ARTIFICIAL LAKE TOURISM AND HUMAN WELL-BEING IN SELECTED COMMUNITIES IN OYO STATE, NIGERIA

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CERTIFICATION

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DEDICATION

I dedicate this research to the down-trodden and orphans, more especially, those who lacked the opportunities of early life access to formal education. I encourage them not to lose hope because sooner or later, there will be a DIVINE Intervention.

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ABSTRACT

Lakes provide scenic attractions that are often exploited to promote tourism. They create opportunities for the diversification of local and national economy. Previous studies have focused on the roles of natural and artificial lakes as sources of energy generation and food production, with little attention to their contribution to the well-being of the host communities. Therefore, this study investigated the influence of artificial lake tourism on human well-being in selected communities in Oyo State, Nigeria.

Maslow's theory of human motivation served as the framework, while descriptive design was adopted. One artificial lake host community in Oyo State was purposively selected from each of the six political divisions (Ibadan-Eleyele), (Ibarapa-Opeki), (Oyo-Erelu), (Ogbomoso-Yaku), (Oke Ogun 1-Ikere gorge) and (Oke Ogun 2-Afonse). A sample size of 400 respondents was determined using Taro Yamen's formula, while Bourley's allocation formula was used to achieve proportionate-to-size samples from each zone (Eleyele-45, Opeki-51, Erelu-73, Yaku-86, Ikere gorge-110 and Afonse-35). A structured questionnaire was administered to residents of the communities on their perception of the socio-economic benefits of the artificial lakes. The respondents were purposively selected within 200 meters from the artificial lake sites. Six Lake Scheme Officers (five from Oyo State Water Corporation and one from Ogun/Osun River Basin Authority), were purposively selected as Key Informants. Frequency analysis, linear regression, K-Nearest Neighbour, Factor Analysis and Chi-Square were used to analyse the quantitative data at $\alpha = 0.05$, while the qualitative data were content-analysed.

Residents' age was 35.0 ± 8.7 years, 65.3% were male and 64.6% were married. Artificial lake tourism contributed to perceived reduction of poverty (97.0%), improved water management (73.0%), enhanced economic productivity through job diversification (96.0%) and improved community transportation system (97.0%). Income generation in the lake communities was influenced by marital status ($\beta = 0.24$), employment ($\beta = 0.27$) and education ($\beta = 0.33$). Efficient water management was enhanced through the preservation of artificial lakes (3.0), reduction of poverty (3.0) and development of existing artificial lakes (2.0). Community well-being was enhanced through the promotion of productive employment and decent work (21.8%). Artificial lake tourism improved economic productivity (χ^2=1.12). Artificial lake tourism did not improve water management. The awareness of existence of artificial lake did not influenced the perception of the adequacy of existing transportation infrastructure in the communities. Artificial lake tourism had a positive impact on the well-being of the communities around the lakes, however, the communities suffered from negative impacts such as water, air, soil and noise pollutions due to tourists' inflow.

Artificial lake tourism improved the well-being of people in their host communities in Oyo State. It enhances poverty reduction, water management, economic productivity, and community transportation system. Therefore, there is a need for government and public-private partnerships to address the pollution challenge arising from artificial lake tourism.

Keywords: Tourism destination, Artificial lake, Oyo State, Community well-being
Word Count: 450

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Tourism is about holidays (vacations) with strong connotation for leisure. It is the worlds' fastest growing industry, when compared with other sectors, travel and tourism also ranks among the fastest growing. With a GDP growth rate of 3.5% in 2019, travel and tourism trailed only behind information and communication and financial services. The central focus of the study therefore, is to examine the effects of artificial lake tourism on the human well-being in selected communities in Oyo State, Nigeria, with emphasis on sustainable development goals (SDGs: 1, 6, 8 and 11). Sustainable development was understood to be the nexus of sustainable environmental, social and economic dimensions in which the environmental aspects are prerequisites for social and economic development. In this case, sustainable development goals (SDGs) 1, 6, 8 and 11 were the main focus of this study. In Africa today, poverty has become a hydra headed problem bedeviling humanity. The only way out of the situation is to adopt the sustainable development goals concept in all its ramifications. Godwell (2015) quoted Ban Ki-Moon as saying that "however a lot needs being done to fast-track improvement". Bolder and focused action where significant gaps and differences are". Godwell (2015) stated further that 56 per cent of Africa's populace existed under $1.25/day (United Nation, 2014).

The 2030 Agenda for Sustainable Development is a plan of action for people, (Long and Peter, 2019) earth, and prosperity with the goal of exempting no one. The General Assembly of the United Nations, New York in 2015 settled over 17 Sustainable Development Goals (SDGs), 169 targets, and 232 indicators in this Agenda (UNESCO, 2015b), which will spur activities in the course of the next 15 years in capacities of key significance for humankind and the earth, with the particular goal, which is, removing extreme poverty and hunger (UN General Assembly, 2015). The SDGs incorporate the following Ps: people, planet,

prosperity, peace, and partnership, that highpoint the inter-reliance of the targets on each other and the prerequisite of unified and harmonized operation of the goals (OECD, 2018). Lakes and reservoirs play a crucial role in fresh water supply and utilisation, therefore their long-term viability is important to the achievement of the SDGs (Zhao, L.; Deng, J.H.; Sun, P.Z.; Liu, J.S.; Ji, Y.; Nakada, N.; Qiao, Z.; Tanaka, H.; Yang , Y.K, 2018). Maintaining a worldwide well-functioning water cycle is a major goal and task in order to maintain water resource safekeeping in the face of tremendous populace expansion and escalating climate change impacts (Long and Peter, 2019). As a result, the building of lakes and reservoirs necessarily has to ensure long-term availability to sufficient quantity and quality of multiple advantages to human civilization, the environment, and economic prosperity.

Lakes are already developing potential tourism appeal in almost every country on the planet (Kurleto, 2013) is critical for effective inland water resource management planning in the future. For many years, specialists in environmental protection and water supply issues have met in international sessions, like the International Lake Environment Committee, to resolve the issues of sustainable tourism and lake-ecosystem protection (ILEC). The depth of interest in a conference of this magnitude (which has previously been held in Argentina, China, Denmark, Hungary, India, Italy, Japan, Kenya, as well as United States) demonstrates that even the most remote geographic locations are no barrier to finding solutions for developing best approaches and conditions for the development of lake tourism.

A community is as "a cooperatively supporting, geographically localized, social unit, such as a village or tribe, where people associate as local residents and where there is often some type of collective decision-making" (Mann, 2000, p. 206). These definitions are significant because they address key aspects of a society such interconnectedness, mutual values, geographic area, and adulthood or growth. The word "community" is used most frequently nowadays to refer to a group of individuals who share a shared culture and set of values (Beeton, 2006). Human wellbeing is a difficult concept to examine and quantify. The word "wellbeing" is frequently used alternately with other words like "standard of living," "welfare," "well living," "prosperity," "needs fulfillment," "social evolution," "poverty,"

"living standards," "utility," and "life contentment" (McGillivray and Clark, 2006). The definition of human wellbeing as well as the methods used to assess it have changed over time. Because economic growth alone cannot communicate the bettering quality of life in a society, especially in rural areas where people typically have little to no authority to advocate for their rights, research on the evolution of human wellbeing helps people grasp this idea. The atmosphere that is directly or indirectly interwoven to the enablement of this necessities to ensure a perception of wellbeing as well, as the concepts "wellbeing," "wellness," and "mindfulness" are all concepts that are becoming increasingly prevalent in social structure and as folks become more demanding of such self indulgence and wellbeing and via tourism. This makes the connection between one's own wellness and the wellbeing of a location, and transformational travel also has established and expanding ties to sustainable tourism (Wolf, Ainsworth, and Crowley, 2017).

Mitchell and Bruce (1990) distinguished three interpretations of integrated management of lakes: systematic management of differing magnitudes of lake water, surface and ground water, considering both quantity and quality; lake management in conjunction with other water systems (rivers or the sea surrounding the lake); and lake management in conjunction with the terrestrial environment; and management of lakes, including the aquatic environment.

As a result of the different players in the tourist industry, the definition of "destination" in tourism can vary significantly (Daubariene, 2009). It is important to recognize that each destination is a distinct entity within which aspects such as the physical environment, history, culture, societal, managerial, and functional elements interact in a dynamic manner to produce a wide and functional tourism certainty. In most cases, a lake as a tourist attraction is an operatively solid regional space with clearly defined geographical boundaries (Ryhanen, 2003). Sometimes a single lake location is surrounded by a densely packed cluster of tourism-related activity. In certain circumstances (Rytu Aukstaitija, 2003), a lake destination is a part of a bigger region where there are multiple tiny lakes and the entire region is connected. A lake resort provides guests with a variety of activities such as water cruising, water sparse, horseback riding, sports, entertainment, swimming, fishing, arcade games, and technical gadgets for motorized tourism, among other things. Lakes are

visually appealing, and they are particularly effective at attracting tourists. As popular tourist destination at both the regional and municipal levels, lakes are well-known around the world. Lakes are popular public recreation locations, and tourists are able to explore every aspect of them because they are open to the public. Tourists can take picturesque drives near the lake, likewise boat tour, to see the sights. The lake, designated as water bird sanctuaries are like fairytale landscapes for the birds that inhabit them. A varied ecosystem of plants and animals can be found along the banks of lakes; this an attraction for persons and wildlife. Lakes are valuable as natural resources for tourism because of their abundance of biodiversity. There are millions of visitors visiting lakes around the world, which serve as ecotourism resource, natural tourism, leisure touristic travel, and conference tourism, among other things (Ryhanen, 2003). Lakes were initially the major basis of potable water for people, and they still are today. As a result of their numerous benefits, lakes play vital roles in the socio-economic expansion of the surrounding region, including affecting the microclimate, flood management, stimulating biodiversity, and recharging groundwater supplies (Rytu Aukstaitija, 2003). As sewage absorbers in urban areas, lakes provide significant benefits to their surrounding communities if the lake's water level is kept at an appropriate level. Recreational lake activities such as swimming, fishing, and other water sports are extremely popular among the general people and are encouraged by the government. The usage of lakeshores for residential and commercial development, as well as recreation, has increased dramatically throughout the world. Water quality has deteriorated as a result of years of inattention and carelessness. In light of the importance of lakes to sustainable tourism, this study investigated how the concept promoted the development of artificial lakes in Oyo State, Nigeria, in relation to the implementation and achievement of selected sustainable development goals. The effects of artificial lake tourism on the well-being of selected communities in Oyo State was the core subject of this study, which was conducted in the context of SDGs.

i. End poverty in all forms everywhere (SDG 1)
ii. Ensure availability and sustainable management of water and sanitation for all (SDG 6)
iii. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all (SDG 8).

iv. Ensure that cities and human habitations are inclusive, harmless, resilient, and long-lasting (SDG 11).

1.2 Statement of the Problem

Gaining a stronger relationship with nature, and particularly with water-based environments, can be quite rejuvenating because it incorporates enticing components of many tourism and leisure activities. Development of tourism implies utilisation of ethnic and natural assets in order to give tourists with a relaxing experience while also broadening the scope of their knowledge. Lakes and reservoirs are currently the most important sources of freshwater. They carry out critical functions in communities, including providing consumable water, food (through fisheries, aquaculture, and the watering of land for plant growth), leisure, and generation of electricity (through hydroelectric barrages), the care of wastewater, and the control of overflow of water and scarcity of same. Although only constituting a minor part of the biosphere, the majority of inland lakes and water-reservoirs are used by a variety of ways (Jrgensen, 2005), providing varieties of ecosystem functions, comprising management of water overflow, biodiversity conservation, mitigation of climate alteration, river flow control, hydroelectric power generation, likewise water purification and storage, to name a few (Schallenberg, de Winton, Verburg, Kelly, Hamill, Hamilton, 2013).

Lakes frequently contribute a critical part to societal improvement, economic progress, production of food, community well-being and human healthiness as a result of their provision of these services, hydroelectric reservoirs have emerged as a critical renewable energy resource, contributing significantly to water and energy development initiatives in more than 140 countries worldwide (Edenhofer *et al*., 2011). In the 21st century the tourist business is still flourishing, accounting for 5 % of global GDP and 235 million employees (WTTC, 2016). This shows that tourism is one of the world's most important economic industries.

The touristic impact of the lakes in Oyo state could be viewed from a tripartite: environmental, social and economic aspects. In other word, economic value of the lakes could be in the forms of job opportunities, governmental tax income, development of small and medium scale enterprises and others. Social (e.g., increased popularity of the local

areas) while the environmental value will come in the form of community environmental management.

According to Nor Aini and Suralyati (2013), between 2009 and 2018, there have been 18 separate publications on the sustainable development of lakes and reservoirs, and have been divided into three research lines: environmental, social, and economic (Long and Peter, 2019). Among these are (1) the current situation; (2) ecosystem services; and (3) supervision and policy. The study lines cover a total of 18 significant research issues, all of which are important to the country's future prosperity. In terms of the current state of affairs, a significant sum of articles have been devoted to pressing concerns in environmental and human health, such as new pollutants and waterborne infections, among others. Furthermore, in response to developments in species loss and the worldwide biodiversity problem, researchers have begun looking at biodiversity and climate change in lakes more and more frequently. In recent years, increasing scientific attention has been drawn to the effects of climate change on lake ecosystems. Because of the long-term influence of intensive agricultural and industrial operations on these stagnant waters, eutrophication and heavy metal contamination continue to be persistent problems.

This research looks into how artificial lake tourism will improve human well-being. Other authors wrote on the artificial lake but the emphasise were not place on the influence of artificial lake tourism on human well-being. For instance, Olubode *et al.,* (2011) studied Flora Diversity in the Wetlands of Apete River, Eleyele Lake and Oba Dam in Ibadan, Nigeria: Its consequence for Biodiversity Erosion, Adeogun and Olatunde (2013) focused on evidence of elevated levels of polychlorinated biphenyl congeners in commonly consumed fish from Eleyele Reservoir, South western Nigeria, Oyedibu *et al.*, (2016); also focused on conditions of Eleyele dam in Ibadan Nigeria inhabited by Melanoides tuberculata, Olanrewaju *et al.*, (2017); conducted a research on physico-chemical status of Eleyele Reservoir, Ibadan, Nigeria, and Bolaji (2010); focused on hydrological assessment of water resources and environmental impact on an urban lake using Eleyele Lake catchment, Ibadan, Nigeria. Previous researches have given little or no attention to lake tourism and how it promotes the attainment of the sustainable development goals. This study therefore focused on the effects of artificial lakes tourism on the well-being of selected

communities in Oyo State, Nigeria. The sustainable development goals 1, 6, 8 and 11 were the focus of the study. As a result of these factors, the following research questions were imperative:

a. How can artificial lake tourism assist in reducing poverty in Oyo State?

b. How can lake tourism be employed for efficient and effective management of water in Oyo state?

c. How can lake tourism promote productive employment opportunity in Oyo State?

d. How can the transportation facilities within and around the study areas be developed for community well-being?

1.3 Objectives of the Study

The core objective of the study is to examine the influence of artificial lakes tourism on the well-being of selected communities in Oyo State, Nigeria. To achieve the basic objective of the study, the specific objectives are to:

1. assess the view of residents on how artificial lakes tourism could reduce poverty in Oyo state.

2. assess whether artificial lakes tourism can be employed for efficient and effective management of water in Oyo state.

3. assess the existing employment opportunities within and around the artificial lakes in Oyo state.

4. assess whether artificial lakes tourism will lead to the improvement in transportation infrastructures within and around the study area.

1.4 Research Hypotheses

In an attempt to achieve the stated objectives of the study, the following hypotheses (null) were tested;

1. H_0 1: Artificial lake tourism is not a contributor to reduction of poverty in the study areas
2. H_0 2: Artificial lake tourism does not assist in water management in the study areas
3. H_0 3: Artificial lake tourism does not bring about employment opportunities in the study areas
4. H_0 4: The transportation facilities within and around the study areas does not adequate to achieve community well-being.

1.5 Justification for the Study

The 2030 agenda for sustainable development is a plan of action for humanity and earth. In other words, a plan action to make this earth a better place. It is a plan of action for people, planet, prosperity, peace and partnership. The agenda contains 17 sustainable development goals (SDGs), 169 targets and 232 indicators settled upon by the General Assembly of the United Nations in New York in 2015 (UNESCO, 2015b). The outcome of the Inter-Agency and Expert group on sustainable development goal indicators (E/CN.3/2016/2/Rev 1), Annex IV provided that 230 indicators were agreed upon, but the final list contained 241 indicators. Please note that 9 indicators were repeated under 2 or 3 targets but the actual number of individual indicators was 230. Therefore, if all these 230 indicators could be achieved by all the sovereign nations by the year 2030, the earth will be a better place. So, this research looked into 4 different goals (by parts) and see how artificial lake tourism could assist in the achievements of the community well-being.

Most developing nations with touristic potentials are looking up to solving a number of economic problems, such as balance of payment difficulties, unemployment, avenues to improve foreign earnings among others. Nigeria as a nation therefore cannot be excluded from this search for solution. Tourism on the other hand is a beneficial factor to solving most problems outside the widely applauded oil revenue generation, which is conventionally believed as the major source of our nation's gross income. Thus, the existence of a wide range of tourist attractions; from the roomy rivers, ocean beaches for waters/spas and swimming, to wildlife from rain forest, to the magnificent waterfalls, to the scenic attractions which are part of the traditions and norms of the people have caused enquiries into the importance of tourism in the country. With other tourist attractions

perceived as traditions embedded within states and local governments, it has become of interest to have an overview of tourism development in Oyo State. In other words, the tourism potentials and the advantages of the scenic and vegetation potential of artificial lakes would be adequately appropriated.

This study is also be outstanding at making the government of Oyo State to implement policies of community well-being by employing accruable opportunities inherent in artificial lake tourism in the state. This project is therefore aimed at an improvement from the standpoint of cost, economy, effectiveness, efficient performance, modernity, strength, compactness, security, safety and sustainability. This study is novel as to contribute to societal need, also provide a basis upon which further developments could be made.

1.6 Scope of the Study

Basically, this study determined how artificial lake tourism can assist in attaining the human well-being. The study covers these following goals:

1. Find means by which the promotion of artificial lake tourism could ameliorate poverty within and around the study area in particular and Oyo state in general (SDG 1)
2. Observes the ways by which water is being managed through artificial lake in the selected study areas and proffer solution for improvement. (SDG 6)
3. Enumerate the existing employment opportunities within and around the artificial lakes in Oyo state and proffer way of promoting them (SDG 8).
4. Access the development of transportation within the study area for the achievement of the SDGs (SDGs11).

The study also enumerated all the artificial lakes in Oyo state (see Appendix 7) and gave the geo-position parameters of each lake for easy identification for stakeholders and tourists who may be interested. Oyo state was divided into six (6) political zones, and a lake was purposively selected from each zone for in-dept study. These selected lakes are; Ibadan zone (Eleyele artificial lake) in Ido LGA, Ibarapa zone (Opeki artificial lake) in Ibarapa East LGA, Oyo zone (Erelu artificial lake) in Oyo West LGA, Ogbomoso zone (Yaku artificial lake) in Ogbomoso North, Oke-Ogun zone 1 (Ikere gorge dam) Iseyin LGA and Oke-Ogun zone 2 (Afonse dam) Olorunsogo LGA.

