without a lateritic pan layer (Filani, 1995). The soils are mainly loams, sandy-loams and sandy-clay–loam. They suffer from excessive internal drainage and leaching, which give them a strong acid reaction.



SOURCE: GOOGLE EARTH IMAGE MODIFIED BY THE AUTHOR (2016)

Fig 1.1 : University of Benin showing the different study sites.

Source: Google Earth Image Modified By the Author (2016)

CHAPTER TWO

2.0 CONCEPTUAL FRAME WORK AND LITERATURE REVIEW

2.1 INTRODUCTION

In order to examine the perception and utilization of institutional based forestr y in University of Benin, Benin-city, this study hinged on the Governance of Forest Ini tiative (G.F.I) as its conceptual frame work.

2.1.1 CONCEPTUAL FRAME WORK

Governance of Forest Initiative (G.F.I) works to promote policies and practice s that strengthen forest governance that support sustainable forest management. This c onceptual framework provides knowledge on pressing forest challenges; generate cons tructive dialogue on how to improve governance of land and forests, and advance refor ms for sustainable tree development. It analyzes four core governance issues and these are forest tenure, land use planning, forest management and forest revenue.

According to Davis, Williams, Lupsily and Dariet (2004), GFI does not only aim to provide a new definition of forest governance but seeks to create a framework that hel ps explain forest governance. G.F.I generally views governance through a procedural l

ens. In other words, forest governance has to do with the process of *how* decisions are made about forests, as opposed to focusing exclusively on *what* decisions are made or the outcome of these decisions. As such, GFI views governance as including much mo re than government, since decisions about forests are shaped by wide range of public a nd private actors.

2.1.2 Governance of Forest Initiative Indicator Framework (G F I)

The GFI indicator was created to diagnose strength and weaknesses in forest gover nance based on analytical framework. The G.F.I framework provides a comprehensive menu of indicators to achieve its aim and it is designed to be flexible and adaptable to support a customized assessment approach by multiple potential users and for multiple applications. It provides a clear model for identifying what to assess and it proposes a qualitative assessment approach that is systematic and replicable. This shows how rele vant this framework is to this; to as it helped to provide a guide in assessing the variou s ways institutional forestry is utilized.

The G.F.I indicator is applicable to a wide range of groups with an interest in assessin g or monitoring forest governance (Table 2.1). The indicators could be used by govern ment institutions wishing to assess the effectiveness of policy implementation, legislat ors seeking to identify priorities for legal reforms or civil society organizations seekin g to monitor government performance with regards to forestry.

Table 2.1 Governance of Forest Initiative Indicator Structure

Forest tenure	**Land use**	**Forest management**	**Forest revenue**	**Cross-cutting institutions**	**Cross-cutting issues**
Forest ownership and use right	Land use planning	Forest legal and policy framework	Forest charge administration	Legislature	Public participation in decision making
Tenure dispute resolution	Land use plan implementation	Forest strategies and plans	forest revenue and distribution	Judiciary	Public access to information
State forest ownership	Sectoral land use	Forest monitoring	Benefit-sharing	Executives agencies	Financial transparency and accountability
Concession allocation	Forest classification	Forest management practices	Budgeting	Private sector	Anti corruption measures
		Forest law enforcement		Civil society	

Source : USAID,2015

2.1.3 Principles of Governance of Forest Initiative

The frame work provides a common definition of "good governance" based on its uni versally accepted principles of transparency, participation, accountability, coordination and capacity (Fig 2.1). It seeks to bring principles of good governance to bear on the c hallenges of sustaining forests in developing countries. Further it aims to improve the participation, transparency and responsiveness of both private and public practitioners. In achieving its goals, the GFI focuses on its five principles of good forest governance these are transparency, participation, accountability, coordination and capacity.

The five principles of good forest governance as highlighted by Davis *et al.* (2004) a re:

- **Transparency:**

Transparency is the process of revealing actions so that outsiders can scrutinize th em. Facilitating access to information is critical in order to inform and engage public c onstituents. Attributes of transparency include the comprehensiveness, timeliness, avai lability, and comprehensibility of information about forestry, as well as the proactivene ss of efforts to inform affected groups. It is pertinent to affirm here that without transp arency, institutional based forestry cannot serve its purpose, hence the significance of t

his conceptual framework to this study is established here.

- **Participation:**

Diverse and meaningful input helps decision-makers consider different issues, perspe ctives, and options when defining a problem and solution. It allows them to gather ne w knowledge, integrate public concerns into decision-making, and manage the challen ges faced by institutional based forestry by bringing different stakeholders and special interest groups together at an early stage. Elements of access to participation include f ormal space for participation in relevant forums, the use of appropriate mechanisms to involve participants, the inclusiveness and openness of such processes, and the extent t o which gathered input is taken into account. This will in no small measure help to sus tain institutional based forestry. There is need for all actors in the public institutions to be fully involved in the development and sustainability of institutional based forestry.

- **Accountability:**

Accountability exists when the actions and decisions taken by an actor are subject to o versight, so as to guarantee that they meet stated objectives of institutional forestry an d respond to the needs of the stakeholders they are meant to benefit. The concept of ac countability involves two dimensions: answerability and enforcement. Answerability r efers to the obligation to provide information about decisions and actions and justify th em to the practitioners of institutional forestry. Enforcement requires sanctions and red

ress when the actor fails to meet its obligations. Accountability relationships are releva nt to forests. The accountability relationship between public officials and citizens is oft en particularly important. This will enable stakeholders and beneficiaries of institution al based forestry to be conscious and responsive to its sustenance.

- **Coordination:**

Co-ordination exists when different actors whose decisions impact forests work toget her and share information in order to advance common objectives. Most governments have separate authorities with oversight for forests, environment, land use, agriculture, infrastructure, and so on. Horizontal coordination across the different stakeholders wit hin public institutions is therefore critical. In addition, many establishments decentrali ze or devolve responsibilities for forest management across multiple administrative sc ales. Thus, vertical coordination across levels of actors is also important. Furthermore, this components highlights the significance of this conceptual framework to this study as there is need for all sectors as well as actors within public institutions to be properl y co-ordinated.

- **Capacity:**

Capacity can be broadly interpreted in terms of financial, human, technological, and i nstitutional resources to enhance institutional based forestry. In the context of forest go vernance, capacity can be more narrowly defined as the ability to execute other four pr inciples of good governance described earlier. This also brings to bear the relevance of this conceptual framework to this study as there is need for proper integration of all th

e other principles of G.FI. This will in no small measure help to develop institutional b ased forestry. The relevance of this framework to this study cannot be overemphasized as it has provided the guidelines for creating awareness on the importance of institutio nal based forestry, the challenges and how these challenges can be overcome. This stu dy which is aimed at examining the perception and utilization of institutional forestry i n University of Benin finds this conceptual framework very relevant taking into consid eration its basic principle and indicators.

The indicators of the framework can be used to carry out assessment of forest governa nce for the purpose of forming or reforming laws, building capacity of various instituti ons, or monitoring implementation of laws. The indicators questions of G.F.I helped to provide the bases for designing new laws policies, or programs. Therefore, in utilizing this framework, this study used the G.F.I indicators to assess the level of awareness of students and staff of the University of Benin towards institutional based forestry

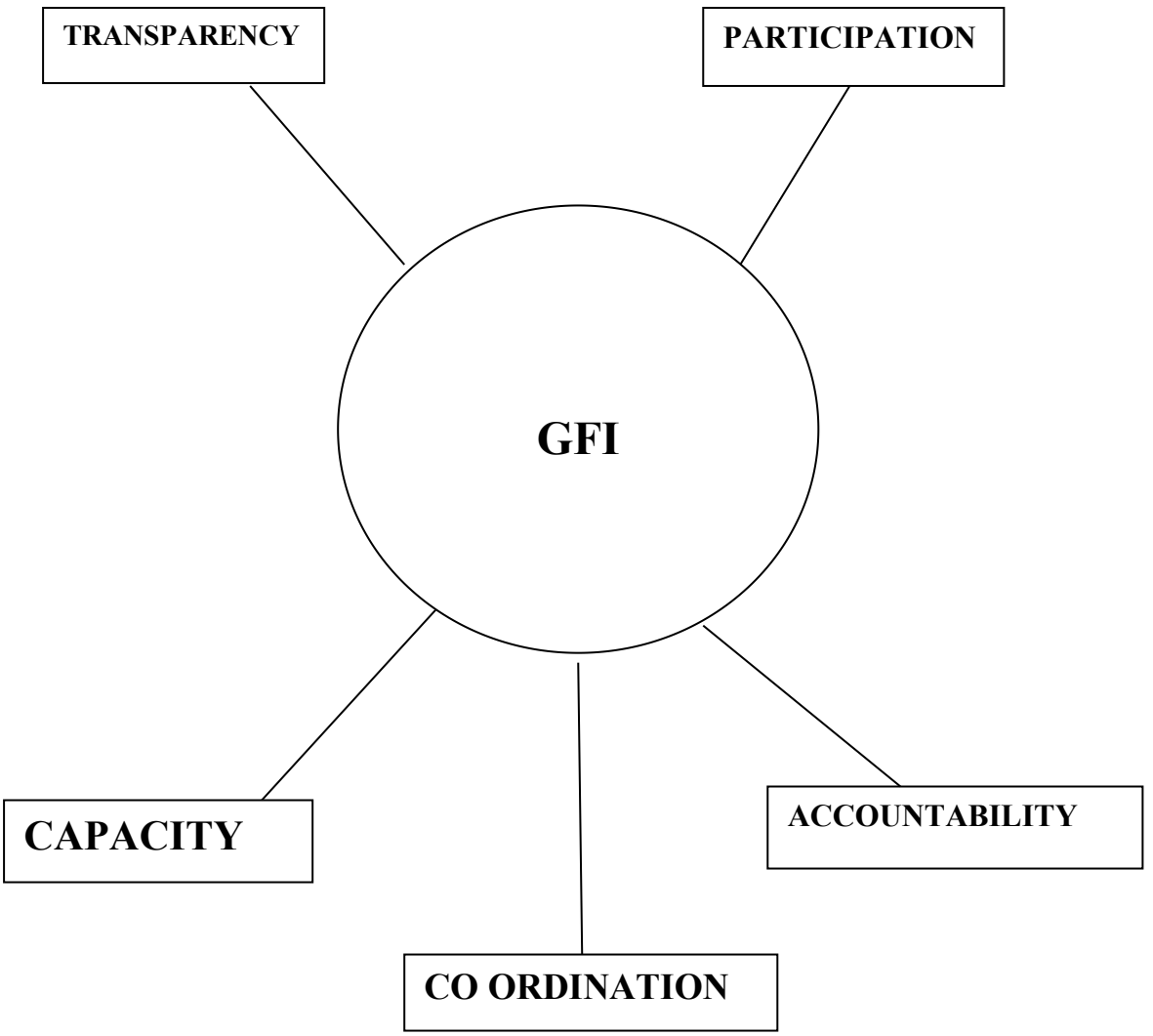


Fig.2.1 Government forest initiative model

Source: Adapted from USAID (2015) and modified by the author.

2.2 LITERATURE REVIEW

Institutional based forestry involves planting and maintaining of group of tre es within an institutional environment, such educational institutions, military barracks, Government establishments (ministry, department and agencies etc). These trees play an important role in social, cultural, economic and environmental development of such institutions such role includes landscape enhancement, provision of recreational and c ultural facilities, erosion control, provision of shade during meetings, ceremonies, edu cational activities, and supply of fruits, vegetables and fuel - wood. However, since inc reasing urbanization and development has placed urban forests under extreme pressure and extinction, institutional based forestry is one of the promising strategies to addres s millions of problems associated with urbanization.

Numerous researchers have carried out studies on forestry. In a recent study, E zeabasil, Iloghlu, Okoro and Manafa (2015) in studying sustainable urban forestry in b uilt environments, evaluated the spatial distribution of urban trees in Awka, Anambra S tate, Nigeria. Their investigation was aimed towards creating awareness of the importa nce of urban forest to the general public. In using the participant survey method and q uestionnaire. They found out that the rate of deforestation of Nigerians forest reserves is presently at its peak, and that the unprecedented rate of deforestation witnessed in N igeria is undermining economic growth, exacerbating poverty and contributing to envi ronmental degradation. Based on their results, they recommended that governments an

d communities should establish society tree board or commission, with the aim of regu lating the rate of forest exploitation and raising funds for urban forestry management. Also, that there should be a comprehensive long range management plan to ensure a h ealthy urban forest and maximization of its benefits. The study also recommended that there should be Bottom - Top approach to the choice of trees to plant, this they note, will enable the community to develop interest and as '*ours*' instead of '*theirs*'.

Using Okitipupa, Ondo state Nigeria, as a case study, Faleyimu (2014) studied publi c perceptions of urban forests in Okitipupa, Nigeria: Implication for environmental co nservation. Data was collected via the use of questionnaire and it was analyzed using r elevant statistical techniques. The study found out that the major functions performed by the identified trees in (Okitipupa) include provision of shade, aesthetics and other b eautification functions, protection of buildings from wind and water erosion, productio n of edible fruits and vegetables, utilization of the parts as medicines and utilization of dead and fallen branches as fire woods. The study also found out that the respondents in Okitipupa do not just want trees of any kind in their environment, but have specific preference for the trees. The diversity, stability and functionality of urban forests are di rectly influenced by the type of the trees selected to plant. The study also observed tha t there has been a low level of public perception towards urban forestry. The study rev ealed that an overwhelming majority of the respondents are willing to participate in pr oject of planting trees, most of the respondents are willing to volunteer some of their ti me to help maintain street trees planted along the street that they live, while some are

willing to even contribute financially for the care of the street trees in okitipupa. In vie w of this findings, the study recommended that frequent inventory and survey of trees must be carried out to note the distribution and density as well as structural and physic al changes necessary for management practices. This, according to the study will enabl e the concerned tree manager to note and mark weak trees on time before they cause d amage to property or take life. Weak trees that pose no danger to life and property sho uld be removed and replaced with minimum of two seedlings. He also recommended a survey of tree preference when planning for a tree planting programme. Above all, the study recommended the establishment of tree management committee in Okitipupa w ho will be in charge of maintenance and care of street trees, particularly in pruning and when the tree fell on roads.