1.7 Plan of the Study

Presentation of the study was in six chapters, the first presents the whole study, detailing in plain language the study background, the research problems, identifying the objectives of the study, justifying the rationale for conducting this study, telling the scope, the level of coverage, and the organization/plan of the study. The second chapter introduces the entire study, stating in plain language the background to the study, the research problems, and identifying the objectives of the study. A survey of selected theories, empirical literatures, and methodology from the respective literature is presented in chapter two. Chapter three discusses technique, which is divided into three sections: the method, the data sources, and the method of data analysis. The qualitative analysis of the study is discussed in Chapter Four of the book. Chapter five presents estimations and examines the quantitative findings, and Chapter six brings the study to a close by outlining the policy implications and limitations of the research.

1.8 Operational Definition of Terms

Lake: A lake is a body of water that is surrounded by land. There are millions of lakes in the world. They are found on every continent and in every kind of environment, in mountains and deserts, on plains, and near seashores. Lakes vary greatly in sizes.

Artificial Lake: Artificial lake means a human-made lake, pond, lagoon, or other body of water that is used wholly or partly for landscape, scenic or noncontact recreational purposes

Tourism: Tourism is a social, cultural and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes.

Well-being: Well-being is a positive outcome that is meaningful for people and for many sectors of society, because it tells us that people perceive that their lives are going well. Good living conditions (e.g., housing, employment) are fundamental to well-being. Tracking these conditions is important for public policy.

Community: A community is a social unit (a group of living things) with commonality such as place, norms, religion, values, customs, or identity. Communities may share a sense

of place situated in a given geographical area (e.g. a country, village, town, or neighbourhood) or in virtual space through communication platforms.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.0 Preamble

Impacts of Lake tourism could be characterized mostly as socio-economic and environmental (Hsiao-Hsien, Sheng-Shyong, Yuan-Shing and Shih-Tsung 2018). The emphasis of the study will be on how artificial lake tourism could be applied in the achievement the well-being of selected communities.

According to Thomas, Meybeck and Beim, (1996), lake can be defined as an enclosed water body that is usually surrounded by land and has no connection with the sea. It is possible for a lake to be detached, with no observed direct water input and, on rare occasions, no observable direct water output. A lake can occur anywhere within a river basin's drainage system. Lakes, such as headwater lakes, receive no water from rivers, but are fed by inflow from a large number of minor tributary streams, particularly from rainfall and groundwater. Lakes are well-known as resource of high value to the local communities (Nor Aini *et al*., 2013). By this, artificial lake can be constructed and managed as it was done in lake Kinneret, Israel (Gophen *et al.,* 1999).

Impact of lake tourism (a sub-component of ecotourism) on the sustainable development goals cannot be over emphasised. Ecotourism (Tugba, 2013) contributes to developments of communities by making available a substitute means of income to indigenous communities.

2.1 Review of the Conceptual Issues

2.1.1 Concept of Tourism

Tourism, described as the world’s biggest and quickest growing industry, depends heavily on environmental conditions whether natural or man made for its market and sustainability.

It is the science, art, and trade of fascinating and conveying guests, housing them and seeing to their needs and wants (Aremu, 2001).

Tourism is described as "temporary migration outside the typical home and workplace, activities carried out in the course of the vacation and amenities provided to meet the demands of travelers (Mathieson and Wall, 1982). Although the definition of tourism among researchers is not accepted and tourism theories lack (Franklin and Crang, 2001), conception of tourism as a subject lead to the development of conceptual and theoretical methods that contribute to tourism literature. Theoretical models for tourism are limited; descriptive models, explanatory models, and predictive models (Chorley and Haggett, 1967). A descriptive model represents the tourist system, while an explanatory model shows how the system and subsystem work. The predictive model is constructed on the basis of causal relationships that enable prediction.

Tourism is a multidisciplinary discipline since the phenomena within it cannot be researched using a single disciplinary approach (Matthews and Ritcher, 1991). Students in tourism adapt theories from various fields like psychology, sociology, anthropology and economics (Sheldon, 1991). Theories from other disciplines are common in tourism. While it does not have any theory, researchers have established several fundamental notions in tourism, such as the tourism system (Leiper, 1979), tourist typology (Plog, 1974; Cohen, 1972; Smith, 1977) and the Butler Life Cycle tourism area (TALC) (Butler, 1980).

Tourism has an inference of relaxation travel and inclines to being tantamount with holidays (vacations). This is also echoed in dictionaries, which normally denote tourism as travel for pleasure and for those making a source of livelihood by being of service to vacationers; great number of them perceive tourism in by the products they sell and the markets they serve (Medlik, 2003). Tourism is also defined by Theobald (1998) as the events of individuals journeying to and remaining in places away from their normal environment for not more than one successive year for vacation, business and other reasons not linked to implementation of an activity paid from within the domicile environment.

According to Long (2012), tourism is an efficient means to rejuvenate the economy of any place and is widely recognised one of the quickest developing industries internationally

(Lanza and Pigliaru, 1999; Raymond, 2001; Newsome *et al*., 2002; Basu, 2003; Ozgen, 2003; Chockalingam and Ganesh, 2010; Jennie, 2012). The constant and rapid rise of tourism is not independent of the world economy's sustained economic growth, which lasted from the mid-1990s to 2007. This expansion permits greater universal disposable revenue, leisure request, as well as combined with worldwide economic rearrangements in retort to globalization, has secured global tourism industry rivalry and drastic cost reductions. As a result, tourism has emerged a key means of economic development, employment, incomes, and foreign exchange for numerous nations (Vaugeois, 2000; Basu, 2003), and is seen as a key source of development and growth for developing countries' economy (Hodur, Leistristz and Wolfe, 2005; Haller, 2012).

The growth of tourism in general is related to three main factors: increased personal incomes and leisure time, improvements in transportation systems, and greater public awareness of world destinations due to improved communications (European Environment Agency, 2001). While tourism expansion is a result of global economic growth, it is also true that tourism has made a significant contribution to world economic growth. Indeed, according to Ozgen (2003), the tourist industry has grown to be a significant part of the world economy and has advanced to a high level of development. In this line, Nigeria is looking to tourism as a potential alternative source of income, and it is expected that if the country's tourist sector is properly developed, tourism will act as a major employer of labour in addition to agriculture (Ajao, 2012).

Tourism is a key mover of global economic development as well as job creation, one of the very significant commerce on the planet. In poor countries, tourism has aided in the creation of millions of employments. It is also one of the very key means of income, but tourism's massive infrastructure and resource needs (e.g., water consumption, garbage creation, and energy use) could possess serious consequences for indigenous populations and the environment where not adequately managed (Economic Briefing toward Earth Summit, 2002). Similarly, the tourism sector attracts foreign direct investments also provides emergent nations with potential that appeals to both soft and hard tourism infrastructure investments. This, combined with the low-level divisible capital character of the tourism industry's downstream end, creates enormous prospects for the formation of small and

medium-sized businesses. The importance of small and medium-sized firms in creating jobs and in technological and managerial innovation is widely accepted in industrialised economies (Schreyer, 1996).

Economic additions have been a key motivating force for the development of leisure industry in emergent nations. The early stage of development took place in the late 1960's and 1970's, when tourism was perceived as a major activity for making foreign exchange and work by both development institutions, such as the World Bank, as well as by governments (Goodwin, 2000). Tourism has been perceived as a major driving force within the economy and this initiate the idea of responsible tourism. Responsible tourism, the job of everyone, involved governments, local authorities, the tourist industry and tourists themselves (Principles on Implementation of Sustainable Tourism, 2000).

Tourism is a huge industry. It contributes significantly to the world economy. World travel and tourism made about US$8 trillion in 2008, going by the World Travel and Tourism Council WTTC (2008), and it is expected to amount to around US$15 trillion in the following ten years. In addition, the global Travel and Tourism (T&T) industry generates 9% of global GDP and employs up to 220 million people (WTTC, 2009).

2.1.1.1 Water Based Tourism

Tourism is one of the world's largest industries. It is not so easy to provide a clear and all-encompassing definition of tourism, particularly when one considers that it is so closely interrelated with all other sectors of life: economic, social, cultural, environmental, and political (The Economist, 1991). Tourism especially, water tourism is one the fastest growing areas within the world's largest industry. Despite increased awareness of the economic and environmental significance of tourism, it is only in recent years, scientific researchers have emerged (Hall, 2001). Water, and especially fresh water, is one of the most critical natural resources. The tourism industry generally overuses water resources for hotels, swimming pools, golf courses and personal use of water by tourists. This can result in water shortages and degradation of water supplies, as well as generating a greater volume of waste water (Sunlu, 2003).

Water-based tourism, sport, leisure, and recreation experiences grew out of an interest in providing a volume of writings that addressed a broad range of water-based experiences conducted in, on, and under a variety of water-based settings: fresh, estuarine, marine, as well as frozen (Gayle, 2007). Water-based tourism, sport, leisure, and recreation experiences, sailing, fishing, and surfing are probably the oldest. The activity of sailing dates back to Egyptian times (4000 BCE).

Relying on their absolute location, relative situation, formation, and ecosystem, all lakes provide various options that can be taken advantage of. (Newsome *et al*., 2002; Vasvari *et al*, 2015). In many cases, experts must consider the water both as a habitat and as an exploitable asset in a very careful way. In most cases lakes are considered recreational areas in the countryside; however, many countries have natural or artificial lakes in (or around) cities and towns which are also suitable for recreation (Hall and Härkönen, 2006).

According to Horváth (2011) A lake becomes a tourism destination when visitors visit it; before that, it is just a body of water that is solely meaningful as part of the physical environment and in terms of the social and cultural traditions of the locals. As a result, the first stage is to publicise the goal, which necessitates the use of a marketing plan. Lakes, on the other hand, are influenced by causes other than marketing intentions: the climate, as well as the geographical and economic environment, are major variables in the attractiveness of these places. (Vasvari *et al.*, 2015).

2.1.1.2 Water Cruising Tourism

Inland waterways transit is considered a cheap water-based means of movement option for ferrying people and cargo along inland waterways. (United Nation Economic Commission for Europe, 2011). Inland water transport offers a sustainable and environmentally friendly transport alternative, although it is being faced by many challenges in its development (Asian Development Bank, 2013; United Nation Economic Commission for Europe, 2011). The difficulties vary from water pollution, to security issue and lack of monetary support from the government (Utomo and Mateo-Babiano, 2015). Interest in inland water transportation is just beginning to grow, with multiple fragmented discussion forming

around the critical and long-term significance of IWT in various regions of the globe. (Utomo and Mateo-Babiano, 2015).

Transportation by water is possible through the following means: The canoe is usually a small craft of long and narrow proportions, pointed at both ends, propelled by one or more paddles or sails. The canoe is also applied to a light open boat of primitive design, like in Oron Sea, it is mainly used for transportation and fishing by the local inhabitants. It is mostly constructed from red wood (Okon, 1997). A boat is a small, primarily open, vessel built for use on water, and propelled by paddles, Oars, sails or some form of engine. The general term "boat" is usually applied to all small craft less than 35ft (1l metres) long, whether decked or open and is also applied to larger open or essentially undecked vessels which, on the basis of size alone would not otherwise be called boats. The word "boat" is also used to refer to such larger vessels as steamboats, tugboats, ferryboats, and fishing boats, and the like (Okon, 1997).

Small boats are defined as vessels that are under 15 feet (5 meters) in length. However, in the United States, the phrase refers to a vessel that is primarily used for recreation or sport and is occasionally used to refer to bigger vessels. Whilst emphasis is also paid to the comforts offered and the refinement of design and finish, the main contrast between a small boat and a yacht in this context is now one of size. A leisure boat that is 20 to 25ft (6-8m) long and has sleeping facilities for two or three persons, including some type of galley, must be termed a yatch. If not, it will fall under the small boat classification (Okon, 1997).

In the seas off Oron, speedboats are also employed for navigation. It is mostly utilized for long-distance travel, such as to Calabar, Bakassi, Cameroon, Sao Tome, and Gabon. One of them is referred to as the outboard motor. The speedboats are smaller than this one in size. They are mostly used by traders who wish to move their goods and carry bigger weights than speed boats (Okon, 1997). The Inland Waterways Department is in charge of the freight movement. The size of the ships, ferry type (vehicle or passenger), ferry routes, tariff, and net registered tonnage may all be used to categorize its design. Currently, Oron has a jetty. The Calabar-Oron route has been traveled by ships including the M/F Oron, M/F Onitsha, and M/F Lokoja, which can carry 400 and 800 passengers and have net registered tonsnages of 152.7, 128.5, and 128.5, respectively.

2.1.2 Artificial Lake Tourism Concept

Artificial lake tourism is a blend of conservation and tourism (Myburgh *et al*., 2002). Ecotourism possesses the prospective to utterly influence local communities, chiefly by the propensity of eco-tourist to show more interest in the culture and nature of the places they visit as linked to mass tourists (McMinn, 1977).

Lake tourism is a category of ecotourism that includes variety of natural landscape components as well as leisure and socioeconomic activities. Tugba (2013) defines ecotourism as a sub-discipline of sustainable tourism. The apparent capacity of ecotourism as a viable tool for long-term growth is the principal reason why humble nations now espouse as well as integrating it into economic evolution and management policies. Ecotourism, as substitute tourism, is visiting nature-based areas for knowledge, study, or absorb ecologically beneficial routines, i.e., tourism based on the natural experience that supports local communities' economic and social growth. It pertains feeling and learning the nature, including terrains, plants, wildlife, and habitats, as well as cultural items from the area. With this idea being rendered into suitable policy, careful planning, and sensitive practice, a symbiotic and complex relationship between the environment and tourist activities is conceivable. Ecotourism facilities that are carefully planned and operated, especially if they are village-based and involve local participation, can give immediate advantages that can help offset the pressure from other less sustainable activities that use natural and cultural resources. Local economic activities include ecotourism, natural resources, cultural heritage, rural lifestyle, and integrated tourism.

2.1.2.1 Opportunities for Sustainable Development of Lakes

So long as lakes and reservoirs add meaningfully to freshwater availability and use, their sustainability needs to be made central to the success of the SDGs (Figure 2.1) (Florke, Barlund, van Vliet, Bouwman and Wada, 2019). Maintaining a worldwide properly working water cycle is a major goal and task in order to maintain water resource security in the face of tremendous population expansion and escalating climate change impacts. As a result, the building of lakes and reservoirs essentially have to ensure long-term liberty to sufficient quantity likewise quality of multiple advantages to human civilization, the environment, and economic prosperity.

Aside from flood control, which has been a continual lake advantage since early eras, fishing and consumable water are also being achieved as the population grows. Higher management and policy requirements are required as a result of these significant economic gains. With 4000 papers (Florke *et al*., 2019) already committed to both task and running of lakes and reservoirs, indicating the expanding gains of running lake and reservoir to ensure environmental likewise human health, as well as social and economic welfare. In recent years, policy formulation, laws, and regulations have received a lot of attention.

Figure 2.1. The summary of the contributions of lakes and reservoirs to support the achievement of the community well-being via SDGs (Long and Peter, 2019).

2.1.3 Concept of Community Well-Being

A community is a mutualistic, geographically localized, social unit, such as a village or tribe, where people identify as local residents and where there is often some type of collective decision-making (Mann, 2000, p. 206). These definitions are significant because they address key aspects of a community such interconnectedness, shared interests, geographic area, and maturity or growth. The word "community" is used most frequently nowadays to refer to a group of individuals who share a shared culture and set of values (Beeton, 2006). But use a single description to describe communities in many places of the world is challenging. The social, economic, political, and environmental characteristics of many communities vary too widely.

Because even one community changes over time, it may not be beneficial to think about and adopt a generic development paradigm for every community. Nevertheless, enhancing human wellbeing is the primary goal of the Sustainable Development Goals (SDGs) and other development initiatives (United Nation, 2016). Such development frequently takes place at the local level. Human wellbeing is a difficult concept to assess and quantify. The word "wellbeing" is frequently used interchangeably with other words like "quality of life," "happiness," "well living," "economic success," "needs fulfillment," "human development," "impoverishment," "living standards," "utility," and "levels of happiness" (McGillivray and Clark, 2006). The definition and methods used to quantify human wellbeing have also evolved in recent years (Table 2.1). Because economic growth alone cannot communicate the bettering quality of life in a society, notably in rural areas where people typically have minimal to no authority to advocate for their rights, research on the expansion of human wellbeing helps people grasp this idea.

Table 2.1: Evolution of the Dominant Meaning and Measurement of Wellbeing 1950s – 2015s

Period	Meaning of wellbeing	Measurement of wellbeing
1950s	Economic wellbeing	GDP growth
1960s	Economic wellbeing	GDP per capital growth
1970s	Basic needs	GDP per capital growth + basic goods
1980s	Economic wellbeing	GDP per capital but rise of non-monetary factors
1990s	Human development/ capabilities	Human development/ capabilities
2000s	Universal right, livelihood, freedom	MDGs and 'new' areas: risk and empowerment
2015s	Peoples, Planet & Prosperity	17 SDGs

Source: Sumner (2006); Ogundeji (2021)

2.1.4 Perception Concept

According to psychology professor Yolanda Williams, perception is the process through which we identify and understand the data that comes to us from our senses. This also entails how we use the knowledge at hand to react to a certain circumstance. Psychology is the scientific study of behavior and thought (Milnes, 2016). Psychology and perception are related since psychology is the science of behavioral and mental processes, and perception is how we respond to events. In other sense, how we acted in response to it. Feeling is a term that is frequently used to describe perception. However, they are frequently used synonymously; sensation is the procedure for having the brain evaluate information from the environment (AlleyDog, 2016). In order to absorb the information, identify the sensations, and respond to the scenario we perceive, which is perception, we employ our organs to find and identify things.

The self-perception theory and the contrastive analysis theory are the two main categories of theories pertaining to perception. There are several hypotheses on a variety of perception-related topics. Even though you may believe that perception just refers to a person's point of view, there are illnesses that are related to perception. Firstly, according to the self-perception hypothesis, which was influenced by Skinner's analysis, people learn more about their attitudes, feelings, and other internal states primarily through monitoring their own behavior and/or the circumstances in which it takes place. A person who talks about having "butterflies in the stomach" is one example. This emotion has been recognized by each of us on our own (Bem, 1972).

A person having two opposing thoughts is described by the contrastive analysis theory. For instance, a person who believes that consuming sugar is unhealthy for you can still consume sugar because they assume that by stopping, nothing will indeed change, and nothing would alter their existing state of health. These ideas conflict with one another and nearly seem hypocritical. Festinger argues that the presence of dissonance makes a person psychologically uncomfortable, which further permits the person to attempt to maintain consistency in his or her thinking. Additionally, despite attempting to be consistent, the person will strive to avoid circumstances that touch on the issue that leads to dissonance (Jenkins, 2014).

Based on waveform durations and amplitudes, our eyes perceive what we are seeing. Their colour is determined by their wave length and frequency; for instance, short wavelengths and high frequencies exclude blueish colors whilst long wavelengths and low frequencies exclude reddish hues. The strength or luminosity is determined by the amplitude. Colors with large amplitudes are vivid, whereas those with lower amplitudes are subdued (Jenkins, 2014).

2.1.5 Sustainable Development and Tourism

Sustainable tourism is an environmentally responsible travel to natural areas, so to relish and appreciate nature (and any accompanying cultural features, both past and present) in a way that promotes conservation, has a low visitor impact, and provides for beneficially active socio-economic involvement of local peoples (World Conservation Union, 1996). It is deliberately planned from the beginning to benefit local residents, respect local culture, conserve natural resources, and educate both tourists and local residents.

The concept has some major components, sometimes ascribed the "triple bottom line" (Bien, 2004): they must be environmentally, socially, culturally, and economically friendly. Sustainable tourism has a minimal bearing on natural resources, especially in protected places. It minimizes damage to the environment (flora, fauna, habitats, water, living marine resources, energy use, contamination, etc.) and ideally attempts profiting the environment (Bien, 2004). It does not harm the social structure or culture of the community where it is found. Instead it respects local cultures and traditions (Bien, 2004). It involves stakeholders (individuals, communities, tour operators, government institutions) in all phases of planning, development, and monitoring, and educates stakeholders about their roles (Bien, 2004). It contributes to the economic well-being of the community, generating sustainable and equitable income for local communities and as many other stakeholders as possible. It benefits founders, staff and neighbors. It does not simply incept and later promptly ends due to meagre business practices.

According to UNWTO (2004) All forms of tourism in all types of places, including mass tourism and specialist tourism segments, can benefit from sustainable tourism development principles and management techniques. The environmental, economic, and socio-cultural

aspects of tourism development are all addressed by sustainability principles, and a suitable balance must be struck between these three dimensions to ensure long-term viability. As a result, sustainable tourism must:

i. Make the best possible use of environmental resources, which are a critical component of tourism development, while also preserving crucial ecological processes and contributing to the conservation of natural heritage and biodiversity.
ii. Respect the host communities' sociocultural originality, preserve their built and existing cultural heritage and traditional values, and contribute to inter-cultural understanding and tolerance. And
iii. Ensure long-term economic viability by delivering equitable socio-economic advantages to all stakeholders, such as stable employment and income-earning possibilities for host communities and social services, and contributing to poverty alleviation.

To achieve far-reaching engagement and consensus-building, sustainable tourism development would imply that the informed participation of all important stakeholders, as well as strong political leadership. Sustainable tourism is a continuous process that necessitates ongoing monitoring of impacts and the implementation of required preventive and/or corrective measures as needed. Sustainable tourism should also keep a high level of tourist contentment and provide a meaningful experience for visitors, boosting their understanding of sustainability issues and encouraging them to participate in sustainable tourism initiatives.

Sustainability concept is normally looked at from three aspects: economy, social and environment (Avcikurt *et al*., 2016). This means the use of tourism resources without exhaustion, contamination and decline so as to ensure that such resources will also be available to other generations (ozguc, 2015).

In environmental concerns, its purpose is to use nature and natural resources by conserving them. In social concern, it is assumed to ensure justice and inclusion of all parts of society in decision making (Figure 2.2). Economic concerns of sustainability, however, aims certifying long-term economic activities by properly bearing in mind environmental and

social concerns. In practice, the targets of the three aspects of sustainability may conflict (Avcikurt *et al*., 2016).

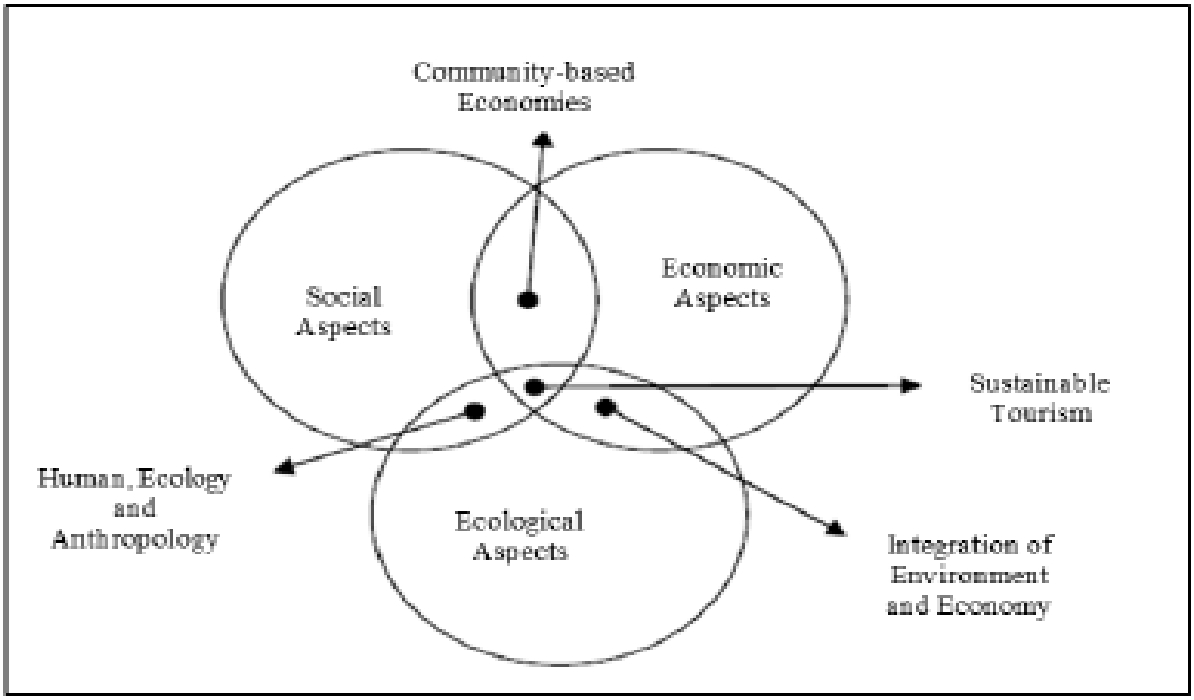

Figure 2.2: Interaction for Sustainable Tourism, Source: Wight, 1998.

2.1.6 Sustainable Development and Management of Lakes

Across various levels of management, sustainable development has become increasingly important (ranging from international to local). In the innovation system, holidaymakers and so-called tourist sites will also perform a vital part for achieving sustainable forms of tourism. (Misanjarii, 2007).

Running of lakes involves (Hall and Harkonen, 2006):

- Arranging the timing of stages of tourism,
- Separating the lake into zones,
- Outline guidelines for lakes users
- Preparation and management dependent on social requirements,
- Designing protocols for sustainable usage and safeguarding of lakes.

Lake tourism supervisors essentially should consider the diversity in perceptions of the same concerns held by diverse participants when planning their operations (since environmentalists and people connect with tourism ventures). It also required the complete integrated management that aims to emphasis communal, educational, economic, environmental, recreational, and cultural issues (Hall and Harkonen, 2006). Mitchell and Bruce (1990) proposed three interpretations for integrated lake management:

- involving the management of the lakes in conjunction with other water systems (rivers or the sea surrounding the lake) and in conjunction with the terrestrial ecosystem;
- coordinated running of the various types and sizes of lake water, surface water, and groundwater, taking into consideration their quantity and quality;
- lake management, comprising interaction with the so-called social and economic environment. Ecological Perspective Sustainable Development.

Going by the act passed in Australia, Sustainable tourism... 2002, it is recommended that the so-called idea of sustainable tourism be addressed in the administration of tourism strategy. Three Ps: People, Planet, and Prosperity describe the Triple Bottom Lines as well as the purpose of sustainability (Elkington 1997), which are as follows:

- Ensuring just and favorable business practices of the indigenous community,
- safeguard of lake tourism,
- protection of biological variety and preserving ecological courses.

The Act on Sustainable Tourism Policy (Natural Resources... 2011), which was published in Australia on October 11th, 2011 specifies the Tourism Zoning Plan that should be in accordance with natural circumstances to prevent tourism from attracting unfavorable environmental effects. To determine its responsiveness to different types of tourism activities, the Plan of Tourism Zoning depends on the indexing of nature (along with the preservation status of species and animal territories) (Eastern European Network, Program *Living lakes* 2006).

2.1.7 Sustainable Transport Development

Transportation is critical for socio-economic development of all nations, likewise for the promotion of provincial and universal cooperation and the development of economies. Historically, the growth of a nation's transportation division has served as a barometer of the country's overall economic well-being and progress. The worth incited by transportation to worldwide GDP is approximately 3-5 percent, while transportation typically accounts for 5-8 percent of total national paid employment on an average basis. (United Nation Economic commission for Europe, 2015).

Gudmundsson and Höjer (1996) argue that sustainable transport policy should incorporate values of growth (improving comfort and equality) likewise sustainability (conserving natural and man-made capital) and that these principles should be manifested in transportation patterns. It is critical for poverty alleviation that people have access to adequate, efficient, and effective transportation systems; at the same time, transportation is expected to be a major driving force behind a growing global demand for energy, and it has a significant environmental footprint. Developing countries must invest in adequate, efficient, and effective transportation systems. Integrative approaches to policymaking, including policies/planning for land use, infrastructure development, public transportation systems and goods delivery networks, should be encouraged with the goal of providing

inexpensive, effectual, and harmless conveyance while also increasing energy proficiency and reducing greenhouse gasses and congestion effects. (Gudmundsson and Höjer, 1996).

The United Nation Economic Commission for Europe (UNECE) has proposed that transport is helpful for poverty extinction. According to UNECE, there are 5 important scopes of sustainable transport: (i) access – joining nations in a wider market to get rid of poverty; (ii) affordability; (iii) safety, (vi) security and (v) environmental parts.

The United Nations Economic Commission for Latin America and the Caribbean (UNECLAC) conducted an analysis of the role played by the transport sector in the achievement of the Millennium Development Goals (MDG), highlighting the significant contribution made by the sector to the achievement of the majority of MDGs. It emphasised the critical role of public transportation policies in mitigating the increasing externalities of economic growth and ensuring that the savings and benefits from improved transportation services are used to effectively reduce social and economic disparity, which continues to be a chief problem in the UNECLAC region, among other things (UNECLAC, 2012). It has been urged by the International Road Transport Union (IRU) that buses/coaches and taxis should be available at the forefront of the transportation policy-making debate in order to double their utilisation and realize sustainable movement for everybody.

2.2 Review of Theoretical Issues

Many researches have been carried out on three sides of sustainable tourism; Polat and Hermans (2016) suggested a ideal for sustainable tourism and used three features of sustainability, Jovanovic and Ilic (2016) considered three facets of sustainability with respect to infrastructure component, Mai and Bosch (2010), Zhang and Zhang (2015), Janusz and Bajdor (2013), and as Lola *et al*., (2017) made available an summary of system thinking method and system dynamics ideal for sustainable tourism. For economic and environmental aspect, Fu *et al*., (2011) analyzed sustainable tourism industry, precisely economic and environmental indicators, employing the system dynamics method.

The conceptual-theoretical bases for usage of sustainability are intricate. There are not obvious borders among these essential notions, which are interrelated. The following main

principles have been condensed as brief statements with detail in the discussion to present and organise the more complicated, intertwined concepts for sustainability applications.

- **Choices Matter**

Everything cannot be sustained anywhere or forever: certain things are not sustained in a certain place in the long run by choice or default. Conflicting wishes lead in some instances to management that supports certain properties or qualities preferably above others. This exemplifies the situation in the U.S. National Forests where a multitude of usage in a particular area cannot always be maintained at the same level. For instance, wood making, leisure and livestock grazing are activities which governed by national forests, but often not compatible within a single region. Furthermore, some resources can be used at quicker or slower rates, rather than renewable. More on individual policy-making, organizations and governance systems also affect policy options and scales, acknowledging that opposing interests are handled. Policy creation and management measures, such as CRP, are aimed at sustainable development and sustainable development in certain respects of human-environmental system, and promote conservation of highly erodible soils and animal habitat. Since May 2016, more than 9.6 million acres of land has been included in CRP and sub-programs (United State Department of Agriculture, 2016). The program's effectiveness depends partially on the experiences, perceptions, attitudes and internal values of groups and individuals, likewise special programme necessities, common economic situations and land features, Leathers and Harrington, 2000.

- **Sustainability is Normative**

Naturally, intentional decisions are grounded on wishes − what people want and see in some manner as "upright" or preferred. With its connection to choice, sustainable development has been broadly espoused as something that is "upright" (and "meaning") as well as that that is good for people and for environmental health (Kates et al. 2001; Parris and Kates 2003) The Medical Ethics Directive 'Firstly, harm not' is an ideal aim and is relevant for sustainable growth. This is the precautionary principle used in environmental risk management: the aim is to make sure before the adoption of an action, the results and safety are known. However, due to Earth's complexity and choices to make, some cases may occur when a system that is meant to support others is "harmful.

- "**Sustainability is a ‘Fuzzy Concept’**

The lack of clarity or exact definition of sustainability frequently expresses concern (Palmer, Cooper, and van der Vorst, 1997). Numerous use of 'sustainability' and 'sustainable development' frequently make decisions complicated, however, there may be advantages identifying sustainability as a 'fluid notion,' a concept variable in application. Description of the management of ecosystems. More (1996) remarked that the term "practises, procedures, objectives, and objectives" defines a fluid construct which shares overlapping qualities or characteristics. Despite a deficiency of a single description, concepts such as sustainable development and ecosystem management are nevertheless valuable. In fact, according to More they can "liberate" (1996) (see also Ducey and Larson 1999). He believes that the approaches or tactics used are less essential than the objectives. As regards sustainability (which more also has the fugitive concept), a "fuzzy set" of approaches can be achieved with greater flexibility, for example by recognising the basic aim of sustainability (maintenance or improvement of desired circumstances, and broader solidification of its capacity)

- **Interconnected Concepts are Important**

The interrelated notions 'the capability of systems to adapt and preserve themselves in the face of changes' include sustainable, resilient, vulnerable and adaptive ability' (Harrington 2005; Folke et al., 2002; Smit and Wandel, 2006). Awareness of these connected topics profits from the practise of sustainability. Sometimes resilience was identified as "the ability to rebuild after a disorder" (Mileti 1999), however, contemporary systems-thinking characteristics emphasis on rigidity, as the ability to hold a disorder while maintaining structure and function of the system – so that a limit to fresh system composition and operative is not passed (Walker et al., 2004). Susceptibility means the sensitivity to a change or interruption (Adger, 2006; Eakin and Luers, 2006). The ability to modify courses and, where necessary, change structural elements in reaction to real or projected changes in the setting, so as to avoid harms / benefit, is adaptability or adaptability as applied to social or social-ecological systems (Brooks, Adger, and Kelly, 2005; Pahl-Wostl, 2009). Clearly, sustainability becomes more doubtful in cases of decreasing or growing resilience or adaptive capability or vulnerability.

2.3 Review of Empirical Issues

There have been several studies on the effect of tourism on local people, for example (Ko; Stewart, 2002; Lankford and Howard, 1994; Jorge and Pinto, 2017; Keogh, 1990), which show that local people's sense of tourism can change greatly. The citizens of leisure site often feel the effect tourism growth (Ap and Crompton, 1998). Tourists are the major participants in tourism and travel experiences (Otto and Ritchie, 1996). Several tourist studies on the influence of tourism on the lakes (Jorge; Pinto, 2017; Tsa *et al*., 2018) have also indicated that the views of tourists on changes produced by tourism in the lake or riverine environment are different. However, interactions between people, tourists, time, space, and the environment are the final results of tourism development (Perdue *et al*., 1990).

A recent Verpoorter, Kutser, Seekell and Tranvik lake census (Zaïdan and Kovacs, 2017) has shown that on Earth around are some 117 million Lakes and Reservoirs, over 0,002 square kilometres, which are used for irrigation, industrial uses, fishing and the generation of hydroelectricity. A rapid growth in reservoirs of hydroelectricity has increased up to 50,000 major dams, which can store 8300 km3, around 10% of the Earth's total natural seas (Carmichael *et al*., 1996). In addition, amenities, lakes and reservoirs offer significant worth for cultural ecosystem services, i.e., leisure, cultural and educational amenities, and also provide support and regulatory services. While these services are related values, significant debates remain about the economic value calculation because of the variety of service groups, service types and evaluation techniques (Lawson *et al*., 1998) and therefore more investigation, standardization and acknowledgment among participants and policy makers are needed to measure social economic values (Lankford, 1994). Dahlquist (2016) stated the impoverished population living on $1.25 a day; the greater the general-level ratio, the greater the relatively high incidence of poverty. Poverty level in each economy is achieved by calculating the average of the headcount ratios for a period of 10 years 2000-2009; more precisely, by calculating the average for the main count ratio between 2002, 2005 and 2008.

2.4 Review of Methodological Issues

Worth of lakes for tourism is observed from the angle of leisure tourism, exploration and specified tourism (Mirsanjarii, 2007). Hsiao-Hsien *et al*., (2018) explored the effects of

tourism growth on a Taiwanese water conservation region. The findings were evaluated using grounded theory concepts, and the disparities amongst tourists and inhabitants were studied using multi-perspective analysis, which was also employed in integrating the study findings, data sources, research ideas, and methods, making it easier to analyse a large dataset from numerous views and compare the findings of different studies. Thus, the current situation of sightseeing in the Sun Moon Lake area was properly informed.

Samah and Fariborz (2011) examined the functionality theory which explains the association between the use of empowerment approach during participation and process development of community development. The method employed in this study is review of literature on community empowerment and participation in processes of community development in Malaysia. $XCED_1$-$XDFOI_2$= $\beta + \varepsilon t$.

Also, Stevan and Session (2002) used the error-correlation mode, to examine the increase in the economic growth and it is significantly related to the poverty rate across family settings while also determining the long-term effects on the well-being of rural dwellers. The study was an appraisal of community development 2008 to 2013. Government investments are matched with local needs through participatory community development projects. In Morocco, where inequality and poverty are high on the public agenda, the National Initiative for Human Development, a community development programme, targeted high-poverty areas for additional funding. $y_{1it} = \beta_0 + \beta_1 x_{1it} + \varepsilon_{it.}$ Vijayakumar (2013) also employed the general dependency theory which entirely depend on on cross country data and comprises 41 nations selected from Asia, Latin America and Sub-Saharan Africa. A Quadratic trend, the Hodrick- Prescott filter and Baxter-King filter. The model used was $yt\text{-}y^*_{t-1}=\alpha+\beta\ (u_t- u^*_t) +\varepsilon_t$.

Nkwede (2014) used the social conservative theory to evaluate the approaches to poverty alleviation and community well-being in Nigeria, using the community-based poverty reduction programmes, which involves the rural dwellers in the country. The study employed reviews of articles and the trends in the application of analytical approach. Waziri and Nwanegbo, (2018) used the social change model to explain the impacts of community-based poverty reduction projects on the improvement of well-being in the country. The

study utilized particular rural development (community driven) tasks. The paper used literature gotten from secondary sources to analyze particular tasks.