Eleanya (2014) examined the growing rate of deforestation in Nigeria and th e resultant implications on forests and forests products availability for sustainable infra structural development. He argued that forests and forests products are a vital compon ent for environmental sustainability because they contribute to several infrastructural n eeds of man and the society. The study further noted that the neglect of the forestry sec tors development would continue to have negative consequences on human survival u ntil they are practically addressed. The study therefore suggests the need for all infrast ructural development programmes and projects to re-emphasize the undeniable role tre es and forests play in human survival. He opined that this will help to chart a course fo r environmental sustainability through a green approach to infrastructural development

both now and in future. The research also recommended that inter-sectorial policy lin kages should be adapted to entrench forestry development as a platform for redeeming the ecological, environmental and economic losses arising from climate change and e nvironmental degradation.

In investigating the spatial analysis of trees composition, diversity and richnes s in the built up areas of university of Port Harcourt, Eludoyin, Aiyeloja and Ndife (20 14) admitted that the urban sites exhibited lower tree species, richness and evenness th an rural sites. Their study revealed that there were spatial differences in the species ric hness though the variations were insignificant. In conclusion, they noted that increasi ng urbanization had a strong effect upon some urban trees, many of which are confine d to specific habitats and are typically a village settlements rather than urban landscap e. This is because human activities within urban areas utilize large quantities of natural resources; alter energy and chemical cycles, and general waste products. The study th erefore recommended that forest resources consumption and removal of vegetation co ver as a result of human-induced activities for agricultural and structural developmenta l purposes should be controlled and more importantly periodic studies on trees compos ition, diversity and richness should be carried out regularly especially among the land use types in an urban environment.

Oyebade, Popoola and Itam (2012) investigated the growth characteristics an d diversity of selected urban trees species in Uyo and subjected their study to quantitat ive measurement using ecological analysis. They found out, that educational areas hav

e the highest number of species than residential; and that commercial areas are more d ense than other areas due to the small size of its area compared to that of the residentia l and educational areas. Furthermore, they noted that the impact of increasing populati on and intense rural - urban migrations with unregulated exploitation of forests and ti mber have contributed immensely to alarming rate of forest degradation in Nigeria; w hich consequently has impacted negatively on urban forestry and its potential in Nigeri a. Despite this, the study found out that people have come to realize the importance of trees in their environments and agreed to allow trees survive around them for ecologic al balance, management and sustainability. In view of their finding, they suggested tha t there is a justified need to carefully plan and manage urban forest to serve today and t omorrow.

Using Ngel Nyaki forest reserve, Mambilla plateau, Taraba State, Nigeria as a case study, Borokini, Babalola, Amusa, Invande, Wala, *et al* (2002) investigated comm unity-based forest resources management in Nigeria, where they found out that forest exploitation in Nigeria is considered a threat to conservation efforts, leading to constan t conflicts between Government, law enforcement agencies and the communities. In th eir opinion, they stated that the best solution is the *win-win* system of participatory co mmunity based forest resources management, in which the community is regarded as s takeholders rather than as threats. The study therefore explained the adoption of the wi n-win system in the study area where the communities were trained in establishment a nd management of forest plantations with readily available market for their timber, em

ployment for some of the community youths as well as community development proje cts. The study also maintained that unless the local communities protected areas are co nsidered as important components in the management of the protected areas, there can never be a successful conservation of the nation's bio-diversity. The most effective wa y the study suggested is to give these local people a cheaper and more accessible altern ative to the resources they get from the forests-mainly fuel, wood and bush meat in ad dition to community development projects, employment in the protected areas to their people, sharing of the proceeds from the forest with the communities for sustainable d evelopment projects, favorable land policies to encourage land ownership for individu al afforestation, micro-business and other. Sources of livelihood, which may be throug h small scale-businesses, afforestation projects, bush meat rearing, among others. Fro m this study, it was observed that full cooperation of these communities are pivotal to successful biodiversity conservation.

In examining the awareness and perception of urban forestry among urban dw ellers in Sahel savannah region of Nigeria, Etim, Umazi and Ufot (2012) established th at the task of conserving the natural ecosystem and indeed the urban forestry sector res t on every citizen particularly the urban dwellers that reside and transact their business in the metropolis since they are more vulnerable to the impacts of environmental haza rds. They opined that intensive and extensive urban forestry and education of the urba n dwellers could serve as a necessary tool to create the required enlightenment that is c apable of dissuading the wrong impression that urban forestry development is the sole

responsibility of the state government alone. In their study, they observed that the resp ondents in the study area appreciated the environmental services provided by the trees in the metropolis and as a source of domestic fuel, hence they suggested that the peopl e should be made to plant avenue and multipurpose trees around their dwelling for sust ained and improved environmental services which according to them will improve thei r livelihood strategies. In addition, they suggested that adequate funding by the state g overnment should be provided to the sector for enhanced and sustainable projects impl ementation such as the establishment of woodlots in the state metropolis. This would h elp in ameliorating the environmental hazards associated in the metropolis. Similarly, t hey opined that trees nurseries should also be established across the state where seedli ngs could be produced at large quantities for project implementation and public procur ement to enhance private participation. Furthermore, in view of the overwhelming rev elations emanating from the study, they also recommended that environmental impact related issues bordering on the need and the role of urban greening should be incorpor ated and taught in school curriculum even at primary school level and government sh ould create a functional urban forestry unit in each forestry department charged with t he responsibility of implementing and monitoring urban trees to ensure achievement o f the goal of urban greening in a well-funded environment.

On urban forest development in West Africa, Fuwape and onyekwelu (2011), i n their study on "Urban Forest Development in West Africa: Benefits and challenges", evaluated the effect of population growth on urban forest landscape. They designed in

novative strategies that will ensure sustainability and improvement of urban living env ironment. Investigating urban forestry development, they utilized secondary data, dire ct enquiries and on-the-spot assessment and observation of urban and peri-urban forest facilities in selected West Africa cities. They admitted that numerous environmental a nd material benefits are derived from urban forests in west Africa, and the types of tree species planted for landscape enhancement, environmental protection and other benefi ts varied with ecological zones and cultural values. However, it is observed from their study that rapid urban population growth, limited land area and poor implementations of government policies are some factors affecting urban forest development in West Af rica. The study therefore suggested that, to ensure sustainable development, forest man agement techniques that accommodate human, social, political, cultural and economic factors should be adopted, and political will should be secured while appropriate social awareness should be promoted to guarantee that forest initiatives are upheld.

In a study involving the survey of economically valued forest plant species at t he proposed site for Airport in Asaba, Delta State, Nigeria, Agbogidi (2011) observed t hat over exploration and utter conversion of forest ecosystems or other land use norma lly results in the decimation of biodiversity as well as in extinction of many valuable p lant and animal species. The investigation also established that at the commencement of airport in the study area, following the utter conversion, very many species of trees and shrubs with economically valued products went into extinction. He therefore reco mmended the need to encourage and support the multiplication and domestication of i

ndigenous species. Conversion efforts through the establishment of nature reserves, bo tanical gardens, sacred grooves, sanctuaries, rare breed centers, game bank and on-site gene banks should be supported to enhance sustainability.

Wolf (2006) examined the economic and public value of urban forests. In his study, he observed that economic valuation translates urban forests services into terms that can enhance public value, and as such, urban forest is an urban resource system that can be cultivated and stewarded. Among others, some of the urban forest values highlighted i nclude the areas of social, environmental and economic domains. Wolf therefore opine d that repositioning the economic status of urban forests has to be followed by support ive actions and a consistent supply of resources for implementation optimization of be nefits and values requires a comprehensive and systematic, or green infrastructure app roach to conserving, creating and stewarding urban forests. The study recommended th at urban forest should be well managed in such a way that it will provide favourable ec onomic return. The study also recommended that to achieve optimum benefits and val ues, there must be a comprehensive and systematic approach to conserving, creating a nd stewarding urban forest.

Examining community based forest management within the context institution al decentralization using Honduras as a case study, Nygren (2005) analyzed the institut ional context of decentralized forest management and the roles played by different act ors as well as the rights, rules and responsibilities of community forestry. He argued th at when assessing the success of decentralization and community-based resources man

agement, considerable attention need to be focused not only on the entire spectrum of actors with divergent interests, but also on the social and political process through whi ch these actors interrelate along with the institutional mechanism that shape their inter actions. In addition, he opined that several mechanisms are needed to address the ineq ualities in the use and control over natural resources. Furthermore, he also noted that t he establishment of more secure rights for local residents to forest resources could hel p to prevent outsiders from gaining unfair or undesirable access to these resources. Th ese, according to him, would not only require legal reforms but also greater political s upport from the central and municipal government for customary resource rights. He s uggested more effective legal mechanisms are needed to prevent and control illegal for est extraction, and the establishment of explicit rules and credible enforcement mecha nism, that is, both vertical and horizontal, would discourage persons and institutions fr om effects to circumvent the rules. Most importantly, he reported that attention must b e paid to making other levels of government more responsive and accountable to local governments.

From the above reviewed studies, it is observed that studies on forestry have be en carried out by different researchers periodically. However, most of their investigatio n has focused more on urban forestry with regards to cities, towns and even countries. It's relevant to affirm here that educational land use with specific reference to tertiary institutions is a critical component of the urban area. However researches on forestry i n these institutions are scarce. Therefore, it is based on the dearth of scholarly informa

tion on institutional based forestry that this study was carried out.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodological framework used in attaining the stated aim of the study. The research design, type and sources of data were examined along with procedure employed in accomplishing the study objectives. In particular, focus was on

the study populations/sample frame and its characteristics, sampling technique chosen, and a description of the choice of data collection instruments, questionnaire design, and methods of data measurement and analysis.

3.2 Research Design

This section addressed the plan and structure, of the investigation in order to achieve the aim of the study, the perception and utilization of of institutional based forestry in University of Benin. The plan outlined the research scheme by which the work was carried out, the structure indicated specific outline, while the strategy shows the means by which the research was executed and the methods adopted in data collection and analysis. In this study, the cross sectional survey type of design was used. This included descriptive, exploratory and explanatory designs to describe each of the many variables that are necessary for the study. The research design employed in this work is not farfetched from what was itemized above; it also included the survey research design.

3.3 Population of the Study/Sample Size

Population of the study includes students and staff of University of Benin, Ugbowo Campus, Benin City. The actual population of the study area could not be ascertained because besides members of staff that stay permanently in their offices, students and

vendors that stay under the tree are not permanent there. They only stay there for a while, hence serving as a transit base for them.

3.4 Sampling Technique

The sampling technique used is random sampling. The researcher administered a total of 500 questionnaires. The questionnaires were administered unevenly among offices and parks where identified as places where questionnaires will be distributed because some of the offices and parks are more populated in terms of concentration of trees and population of staff and students than others. (Table 3.1). Hence more questionnaires were administered to areas of higher density of population and trees.

Table 3.1 Frequency Distribution of the Questionnaires Administered in different Study Sites located within the University of Benin

S/N	Parks	No. of Questionnaires
1.	Faculty of Social sciences	45
2.	Faculty of Education	40
3.	Basement Car Park	40
4.	Main Gate Car Park	40
5.	Agric Car Park	35
6.	Pharmacy Car Park	35

7.	Students Affair Car Park	35
8.	Library Car Park	35
10.	School of Post Graduate	30
11.	Auditorium Car Park	30
12.	Law Car Park	25
13.	Faculty of Engineering Car Park	25
14.	V.C. Office Car Park	25
15.	Geo science Car Park	20
16.	Health Centre Car Park	20
17.	Energy Centre Car Park	20
	Total	**500**

Trees inventory was also taken in different parks and major roads within the study area. This was achieved through on – the – spot assessment. The coordinates of each of the study sites, are presented in Chapter One under the subheading: The study Area.

3.5 Instruments of Data Collection

Required data were from primary and secondary sources. The questionnaires and on the spot survey represent the source of primary data collection while secondary data sources are journals, national dailies, magazines, the internet and other books deemed relevant to this study.

3.6 Method of Data Collection

Cameras were used to take pictures showing the spatial distribution of trees and aesthetics of the area considered. The Global Position System (GPS) was used to take the co-ordinates of the different sites within the study area. A combination of self-administered questionnaires was considered most appropriate as data collection instrument for this study due to the advantages derivable from both approaches. The questionnaires ensured that questions posed to the respondents were uniformly phrased, thus permitting objective comparison of results while interview gave the respondents opportunity to express views more expansively than would be possible with a closed–ended questionnaire. Moreover, the interviews permitted explanation of issues in the questionnaire by the researcher in areas where some respondents may not be fully knowledgeable. The intention was to frame questions in the form of a questionnaire combined with personal interviews to clarify information where required by the respondents.