2.5 Theoretical Framework

Maslow’s theory of the human motivation was the emphasise of this study. It was in 1943 a Psychologist Mr. Abraham Harold Maslow suggested his Theory of Human Motivation. His theory is one popular and extensively cited theory of motivation. Maslow's theory is based on the Hierarchy of Human Needs. According to Maslow, human behavior is related to his needs. It is adjusted in line with the nature of needs to be satisfied. In hierarchy of needs theory, Maslow identified five types/sets of human need arranged in a hierarchy of their importance and priority. He concluded that when one set of needs is satisfied, it ceases to be a motivating factor. Thereafter, the next set of needs in the hierarchy order takes its place. These needs in hierarchy can be compared to a pyramid. At the lowest level, there is a first set of needs, which can be described as basic needs, universal in character and fundamental in nature (Anjanaben and Amit, 2019).

Maslow's theory of the human motivation is portrayed in the shape of a pyramid with five layers (Figure 2.3) (Saul, 2018). The largest and most fundamental needs at the base “physiological need”. Other needs are; security/safety, belongness and love (social), esteem and the highest in the hierarchy of the needs advocated by Maslow’s is self actualisation. The research therefore, considered basic need (physiological need) as propounded in Maslow’s theory of human motivation and synergised it with selected sustainable development goals (1, 6, 8 and 11).

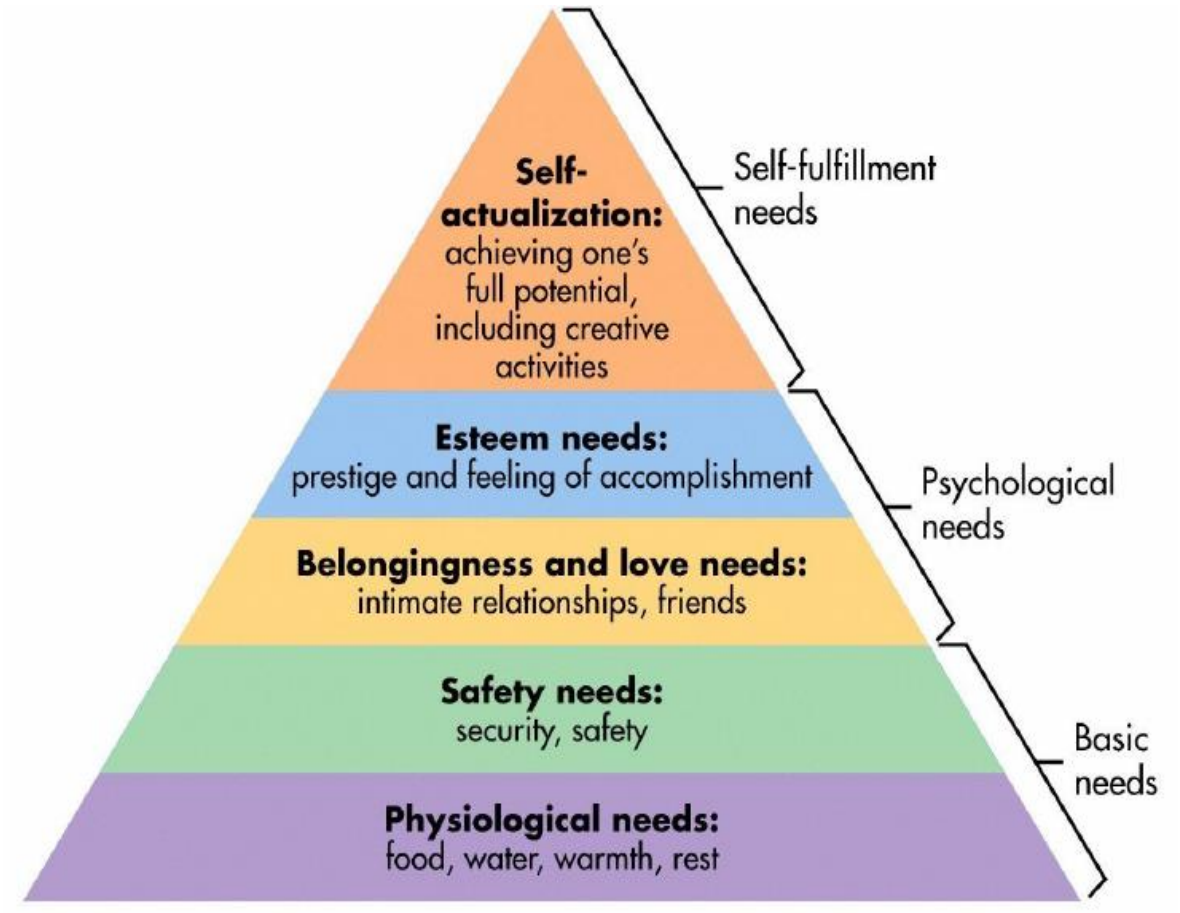

Figure 2.3: Maslow's Hierarchy Needs
Source: Saul, 2018

2.6 Summary of the Literature and Identified Gaps

From 2009 to 2018, according to Nor Aini and Suralyati (2013), 18 separate papers dealing with sustainable development of lakes and reservoirs were published in three study areas (Figure 2.4). (Long and Peter, 2019). (1) State; (2) Ecosystem services; and (3) Management and Rule are among them. These research areas encompass 18 main study areas that are critical to their long-term success. Based on past bibliometric assessments of themes that are comparable, this study identified main probes for each research topic (Ho *et al*., 2017; Zhao *et al*., 2018; Emmer, 2018). In terms of the current situation, a wide range of journals have been devoted to pressing environmental and human wellbeing challenges, such as new pollutants and waterborne infections. Furthermore, in retort to patterns in species extinction and the worldwide biodiversity problem, lakes have been intensively researched for biodiversity and climate change. In recent years, scientists have paid increased attention to the effects of climate variation on lake systems. As a result of the long-term influence of concentrated agricultural and business activity, enrichment of water-bodies and heavy metals are persistent concerns in these motionless waters.

Lakes have drawn substantial interest from both studies to its commercial sectors as part of other primary sources of renewable power in time to come. Recent results on their influences on river and estuarine ecosystems, as well as what they offer to change in climate through greenhouse gas releases, are calling into doubt the future influence of this reusable power source to clean energy.

Several artificial lakes research has also been carried out in Nigeria. Olubode *et al*., (2011) evaluated, for example, Flora's biodiversity erosion in the Apete River, Eleyele Lake and Oba Dam, Nigeria. The research on physical and chemical status of Eleyele Reservoir, Ibao-Ibao, was conducted by Adeogun and Olatunde, 2013; concentrated on the proof of elevated heights of Polychlorinated Biphenyle congeners in generally-consumed fish of Eleyele Reservoir, South-West Nigeria, Oyedibu *et al*., (2016); In previous studies the tourism of the lake and how it promotes “community well-being” aims received little or no consideration. This study will therefore, focus on sustainable management of artificial lakes taking into consideration tourism and community well-being. The sustainable development goals 1, 6, 8 and 11 will be the focus of the study. As such, the study will provide a full

assessment of the present, forthcoming occasions and challenge for sustainable development of artificial lake tourism by analysis on their input to the subset (Goals 1, 6, 8 and 11) of the sustainable development goals (SDGs). The outcomes of this thesis will consequently enable the phrasing of objective and inclusive tourism development strategies and policies in areas associated on artificial lake tourism and human well-being.

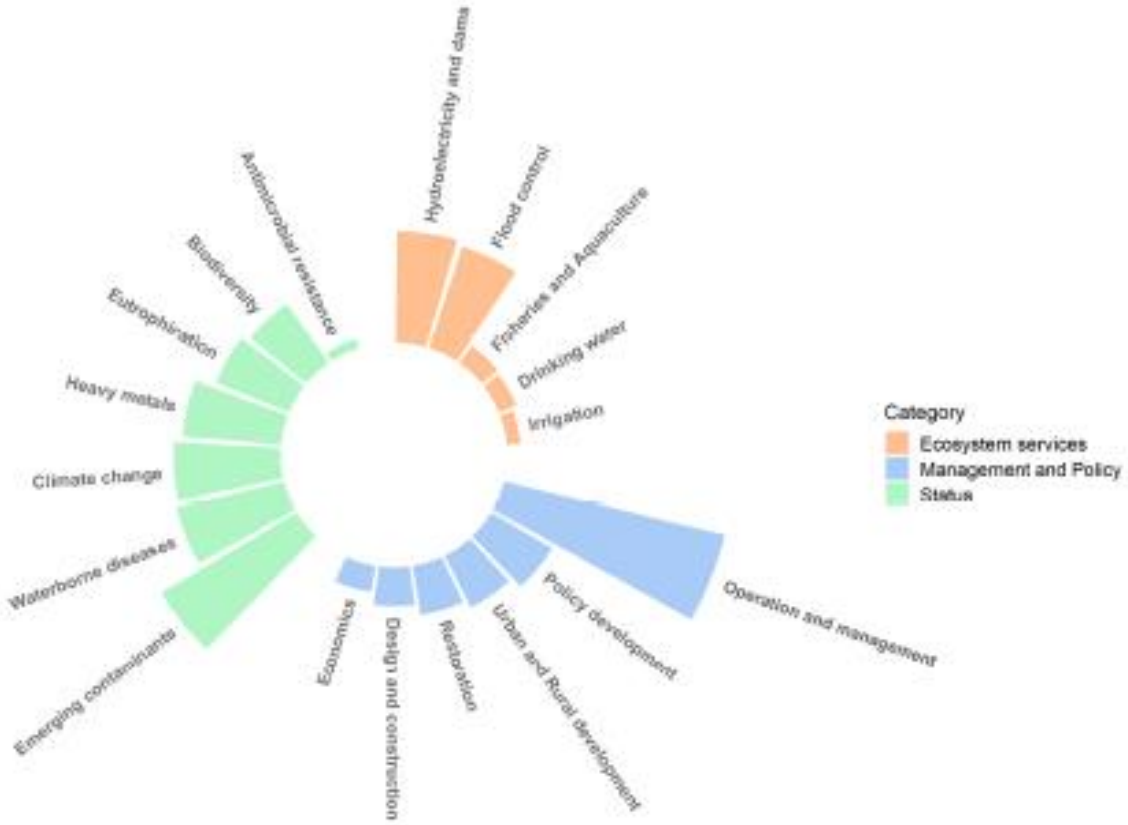

Figure 2.4: The number of manuscripts in three study areas from 2009 to 2018 on issues relating to the development of lakes and reservoirs sustainably On January 24, 2019, information was taken from the Web of Science's Science Citation Index Expanded (SCI Expanded) web database.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

Research methodology involves the process of data collection for research work. This deals with various method of data collection, interpretation of analyses. The research study is set to be based on the influence of artificial lakes tourism on the well-being of selected communities in Oyo State, Nigeria. The researcher adopted a descriptive and inferential statistics method which involves the use of questionnaire for information needed. The questionnaire that was used in this process was both open and closed ended. The targeted population for this study consisted of the host communities, the tourists and other stakeholders within and around the selected study areas. The Key Informant Interviews (KII) was also adopted.

3.2 Data Requirement and Sources

3.2.1 Sampling Procedure

A purposive and simple random sampling technique was adopted for the study. The total figure of respondents for Oyo state was calculated using Yaro Yamen formula {$n=N/1+N(e)^2$} to be 400.

Six local government areas were purposively selected in the State, which were; Ido local government area (LGA) (Eleyele artificial lake), Ibarapa East LGA (Opeki artificial lake), Atiba LGA (Erelu artificial lake), Ogbomoso North LGA (Yaku artificial lake), Iseyin LGA (Ikere gorge dam) and Olorunsogo LGA (Afonse dam). Corresponding figures for each study area were calculated using Bourley's (1964) allocation formula resulting into: Ido local government area (LGA) (Eleyele artificial lake) = 45, Ibarapa East LGA (Opeki artificial lake) = 51, Atiba LGA (Erelu artificial lake) = 73, Ogbomoso North LGA (Yaku artificial lake) = 86, Iseyin LGA (Ikere gorge dam) = 110 and Olorunsogo LGA (Afonse

dam) = 35. The respondents were purposively selected within 200 meters from the artificial lake sites. A random sampling technique was adopted, which gave all respondents equal chance of being selected. This mean that a sample size of 400 (see Table 2) respondents were chosen from the tourists, stakeholders and people living in the six communities around the study areas and these set of people were considered to be knowledgeable about the activities in the study areas. The study population also equally covered the career officers (Scheme managers) in selected study areas (KIIs).

3.2.2 Study Area

The study area was Oyo State, Nigeria. Oyo State was created on 3rd February 1976 from the Old State. Oyo State covers land area of 27000sq kilometer and is made up of thirty-three (33) Local Government Areas. It is divided into six (6) political zones namely; Ibadan, Ibarapa, Oyo, Ogbomoso, Oke-Ogun 1 and Oke-Ogun 2 (Figure 3.1).

The primary study areas were; Ido LGA (Eleyele artificial lake), Ibarapa East LGA (Opeki artificial lake), Atiba LGA (Erelu artificial lake), Ogbomoso North LGA (Yaku artificial lake), Iseyin LGA (Ikere gorge dam) and Olorunsogo LGA (Afonse dam), while the secondary study area is Oyo State. In this case, a brief narrative on Oyo state, most especially about her population was of essence here. According to Yaro Yamen's formula, it is the population of Oyo State that was used to determine the grand sample size while the Bourley's (1964) population allocation formula was used to determine the sample size of each study area.

The National Population Commission (NPC) of Nigeria's three different enumeration exercises covering 1991, 2006 and the projection of 2016 detailing the figures of Oyo State population are shown in Appendix 5. However, for this study, the projected population figure of 2016 for Oyo State was adopted for contemporariness. In-depth application of the projected population figure in respect to the six study areas was primarily be adopted.

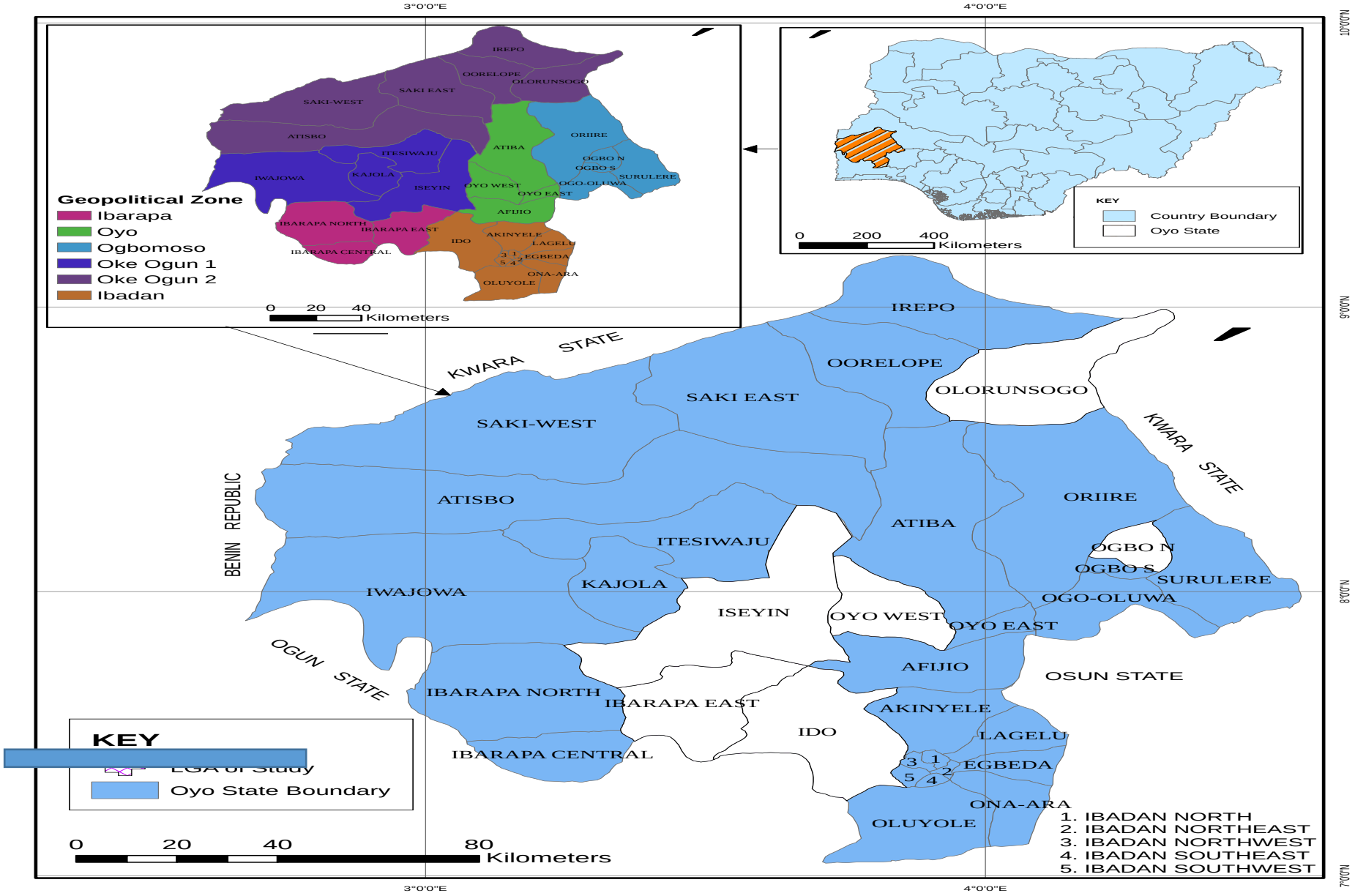

Figure 3.1: **Map of Oyo state showing the study areas (LGAs) (Source: Field work, 208)**
NOTE: ***(1) Ido LGA, (2) Ibarapa East LGA, (3) Atiba LGA, (4) Ogbomoso North, (5) Iseyin LGA, (6) Olorunsogo LGA***

3.2.3 Population and Sample Size

The study utilised the "Taro Yamen's formula" to determine the sample size.

$n=N/1+N\ (e)^2$ ……..….. 3.1

Where: n = sample size required

N = population size of Oyo State

e = level of significance (0.05)

1 = is a constant.

For the purpose of this research, there was a population size of 7,840,900 people, and 0.05 level of significance was used. So, using the aforementioned formula as a substitute, the sample size was determined as follows:

$n = N/1+N(e)^2$

$n = 7,840,900 /1+7,840,900\ (0.05)^2$

$n = 7,840,900 /1+7,840,900\ (0.0025)$

$n = 7,840,900 /1+19.602.25$

$n = 7,840,900 /19.603.25$

$n = 399.9 \approx 400.$

A total number of 400 well-structured questionnaires was randomly administered within the selected study areas. These categories were: Ido LGA (Eleyele artificial lake), Ibarapa East LGA (Opeki artificial lake), Atiba LGA (Erelu artificial lake), Ogbomoso North LGA (Yaku artificial lake), Iseyin LGA (Ikere gorge dam) and Olorunsogo LGA (Afonse dam). The sample size selection was represented in Table 3.1.

Determination of Individual (Zone) Sample Size in Table 3.1

With the use of Bourley's (1964) population allocation formula, whereby it is typically expressed as:

$nh= nNh/N$ ……. 3.2

Where:

nh = sample size per each group

n = the total sample size

Nh = Number many individuals are in each category

N = total study population

- Eleyele artificial lake in Ido LGA:

nh= nNh/N; nh= 400(146,200)/ 1,300,000 = 45

- Opeki artificial lake in Ibarapa East LGA:

nh= nNh/N; nh= 400(164,600)/ 1,300,000 = 51

- Erelu artificial lake in Atiba LGA:

nh= nNh/N; nh= 400(236,400)/ 1,300,000 = 73

- Yaku artificial lake in Ogbomoso North LGA:

nh= nNh/N; nh= 400(279,400)/ 1,300,000 = 86

- Ikere gorge dam in Iseyin LGA:

nh= nNh/N; nh= 400(359,100)/ 1,300,000 = 110

- Afonse artificial lake in Olorunsogo LGA:

nh= nNh/N; nh= 400(114,300)/ 1,300,000 = 35

Table 3.1: Sample Size Selection of the Respondents

S/N	Ranks of selected respondents	Population size	Proportionate sample
1.	Eleyele artificial lake in Ido LGA,	146,200	45
2.	Opeki artificial lake in Ibarapa East LGA,	164,600	51
3.	Erelu artificial lake in Atiba LGA,	236,400	73
4.	Yaku artificial lake in Ogbomoso North LGA,	279,400	86
5	Ikere gorge dam in Iseyin LGA,	359,100	110
6	Afonse artificial lake in Olorunsogo LGA,	114,300	35
	Total	**1,300,000**	**400**

3.2.4 Data Collection Instruments

Data were obtained via primary and secondary means. Secondary data used include the map of the study area, published and written documents from the Ogun-Osun River Basin Development Authority (O-ORBDA) and Water Cooperation of Oyo State.

Primary data were obtained through the administration of questionnaire, key informant interview (KII) and Global Position System (GPS). The data collection exercise was directly supervised by the researcher with the assistance of trained data enumerators. The questionnaire was directly administered to the respondents and retrieved after completion.

3.2.5 Methods of Data Collection

Data were gathered via questionnaire, the qualitative process entailed Key Informants Interview (KIIs) which was conducted through interview guides while Geo-Position System (GPS) was used to capture the locations of the selected artificial lakes. The questionnaire was made up of five (5) sections. Section one was designed to collect demographic information of the respondents. Respondents were requested to provide information on their age, sex, educational qualification, marital status, religious affiliation and job type. Section two contained the contribution of artificial lakes tourism on the reduction of poverty in Oyo State. Section three contained the adoption of artificial lakes tourism for efficient and effective management of water in Oyo State. Section four contained the identification and promotion of existing employment opportunities within and around the artificial lakes in Oyo State. Lastly, section five contained the development of transportation facilities within and around the study area for the achievement of the SDGs 11. The questionnaire contained both closed-and open-ended questions. "Open-ended" questions were designed to elicit free response from the respondents. The close-ended variables in the questionnaire are pre-coded to assist in the final statistical analysis.

Interview Guide was conducted as a one on one discussion between interviewer and participants. Interview guide includes relevant probing questions on artificial lakes; tourism development; the state of development of the site; roles of government in developing the sites amongst others.

3.2.6 Validity of the Research Instrument

Well-structured questionnaires and interview guide used for data collection were subjected to face validity through both content and construct validity. These were done by the researcher with the guide of the supervisor and experts in the field.

3.2.7 Reliability of Research Instrument

Reliability is a tool for measuring the consistency of a research instrument to measure the intended objective of the study. It is used to ascertain the ability of the measured to produce the same or highly similar result if the study is repeated. A pilot study was conducted using respondents who will not be participated in the study. The psychometric properties was established using test-retest and Cronbach Alpha reliability coefficient. A reliability coefficient of 0.7 and above was considered reliable for the study.

3.3 Measurement of Variables

The key instrument for the research was a questionnaire tagged: *Artificial lake tourism and human well-being in selected communities in Oyo State, Nigeria*. The questionnaire was designed on a four-point rating scale of Strongly Agreed (SA), Agreed (A), Strongly Disagreed (SD) and Disagreed (D), with the corresponding values of 4, 3, 2, 1. The structured questionnaire was made up of five sections viz: A – E

Section A: - Measure of Demographic characteristics: This consists of self-constructed questions on the demographic features (age, sex, marital status, educational attainment, estimated monthly income, job type) of the residents in the selected communities.

Variables

1. **Age**: The respondents age was measure at intervals. They were asked to state their age in years.

2. **Sex**: Sex was measured at the nominal level. The respondents were asked to indicate their sex by assigning ‘1’ to male and ‘2’ to female.

3. **Marital status**: The respondent’s marital status was measured at nominal level as ‘1’ single, ‘2’ married, ‘3’ separated/divorced and ‘4’ widowed.

4. **Highest educational attainment**: The respondent's education attainment was measured at nominal level using the different levels of education obtainable in the country as follows '1' no formal education, '2' primary education, '3' secondary education, '4' tertiary education and '5' vocational training.

5. **Estimated monthly income**: The respondent's estimated monthly income was measured at interval.

6. **Religious affiliation**: The respondent's religious affiliation was measured at nominal level using the different religion background in the country as follows '1' Christianity, '2' Islam, '3' traditional worshipper.

7. **Job type**: The respondent's source of income was measured at nominal level as '1' trader, '2' civil servant, '3' artisan.

Dependent variables

Section B: Artificial lakes tourism contribution to the reduction of poverty: This consist of questions decided by the researchers to measure the contributions of artificial lakes tourism to the reduction of poverty among the residents in the selected study areas. The respondents were asked to respond to a four-point scale ranging from Strongly Agree (SA), Agree (A), Strongly Disagree (SD), Disagree (D).

Section C: Adoption of lakes tourism for efficient and effective water management in Oyo state: This consist of questions that were developed by the researcher to measure lakes tourism adoption for the efficient and effective water management in the state. The respondents were asked to respond to a four-point scale ranging from Strongly Agree (SA), Agree (A), Strongly Disagree (SD), Disagree (D).

Section D: Identification and Promotion of existing employment opportunities within the artificial lakes: This consist of questions developed by the researchers to measure some of the identified existing employment opportunities within the study areas and how they can be promoted through artificial lake tourism. The participants were asked to respond to a four-point scale ranging from Strongly Agree (SA), Agree (A), Strongly Disagree (SD), Disagree (D).

Section E: Development of transportation facilities within and around the study area for the achievement of the SDGs: This consist of questions developed by the researchers

to measure the development of transportation facilities in the study areas for the achievement of SDGs. The respondents were asked to respond to a four-point scale ranging from Strongly Agree (SA), Agree (A), Strongly Disagree (SD), Disagree (D).

Linking objectives with Methodology

This study contains four objectives that are in line with the targets and indicators of sustainable development goals. In other words, the construct involved in the questionnaire design was on the targets and indicators of the four (4) purposively selected goals (Goals 1, 6, 8 and 11) as shown in Appendix 3. The IAEG-SDGs have been produced as a practical starting point at the 47th UN Statistical Commission session held in March 2016, by the Inter-Agency and Expert Group on DGs (IAEG-SDGs). ECOSOC took note of the Commission's report, which contained the global indicator framework, at its 70th session in June 2016.

3.4 Method of Data Analysis

The qualitative data analysis process began with the transcription, verifying, and editing of the material gathered. The second stage consisted of coding information transcribed. After transcribing and coding the phrases were deleted, while the key and comparable phrases and sentences amalgamated, thus decreasing and enhancing the use of transcribed content. The second was clarification of phrases that were mutually contradictory by providing grounds for such conflicts. Descriptive and inferential statistics were used to analyse the quantitative data acquired for the survey. Mention of frequency distribution, mean, medium, standard variation, minimum and minimum, skewness and curtosis, was analysed for quantitative data. The data was tallied and diagrams and tables organised. The distribution of frequencies was utilised to describe the different variables. Factor analysis, the regression analysis, the neighbour K-nearest analysis and the analysis of the factor have been applied. Testing of the study hypotheses was achieved using Chi-square (Appendix 6).

3.4.1 Hypotheses Testing

Hypothesis one will be tested using Chi-square

Hypothesis two will be tested using Chi-square

Hypothesis three will be tested using Chi-square

Hypothesis four will be tested using Chi-square

3.5 Limitation of the Study

The focus of this study was sustainable management of artificial lakes for the human well-being considering tourism in Oyo state. Four principles of sustainable development were analytically studied by parts, whereas, there were 17 principles (Goals) altogether. Not only that, only six artificial lakes were selected from Oyo state. One artificial lake was selected from each political zone. In short, this research did not consider all the 17 goals of sustainable development and not all the artificial lakes in Oyo state were studied. By this there is an opportunity for researches to be carried out on the remaining 13 goals of sustainable development to also cover all the remaining artificial lakes in Oyo state in particular and Nigeria in general.

A number of limitations were encountered during the study. Several respondents were hesitant to grant interviews, which was exacerbated by poor record-keeping at some of the artificial lake centres visited. Furthermore, some scheme managers contacted for interview were extremely careful when disclosing data due to confidentiality and information management policy guidelines. Similarly, several scheduled interviewees failed to show up, as well as questionnaires that were incorrectly filled out. Slightly, the visiting restriction in some locations as a result of work schedule of some important personnel knowledgeable on artificial lake activities also limited the movement of the researcher to consult widely for interviews. The aforementioned constraints limited efforts to collect additional data and interview a larger number of resourced people.

Through the use of secondary data, extensive telephone interviews and far-reaching consultations with important stakeholders and resource individuals in the field, the researcher was able to resolve some of these constraints. These measures guaranteed that the study's quality and validity were not jeopardised. The methodology highlighted in Chapter three justifies the need to discuss data presentation, analysis and interpretation in Chapter four.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Preamble

This chapter was designed purposely to explain the characteristics of the respondents in response to artificial lakes tourism and the achievements of well-being of selected communities in Oyo state and to show some relationships inherent in the study. It presents the results of the analysed data and the discussion on the findings based on the research questions and hypotheses already stated in chapter one of this study. Descriptive statistics of frequency counts and percentages were used to describe the demographic data. Inferential statistics of Regression and Chi-square (Non-parametric) were used to analyse the null hypotheses at a 0.05 level of significance and estimate the impacts of various factors on the dependent variables. A total of four hundred (400) questionnaires were administered while 395 questionnaires were properly filled and returned representing a return rate of 98.8%. The chapter was concluded with the qualitative analysis results.

4.1 Demographic Characteristics of the Respondents

This section discusses the characteristics of the respondents which includes the name of the artificial lake close to them, local government, gender, age, marital status, level of education, religion and job type. The frequency of the responses was revealed together with their percentages as shown in Table 4.1.

The spread shows the number of the respondents associated with the six lakes considered in this study. The table shows that 44(11.1%) are familiar with Eleyele lake, 50(12.7%) with Opeki lake, 72(18.2%) are familiar with Erelu lake, 86(21.8%) with Yaku lake, 109(27.6%) with Ikere gorge Dam and the rest 34(8.6%) are familiar with Afonse lake. The table above also shows the local government of the respondents. It was revealed that 44(11.1%) are from

Ido local government, 50(12.7%) are from Ibarapa East local government, 72(18.2%) are from Atiba local government, 86(21.8%) from Ogbomoso North local government, 109(27.6%) are from Iseyin and the rest 34(8.6%) from Olorunsogo LGA.

The table also shows the gender distribution of the respondents. It shows that 258(65.3%) are male and 137(34.7%) are female. The spread shows the age of the respondents in this study. It shows that 18-20 years are 33(8.4%), 21-30 years are 134(33.9%), 31-40 years are 81(20.5%), 41-50 years are 62(15.7%) and 81(21.5%) for 50 years and above. The implication of this is that, majority of the respondents are still in active age. The spread also shows the marital status of the respondents. One hundred and six (106(26.8%)) of the respondents are single, 225(64.6%) are married, 12(3.0%) are separate, 9(2.3%) are divorced and 13(3.3%) are widowed. It was also revealed from the table the level of education of the respondents. The table reveals that 13(3.3%) has no formal education, 48(12.2%) has primary school education, 125(31.6%) has secondary school education, 86(21.8%) has OND/NCE, 120(30.4%) has HND/ University degree, while the rest 3(0.8%) has others. The implication of this is that, a good number of the respondents are literate.

The spread shows religion distribution of the respondents. Two hundred and seventeen (217(54.9%)) practice Christianity, 170(43.0) practice Islam, 6(1.5%) practice Traditional while the rest 2(0.5%) fall under others. The job type of the respondents was also shown in the spread. The table shows that 113(28.6%) are civil servants, 79(20.0%) are trader, 26(6.6%) are artisan while the rest 177(44.8%) claim to fall under other profession.

Table 4.1: Demographic Characteristics of the Respondents

Characteristics	Level	Frequency	Percent
Name of the artificial lake	Eleyele Lake	44	11.1
	Opeki Lake	50	12.7
	Erelu Lake	72	18.2
	Yaku Lake	86	21.8
	Ikere gorge Dam	109	27.6
	Afonse Lake	34	8.6
	Total	395	100.0
Local Government	Ido	44	11.1
	Ibarapa East	50	12.7
	Atiba	72	18.2
	Ogbomosho North	86	21.8
	Iseyi	109	27.6
	Olorunsogo	34	8.6
	Total	395	100.0
Gender	Male	258	65.3
	Female	137	34.7
	Total	395	100.0
Age	18-20 years	33	8.4
	21-30 years	134	33.9
	31-40 years	81	20.5
	41-50 years	62	15.7
	Above 50 years	85	21.5
	Total	395	100.0
Marital status	Single	106	26.8
	Married	255	64.6
	Separate	12	3.0
	Divorced	9	2.3
	Widowed	13	3.3
	Total	395	100.0
level of education	No formal education	13	3.3
	Primary school	48	12.2
	Secondary school	125	31.6
	OND/NCE	86	21.8
	HND/University degree	120	30.4
	Others	3	.8
	Total	395	100.0

Characteristics	Level	Frequency	Percent
Religion	Christianity	217	54.9
	Islam	170	43.0
	Traditional	6	1.5
	Others	2	.5
	Total	395	100.0
job type	Civil servant	113	28.6
	Trader	79	20.0
	Artisan	26	6.6
	Others	177	44.8
	Total	395	100.0

Information in table 4.2 shows the descriptive statistics of the income of the respondents. The table shows that the mean income is 48208.25. It also shows that the standard deviation and standard error are 46667.05 and 257.76 respectively. The table reported that the median, trimmed mean, mean absolute deviation (mad) are 33500, 39694.34 and 24462.9 respectively. The minimum, maximum and the range values shows 10000, 350000 and 340000 respectively. The skewness value shows 3.42 which implies that the income data is positively skewed which is expected. The positively skewed here implies that fewer people earn high income and majority of the respondents earn between 0 and 50,000. The kurtosis value shows the peakedness of the data. It shows that the data is platykurtic as it produces value above 3. When kurtosis value produces less than 3, we term it leptokurtic, when equal to 3, we term it mesokurtic and above 3, we call it platykurtic. The kurtosis value is obtained after when the normal plot of the data is made and we measure if the peakness of the normal plot is greater or less than 3.

Figure 4.1 shows the histogram of the income of the respondents according to gender. From the figure, it could see that there is not much significant difference between the income of the male and the income of the female. The two histograms by gender are positively skewed to the right.

Figure 4.2 shows the income distribution of the respondents according to their job type. The job type specify here are civil servant, trader, artisan and others. It could be evident from the plot that the income distribution of the respondents in each of the job type are positively skewed to the right.

Figure 4.3 also shows the income of the respondents according to lake names. The figure 4.3 shows the histogram of the income for the 6 lakes considered under the study. It could deduce that there is no difference in the histogram of the income of respondents in each of the lake.

Table 4.2: Income distribution of the respondents

Descriptive	Values
mean	48208.25
Standard deviation	46667.05
median	33500
trimmed	39694.34
mad	24462.9
min	10000
max	350000
range	340000
skewness	3.42
kurtosis	15.69
Standard error	2576.76