3.7 Data Analysis

The descriptive statistics was employed in this research work. This reflects the use of frequency tables, simple percentages, bar graphs, and pie charts. The use of tables also helped to capture the number and species of tree, located with the university. The use of descriptive statistics help to give a proper understanding (description) of the phenomena under investigation, that is, it helped to reduce raw data collected via questionnaire administration to easy–to–understand dimensions.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.0 Introduction

This chapter focuses on the presentation and analysis of data collected from the respondents through questionnaires. For easy understanding, the data are presented using frequency tables and analyzed using percentages, bar charts and pie charts.

4.1 Data Presentation and Analysis

Table 4.1 Demographic Characteristics of Respondents

Demographic Characteristics	Frequency	Percentage
Age		
Below 20 years	168	34%
21 – 40 years	287	57%
41 – 60 years	35	7%
Over 61 years	10	2%
Sex		
Male	352	70%
Female	148	30%
Occupation		
Student	401	80%
Academic staff	24	5%
Non-academic staff	53	11%
Others	22	4%
Level of education (for staff)		
S.S.C.E	36	47%
N.C.E/OND	3	4%
H.N.D/B.Sc	22	29%
M.Sc/Ph.D	16	20%

Source: Author's Field Survey (2016)

Table 4.1 reveals that out of the 500 respondents, 168 representing 34% are below 20 years while the other majority are above 20 years. This adds credence to the study as above 66%of the respondents are above 20 years showing that they are old enough to understand the questions from the questionnaire. The sex distribution indicates that about 70% of the respondents are male while 148 respondents representing above 30% are female.

The occupation distribution of the respondents also show that 401 of the respondents representing 80% are students; 24 respondents, representing 5% are academic staff, 53, respondents representing 11% are non-academic staff while other categories of people are 22 representing 5%. This is a fair representation of the various users of the trees in the school and this adds credence to the work. This implies that majority of the population in the study area are students. On level of education, out of the 77 staff (both academic and non-academic) sampled, 36 staff representing 47% are SSCE holders, 3 staff representing 4% are N.C.E/O.N.D holder, 22 staff representing 29% are B.Sc/H.N.D holders, while 16 staff representing 20% are M.SC/Ph.D holders

Table 4.2 Respondents Awareness of Institutional-based Forestry

Study Sites	Number of Questionnaires	Yes (%)	No%
Faculty of social science	45	31 (69%)	14(31%)
Faculty of education	40	27 (66%)	13(34%)
Basement car park	40	32 (80%)	8(20%)
Maingate car park	40	30 (75%)	10(25%)

Agric care park	35	18(51%)	17(49%)
Pharmacy car park	35	24 (69%)	11(31%)
Students affair car park	35	14 (49%)	21(60%)
Library car park	35	29(83%)	6(17%)
School of post graduate	30	27(90%)	3(10%)
Auditorium car park	30	15(50%)	15(50%)
Law car park	25	18(72%)	7(28%)
Faculty of engr. Car park	25	17(68%)	8(32%)
V.C. office car park	25	12(48%)	13(52%)
Geo science car park	20	14(70%)	6(30%)
Health centre car park	20	13 (65%)	7(35%)
Energy centre car park	20	16 (80%)	4(20%)
Total	500	443(89%)	57 (11%)

Source: Author's Field Survey (2016)

From the above table (4.2), out of the 500 respondents sampled from different sites, a total of 443 respondents representing about 89% agree that they are aware of institutional based forestry; while 57 respondents representing 11% are unaware. This shows that members of the University community are aware of institutional based forestry.

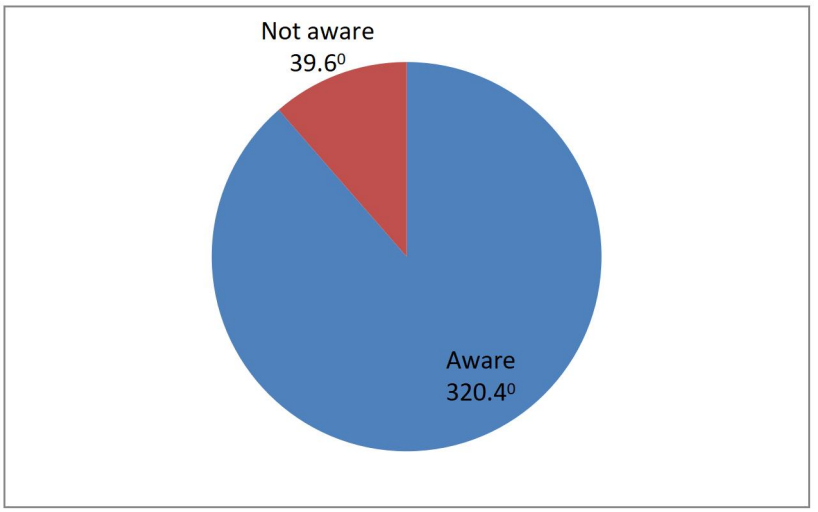


Fig. 4.1: Respondents' Awareness of Institutional-based Forestry

Table 4.3 Respondents' Source of Awareness

STUDY SITES	No .of Questionnaires	Radio	T.V	Newsprint	School	T.P.C	Others
Faculty of social science	45	2	0	3	28	0	12
Faculty of education	40	3	0	0	24	0	13
Basement car park	40	6	4	2	20	0	8
Main gate car park	40	4	3	3	25	0	5
Agric. care park	35	3	1	1	22	0	8
Pharmacy car park	35	2	2	0	27	0	4
Students affair car park	35	5	1	0	28	0	1
Library car park	35	2	1	3	26	0	3
School of post graduate	30	6	0	3	22	0	4
Auditorium car park	30	4	2	3	21	0	0
Law car park	25	1	0	0	22	0	2
Faculty of engr. Car	25	1	1	0	23	0	0

park							
V.C. office car park	25	5	0	0	29	0	1
Geo science car park	20	2	1	0	17	0	0
Health centre car park	20	0	0	0	19	0	1
Energy centre car park	20	2	1	0	16	0	1
Total	**500**	**43**	**17**	**18**	**359**	**0**	**63**

Source: Author's Field Survey (2016)

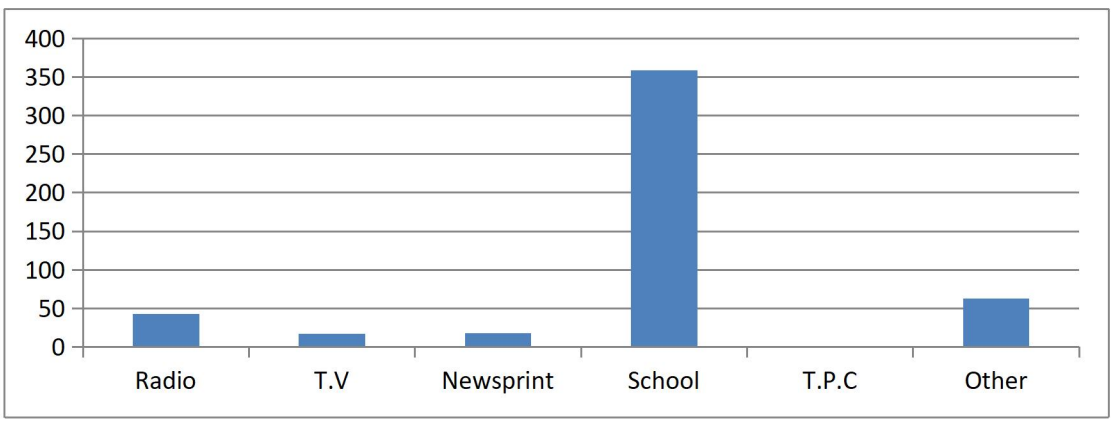


Fig:4.2 Response source of awareness

From the above table and graph, out of the 500 respondents sampled, 43 got their awareness from radio, 17 from Television 18 from Newsprint, 359 from school and 63 from other sources. It therefore means that the source of awareness of institutional based forestry is from school.

Table 4.4 Rate of Awareness of Members of the School Community on the Importance of Trees

STUDY SITES	No .of Ques.	high	Moderate	Low
Faculty of social science	45	40	4	1
Faculty of education	40	32	5	3
Basement car park	40	29	4	7
Maingate car park	40	33	2	5
Agric car park	35	30	0	5
Pharmacy car park	35	28	7	0
Students affair car park	35	24	9	2
Library car park	35	27	3	5
School of post graduate	30	28	1	1
Auditorium car park	30	26	4	0
Law car park	25	20	1	4
Faculty of engr. Car park	25	23	1	1
V.C. office car park	25	19	3	3
Geo science car park	20	16	0	4
Health centre car park	20	13	2	5
Energy centre car park	20	11	7	2
Total %	**500**	**399**	**53**	**48**

Source: Author's Field Survey (2016)

From the Table (4.4) above, out of the 500 respondents sampled, 399 representing 80% agree that the rate of awareness is high, 53 respondents, representing 11% agree that the rate of awareness is moderate and 48 respondents, representing 9% agree that the rate of awareness is low. The responses are further represented on a pie chart below. This further correlates high level of awareness about institutional-based

forestry, as Table 4.2 also reveals that 89% agree that they are aware of this form of forestry.

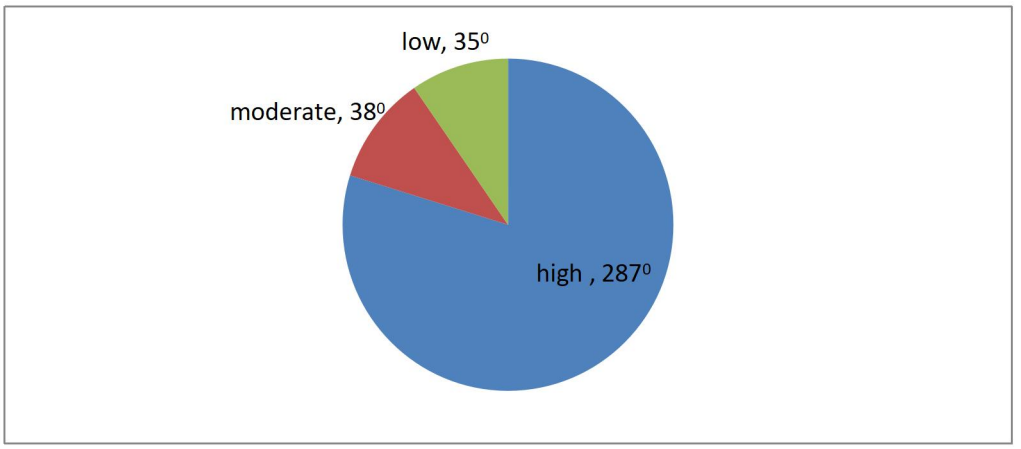


Fig 4.3: Awareness of Members of the School Community on the Importance of Trees

Table 4.5 Responses as to whether the Trees in the School are Interesting

Study Sites	No .of Ques.	Yes (%)	No (%)
Faculty of social science	45	33(73%)	12 (27%)
Faculty of education	40	28 (70%)	12 (30%)
Basement car park	40	24 (60%)	16 (40%)
Maingate car park	40	31 (78%)	9 (22%)
Agric care park	35	27 (77%)	8 (23%)
Pharmacy car park	35	22 (63%)	13 (37%)
Students affair car park	35	28 (80%)	7 (20%)
Library car park	35	20 (57%)	15 (43%)

School of post graduate	30	21 (70%)	9 (30%)
Auditorium car park	30	17(57%)	13 (43%)
Law car park	25	16 (64%)	9 (36%)
Faculty of engr. Car park	25	20 (80%)	5 (20%)
V.C. office car park	25	14 (56%)	11 (44%)
Geo science car park	20	19 (95%)	1 (5%)
Health centre car park	20	16 (80%)	4 (20%)
Energy centre car park	20	12 (60%)	8(40%)
Total %	**500**	**348 (70%)**	**152(30%)**

Source: Author's Field Survey (2016)

From the table (4.5) above, out of the total 500 respondents, a total of 348 representing about 70% agree that trees in University of Benin are interesting, However 152 respondents, representing 30% agree otherwise. The implication is that the majority of respondents agree that the trees in the University of Benin are interesting for several reasons known to them.

Table 4.6 Respondents Views on why Trees are not Interesting

Study Sites	**No. of Ques.**	**Roots are damaging**	**Danger to life and properties**	**Leaves makes environment dirty**	**Attraction of birds and insects**	**Others**
Faculty of social science	12	1	3	10	1	2
Faculty of education	12	3	2	12	2	0
Basement car park	16	1	11	3	2	4
Maingate car park	9	2	5	3	2	1
Agric care park	8	3	7	1	0	3
Pharmacy car park	13	0	7	2	2	5

Students affair car park	7	2	5	1	1	0
Library car park	15	1	3	6	3	2
School of post graduate	9	1	0	8	2	0
Auditorium car park	13	1	2	10	2	1
Law car park	9	1	1	7	0	2
Faculty of engr. Car park	5	2	0	4	1	2
V.C. office car park	11	1	2	7	2	1
Geo science car park	1	1	1	1	0	0
Health centre car park	4	0	0	4	1	1
Energy centre car park	8	2	1	6	1	1
Total %	**152**	**22**	**50**	**85**	**22**	**25**

Source: Author's Field Survey (2016)

As indicated by Table 4.6, the major reason why some respondents agree that trees are not interesting is because the leaves make the environment dirty and they pose danger to life and property. A total of 135 respondents shared these reasons. The implication is that they perceive these trees as dangerous in cases of tree branch-off and litter by leaves. Others constituting 22 of the sample had much concern with the roots of trees destroying paved areas such as adjoining walkways.