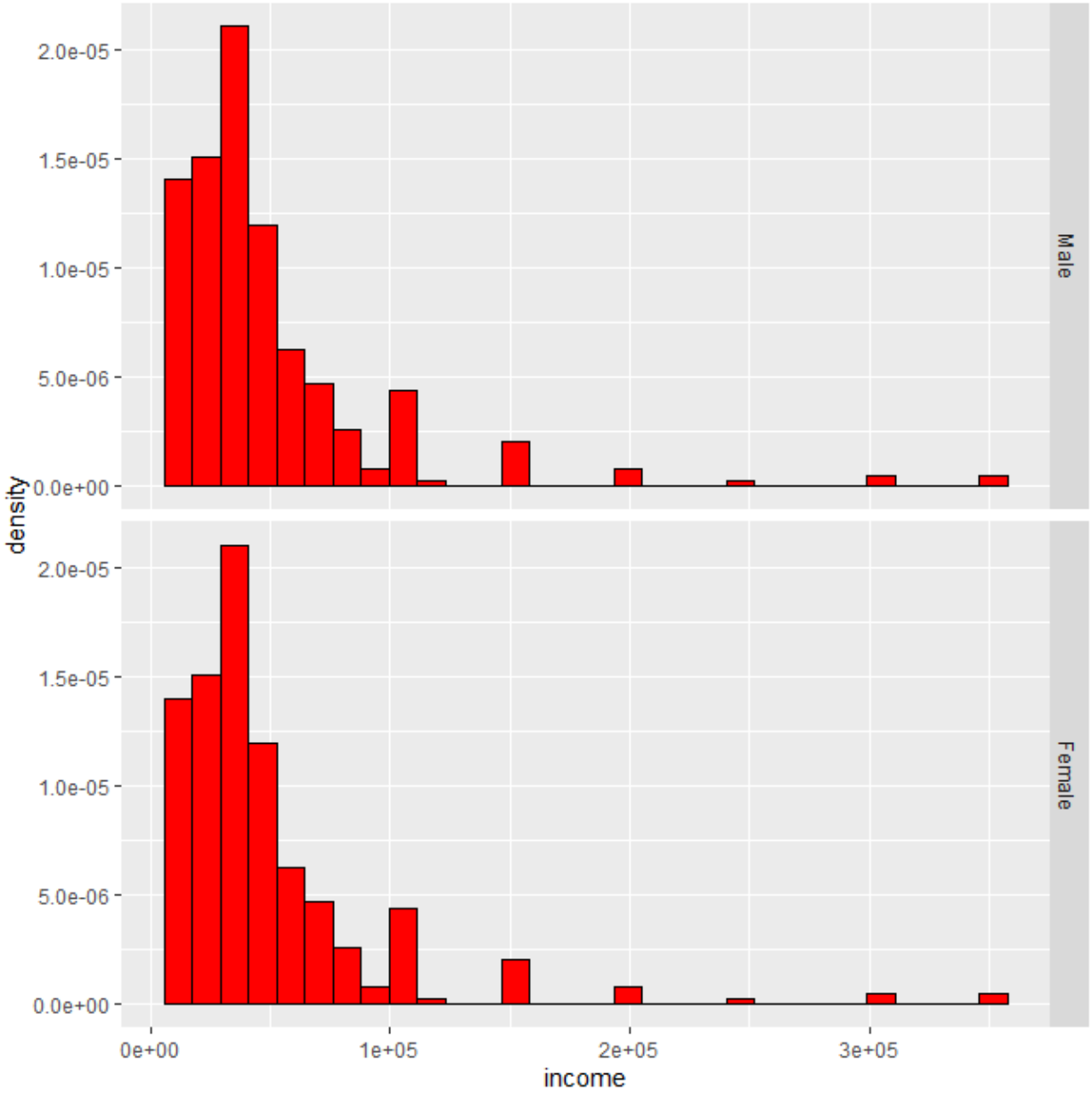

Figure 4.1: Distribution of Income by gender to show income

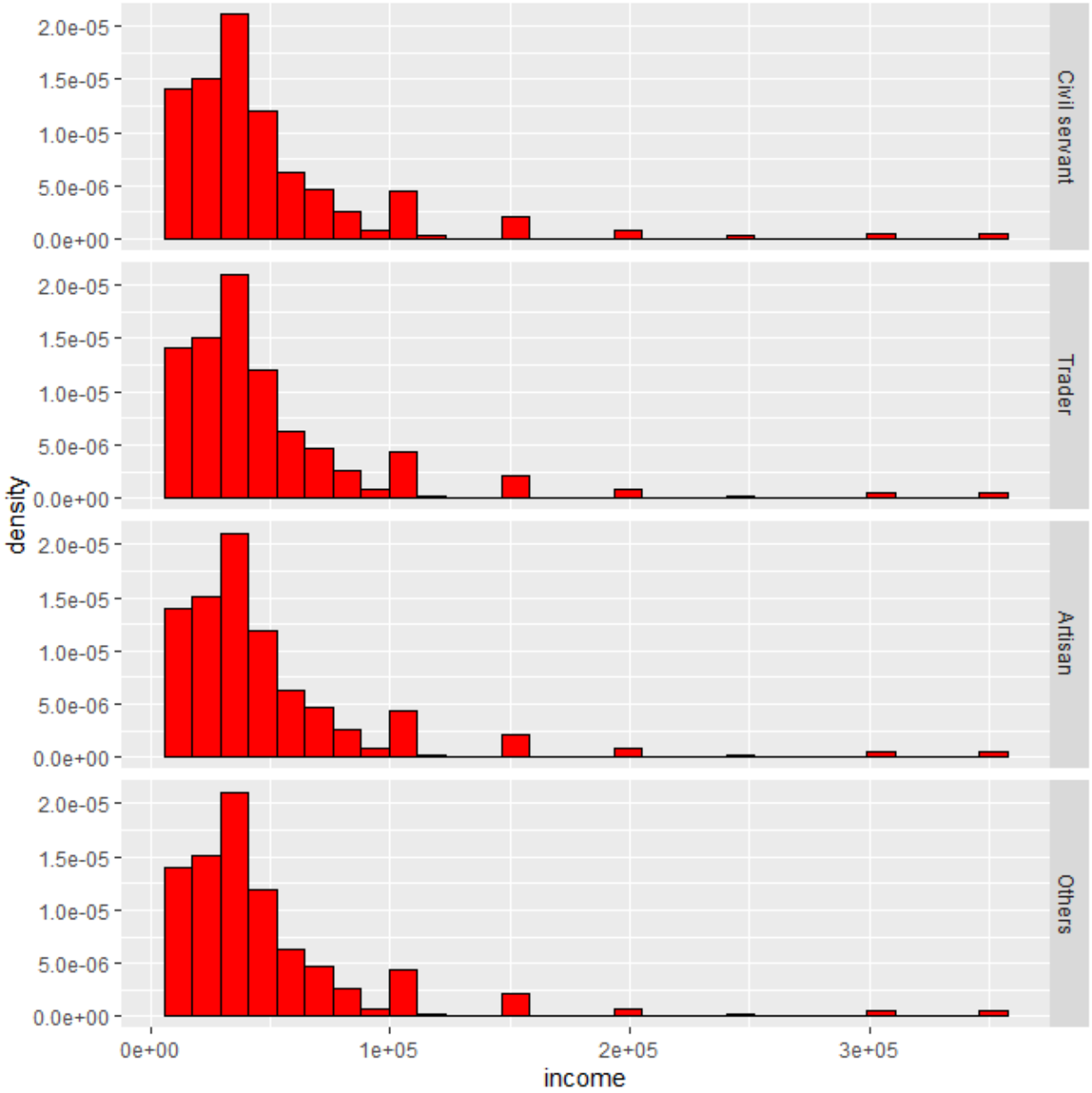

Figure 4.2: Distribution of Income by job type

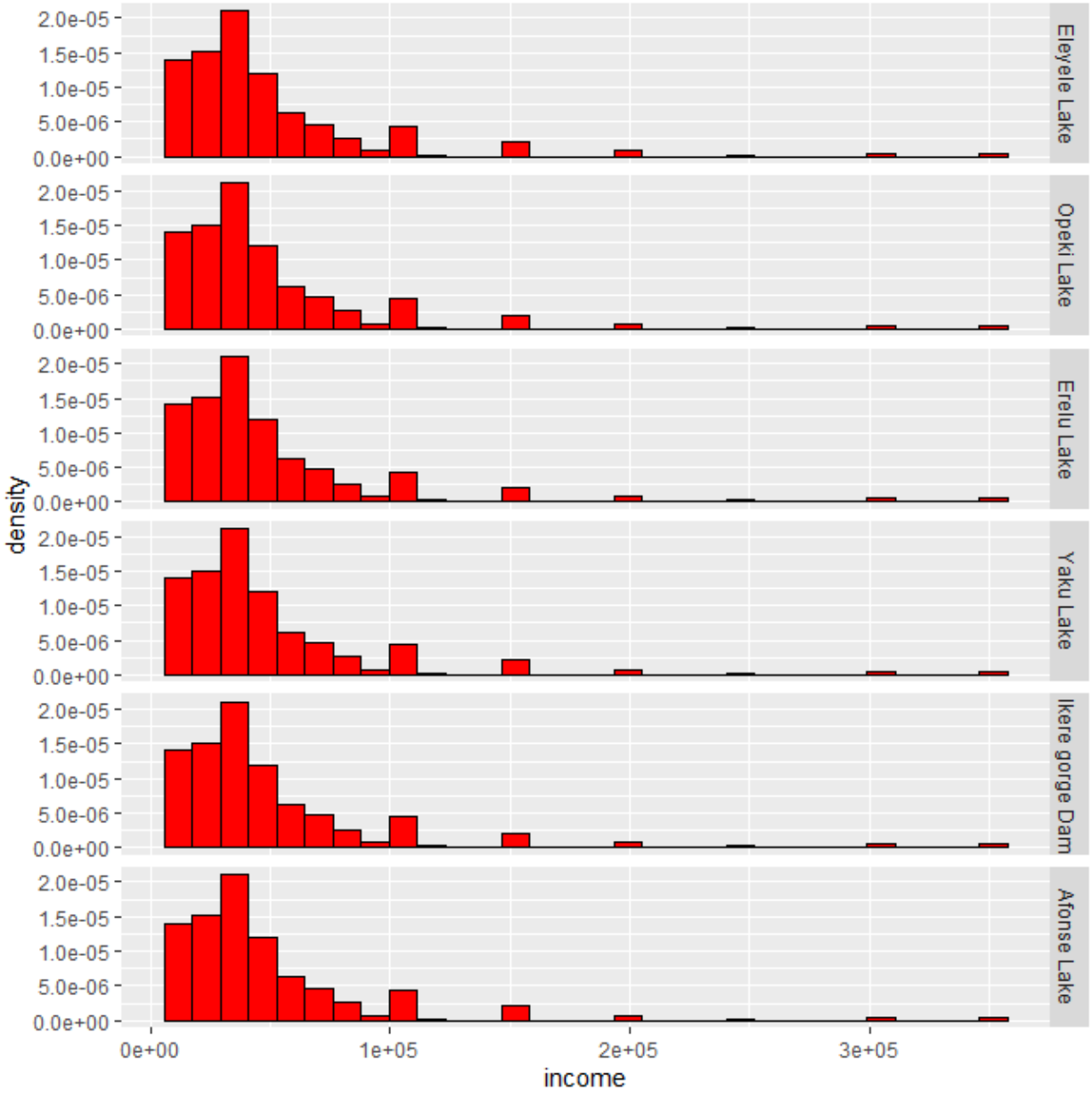

Figure 4.3: Distribution of income according to lake names

Table 4.3 shows the knowledge of the respondents about the subjects of interest in this research. The first question asks if the respondents have knowledge about the existence of artificial lake in their community. The result shows that 369(93.4%) of the respondents claimed they are aware while the rest 26(6.6%) claimed they are not aware. The table also shows the response of the respondents on whether they know what tourism is. The response shows that 371(93.9%) of the respondents claimed they know, while the remaining 24(6.1%) claimed they had no knowledge. The table also shows the responses of the respondents on whether they are familiar with artificial lake tourism. Their response shows that 253(64.1%) of the respondents claimed they are familiar with artificial lake tourism while the rest 142(35.9%) claimed they are not.

Question was also asked on whether the respondents have heard of the notion of sustainable development. Three hundred and eight (308(78.0%)) claimed they have while the rest 87(22.0%) claimed they have not. The last question on table 4.3 asked on what connection did the respondents heard about the notion of sustainable development. The result shows that 54(13.7%) heard on TV, 80(20.3%) heard through newspapers, 125(31.6%) heard through radio, 57(14.4%) heard through friends, 72(18.2%) heard via internet while the rest 7(1.8%) heard through other source.

Table 4.3: Knowledge of Artificial Lake Tourism and Human Well-being

Questions	Level	Frequency	Percent
Do you have any knowledge about the existence of artificial lake in this community	Yes	369	93.4
	No	26	6.6
	Total	395	100.0
Do you know what tourism is	Yes	371	93.9
	No	24	6.1
	Total	395	100.0
Are you familiar with artificial lake tourism	Yes	253	64.1
	No	142	35.9
	Total	395	100.0
Have you heard of the notion of sustainable development	Yes	308	78.0
	No	87	22.0
	Total	395	100.0
If yes, in what connection have you heard of Sustainable Development	On Tv	54	13.7
	In the newspapers	80	20.3
	on radio	125	31.6
	from friends	57	14.4
	via the internet	72	18.2
	Others	7	1.8
	Total	395	100.0

4.2 Artificial Lake Tourism contribution to the Reduction of Poverty

This section explains the contribution of artificial lakes tourism to the reduction of poverty as objective one of the study. Different important questions were asked from the respondents to check the impact of artificial lakes tourism on poverty level. Different questions like whether preserving artificial lake in this community is necessary for human well-being, whether the development of existing artificial lake could bring development to the entire community and enhance human well-being, whether adoption of artificial lake for tourism will reduce the share of populace under the global poverty line, by gender, age, and unemployment status in this community, to mention a few.

Table 4.4 shows the response of the respondents to the fact that wiping out poverty in the World through the adoption of artificial lakes tourism is necessary for human well-being. However, from the table the chi-square of their response shows a p-value of 0.048 which implies that there is significant relationship between the knowledge of the existence of artificial lake and reduction of poverty in the World through the adoption of artificial lakes tourism. The table also shows the chi-square value of the relationship between preserving artificial lake in the community is necessary for human well-being and the knowledge of the existence of artificial lake which is 0.051, implying that there is significance relationship between them. It was seen via the table that the chi-square value of the relationship between the developments of existing artificial lake could bring development to the entire community and enhance human well-being and the knowledge of the existence of artificial lake shows 0.039 which infers that there is noteworthy relationship between them.

The spread also shows the response of the respondents to the fact that adoption of artificial lake for tourism cannot reduce extreme poverty in this community. From the table, the chi-square of their response shows a p-value of 0.058 which implies that there is no significant relationship between the knowledge of the existence of artificial lake and whether adoption of artificial lake for tourism cannot reduce extreme poverty in this community. Table 4.4 also displays that the chi-square value of the relationship between the adoption of artificial lake for tourism will reduce the share of population under the international poverty line, by gender, age, and unemployment status in this community (i.e., people living on less than $1.25 a day and the knowledge of the existence of artificial lake shows 0.119 which implies

that there is no significance relationship between them. It was also seen from the table that the chi-square value of the relationship between the adoption of artificial lake for tourism will guarantee that all individuals, in especially the less privileged and the susceptible, have equivalent rights to economic means, likewise availability to rudimentary services in this community and the knowledge of the existence of artificial lake shows 0.699 which implies that there is no significant relationship between them.

The table also shows the response of the respondents to the fact that embracing artificial lake tourism can cause re-distribution of wealth and enhance poverty reduction for the host community. From the table the chi-square of their response shows a p-value of 0.033 which implies that there is significant relationship between the knowledge of the existence of artificial lake and whether embracing artificial lake tourism can cause re-distribution of wealth and enhance poverty reduction for the host community. It was observed also from the table that the chi-square value of the relationship between the adoption of artificial lake for tourism will shape the capability of the less privileged and those in susceptible situation in this country on any economic shock and the knowledge of the existence of artificial lake shows 0.902 which implies that there is no significant relationship between them. The table also shows the response of the respondents to the fact that embracing artificial lake tourism can reduce poor people's contact and susceptibility to climate-inclined risky occasions. From the table the chi-square of their response shows a p-value of 0.021 which implies that there is significant relationship between the knowledge of the existence of artificial lake and whether embracing artificial tourism can reduce poor people's contact and susceptibility to climate-linked risky occasions.

Table 4.4 also shows that the chi-square value of the relationship between the adoption of artificial lake for tourism will ensure the implementation of programmes and policies to reduce poverty in all its dimensions in the community and the knowledge of the existence of artificial lake shows 0.01 which implies that there is significance relationship between them. As evident on the table, the chi-square value of the relationship between the adoption of artificial lake for tourism will support accelerated investment in poverty eradication actions in this community and the knowledge of the existence of artificial lake shows 0.051 which implies that there is significant relationship between them. The spread shows the

response of the respondents to the fact that the host community can play a role in encouraging artificial lake tourism to boost the local economic capacities. From the table the chi-square of their response shows a p-value of 0.025 which implies that there is significant relationship between the knowledge of the existence of artificial lake and whether the host community can play a role in encouraging artificial lake tourism to boost the local economic capacities. Table 5.4 shows the response of the respondents on whether reduction of poverty for human well-being; host community needs to be educated on how to protect their artificial lakes and whether there is any significant relationship on their knowledge on the existence of artificial lakes. The response shows a p-value of 0.048 which implies that there is significant relationship between the knowledge of the existence of artificial lake and whether the host community need to be educated on how to protect their artificial lakes.

Table 4.4: Artificial lake tourism contribution to the reduction of poverty

Research Questions		Do you have any knowledge about the existence of artificial lake in this community		Chi-sq.
		Yes	No	
Wiping out poverty in the World through the adoption of artificial lakes tourism is necessary for sustainable development	Strongly agree	248	14	0.048
	Agree	112	11	
	Disagree	6	1	
	Strongly disagree	3	0	
Preserving artificial lake in this community is necessary for sustainable development	Strongly agree	161	14	0.051
	Agree	202	11	
	Disagree	5	1	
	Strongly disagree	1	0	
The development of existing artificial lake could bring development to the entire community and enhance sustainable development	Strongly agree	200	14	0.039
	Agree	130	9	
	Disagree	16	1	
	Strongly disagree	23	2	
Adoption of artificial lake for tourism cannot reduce extreme poverty in this Community	Strongly agree	50	5	0.058
	Agree	53	5	
	Disagree	133	6	
	Strongly disagree	133	10	
Adoption of artificial lake for tourism will reduce the proportion of population below the international poverty line, by sex, age, and unemployment status in this community (i.e., people living on less than $1.25 a day	Strongly agree	138	10	0.119
	Agree	154	6	
	Disagree	59	7	
	Strongly disagree	18	3	
Adoption of artificial lake for tourism will ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services in this community	Strongly agree	125	6	0.669
	Agree	211	17	
	Disagree	31	3	
	Strongly disagree	2	0	
Embracing artificial lake tourism can cause re-distribution of wealth and enhance poverty reduction for the host community	Strongly agree	176	12	0.033
	Agree	157	13	
	Disagree	32	1	
	Strongly disagree	4	0	

Research Questions		Do you have any knowledge about the existence of artificial lake in this community		Chi-sq.
		Yes	No	
Adoption of artificial lake for tourism will shape the capability of the less privileged and those in susceptible situations in this community on any economic shock	Strongly agree	173	12	0.902
	Agree	171	13	
	Disagree	19	1	
	Strongly disagree	6	0	
Embracing artificial lake tourism can reduce poor people contact and susceptibility to climate-related extreme events and other economic, social and environmental shocks and disasters in this community	Strongly agree	166	9	0.021
	Agree	182	13	
	Disagree	20	4	
	Strongly disagree	1	0	
Adoption of artificial lake for tourism will ensure the carrying out of programmes and plans to end poverty in all its forms in this community	Strongly agree	171	9	0.01
	Agree	178	13	
	Disagree	20	3	
	Strongly disagree	0	1	
Adoption of artificial lake for tourism will back enhanced investment in poverty abolition actions in this community	Strongly agree	186	11	0.051
	Agree	169	13	
	Disagree	14	2	
The host community can play a role in encouraging artificial lake tourism to boost the local economic capacities	Strongly agree	217	13	0.025
	Agree	146	13	
	Disagree	5	0	
	Strongly disagree	1	0	
Reduction of poverty for sustainable development, host community needs to be educated on how to protect their artificial lakes	Strongly agree	267	19	0.048
	Agree	97	6	
	Disagree	5	1	

4.3 Adoption of Artificial Lake Tourism for efficient and effective Water Management in Oyo

This section discusses the significant relationship between the adoption of lakes tourism and the effective and efficient water management in Oyo state as objective of the study. A chi-square analysis was done to show the significant relationship between the questions asked and the knowledge about the existence of artificial lake in their communities.

Table 4.5 shows the response of the respondents on the statement that ensuring availability of water in the community through the development of artificial lake is necessary for h well-human being. The result shows that 259 strongly agree to the question asked and are aware of the existence of artificial lake in these communities. Fifteen (15) also strongly agreed to the question but are not aware of the existence of the lake. One hundred and six (106) agree to the statement made above and also are aware of the existence of the lake while 10 agree but not aware of the existence of the lake. Two (2) respondents disagree and are aware of the existence of the lake while 1 respondent who disagree is not aware of the existence of the lake. One hundred and twenty-nine (129) respondents who strongly disagree are aware of the existence of the lake while 2 respondents who strongly disagree are aware of the existence of the lake. The chi-square shows a p-value of 0.051 which implies statistical significance.

It was observed from the table that the development of artificial lake in these communities will enhance efficiently and easily accessible water source in relation to the knowledge of the existence of artificial lake shows that 137 strongly agree to the question asked and are mindful of the presence of artificial lake in the community. Nine (9) also strongly agreed to the question but are not aware of the existence of the lake. Two hundred and twenty-five (225) agree to the statement made above and also are aware of the existence of the lake while 15 agree but not aware of the existence of the lake. Six (6) respondents disagree and are aware of the existence of the lake while 2 agree but not aware of the existence of the lake. One (1) respondent who is aware of the existence of the lake strongly disagree to the statement made. The chi-square shows a p-value of 0.026 which implies statistical significance.