Table 4.7 Preference for Trees

Study Sites	**No. of Ques.**	**Yes (%)**	**No (%)**
Faculty of social science	45	32(71%)	13 (29%)
Faculty of education	40	30 (75%)	10 (25%)
Basement car park	40	25 (63%)	15 (37%)
Maingate car park	40	30 (75%)	10(25%)
Agric care park	35	24 (69%)	11 (31%)

Pharmacy car park	35	20 (57%)	15 (43%)
Students affair car park	35	31 (89%)	4(11%)
Library car park	35	23 (66%)	12(34%)
School of post graduate	30	24 (80%)	11 (20%)
Auditorium car park	30	22(73%)	13(27%)
Law car park	25	18 (72%)	7 (28%)
Faculty of engr. Car park	25	25 (100%)	0(0%)
V.C. office car park	25	21 (84%)	4(16%)
Geo science car park	20	19 (95%)	1 (5%)
Health centre car park	20	18(90%)	2(10%)
Energy centre car park	20	15 (75%)	5(25%)
Total %	**500**	**377 (75%)**	**123(25%)**

Source: Author's Field Survey (2016)

The above table (4.7), out of the 500 respondents sampled, 377 representing 75% agree that they have preference for trees. This shows that people in university of Benin community generally have preference for trees. However 123 respondents representing 25% have no preference for trees. This is also illustrated in the pie-chart below:

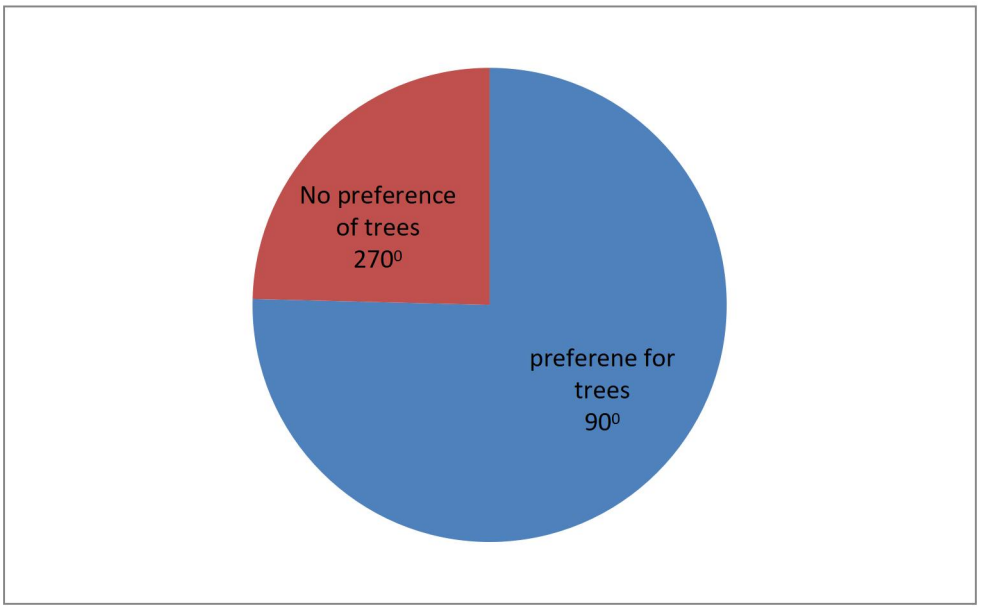


Fig 4.4: Respondent preference for trees

Table 4.8 Respondents' Willingness to Participate in Tree Planting Projects

Study Sites	No .of Ques.	Yes (%)	No (%)
Faculty of social science	45	40(89%)	5 (11%)
Faculty of education	40	37(93%)	3 (7%)
Basement car park	40	40 (100%)	0 (0%)
Maingate car park	40	33 (83%)	7 (17%)
Agric care park	35	28 (80%)	7(20%)
Pharmacy car park	35	31(89%)	4 (11%)
Students affair car park	35	33(94%)	2 (6%)
Library car park	35	27 (77%)	8(23%)
School of post graduate	30	28(93%)	2(7%)
Auditorium car park	30	24(80%)	6 (20%)
Law car park	25	20(80%)	5(20%)
Faculty of engr. Car park	25	23 (92%)	2(8%)

V.C. office car park	25	19(76%)	6(24%)
Geo science car park	20	17 (85%)	3 (15%)
Health centre car park	20	15 (75%)	5 (25%)
Energy centre car park	20	18 (90%)	2(10%)
Total %	**500**	**433 (87%)**	**67(13%)**

Source: Author's Field Survey (2016)

From Table 4.8, out of the 500 respondents sampled, 433 representing 87% agree that they are willing to participate in tree planting project, while 13% are not willing. However, it can be concluded that majority of people are willing to participate in the tree planting project. This is further shown in the pie chart below.

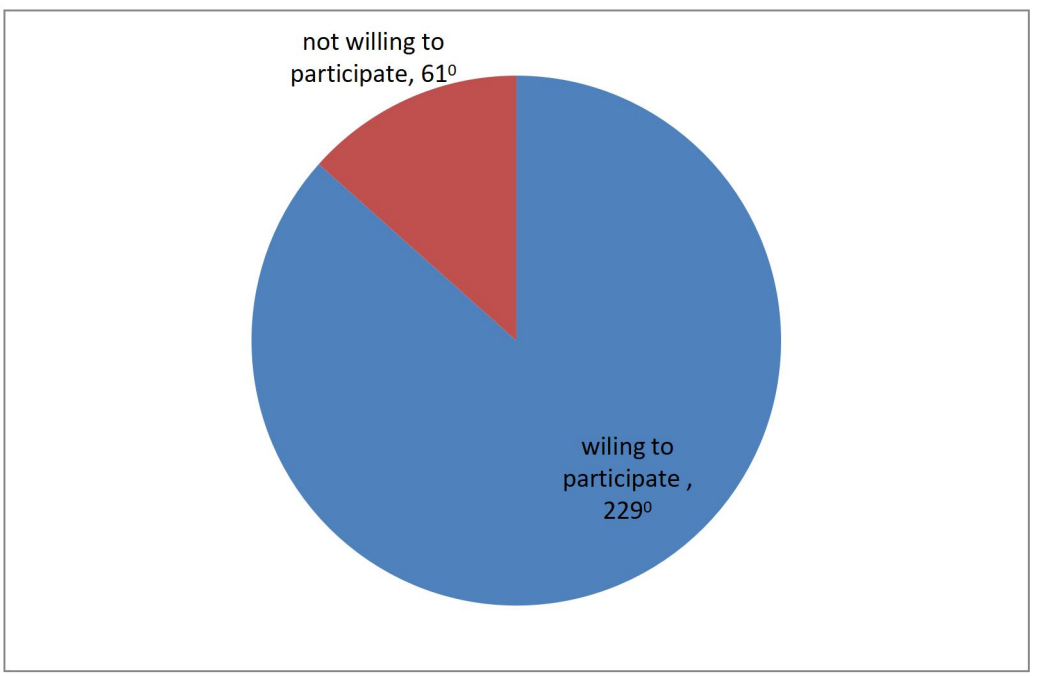


Fig 4.5: Respondents' Willingness to Participate in Tree Planting Projects

Table 4.9 Respondents' Reasons for Unwillingness to Participate

Study Sites	No .of Ques.	Time factor	Insufficient land	Maintenance problem	Cannot obtain seed	Others
Faculty of social science	5	4	0	1	0	1
Faculty of education	3	3	0	2	0	0
Basement car park	0	0	0	0	0	0
Maingate car park	7	6	0	2	0	0
Agric care park	7	4	0	1	0	2
Pharmacy car park	4	4	0	0	0	1
Students affair car park	2	2	0	0	0	1
Library car park	8	7	0	1	0	0
School of post graduate	2	2	0	0	0	1
Auditorium car park	6	3	0	3	0	1
Law car park	5	4	0	0	1	0
Faculty of engr. Car park	2	1	0	1	0	1
V.C. office car park	6	5	0	2	1	1
Geo science car park	3	3	0	0	1	0
Health centre car park	5	3	0	2	1	1
Energy centre car park	2	2	0	1	0	1
Total %	**67**	**53**	0	**16**	4	**11**

Source: Author's Field Survey (2016)

From Table 4.9, it is obvious that the major reason why some respondents are not willing to participate in tree planting project is time factor. However, other reasons include maintenance problem, inability to obtain seedlings and other factors.

Table 4.10 Areas in which Respondents are Willing to Participate in the Planting Project

Study Sites	No. of Ques.	Planning and decision making	Monitoring planted trees	Educating & mobilizing people	Be physically involved in planting
Faculty of social science	40	10	2	12	31
Faculty of education	37	17	4	21	20
Basement car park	40	14	10	14	24
Maingate car park	33	21	11	17	20
Agric care park	28	12	7	13	11
Pharmacy car park	31	11	3	18	9
Students affair car park	33	7	10	11	14
Library car park	27	6	4	15	5
School of post graduate	28	8	3	12	10
Auditorium car park	24	5	3	14	12
Law car park	20	9	3	8	14
Faculty of engr. Car park	23	14	5	7	13
V.C. office car park	19	10	4	9	10
Geo science car park	17	8	6	6	8
Health centre car park	15	10	3	5	9
Energy centre car park	18	9	2	2	12
Total %	**433**	**171**	**80**	**184**	**212**

Source: Author's Field Survey (2016)

From Table (4.10) the respondents are willing to participate in all aspects of tree planting projects. However, majority prefer to be physically involved in tree planting. This shows that the respondents appreciate the importance of trees.

Table 4.11 Responses as to whether Trees in the School are well Managed

Study Sites	**No. of Ques.**	**Yes (%)**	**No (%)**
Faculty of social science	45	14(31%)	31 (69%)
Faculty of education	40	12(30%)	28(70%)
Basement car park	40	16(40%)	24(60%)
Maingate car park	40	11(27%)	29 (73%)
Agric care park	35	15(14%)	30 (86%)
Pharmacy car park	35	15(43%)	20(57%)
Students affair car park	35	18(51%)	17 (49%)
Library car park	35	12(34%)	23 (66%)
School of post graduate	30	16(53%)	14 (47%)
Auditorium car park	30	10(33%)	20(67%)
Law car park	25	10(40%)	15(60%)
Faculty of engr. Car park	25	13(52%)	12(48%)
V.C. office car park	25	11(44%)	14(56%)
Geo science car park	20	7(35%)	13 (65%)
Health centre car park	20	11(55%)	9(45%)
Energy centre car park	20	12(60%)	8 (40%)
Total %	**500**	**193(39%)**	**307(61%)**

Source: Author's Field Survey (2016)

From Table (4.11,) out of the 500 respondents, 307 representing 61% agree that the trees in University of Benin are not well managed, whereas 193 respondents

(39%) agree that trees are well managed. In view of this finding, it is concluded that trees in the school are not well managed.

Table 4.12 Respondents' Suggestions on how to Better Manage Trees

Study Sites	**No .of Ques.**	**Treatment with fungicides and insecticides**	**Legislating against indiscriminate use/felling of trees**	**Employing specialist to take care of trees**	**Others**
Faculty of social science	31	4	2	28	0
Faculty of education	28	7	3	20	1
Basement car park	24	6	2	17	2
Maingate car park	29	8	4	16	1
Agric care park	30	10	2	21	4
Pharmacy car park	20	4	6	8	3
Students affair car park	17	9	5	11	0
Library car park	23	5	3	19	1
School of post graduate	14	3	2	11	0
Auditorium car park	20	8	5	8	3
Law car park	15	7	4	7	2
Faculty of engr. Car park	12	2	3	4	1
V.C. office car park	14	5	1	8	4
Geo science car park	13	4	3	5	2
Health centre car park	9	3	1	6	1
Energy centre car park	8	4	0	2	0
Total %	**293**	**89**	46	**191**	25

Source: Author's Field Survey (2016)

From the above table(4.12), majority of the respondents who agree that trees are not well manage in schools agree that the best way to manage the trees is by

employing specialized personnel to cater to the trees. Others (89) agree that treatment with fungicides and insecticides would be helpful. Only a few, (46) and (25) respondents respectively agreed that legislating against indiscriminate felling/use of trees and other methods would help. This is further shown on a bar graph below.

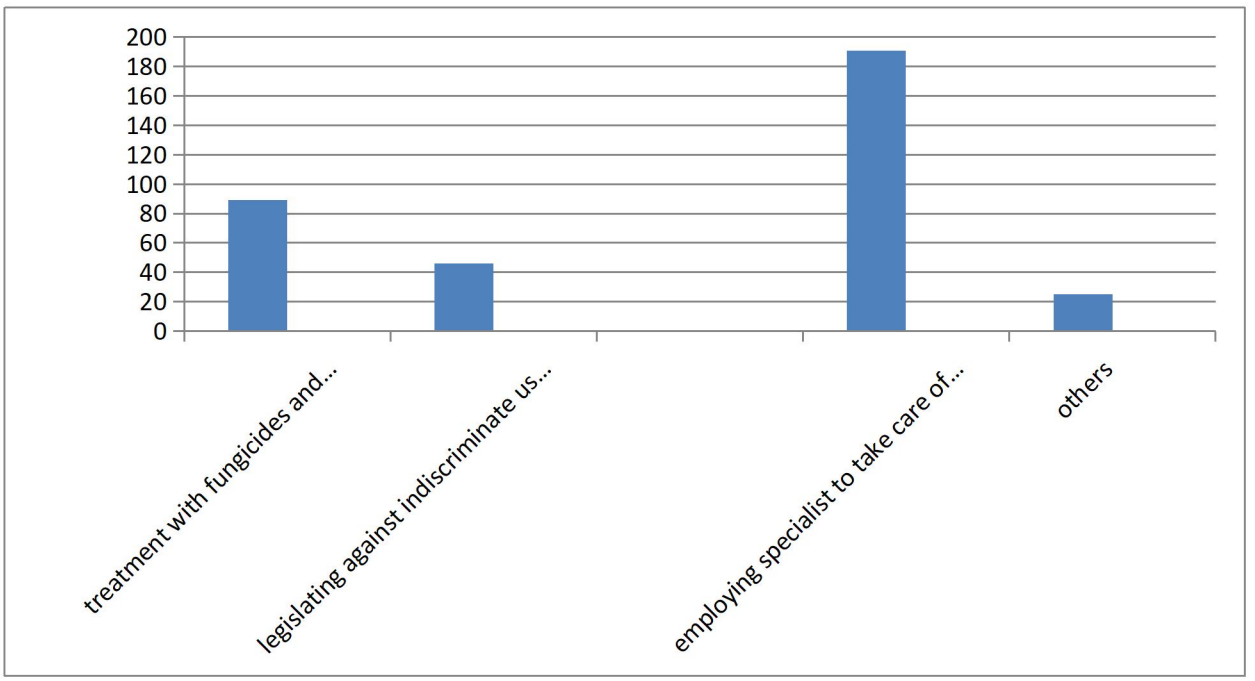


Fig 4.5: Respondents' Suggestions on how to Better Manage Trees

Table 4.13 Responses on Environmental Hazards that Planting Trees can Remedy.

Study Sites	No .of Ques.	High temperature	Wind erosion	Water flooding	Deforestation	Others
Faculty of social science	45	20	26	5	8	2
Faculty of education	40	18	32	3	4	3
Basement car park	40	12	24	8	7	0
Maingate car park	40	18	30	6	12	0
Agric care park	35	21	28	4	5	4
Pharmacy car park	35	17	22	5	12	1
Students affair car park	35	13	14	2	6	0
Library car park	35	16	21	4	10	3
School of post graduate	30	12	18	7	7	2
Auditorium car park	30	21	6	5	11	1
Law car park	25	8	20	8	13	1
Faculty of engr. Car park	25	5	23	4	8	2
V.C. office car park	25	12	15	3	5	3
Geo science car park	20	8	10	2	4	1
Health centre car park	20	13	13	0	7	2
Energy centre car park	20	8	8	0	3	0
Total %	**500**	**182**	**300**	**66**	**122**	**25**

Source: Author's Field Survey (2016)

From Table(4.13), majority of the respondents agree that planting trees can remedy environmental hazards such as wind erosion. Others also opined that it can remedy high temperature and deforestation. Only few agree that it can remedy water flooding and other hazards. Based on this finding, this study concludes that planting trees can majorly remedy wind erosion, which was agreed to by a total of 300 respondents. This finding is represented on a bar graph below.

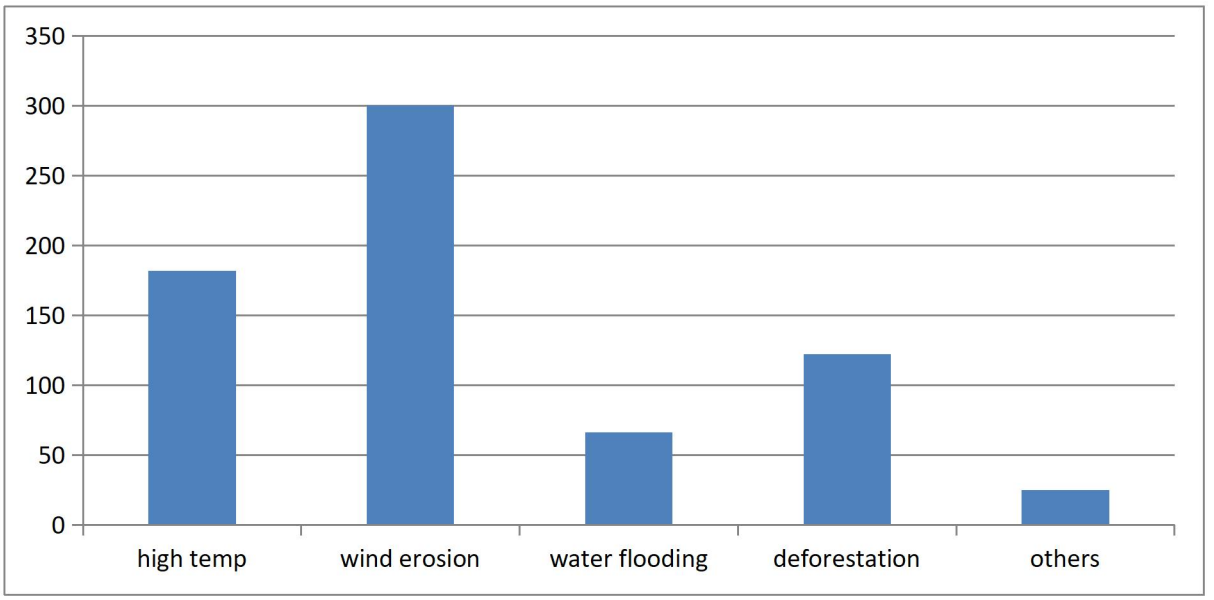


Fig 4.7: Responses on Environmental Hazards that Planting Trees can Remedy.

Table 4.14 Respondents Likeness to Work in a Green Environment Planted with Trees

Study Sites	No .of Ques.	Yes (%)	No (%)
Faculty of social science	45	43(96%)	2(4%)
Faculty of education	40	39(98%)	1(2%)
Basement car park	40	40(100%)	0(0%)
Maingate car park	40	37(93%)	3(7%)
Agric care park	35	35(100%)	0(0%)
Pharmacy car park	35	35(100%)	0(0%)
Students affair car park	35	32(91%)	3(9%)
Library car park	35	31(89%)	4(11%)
School of post graduate	30	28(93%)	2(7%)
Auditorium car park	30	30(100%)	0(0%)
Law car park	25	24(96%)	1(4%)

Faculty of engr. Car park	25	24(96%)	1(4%)
V.C. office car park	25	25(100%)	0(0%)
Geo science car park	20	20(100%)	0(0%)
Health centre car park	20	20(100%)	0(0%)
Energy centre car park	20	20(100%)	0(0%)
Total %	**500**	**483(97%)**	**17(3%)**

Source: Author's Field Survey (2016)

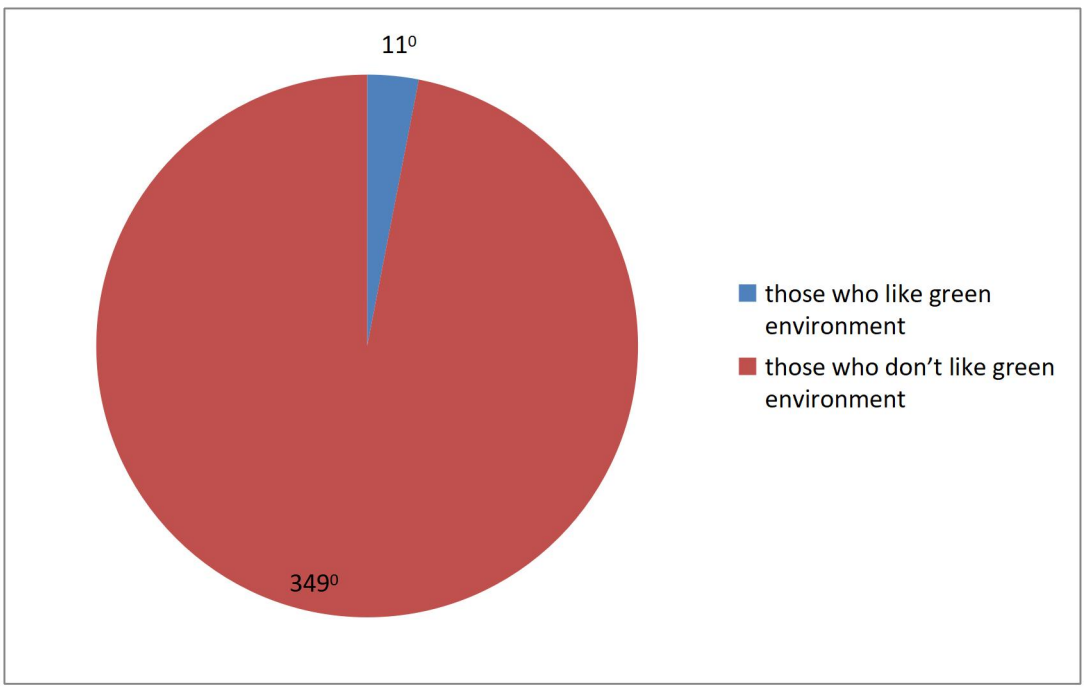


Fig 4.8: Respondents Likeness to Work in a Green Environment Planted with Trees

From Table(4.14,) out of the 500 respondents, 483 representing 97% agree that they like to work in a green environment. This shows that almost everyone in the

school community appreciates green environment. This finding is presented in the pie chart above.

Table 4.15 Ways in which Trees are Utilized

Study Sites	No .of Ques.	Aesthetic	Relaxation	fruits	shade	Trading	Prevention of hazards	Others
Faculty of social science	45	30	15	3	18	2	1	0
Faculty of education	40	28	7	1	24	3	0	1
Basement car park	40	31	24	0	10	1	2	1
Maingate car park	40	26	21	3	12	1	1	2
Agric care park	35	20	26	1	14	2	1	0
Pharmacy car park	35	18	15	2	18	1	2	0
Students affair car park	35	14	12	1	11	3	1	0
Library car park	35	17	17	0	15	1	0	3
School of post graduate	30	21	10	0	10	2	0	1
Auditorium car park	30	22	16	1	5	0	1	1
Law car park	25	16	18	2	8	1	1	0
Faculty of engr. Car park	25	10	5	1	7	1	2	2
V.C. office car park	25	15	10	1	11	1	1	1
Geo science car park	20	12	16	2	14	0	0	1
Health centre car park	20	14	4	0	12	1	1	3
Energy centre car park	20	10	8	1	10	0	0	0
Total %	**500**	**304**	**220**	**19**	**199**	**20**	**14**	**16**

Source: Author's Field Survey (2016)

From Table (4.15,) of all the various uses cited, aesthetics ranks highest with 304 responses, relaxation ranks second with 220 responses and shade for cars' ranks third with 199 responses. This shows that the major uses of trees are aesthetics, relaxation and shades. However, other insignificant uses include commercial purposes, fruits and other uses. The finding is illustrated on a bar graph below.

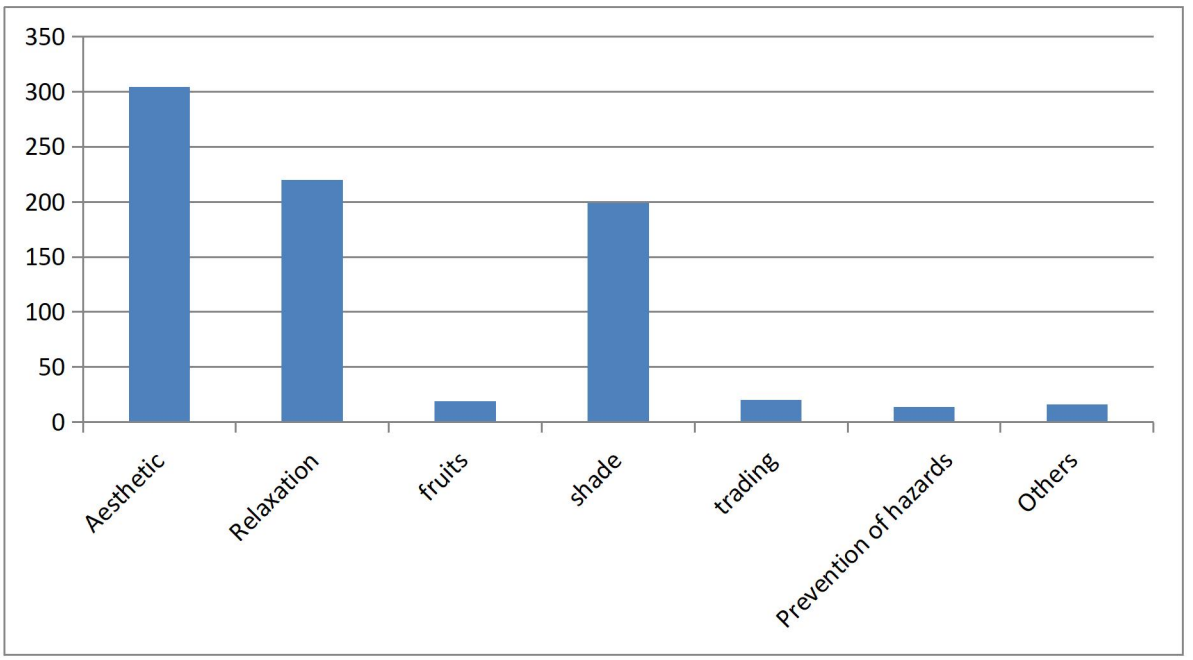


Fig 4.9: Respondent response to trees Utilization

Table 4.16 Challenges of Forestry in the Institution

Study Sites	No .of Ques.	Lack of space to plant trees	Inadequate trained personnel	Poor enlightenment	Poor funding	Other challenges.
Faculty of social science	45	0	40	2	15	1
Faculty of education	40	1	27	1	10	2
Basement car park	40	2	32	0	16	1
Maingate car park	40	3	26	2	20	0
Agric care park	35	1	19	0	17	0
Pharmacy car park	35	2	17	1	15	0
Students affair car park	35	1	22	1	18	0
Library car park	35	1	24	1	21	1
School of post graduate	30	0	15	2	14	1
Auditorium car park	30	1	19	1	16	2
Law car park	25	2	18	3	12	1
Faculty of engr. Car park	25	1	17	1	12	0
V.C. office car park	25	1	14	1	14	1
Geo science car park	20	0	15	0	10	1
Health centre car park	20	2	12	0	8	0
Energy centre car park	20	1	10	1	9	0
Total %	**500**	**19**	**327**	**17**	**229**	**11**