The table also shows the response of the respondents on the statement; effective environmental sanitation by all members of the community will protect the artificial lake and enhanced water management. The result shows that 208 strongly agree to the question asked and are aware of the existence of artificial lake in the community. Twelve (12) also strongly agreed to the question but are not aware of the existence of the lake. One hundred and thirty-six (136) agree to the statement made above and also are aware of the existence of the lake while 11 agree but not aware of the existence of the lake. Twenty-three (23) respondents disagree and are aware of the existence of the lake while 3 respondents who disagree are not aware of the existence of the lake. Two (2) respondents who strongly disagree are aware of the existence of the lake. The chi-square shows a p-value of 0.036 which implies statistical significance.

Table 4.5 shows the response of the respondents on the statement that; adoption of artificial lake in these communities for tourism will not improve water management for human well-being. The result shows that 38 strongly agree to the question asked and are aware of the existence of artificial lake in the community. One (1) also strongly agreed to the question but is not aware of the existence of the lake. Sixty-one (61) agree to the statement made above and also are aware of the existence of the lake while 5 agree but not aware of the existence of the lake. One hundred and forty-one (141) respondents disagree and are aware of the existence of the lake while 9 respondents who disagree are not aware of the existence of the lake. One hundred and twenty-nine (129) respondents who strongly disagree are aware of the existence of the lake while 11 respondents who strongly disagree are not aware of the existence of the lake. The chi-square shows a p-value of 0.663 which implies non-significance.

It was observed also from the table that the sustainable management of artificial lake water in this community can lead to the achievement of human well-being in relation to the knowledge of the existence of artificial lake shows that 134 strongly agree to the question asked and are aware of the existence of artificial lake in the community. Ten (10) also strongly agreed to the question but are not aware of the existence of the lake. Two hundred and seventeen (217) agree to the statement made above and also are aware of the existence of the lake while 11 agree but not aware of the existence of the lake. Fifteen (15) respondents

disagree and are aware of the existence of the lake while 5 agree but not aware of the existence of the lake. Three (3) respondents who are aware of the existence of the lake strongly disagree to the statement made. The chi-square shows a p-value of 0.006 which implies statistical significance.

The table shows the response of the respondents on the statement that adoption of artificial lake for tourism will afford these communities with fresh and clean water for its consumption. The result shows that 128 strongly agree to the question asked and are aware of the existence of artificial lake in the community. Eight (8) respondents also strongly agreed to the question but are not aware of the existence of the lake. Two hundred and eleven (211) agree to the statement made above and also are aware of the existence of the lake while 15 agree but not aware of the existence of the lake. Twenty-nine (29) respondents disagree and are aware of the existence of the lake while 13 respondents who disagree is not aware of the existence of the lake. One (1) respondent who agree is aware of the existence of the lake. The chi-square shows a p-value of 0.009 which implies statistical significance.

Table 4.5 shows the response of the respondents on the statement that presence of artificial lake is an important economic factor for a community (i.e., drinking water, tourism amongst others) in relation to their knowledge about the existence of artificial lake in this community. The result shows that 191 strongly agree to the question asked and are aware of the existence of artificial lake in the community. Thirteen (13) also strongly agreed to the question but are not aware of the existence of the lake. One hundred and fifty-nine (159) agree to the statement made above and also are aware of the existence of the lake while 12 agree but not aware of the existence of the lake. Sixteen (16) respondents disagree and are aware of the existence of the lake while 1 respondent who disagree is not aware of the existence of the lake. Three (3) respondents who strongly disagree are aware of the existence of the lake. The chi-square shows a p-value of 0.961 which implies non-significance.

It was observed also from the table that the artificial lake water can be used efficiently to produce energy for the entire community in relation to the knowledge of the existence of artificial lake shows that 214 strongly agree to the question asked and are aware of the existence of artificial lake in the community. Thirteen (13) also strongly agreed to the question but are not aware of the existence of the lake. One hundred and thirty-seven (137)

agree to the statement made above and also are aware of the existence of the lake while 12 agree but not aware of the existence of the lake. Seventeen (17) respondents disagree and are aware of the existence of the lake while 1 agree but not aware of the existence of the lake. One (1) respondent who is aware of the existence of the lake strongly disagree to the statement made. The chi-square shows a p-value of 0.826 which implies non-significance.

The table shows the response of the respondents on the statement that the development of artificial lake will ensure equitable access to safe and affordable drinking water for all in these communities. The result shows that 195 strongly agree to the question asked and are aware of the existence of artificial lake in the community. Thirteen (13) also strongly agreed to the question but are not aware of the existence of the lake. One hundred and sixty-one (161) agree to the statement made above and also are aware of the existence of the lake while 12 agree but not aware of the existence of the lake. Thirteen (13) respondents disagree and is aware of the existence of the lake while 1 respondent who disagree is not aware of the existence of the lake. The chi-square shows a p-value of 0.044 which implies statistical significance.

Table 4.5 shows the response of the respondents on the statement that adoption of the communities' artificial lake for tourism will improve water quality by reducing pollution, eliminating dumping and minimising release of hazardous chemicals and materials in relation to their knowledge about the existence of artificial lake in this community. The result shows that 187 strongly agree to the question asked and are aware of the existence of artificial lake in the community. Twelve (12) also strongly agreed to the question but are not aware of the existence of the lake. One hundred and sixty-four (164) agree to the statement made above and also are aware of the existence of the lake while 12 agree but not aware of the existence of the lake. Seventeen (17) respondents disagree and are aware of the existence of the lake while 1 respondent who disagree is not aware of the existence of the lake. One (1) respondent strongly disagree and is aware of the existence of the lake while 1 respondent who strongly disagree is not aware of the existence of the lake. The chi-square shows a p-value of 0.009 which implies statistical significance.

It was observed also from the table that the development of artificial lake in this community will ensure the supply of freshwater to address water scarcity and substantially reduce the

number of people suffering from water scarcity in relation to the knowledge of the existence of artificial lake shows that 188 strongly agree to the question asked and are aware of the existence of artificial lake in the community. Thirteen (13) also strongly agreed to the question but are not aware of the existence of the lake. One hundred and seventy-one (171) agree to the statement made above and also are aware of the existence of the lake while 12 agree but not aware of the existence of the lake. Nine (9) respondents disagree and 1 respondent who strongly disagree is not aware of the existence of the lake. One (1) respondent who is aware of the existence of the lake strongly disagree to the statement made. The chi-square shows a p-value of 0.028 which implies statistical significance.

The table shows the response of the respondents on the statement that the host community can play a role in encouraging sustainable management of artificial lake water. The result shows that 195 strongly agree to the question asked and are aware of the existence of artificial lake in the community. Ten (10) also strongly agreed to the question but are not aware of the existence of the lake. One hundred and seventy (170) agree to the statement made above and also are aware of the existence of the lake while 15 agree but not aware of the existence of the lake. Three (3) respondents disagree and 1 respondent who strongly disagree is not aware of the existence of the lake. One (1) respondent who is aware of the existence of the lake strongly disagree to the statement made. The chi-square shows a p-value of 0.026 which implies statistical significance.

Table 4.5 shows the response of the respondents on the statement that to ensure availability and sustainable management of water, host community needs to be educated on adequate and equitable sanitation and hygiene in order to protect their artificial environments (lakes) in related to their knowledge about the existence of artificial lake in this community. The result shows that 258 strongly agree to the question asked and are aware of the existence of artificial lake in the community. Fourteen (14) also strongly agreed to the question but are not aware of the existence of the lake. One hundred and seven (107) agree to the statement made above and also are aware of the existence of the lake while 12 agree but not aware of the existence of the lake. Three (3) respondents disagree and are aware of the existence of the lake and 1 respondent strongly disagree to the statement made. The chi-square shows a p-value of 0.012 which implies statistical significance.

Table 4.5: Cross tabulation between the Adoption of lakes tourism for efficient and effective water management in Oyo and knowledge about artificial lake

Questions		Do you have any knowledge about the existence of artificial lake in this community		Chi-sq.
		Yes	No	
Ensuring availability of water in the community through the development of artificial lake is necessary for sustainable development	Strongly agree	259	15	0.051
	Agree	106	10	
	Disagree	2	1	
	Strongly disagree	2	0	
Development of artificial lake in this community will enhance efficiently and easily accessible water source	Strongly agree	137	9	0.026
	Agree	225	15	
	Disagree	6	2	
	Strongly disagree	1	0	
Effective environmental sanitation by all members of the community will protect the artificial lake and enhanced water	Strongly agree	208	12	0.036
	Agree	136	11	
	Disagree	23	3	
	Strongly disagree	2	0	
Adoption of artificial lake in this community for tourism will not improve water management for sustainable development	Strongly agree	38	1	0.663
	Agree	61	5	
	Disagree	141	9	
	Strongly disagree	129	11	
Sustainable management of artificial lake water in this community can lead to the achievement of sustainable development	Strongly agree	134	10	0.006
	Agree	217	11	
	Disagree	15	5	
	Strongly disagree	3	0	
Adoption of artificial lake for tourism will afford this community with fresh and clean water for its consumption	Strongly agree	128	8	0.009
	Agree	211	15	
	Disagree	29	3	
	Strongly disagree	1	0	
Presence of artificial lake is an important economic factor for a community (i.e., drinking water, tourism amongst others)	Strongly agree	191	13	0.961
	Agree	159	12	
	Disagree	16	1	
	Strongly disagree	3	0	

Questions		Do you have any knowledge about the existence of artificial lake in this community		Chi-sq.
		Yes	No	
Artificial lake water can be used efficiently to produce energy for the entire community	Strongly agree	214	13	0.826
	Agree	137	12	
	Disagree	17	1	
	Strongly disagree	1	0	
Development of artificial lake will ensure equitable access to safe and affordable drinking water for all in this community	Strongly agree	195	13	0.044
	Agree	161	12	
	Disagree	13	1	
Adoption of the community's artificial lake for tourism will enhance water quality by decreasing contamination, eradicating dumping and lessening discharge of harmful substance	Strongly agree	187	12	0.009
	Agree	164	12	
	Disagree	17	1	
	Strongly disagree	1	1	
Development of artificial lake in this community will ensure the provision of freshwater to solve water shortage and significantly lessen the quantity of persons languishing from water shortage	Strongly agree	188	13	0.028
	Agree	171	12	
	Disagree	9	1	
	Strongly disagree	1	0	
The host community can play a role in encouraging sustainable management of artificial lake water	Strongly agree	195	10	0.026
	Agree	170	15	
	Disagree	3	1	
	Strongly disagree	1	0	
To ensure availability and sustainable management of water, host community needs to be educated on adequate and equitable sanitation and hygiene in order to protect their artificial environments (lakes)	Strongly agree	258	14	0.012
	Agree	107	12	
	Disagree	3	0	
	Strongly disagree	1	0	

4.4 Identification and Promotion of existing Employment Opportunities within the Artificial Lakes

This section explains the cross tabulation between the identification and promotion of existing employment opportunities within the artificial lakes and the knowledge about the existence of the lake as objective three of the study.

It was perceived by means of the table 4.6 that the chi-square value of the relationship between promotion of industrious occupation and good work through the development of artificial lake is essential for human well-being and the knowledge of the existence of artificial lake shows 0.051 which implies that there is significant relationship between them. The table also shows the response of the respondents to the fact that adoption of artificial lake for tourism will reduce employment opportunities in these communities. However, from the table the chi-square of their response shows a p-value of 0.277 which implies that there is no noteworthy connection between the knowledge of the existence of artificial lake and whether adoption of artificial lake for tourism will reduce employment opportunities in these communities.

The table also indicates that the chi-square value of the relationship between the developments of community's artificial lake will ensure the achievement of higher levels of economic productivity through job diversification (i.e., fishing, transportation and tourism) and the knowledge of the existence of artificial lake shows 0.037 which implies that there is significance relationship between them. It was perceived by means of the table that the chi-square value of the relationship between sustainable management of artificial lake water in this community can promote good job establishment, free enterprise, creativity and invention for the achievement of human well-being and the knowledge of the existence of artificial lake shows 0.043 which infers that there is significant connection between them.

The table also shows the respondents view to stating that sustainable management of artificial lake water in this community can promote good job creation, free enterprise, inventiveness and novelty for the achievement of human well-being. From the table the chi-square of their response shows a p-value of 0.021 which implies that there is significant relationship between the knowledge of the existence of artificial lake and whether sustainable management of artificial lake water in these communities can promote decent

job creation, entrepreneurship, creativity and innovation for the achievement of human well-being.

The table also shows that the chi-square value of the relationship between the development of community's artificial lake will help to achieve full and productive employment for individuals, as well as youngsters and people with frailties and the knowledge of the existence of artificial lake shows 0.040 which implies that there is no significance relationship between them.

It was also seen that the chi-square value of the relationship between the existing employment opportunities within and around this artificial lake can be promoted through tourism and the knowledge of the existence of artificial lake shows 0.046 which implies that there is no significant relationship between them.

The table also shows the response of the respondents to the fact that development and adoption of artificial lake for tourism will substantially reduce the proportion of youth employment in these communities. From the table the chi-square of their response shows a p-value of 0.390 which implies that there is no significant relationship between the knowledge of the existence of artificial lake and whether development and adoption of artificial lake for tourism will substantially reduce the proportion of youth employment in these communities.

The table also shows that the chi-square value of the relationship between the adoption of artificial lake tourism will provide direct and operative means of eliminating mandatory workforce, termination of modern slavery and human trading in these communities and the knowledge of the existence of artificial lake shows 0.452 which implies that there is no significance relationship between them. It was observed from the table that the chi-square value of the relationship between the development of community's artificial lake will stimulate sustainable tourism for the formation of jobs while also promoting indigenous ways of life and the knowledge of the existence of artificial lake shows 0.033 which implies that there is significant relationship between them.

The table also shows the response of the respondents to the fact that adoption of artificial lake tourism will improve the capacity of community financial institutions to encourage and

expand access to banking, insurance and financial services for all. From the table the chi-square of their response shows a p-value of 0.103 which implies that there is no significant relationship between the knowledge of the existence of artificial lake and whether adoption of artificial lake tourism will improve the capacity of community financial institutions to encourage and expand access to banking, insurance and financial services for all.

Table 4.6: Cross tabulation between the Identification and Promotion of existing employment opportunities within the artificial lakes and knowledge of the lake.

Questions		Do you have any knowledge about the existence of artificial lake in this community		Chi-sq.
		Yes	No	
Promote productive employment and decent work through the development of artificial lake is necessary for sustainable development	Strongly agree	250	16	0.051
	Agree	111	9	
	Disagree	5	1	
	Strongly disagree	3	0	
Adoption of artificial lake for tourism will reduce employment opportunities in the community	Strongly agree	53	5	0.277
	Agree	84	9	
	Disagree	95	3	
	Strongly disagree	137	9	
Development of community's artificial lake will ensure the achievement of higher levels of economic productivity through job diversification (i.e., fishing, transportation and tourism)	Strongly agree	161	11	0.037
	Agree	194	15	
	Disagree	11	0	
	Strongly disagree	3	0	
Adoption of artificial lake for tourism will enhance the validation and progress of micro, small and medium-sized innovativeness in this community	Strongly agree	136	11	0.043
	Agree	212	15	
	Disagree	19	0	
	Strongly disagree	2	0	
Sustainable management of artificial lake water in this community can promote good job establishment, entrepreneurship, originality and invention for the achievement of sustainable development	Strongly agree	186	11	0.021
	Agree	164	14	
	Disagree	18	1	
	Strongly disagree	1	0	

Questions		Do you have any knowledge about the existence of artificial lake in this community		Chi-sq.
		Yes	No	
Development of community's artificial lake will help to achieve full and productive employment for individuals, alongside for youngsters and individuals with frailties	Strongly agree	143	8	0.040
	Agree	206	15	
	Disagree	18	3	
	Strongly disagree	2	0	
The existing employment opportunities within and around this artificial lake can be promoted through tourism	Strongly agree	198	14	0.046
	Agree	142	10	
	Disagree	26	1	
	Strongly disagree	3	1	
Development and adoption of artificial lake for tourism will substantially reduce the proportion of youth employment in this community	Strongly agree	87	6	0.390
	Agree	100	4	
	Disagree	92	10	
	Strongly disagree	90	6	
Adoption of artificial lake tourism will provide instant and operative steps to eradicate forced labour, abolish contemporary suppression and trading in this community	Strongly agree	157	9	0.452
	Agree	186	14	
	Disagree	22	3	
	Strongly disagree	4	0	
Development of community's artificial lake will stimulate sustainable tourism that produces careers and supports local practices and yields	Strongly agree	182	6	0.033
	Agree	175	19	
	Disagree	12	1	
Adoption of artificial lake tourism will improve the capacity of community financial institutions to encourage and expand access to banking, insurance and financial services for all	Strongly agree	230	13	0.103
	Agree	127	10	
	Disagree	10	2	
	Strongly disagree	2	1	

4.5 Development of transportation Facilities within and around the Study area for the achievement of the Human Well-being

This section explains the cross tabulation between the development of transportation facilities within and around the study area to achieve human well-being and the knowledge about the existence of the lake as objective four of the study.

The table 4.7 shows that the chi-square value of the relationship between ensure good road network in the community for the development of artificial lake is necessary for human well-being and the knowledge of the existence of artificial lake shows 0.051 which implies that there is significance relationship between them. It was seen from the table that the chi-square value of the relationship between sustainable management of every accessible roads leading to the artificial lake in these communities will help in the achievement of human well-being and the knowledge of the existence of artificial lake shows 0.029 which implies that there is significant relationship between them.

The table also shows the response of the respondents to the fact that sustainable management of road networks within the host community of artificial lake will offer right to harmless, inexpensive, reachable and maintainable transport means for all. From the table the chi-square of their response shows a p-value of 0.043 which implies that there is significant relationship between the knowledge of the existence of artificial lake and whether response of the respondents to the fact that sustainable management of road networks within the host communities of artificial lakes will deliver right to use harmless, inexpensive, available and maintainable transport means.

The table also shows that the chi-square value of the relationship between the present conditions of transportation facilities within and around these communities are not adequate to achieve human well-being and the knowledge of the existence of artificial lake shows 0.654 which implies that there is significance relationship between them. It was also seen that the chi-square value of the relationship between adoption of the artificial lakes for tourism will expand the communities public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons and the knowledge of the existence of artificial lake shows 0.011 which implies that there is significant relationship between them.

The table also shows the response of the respondents to the fact that the development of transportation facilities in this community through artificial lake tourism will enhance integrated and sustainable human settlement, planning and management. From the table the chi-square of their response shows a p-value of 0.812 which implies that there is no significant relationship between the knowledge of the existence of artificial lake and whether the development of transportation facilities in these communities through artificial lake tourism will enhance integrated and sustainable human settlement, planning and management.

Table 4.7 also shows that the chi-square value of the relationship between the host community can play a role in encouraging sustainable management of transportation facilities leading to artificial lake water and the knowledge of the existence of artificial lake shows 0.044 which implies that there is significance relationship between them. It was observed from the table that the chi-square value that show the relationship between the role the host community can play in encouraging sustainable management of transportation facilities leading to artificial lake water and the knowledge of the existence of artificial lake shows 0.027 which implies that there is significant relationship between them.

Lastly, the table shows the response of the respondents to the fact that to ensure accessible and sustainable management of road network, host community needs to be educated on proper usage of transportation facilities in order to boost the image of their artificial lakes. From the table the chi-square of their response shows a p-value of 0.047 which implies that there is significant relationship between the knowledge of the existence of artificial lake and whether to ensure accessible and sustainable management of road network, host community needs to be educated on proper usage of transportation facilities in order to boost the image of their artificial lakes.