Source: Author's Field Survey (2016)

From Table (4.16), among the numerous challenges facing institutions based forestry, inadequate trained personnel ranks highest with 327 responses, and poor funding ranks second with 229 responses. This shows that these are major challenges of institutional based forestry in University of Benin. This finding is shown on a bar graph below:

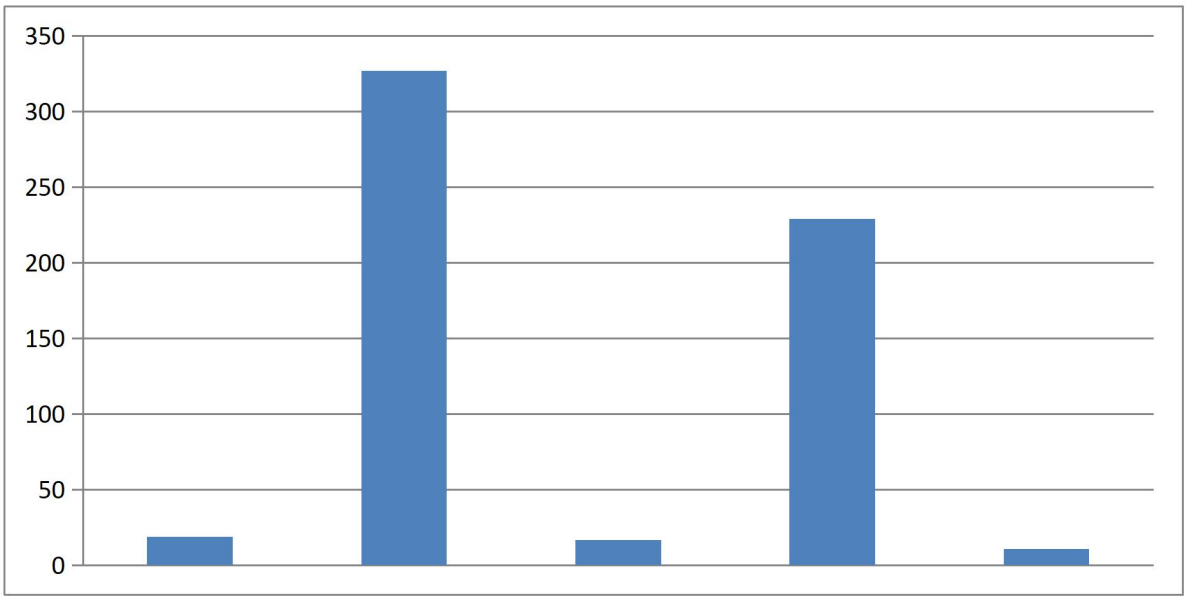


Fig 4.10: Challenges of Forestry in the Institution

Table 4.17 Ways of Sustaining Institutional-Based Forestry in University of Benin

Study Sites	No .of Ques.	Employment of personnel's	More open space	Adequate funding	Proper enlightenment	Other ways
Faculty of social science	45	32	0	27	2	0
Faculty of education	40	28	1	15	1	0
Basement car park	40	18	0	21	3	0
Maingate car park	40	17	0	30	1	1
Agric care park	35	20	1	23	0	0
Pharmacy car park	35	22	2	18	2	0
Students affair car park	35	14	1	21	1	0

Library car park	35	26	1	17	1	0
School of post graduate	30	15	1	11	0	1
Auditorium car park	30	18	2	19	1	1
Law car park	25	20	1	22	1	0
Faculty of engr. Car park	25	14	3	16	2	1
V.C. office car park	25	17	2	19	2	0
Geo science car park	20	12	1	14	0	2
Health centre car park	20	7	1	11	1	1
Energy centre car park	20	11	0	9	1	1
Total %	**500**	**291**	**17**	**293**	**19**	**8**

Source: Author's Field Survey (2016)

From Table (4.17,) among the various suggestions on how to sustain institutional based forestry in university of Benin. Adequate funding ranks highest with 293 responses, followed by employment of specialized personnel to take care of trees, with 291 responses. This shows that the major ways of sustaining institutional based forestry is through adequate funding and employment of specialized personnel. This finding is illustrated on the bar graph below.

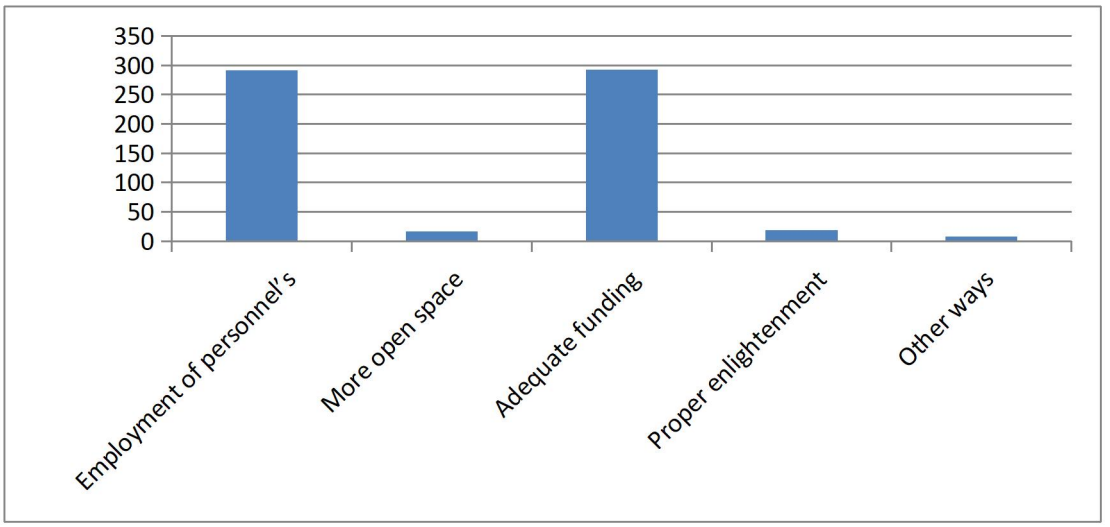


Fig 4.11: Ways of Sustaining Institutional-Based Forestry in University of Benin

4.3: Inventory of trees in different study-site

The inventory of the different species of trees used for different purpose in different study sites in University of Benin is presented and discussed below:

Table 4.3.1 AGRIC CAR PARK

S/N	SCIENTIFIC NAME	COMMON NAMES	NUMBEROF TREES/SPECIES
1.	*Terminalia catapa*	Almond fruit	3
2.	*Azadirachta indica*	Dongoyaro	2
3.	*Tectona grandis*	Teak	7
4.	*Hura crepitans*	Sand properties	4
5.	*Polyalthia longiflora*	Police tree	1

6.	*Terminalia radii*	Terminalia	1
7.	*Abizia lebbeck*	Siris	1
8.	*Newboldia lacvis*	Dainty tree	1
9.	*Terminalia Ivorensis*	Black afara	16
10.	*Moringa oleifera*	Moringa	2
11.	*Dalium guinensis*	Velvet termarind	2
12.	*Treculia Africana*	African breadfruit `	1
13.	*Irvingia gabonensis*	Bush mango	1
14.	*Cordial millenii*	African cordial	10
15.	*Khaya grandifoliola*	Lagos mahogamy	6
16.	*Entandrophragma cylindricum*	Sapele wood	5
17.	*Mansonia altissima*	African black walnut	2
18.	*Nauclea diderrichii*	Brimstone tree	8
19.	*Bombax buonopozense*	Gold coast bombax	3
20.	*Ochroma lagopus*	Chroma	2
21.	*Terminalia superba*	White afara	1
22.	*Polyalthia swabeolens*	Box leaf Eugenia	1
	TOTAL		75

The total number of trees found at the Agric Car Park is 75 (table 4.3.1) which are mainly *Cordia millenii* and *Terminalia ivorensis* .They both serve as shade for relaxation in the garden, and the ormer particularly for its fine scent *(*plate 4.1).

Plate 4.1: Agric Car Park

Source: Author's Field Survey (2016)

Table 4.3.2 TWIN LECTURE THEATRE

S/N	SCIENTIFIC NAME	COMMON NAMES	NUMBER OF TREES/SPECIES
1.	*Terminalia superba*	White afara	1
2.	*Terminalia ivorensis*	Black afara	1
3.	*Azardirachta indica*	Dangoyaro	8
4.	*Cordial mellenii*	African cordial	2
	TOTAL		12

At regards the Twin LT, there are about 12 trees (table 4.3.2), most of which are *Dogonyaro* which serve as shade for relaxation because of its large foliage(plate 4.2).

Plate 4.2: Twin LT Park

Source: Author's Field Survey (2016)

Table 4.3.3 HEALTH CENTRE

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF TREES/SPECIES
1.	*Anacardium occidentalis*	Cashew	1
2.	*Hura crepitans*	Sand paper tree	5
3.	*Psidium guavaja*	Guava	1
4.	*Cycas revolute*	Japanese sago palm	2
5.	*Cocos nucifera*	Coconut	1
6.	*Nauclea diderrichii*	Opepe	5
7.	*Terminalia ivorensis*	Black afara	1
8.	*Bombax buonopozense*	Bombax	1
9.	*Cordial millenii*	African cordial	1
10.	*Khaya grandifoliola*	Lagos mahogany	1
	TOTAL		19

A total number of 19 trees are found in Health Centre car park (table 4.3.3), most of which are *Hura crepitans* and *Nauclea diderichii.* (plate 4.3) The former serves to beautify the study site as a result of its ovate leaves which grow to two-feet wide. The latter serves as shade for cars as a result of its evergreen nature.

Plate 4.3: Health Centre Car Park

Source: Author's Field Survey (2016)

Table 4.3.4 GEO-SCIENCE CAR PARK

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREE
1.	*Nauclea diderrichii*	Opepe	106
2.	*Cordial millenii*	Cordial	8
3.	*Terminalia ivorensis*	Black afara	24
4.	*Bombax buonopozense*	Bombax	13
5.	*Azardirachta indica*	Dongoyaro	37
6.	*Ochroma lagopus*	Balsa tree	4
7.	*Entandrophragma cylindricum*	Sapele wood	2
8.	*Khaya grandisfoliola*	Lagos mahogany	22
9.	*Tectona grandis*	Teak	2
10.	*Nauclea diderrichii*	Opepe	20
11.	*Terminalia ivorensis*	Black afara	20
12.	*Khaya grandifoliola*	Lagos mahogany	12
13.	*Nauclea diderrichii*	Opepe	24
14.	*Tectona grandis*	Teak	1
15.	*Cordial millenic*	Cordia	3
	TOTAL		298

Source: Author's Field Survey (2016)

Plate 4.4: Geoscience Centre Park

Source: Author's Field Survey (2016)

The total number of trees found in Geo-Science Car Park are 298(table 4.3.4) Most of the trees found there are *Nauclea diderrichii, Khaya grandis foliola, Azardirachta indica*, and *Terminalia ivorensis.* They are mostly used for beautification as a result of their evergreen nature, and they act as shade for relaxation due to their broad foliage (plate4.4).

Table 4.3.5 SOCIAL SCIENCES

S/N	SCIENTIFIC NAME	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Dellonix regia*	Flame of the forest	4
2.	*Khaya senegalensis*	African mahogany	1
3.	*Terminalia superb*	White afara	1
4.	*Citrus reticulate*	Tangerine	125
5.	*Citrus sinensis*	Orange	10
6.	*Psidium guavaja*	Guava	6
7.	*Terminalia radii*	Terminalia	9
8.	*Terminalia catapa*	Almond	30
9.	*Albizia spp*	Albizia	1
10.	*Rauvolfia vomitora*	Azofeyeje	1
11.	*Newboldia laevis*	Dainty	1
12.	*Mangifera indica*	Mango tree	1
13.	*Piliostigma recticulatum*	Piliostigma	3
14.	*Cydrax alodianum*	Cydrax	1
	TOTAL		194

Source: Author's Field Survey (2016)

A total number of 194(4.3.5) trees are found in the Social Sciences Car Park, most of which are *Citrus reticulate* and *Terminalia capata,* which serve as shade because of their broad foliage(plate 4.5). The former also serves as beautification and possesses good aroma.

Plate 4.5: Social Sciences Car Park

Table 4.3.6 ABUJA ROAD

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Khaya grandifoliola*	Lagos mahogany	15
2.	*Terminalia ivorensis*	Balck afara	33
3.	*Nauclea diderrichii*	Opepe	28
4.	*Cordial millenic*	Cordia	7
5.	*Entamdrophragma cylindricum*	Sapele wood	5
6.	*Bombax buonopozense*	Bombax	5
7.	*Azardirachta indica*	Dongoyaro	9
8.	*Terminalia superb*	White afara	5
9.	*Anarcadium occidentale*	Cashew	1
10.	*Mansonia altissima*	African black walnut	1
11.	*Eucalyptus spp*	Eucalyptus	3
12.	*Eucalyptus camaldulensis*	Eucalyptus	4
13.	*Terminalia catapa*	Almond	20
14	*Mangifera indica*	Mango	1
15	*Psidium guavaja*	Guava	2
16.	*Cocos nucifera*	Coconut	2
	TOTAL		141

Source: Author's Field Survey (2016)

From (Table 4.3.6) 141 trees are found in this study site, which include *Terminalia ivorensis, Nauclea diderrichii,* and *Terminalia capata.* They are the most common at this site because of their broad foliage which serves as shade.

Table 4.3.7 LAW CAR PARK

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Ficus exaspirata*	Sand paper tree	1
2.	*Ficus spp*	Fig trees	3
3.	*Rauvolfa vomitora*	Asofeyeje	1
4.	*Poliostigma recticulatum*	Piliostigma	3
5.	*Citrus sinensis*	Orange	1
6.	*Newbeldia laevis*	Dainty tree	2
7.	*Pinus caribea*	Pine	6
	TOTAL		17

Source: Author's Field Survey (2016)

The total number of trees found in this study site is 17(Table 4.3.7), of which *Pinus caribea* (plate 4.6) is the most common and more trees should be planted in the study-site.

Plate 4.6: Faculty of Law Car Park

Source: Author's Field Survey (2016)

Table 4.3.8 HALL 4 CAR PARK

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Terminalia catapa*	Almond	3
2.	*Terminalia radii*	Terminalia	2
	TOTAL		5

Source: Author's Field Survey (2016)

At this site, there are 5 trees (Table 4.3.8) of which *Terminalia capata* is the most common. The configuration and orientation of the branches make it a good place for taking shade (plate 4.7).

Plate 4.7: Hall Four Car Park

Source: Author's Field Survey (2016)

Table 4.3.9 MEDICAL COMPLEX

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Citrus simensis*	Orange	1
2.	*Dellonix reegia*	Flame of the forest	7
3.	*Hura crepitans*	Sand paper tree	6
4.	*Terminalia radii*	Terminalia	6
5.	*Cocos nucifera*	Coconut	11
6.	*Citrus sinensis*	Orange	1
	TOTAL		39

Source: Author's Field Survey (2016)

There are 39 trees at this study site (4.3.9), most of which are *Dellonx regia, Terminalia radii,* and *Cocos nucifera* .The first two act as shade for cars because as they grow, they tend to get broadened at the top (plate 4.8).

Plate 4.8: Medical Complex Car Park

Source: Author's Field Survey (2016)

Table 4.3.10 ENERGY CENTRE CAR PARK

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Dellonix regia*	Flame of the forest	18
	TOTAL		18

Source: Author's Field Survey (2016)

The total number of trees found in the study site is 18(Table 4.3.10) and they are all *Dellonia regia* which act as shade because of its broad foliage and as beautification because of its evergreen leaves (plate 4.9).

Plate 4.9: Energy Centre Car Park

Source: Author's Field Survey (2016)

Table 4.3.11 POST GRADUATE HOSTEL

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Azardirachta indica*	Dongoyaro	2
2.	*Eucalyptus camaldulensis*	Eucalyptus	1
	TOTAL		3

There are 3 trees at this study site (Table 4.3.11) and *Azardirachta indica* is the most common . More trees such as the *Azardirachta indica* should be planted because of its ability to serve as wind break and also as shade due to the presence of abundant leaves (plate 4.10).

Plate 4.10: Postgraduate Hostel Car Park

Source: Author's Field Survey (2016)

Table 4.3.12 HALL 5

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Mangifera indica*	Mango	3
2.	*Psidium guavaja*	Guava	1
	TOTAL		4

Source: Author's Field Survey (2016)

At Hall five, there a 3 trees (Table 4.3.12), with the *Mangifera indica* being the most common. It serves as shade for commercial traders within the area due to its broad foliage. More trees are however required in this study site (plate 4.11).

Plate 4.11: Hall Five Car Park

Source: Author's Field Survey (2016)

Table 4.3.13 HALL 3

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Terminalia catapa*	Almond	1
	TOTAL		1

Source: Author's Field Survey (2016)

There is only 1 tree present (Table 4.3.13) at this site which is the *Terminalia catapa,* planted because of the shade it provides for relaxation. There is however a dire need for more trees at this site (plate 4.12).

Plate 4.12: Hall Three Car Park

Source: Author's Field Survey (2016)

Table 4.3.14 HALL 2

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Gambeya albidum*	Sherry	1
2.	*Psidium guavaja*	Guava	1
3.	*Mangifera indica*	Mango	2
4.	*Terminalia capata*	Almond fruit	3
5.	*Psidium guavaja*	Guava	2
	TOTAL		9

Source: Author's Field Survey (2016)

The total number of trees in the study site is 9(Table 4.3.14). *Terminalia catapa* and *manigifera indica* are the most common. More of these species should be planted in the study site so that they can provide shade for relaxation and for cars and also serve the purpose of beautifying the area(plate 4.13).

Plate 4.13: Hall Two Car Park

Source: Author's Field Survey (2016)

Table 4.3.15 NDDC HOSTEL

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Terminalia radii*	Terminalia	6
2.	*Pinus caribea*	Pine	3

The total number of trees found in this study site is 9(Table 4.3.15), and the *Terminalia radii* is the most common. More trees of this kind are needed for relaxation at this site. this number is of small amount and it tend to affect the local temperature of the area and people tend to desire place to relax.

Table 4.3.16 JOHN HARRIS LIBRARY

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Eucalyptus spp*	Eucalyptus	3
2.	*Terminalia catapa*	Almond fruit	23
3.	*Dellonix regia*	Flame of the forest	2
4.	*Khaya senegalensis*	Khaya	1
	TOTAL		29

Source: Author's Field Survey (2016)

The total number of trees found in this study site is 29(Table 4.3.16), and of these, *Terminalia catapa* is the most common. They serve as shade for cars due to their broad foliage (plate 4.14).

Plate 4.14: John Harris Library Car Park

Source: Author's Field Survey (2016)

Table 4.3.17 BASEMENT CAR PARK

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Polyalthia suaveolens*	Box leaf Eugenia	6
2.	*Dellonix regia*	Flame of the forest	1
3.	*Terminalia radii*	Terminalia	16
4.	*Terminalia catapa*	Almond fruit	17
5.	*Mangifera indica*	Mango	1
6.	*Hura crepitans*	Sand paper tree	3
	TOTAL		44

Source: Author's Field Survey (2016)

There are 44 trees at this study site (Table 4.3.17), of which the *Terminalia radii* and *Terminalia catapa* are the most common. They serve as usual for shade and relaxation and for commerce. (plate 4.15)

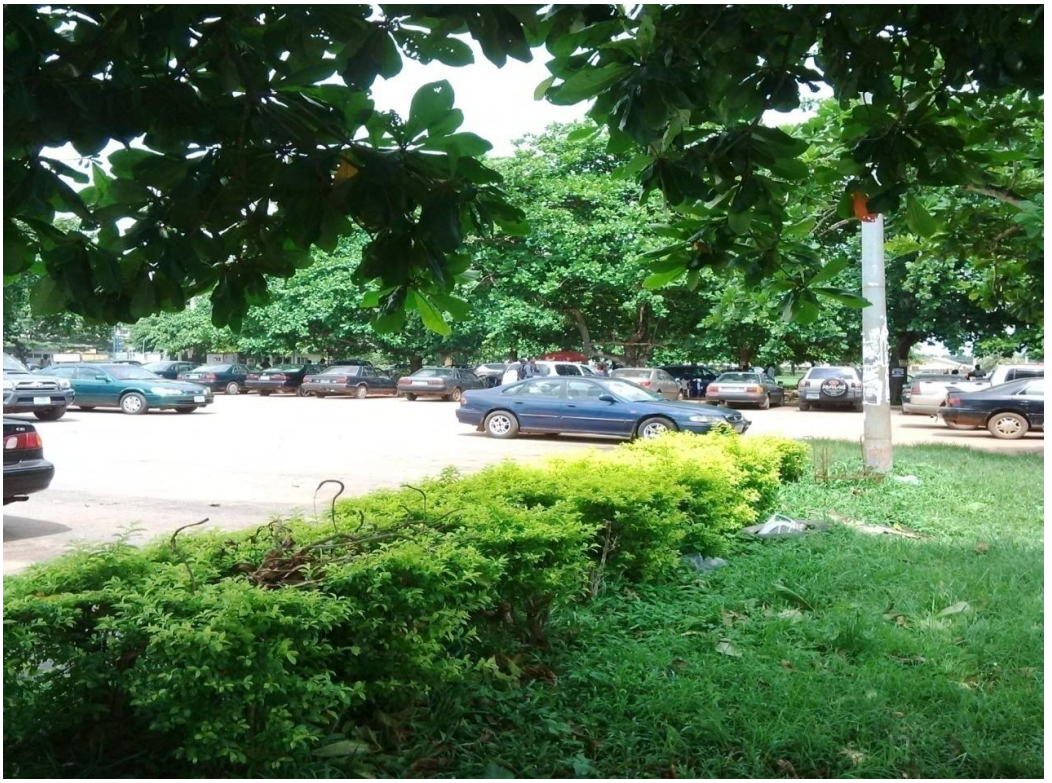


Plate 4.15: Basement Car Park

Source: Author's Field Survey (2016)

Table 4.3.18 SCHOOL OF POST GRADUATE STUDIES

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Terminalia catapa*	Almond fruit	4
2.	*Pilostigma recticulatum*	Piliostigma	1
	TOTAL		5

Source: Author's Field Survey (2016)

The total number of trees found in the study site are 5 (Table 4.3.18), and *Terminalia catapa* is most common. It serves as shade for cars because of its broad foliage (plate 4.16).This is of smaller number, as this affect the local temperature.

Plate 4.16: Postgraduate School Car Park

Source: Author's Field Survey (2016)

Table 4.3.19 STUDENT AFFAIRS

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Terminalia catapa*	Almond	23
2.	*Hura crepitans*	Sand paper trees	1
3.	*Cedrela odorata*	Spanish cedar	1
4.	*Cocos nucifera*	Coconut	7
	TOTAL		3

Source: Author's Field Survey (2016)

At the Student Affairs area, there are 32 trees (Table 4.3.19), of which *Terminalia catapa* is the most common. They serve as shade for cars and for relaxation on account of the broad foliages (plate 4.17).

Plate 4.17: Student Affairs Car Park

Source: Author's Field Survey (2016)

Table 4.3.20 PHARMACY CAR PARK

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Hura crepitans*	Sand paper tree	3
2.	*Psidium guavaja* `	Guava	1
3.	*Terminalia catapa*	Almond fruit	2
	TOTAL		7

Source: Author's Field Survey (2016)

The total number of trees found in the study site is 7(Table 4.3.20). *Hura crepitans* and *Terminalia catapa* are the most common. More trees should be planted in the study site such as the *Terminalia catapa* which serves as adequate shade for relaxation and for cars to park (plate 4.18).

Plate 4.18: Pharmacy Car Park

Source: Author's Field Survey (2016)

Table 4.3.21 MEDICAL HOSTEL CAR-PARK

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Cocos nucifera*	Coconut	11
2.	*Terminalia*	Terminalia	3
3.	*Mangifera indica*	Mango	1
4.	*Spondia mombin*	Iyeye	1
	TOTAL		16

Source: Author's Field Survey (2016)

The total number of the trees found in the study site are 16 (Table 4.3.21), which the *cocos nucifera* are the most common**.** More trees should be planted in the study-sites .This is of smaller number as this affect the local temperature.

Table 4.3.22 JUNE 12

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Terminalia radii*	Terminalia	1
2.	*Persa Americana*	Avocado pear	1
3.	*Ficus spp*	Ficus	1
	TOTAL		3

Source: Author's Field Survey (2016)

The total number of trees found in the study site are 3(Table 4.3.22) more trees like *Terminalia Radii* should be planted in the study site to serve as shade for relaxation for cars and also as aesthetic. This is of smaller number as this affect the local temperature and the building is being expose to wind.

Table 4.3.23 FACULTY OF EDUCATION

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Terminalia radii*	Terminalia	5
2.	*Polyalthia longifolia*	Police tree	1
3.	*Polyalthia suaveolens*	Box leaf Eugenia	1
4.	*Azardiracchta indica*	Dongoyaro	9
5.	*Dellonix regia*	Flame of the forest	1
	TOTAL		17

Source: Author's Field Survey (2016)

The total number of trees found in the study site are 17 (Table 4.3.23), trees such as *terminalia radii and azardirachta indica* are the most common, they are mostly used for shade for cars and for commerce (plate 4.19)

Plate 4.19: Faculty of education

Source: Author's Field Survey (2016)

Table 4.3.24 NEW LECTURE THEATRE

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Azardirachta indica*	Dongoyaro	1
	TOTAL		1

Source: Author's Field Survey (2016)

The *azardirachta indica* are the only tree found in the study-site(Table 4.3.24) ,more should be planted because it will serve as wind break to the building ,especially *azardirachta indica.*this also have effect on the local temperature.

Table 4.3.25 FACULTY OF ENGINEERING

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Albizia spp*	Silk plants	25
2.	*Mangifera indica*	Mango	7
3.	*Dellonix regia*	Flame of the forest	5
	TOTAL		37

Source: Author's Field Survey (2016)

The total number of trees found in the study-site are 37(Table 4.3.25), the *albezia spp* and *dellonix regia* are the most common, and they serve as shade to cars and relaxation because of their broad foliage

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Dellonix regia*	Flame of the forest	2
2.	*Mangifera indica*	Mango	9
3.	*Albizia spp*	Albizia	2
4.	*Polyalthia suaveolens*	Box leaf Eugenia	49
5.	*Eucalyptus spp*	Gum trees	15
6.	*Psidium guavaja*	Guava	1
7.	*Khaya senegalensis*	Khaya	1

8.	*Rauvolfia vomitora*	Asofeyeje	1
9.	*Pinus caribea*	Pine	14
10.	*Spondia mombin*	Iyeye	2
11.	*Astonia boonci*	Astonia	2
12.	*Azardirachta indica*	Dongoyaro	5
	TOTAL		103

Source: Author's Field Survey (2016)

The total number of trees found in the study-site are 103(Table 4.3.26), which the *polyalthia suaveolens,* and *eucalyptus spp* are the most common, they serve as shade to cars and relaxation because of their broad foliage(plate 4.20)

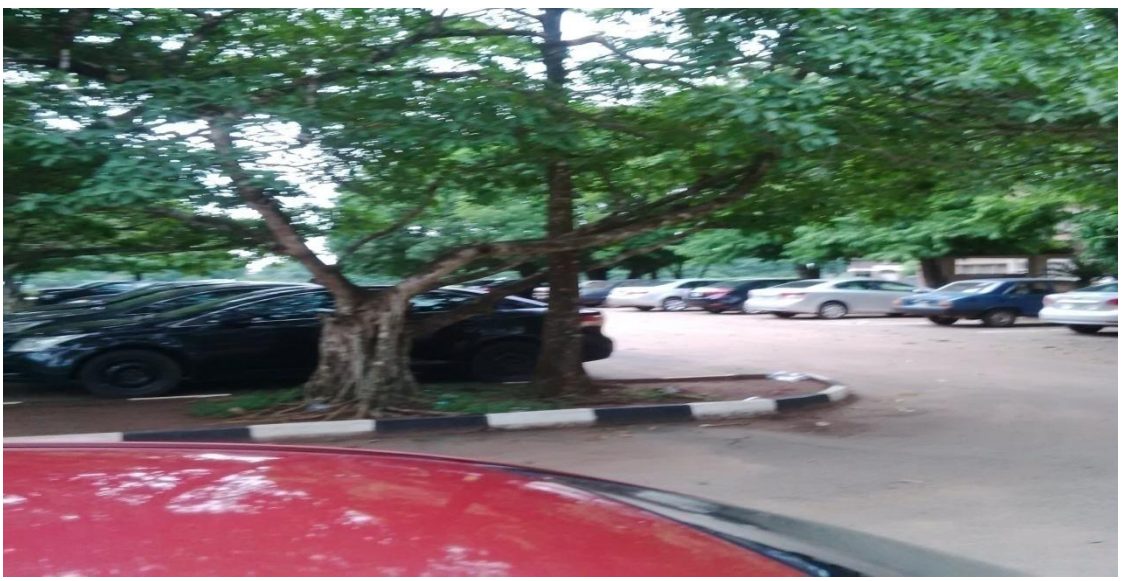


Plate 4.20: VC office

Source: Author's Field Survey (2016)

Table 4.3.27 AUDITORIUM CAR PARK

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Pinus spp*	Pine	9
2.	*Terminalia catapa*	Almond fruit	7
3.	*Terminalia ivorensis*	Black afara	1
	TOTAL		17

The total numbers of trees found in the study-sites are 17(Table 4.3.27), the *pinus spp* and *terminalia catapa* are the most common, they are use for relaxation in the study-site, because of their broad foliage (Plate 4.21).

Plate 4.21: Auditorium car park

Source: Author's Field Survey (2016)

Table 4.3.28 SPORTS COMPLEX

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Terminalia catapa*	Almond fruit	8
2.	*Dellonix regia*	Flame of the forest	6
3.	*Pine spp*	Pine	2
	TOTAL		16

Source: Author's Field Survey (2016)

The total number of trees found in the study site is 16 (Table 4.3.28) and Terminalia Catapa is the most common, which serves as shade for cars and relaxation.

Table 4.3.29 MAINGATE CAR PARK

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Dellonix regia*	Flame of the forest	4
2.	*Albizia spp*	Albizia	37
3.	*Spondia mombin*	Iyeye	1
4.	*Terminalia catapa*	Almond fruit	1
5.	*Psidium guavaja*	Guava	1
	TOTAL		44

Source: Author's Field Survey (2016)

The total number of trees found in Maingate Car Park is 44(Table 4.3.29), mostly *Albizia spp,* planted because of their broad foliage which act as shade for cars and also for relaxation.

Table 4.3.30 RANSOME-KUTI ROAD

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Ficus spp*	Ficus	2
2.	*Psidium guavaja*	Guava	3
3.	*Azardirachta indica*	Dongoyaro	2
4.	*Terminalia catapa*	Almond fruit 2	2
5.	*Albizia zygia*	Albizia	1
6.	*Dellonix regia*	Flame of the forest	2
7.	*Mangifera indica*	Mango	1
	TOTAL		13

Source: Author's Field Survey (2016)

The total number of trees in this study site is 13(Table 4.3.30). Trees such as the *Terminalia catapa* and *Dellonix regia* should be planted to provide more shade to people.

Table 4.3.31 RIVER ETHIOPE-ROAD

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Rauwolfia vomitoria*	Asofeyeje	17
2.	*Senna Slamia*	Cassia	2
3.	*Terminalia radii*	Terminalia	10
4.	*Dellonix regia*	Flame of the forest	2
	TOTAL		31

Source: Author's Field Survey (2016)

The total number of trees found in this study site is 31 (Table 4.3.31); trees such as *Terminalia radii* and *Dellonix regia* should be planted to give shade.

Table 4.3.32 AKENZUA ROAD

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Eucalyptus spp*	Eucalyptus	21
2.	*Elaeis guinesis*	Oil palm	1
3.	*Terminalia catapa*	Almond	1
4.	*Mangifera indica*	Mango	1
	TOTAL		24

Source: Author's Field Survey (2016)

The total number of trees at this study site is 24(Table 4.3.32). Trees such as *Terminalia radii* and *Dellonix regia* should be planted to give shade.

Table 4.3.33 V.C LODGE

S/N	SCIENTIFIC NAMES	COMMON NAMES	NUMBER OF SPECIES/TREES
1.	*Tectona grandia*	Teak	320
2.	*Milicia exelsa*	Iroko	1
	TOTAL		321

Source: Author's Field Survey (2016)

The total number of trees found at this study site is 321(Table 4.3.33), of which *Tectona grandia* are the most common. They provide shade for relaxation because of their broad foliage (Plate 4.22). They will also serve as beautification.

Plate 4.22: VC lodge

Source: Author's Field Survey (2016)

Table 4.3.34 AREAS WITHOUT TREES

New pharmacy building	No trees found there
New management science	No trees found there
Hall 1	No trees found there

As shown in Table 4.3.34, as observed in the three study sites, there are no trees (Plate 4.23 and 4.24). Trees such as the *Azardirachta indica* should be planted in large numbers to serve as wind break for the buildings and also as shade for relaxation and for parking of cars.

Plate 4.23: new pharmacy building

Source: Author's Field Survey (2016)

Plate 4.24: New management science

Source: Author's Field Survey (2016)

CHAPTER FIVE

SUMMARY, RECOMMENDATIONS AND CONCLUSION

5.1 Summary

This study was carried out with the aim of determining the perception and utilization of institutional based forestry in University of Benin.

Consequently, the findings from this work are summarized below:

1. People are aware of the existence of institutional based forestry in University of Benin.
2. Trees are located almost everywhere in the University, but particularly in 16 study sites .
3. Trees are used for different purposes in the University, but most importantly for aesthetics, relaxation and shades for car parks.
4. Varieties of trees species are found in the University and varying numbers.
5. Some of the factors militating against institutional based forestry in University of Benin include lack of trained personnel's to take care of trees, poor funding, among others.
6. Some of the ways of sustaining institutional based forest in the University of Benin include employment of specialized personnel, adequate funding of others.

7. Areas where there are no trees are often affected by storms where the roofing sheets are blown-off; such areas are New Management Sciences building and New Lecture Theatre.
8. Trees planted close to fences often destroy the fences, when heavy rainfall occurs, such as the Medical Hostel Car-park.

5.2 Recommendations

Based on the findings of the study, the following recommendations are made:

1. Tress in the University of Benin should be treated with pesticides and insecticides.
2. Specialized personnel should be employed to cater for the trees so that the trees are attractive.
3. Funds should be made available to cater for trees in the University.
4. Trees should not be planted close to fences.
5. Trees should be planted in areas where there are no trees so that they can serve good purposes, such areas include Hall 1, Hall 2, Hall 3, NDDC hostel, post graduate hostel, medical hostel, new management car park, June 12 car park, law car park, Twin LT, school of post graduate, new lecture theatre, new Pharmacy building.

5.3 Conclusion

This study has shown that University of Benin is rich with different trees which serve different purposes in the university. However, in spite of the numerous importance of trees in the university, the university is still faced with the problem of management of trees for aesthetics, relaxation and for other uses. As a result, there are still some people who still do not appreciate the importance of those trees. It is on this note that recommendations were made. It is expected that if these recommendations are considered, the problems of institutional based forestry would be minimized not only in the University of Benin, but also in other institutions of higher learning in Nigeria.

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APPENDIX

DEPARTMENT OF GEOGRAPHY AND REGIONAL PLANNING, UNIVERSITY OF BENIN, BENIN CITY

Dear Respondent,

This questionnaire is designed to elicit information on the Perception and utilization of Institutional-based Forestry in the University of Benin, Benin City. The questionnaire is purely for academic purpose. Please, your cooperation and sincerity are highly needed, and your response will be treated with utmost confidentiality.

SECTION A: SOCIO-DEMOGRAPHY OF RESPONDENTS

1. Age of Respondent: (A) Below 20 years [ ]; (B) 21-40 years [ ]; (C) 41-60 years [ ]; Over 61 years [ ].

2. Sex of Respondent: (A) Male [ ]; (B) Female [ ].

3. Occupation: (A) Student [ ]; (B) academic staff [ ]; (C) Non-academic staff [ ]; (D) Other [ ], specify _____

4. Department: _____

5. If staff, what is your level of education? (A) SSCE [ ]; (B) NCE/OND [ ]; (C) HND/B.Sc [ ]; (D) M.Sc/PhD [ ].

SECTION B: PERCEPTION OF UNIVERSITY COMMUNITY TOWARDS INSTITUTIONAL-BASED FORESTRY

6. Are you aware of institutional-based forestry? (A) Yes [ ]; (b) No [ ].

7. Source of awareness: (A) Radio [ ]; (B) Television [ ]; (C) Newsprint [ ]; (D) School [ ]; (E) Tree Planting Campaign [ ]; (F) Others [ ].

8. How would you rate the level of awareness of members o the school community on the importance of trees? (A) High [ ]; (B) Moderate [ ]; (C) Low [ ].

9. Do you find the trees in the school interesting? (A) Yes [ ]; (B) No [ ].

10. If no to question (4), what are your reasons? (A) Roots of trees damaging roads and buildings [ ]; (B) Danger to life and property [ ]; (C) Dirty environment from falling leaves [ ]; (D) Attraction of birds and insects [ ]; (E) Others ( )

11. Do you have preference for trees? (A) Yes [ ]; (B) No [ ].

12. Would you therefore, be willing to participate in a project to plant trees? (A) Yes [ ]; (B) No [ ].

13. If No, what is your reason? (A) Time factor [ ]; (B) No sufficient land to plant trees [ ]; (C) Maintenance could be difficult [ ]; (D) Cannot obtain seedlings [ ]; (E) Other ( )

14. Areas of participation/involvement: (A) Being part of the committee that will plan and take decision on the project [ ]; (B) Join volunteer group to take care and monitor planted trees in your institution [ ]. (C) Be involved in educating and mobilizing the people for the project [ ]; (D) Be physically involved in the tree planting project [ ].

15. Are trees in the University of Benin well managed? (A) Yes [ ]; (B) No [ ].

16. If No to question (10), how can trees be better managed? (A) Treatment with fungicides and insecticides [ ]; (B) Legislating against indiscriminate use/felling of trees [ ]; (C) Employing specialised personnel to take care of them [ ]; (D) Others ( )

17. Which of these environmental hazards do you think can be remedied by planting trees? (A) High temperature [ ]; (B) Wind erosion [ ]; (C) Water flooding [ ]; (D) Deforestation [ ]; (E) Others ( )

18. Do you like to work in a green environment planted with trees? (A) Yes [ ]; (B) No [ ].

SECTION C: UTILIZATION OF FORESTRY IN THE UNIVERSITY OF BENIN

19. What are the various ways in which trees are utilized? (A) Aesthetics [ ]; (B) Relaxation [ ]; (C) Fruits [ ]; (D) Shade for cars [ ]; (E) Commerce [ ]; (F) To Cater to environmental hazards [ ]; (G) Others ( )

20. What are the challenges of forestry in the institution? (A) Lack of open spaces for the planting of trees [ ]; (B) Inadequate trained personnel [ ]; (C) Poor enlightenment on the need for institutional-based forestry [ ]; (D) Poor funding of the sector by the university [ ]; (E) Others ( ).

21. How can institutional-based forestry be sustained in the University of Benin? (A) Employment of personnel to manage the trees [ ]; (B) Create more open spaces [ ]; (C) Provide funding [ ]; (D) Proper enlightenment [ ]; (E) Other( )