Table 4.7: Cross tabulation between the development of transportation facilities within and around the study area for the achievement of the human well-being and the existence of artificial lake.

Research Questions		Do you have any knowledge about the existence of artificial lake in this community		Chi-sq.
		Yes	No	
Ensure good road network in the community for the development of artificial lake is necessary for sustainable development	Strongly agree	273	16	0.051
	Agree	93	10	
	Disagree	2	0	
	Strongly disagree	1	0	
Sustainable management of every accessible roads leading to the artificial lake in this community will help in the achievement of sustainable development	Strongly agree	132	14	0.029
	Agree	229	12	
	Disagree	5	0	
	Strongly disagree	3	0	
Sustainable management of road networks within the host community of artificial lake will deliver right to use harmless, inexpensive, available and maintainable transport means	Strongly agree	201	11	0.043
	Agree	157	15	
	Disagree	10	0	
	Strongly disagree	1	0	
The present conditions of transportation facilities within and around this community are not adequate to achieve sustainable development	Strongly agree	157	14	0.654
	Agree	174	9	
	Disagree	23	2	
	Strongly disagree	15	1	
Adoption of the artificial lake for tourism will expanding the community transport, with key regard to the necessities of people in helpless states, and individuals with frailties and the aged	Strongly agree	203	11	0.011
	Agree	151	11	
	Disagree	12	2	
	Strongly disagree	3	2	
Development of transportation facilities in this community through artificial lake tourism will enhance incorporated and sustainable human environment, planning and running	Strongly agree	154	11	0.812
	Agree	202	15	
	Disagree	11	0	
	Strongly disagree	2	0	

Research Questions		Do you have any knowledge about the existence of artificial lake in this community		Chi-sq.
		Yes	No	
Adoption of the artificial lake for tourism will offer widespread availability to harmless, all-encompassing and available, green and public rooms in the community	Strongly agree	199	10	0.044
	Agree	151	13	
	Disagree	18	2	
	Strongly disagree	1	1	
The host community can play a role in encouraging sustainable management of transportation facilities leading to artificial lake water	Strongly agree	165	13	0.027
	Agree	196	11	
	Disagree	5	1	
	Strongly disagree	3	1	
To ensure accessible and sustainable management of road network, host community needs to be educated on proper usage of transportation facilities in order to boost the image of their artificial lakes	Strongly agree	260	17	0.047
	Agree	102	8	
	Disagree	5	1	
	Strongly disagree	2	0	

4.6 Knowledge of Artificial Lake Tourism that can assist in Reducing Poverty in Oyo state

In order to answer the first research question of the study; table 5.8 shows the factors that affect the poverty level in Oyo state. The variables considered are as follows: income used as the dependent variable and others like sex, age, marital status, education, job type, knowledge of tourism, knowledge of lake, familiar with lake and notion of the sustainable development are used as the independent variables.

From Table 5.8, it could be seen that there are some factors which statistically contribute to income in Oyo state. From the table, we see age, marital status, education, job type and no familiarity with lake knowledge are statistically contributing factors to income (poverty level) of the respondents. These variables are statistically significant because they produce a p-value that is less than 0.05.

Table 4.8: Factors of artificial lake tourism that can affect poverty in Oyo state

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	1318.4	17114.5	0.077	0.938647
SexFemale	-6604.7	5153.4	-1.282	0.200950
Age21-30 years	1072.2	9976.4	0.107	0.914482
Age31-40 years	956.4	10790.5	0.089	0.929428
Age41-50 years	9076.4	11144.8	0.814	0.416047
AgeAbove 50 years	36295.7	11245.1	3.228	0.001383 **
MaritalstatusMarried	24010.6	7118.1	3.373	0.000839 ***
MaritalstatusSeperate	32441.1	14926.2	2.173	0.030514 *
MaritalstatusDivorced	25580.6	15958.1	1.603	0.109969
MaritalstatusWidowed	-525.2	14938.1	-0.035	0.971977
EducationPrimary school	-5743.0	13640.2	-0.421	0.674025
EducationSecondary school	3762.1	13113.7	0.287	0.774397
EducationOND/NCE	10855.5	13638.6	0.796	0.426684
EducationHND/University degree	33148.7	13477.1	2.460	0.014461 *
EducationOthers	3714.6	41771.0	0.089	0.929198
JobtypeTrader	7341.0	6804.6	1.079	0.281513
JobtypeArtisan	14462.9	10087.9	1.434	0.152683
JobtypeOthers	27264.4	6247.5	4.364	1.75e-05 ***
TourismknowledgeNo	4414.1	10624.6	0.415	0.678094
LakeknowledgeNo	3790.0	9912.1	0.382	0.702458
FamiliarwithlakeNo	-22146.9	5484.3	-4.038	6.81e-05 ***
NotionofSDNo	5047.7	6248.9	0.808	0.419844

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

H_0 1: Artificial lake tourism is not a contributor to the reduction of poverty in the study areas

The chi-square table 4.9 shows a significant result of 0.041. Since the p-value is less than 0.05, we have enough evidence to reject the null hypothesis. This implies that adoption of artificial lake tourism will contribute to the reduction of poverty in the study areas.

Table 4.9: Crosstab between reduction of poverty and knowledge about the existence of artificial lake

		Adoption of artificial lake for tourism cannot reduce extreme poverty in this Community				Total
		Strongly agree	Agree	Disagree	Strongly disagree	
Do you have any knowledge about the existence of artificial lake in this community	Yes	50	53	133	133	369
	No	5	5	6	10	26
Total		55	58	139	143	395

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.155[a]	3	.041
Likelihood Ratio	2.216	3	.029
Linear-by-Linear Association	.435	1	.009
N of Valid Cases	395		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 3.62.

4.7 Employment of Lake tourism for Efficient and Effective Management of Water in Oyo State

In other to answer the second research question of the study, table 4.10 shows the result of how lake tourism can be employed for efficient and effective water management. The result shows nearest neigbour analysis used for classification so as to be able to classified the options considered for efficient and effective water management. The model used 279 options of the observations for training and used 115 for the holdout.

Figure 4.4 shows the k-nearest neighbor analysis for the 13 predictors considered under how lake tourism can be employed for efficient and effective management. K-nearest neighbor approach is an approach to data classification that estimates how likely a data point is to be a member of one group or the other depending on what group the data points nearest to it are in. From the Figure 4.4, we see 3 selected predictors that are to be member under the heading being considered. These statements selected are: preserving artificial lakes is necessary for human well-being; wiping out poverty in the world through the adoption of artificial lakes tourism is necessary for human well-being; and the development of existing artificial lake could bring development to the entire communities and enhance human well-being.

Hence, efficient water management in the lake communities was enhanced through the preservation of artificial lakes (3.0), reduction of poverty (3.0) and development of existing artificial lakes (2.0) as shown in Figure 5.4.

Table 4.10: K-nearest neighbor analysis

Nearest Neighbor Analysis

Case Processing Summary

		N	Percent
Sample	Training	279	70.8%
	Holdout	115	29.2%
Valid		394	100.0%
Excluded		1	
Total		395	

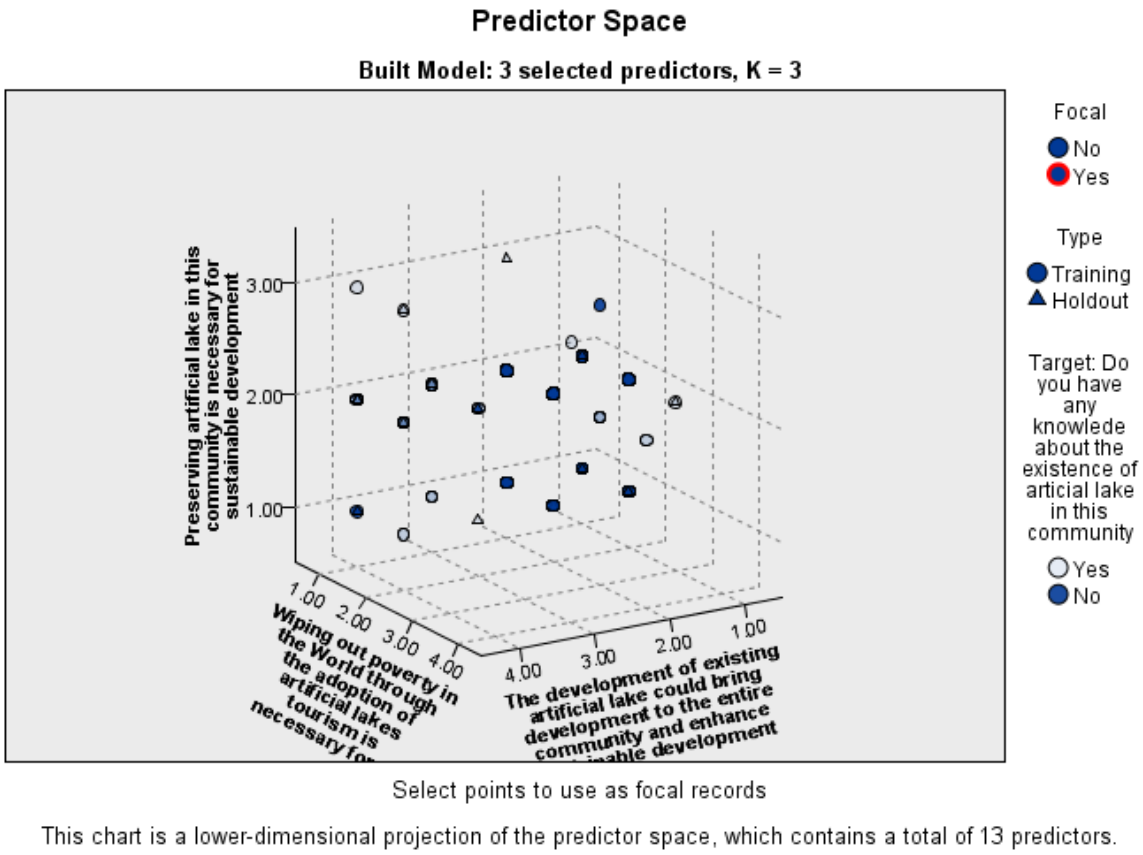

Figure 4.4: Nearest neighbour plot for the predictors

H_0 2: Artificial lake tourism will not assist in water management in the study areas

The chi-square table 4.11 an insignificant result of 0.053. Since the p-value is greater than 0.05, we have enough evidence for the null hypothesis to stand. This implies that adoption of artificial lake in these communities for tourism will not improve water management for human well-being.

Table 4.11: Crosstab between improve water management and knowledge about the existence of artificial lake

		Adoption of artificial lake in this community for tourism will not improve water management for community well-being				Total
		Strongly agree	Agree	Disagree	Strongly disagree	
Do you have any knowledge about the existence of artificial lake in this community	Yes	38	61	141	129	369
	No	1	5	9	11	26
Total		39	66	150	140	395

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.583[a]	3	.053
Likelihood Ratio	1.851	3	.054
Linear-by-Linear Association	.815	1	.036
N of Valid Cases	395		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 2.57.

4.8 Identification and Promotion of existing Employment Opportunities within the Artificial Lakes

In order to answer the third research question of the study, table 4.12 show the result of factor analysis of variables for identification and promotion of existing employment opportunities within the artificial lakes.

Table 4.12 shows the factor analysis of the questions asked under identification and promotion of existing employment opportunities within the artificial lakes. The variables are factored to know their contribution and order of importance of priority of these variables as a tool for promoting existing employment opportunities around the study areas. Each component refers to each question under this heading, and initial eigenvalues total refer to the contribution of each question.

However, human well-being was enhanced through the promotion of productive employment and decent work (Cumulative = 21.8%) as shown in Table 4.12.

Table 4.12 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.403	21.847	**21.847**	2.403	21.847	21.847
2	1.438	13.077	34.924	1.438	13.077	34.924
3	1.215	11.042	45.966	1.215	11.042	45.966
4	1.048	9.524	55.490	1.048	9.524	55.490
5	.854	7.761	63.251			
6	.794	7.214	70.465			
7	.769	6.991	77.456			
8	.721	6.553	84.008			
9	.666	6.053	90.061			
10	.611	5.555	95.616			
11	.482	4.384	100.000			

Extraction Method: Principal Component Analysis.

H_0 3: Artificial lake tourism potentials of bringing employment opportunities in the study areas

The chi-square table 4.13 shows a statistically significant result of 0.037. Since the p-value is less than 0.05, we have enough evidence to reject the null hypothesis. This implies that development of communities' artificial lakes will ensure the achievement of higher levels of economic productivity through job diversification (i.e., fishing, transportation and tourism).

However, artificial lakes tourism contributed to the improved economic productivity (χ^2=1.116),

Table 4.13: Crosstab between achievement of higher levels of economic productivity and knowledge about the existence of artificial

		Development of community's artificial lake will ensure the achievement of higher levels of economic productivity through job diversification (i.e., fishing, transportation and tourism)				Total
		Strongly agree	Agree	Disagree	Strongly disagree	
Do you have any knowledge about the existence of artificial lake in this community	Yes	161	194	11	3	369
	No	11	15	0	0	26
Total		172	209	11	3	395

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.116[a]	3	.037
Likelihood Ratio	2.033	3	.054
Linear-by-Linear Association	.077	1	.048
N of Valid Cases	395		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is .20.

4.9 Development of Transportation Facilities within and around the study area for the Achievement of the Human Well-being

In order to answer the fourth research question of the study, table 4.14 also shows the result of the factor analysis of variables for development of transportation facilities within and around the study area for the achievement of the human well-being.

Table 4.14 shows the factor analysis of the questions asked under the development of transportation facilities within and around the study areas for the achievement of the human well-being. The variables are factored to know their contribution and order of importance of priority of these variables as a tool for development of transportation facilities around the study areas. Each component refers to each question under this heading, and initial eigenvalues total refer to the contribution of each question.

Table 4.14 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.389	26.550	26.550	2.389	26.550	26.550
2	1.289	14.322	40.872	1.289	14.322	40.872
3	1.124	12.488	53.360	1.124	12.488	53.360
4	.851	9.455	62.815			
5	.805	8.945	71.760			
6	.721	8.009	79.769			
7	.669	7.429	87.198			
8	.625	6.947	94.145			
9	.527	5.855	100.000			

Extraction Method: Principal Component Analysis.

H_0 4: The adequacy of transportation facilities within and around the study areas to achieve Human well-being.

The chi-square table 4.15 shows an insignificant result of 0.065. Since the p-value is greater than 0.05, we have enough evidence for the null hypothesis to stand. This implies that the present conditions of transportation facilities within and around these communities are not sufficient to accomplish human well-being. Hence, the awareness of existence of artificial lake did not significantly influenced the perception of the adequacy of existing transportation infrastructure in the communities

Table 4.15: Crosstab between transportation facilities and knowledge about the existence of artificial

		The present conditions of transportation facilities within and around this community are not sufficient to accomplish human well-being				Total
		Strongly agree	Agree	Disagree	Strongly disagree	
Do you have any knowledge about the existence of artificial lake in this community	Yes	157	174	23	15	369
	No	14	9	2	1	26
Total		171	183	25	16	395

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.625[a]	3	.065
Likelihood Ratio	1.646	3	.149
Linear-by-Linear Association	.445	1	.105
N of Valid Cases	395		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 1.05.

4.10 Discussion of Findings on Quantitative Analysis

Following the analysis carried out above, it was observed that out of the number of the respondents associated with the six lakes, (44=11.1%) are familiar with Eleyele lake, (50=12.7%) with Opeki lake, (72=18.2%) are familiar with Erelu lake, (86=21.8%) with Yaku lake, (109=27.6%) with Ikere gorge Dam and the rest (34=8.6%) are familiar with Afonse lake. It was also observed that (44=11.1) are from Ido local government, (50=12.7%) are from Ibarapa East local government, (72=18.2%) are from Atiba local government, (86=21.8%) from Ogbomoso North local government, (109=27.6%) are from Iseyin and the rest (34=8.6%) from Olorunsogo. The gender distribution of the respondents also shows that (258=65.3%) are male and (137=34.7%) are female.

The age of the respondents shows that 18-20 years are (33=8.4%), 21-30 years are (134=33.9%), 31-40 years are (81=20.5%), 41-50 years are (62=15.7%) and (81=21.5%) for 50 years and above. Information on the marital status of the respondents shows that 106(26.8%) of the respondents are single, 225(64.6%) are single, 12(3.0%) are separate, 9(2.3%) are divorced and 13(3.3%) are widowed. The education level of the respondents reveals that 13(3.3%) has no formal education, 48(12.2%) has primary school education, 125(31.6%) has secondary school education, 86(21.8%) has OND/NCE, 120(30.4%) has HND/ University degree, while the rest 3(0.8%) has others. The religion distribution of the respondents reveals that 217(54.9%) practice Christianity, 170(43.0) practice Islam, 6(1.5%) practice Traditional while the rest 2(0.5%) fall under others. Information gathered on the job type of the respondents shows that 113(28.6%) are civil servants, 79(20.0%) are trader, 26(6.6%) are artisan while the rest 177(44.8%) claim to fall under other profession.

The critical evaluation was done on the income of the respondents. The total mean income gives 48208.25, standard deviation and standard error are 46667.05 and 257.76 respectively. The table reported that the median, trimmed mean, mean absolute deviation (mad) are 33500, 39694.34 and 24462.9 respectively. The minimum, maximum and the range values shows 10000, 350000 and 340000 respectively. The skewness value shows 3.42 which implies that the income data is positively skewed which is expected. The kurtosis value shows the peakedness of the data. It shows that the data is platykurtic as it produces value above 3.

The knowledge of the respondents about the subjects of interest in this research was analysed as questions on if the respondents have knowledge about the existence of artificial lake in their community was asked. The result shows that (369=93.4%) of the respondents are aware while the rest 26(6.6%) are not aware. We also gather response of the respondents on whether they know what tourism is. The response shows that (371=93.9%) of the respondents know, while the remaining (24=6.1%) don't know. Question on whether they are familiar with artificial lake tourism shows the response that (253=64.1%) of the respondents are familiar with artificial lake tourism while the rest (142=35.9%) claimed they are not. Question was also asked on whether the respondents have heard of the notion of sustainable development. (308=78.0%) claimed they have while the rest (87=22.0%) claimed they have not. The last question in this part was asked on what medium did the respondents knew about the notion of sustainable development. The result shows that (54=13.7%) heard on TV, (80=20.3%) heard through newspapers, (125=31.6%) heard through radio, (57=14.4%) heard through friends, (72=18.2%) heard via internet while the rest (7=1.8%) heard through other source. This finding was asserted by the reports of *Jorge and Pinto, 2017*, who stated several medium from mass media with which respondents got information on the notion of sustainable development

Regression analysis was carried out to know the factors of artificial lake tourism that can reduce poverty in Oyo state. From the result, it was obtained that age, marital status, education, job type and familiarity with lake knowledge are the variables that affect poverty level in Oyo state. This result validated the findings of Vijayakumar, 2013; Waziri and Nwanegbo, 2018, who reported that age, employment type and level of education are factors that reduced poverty in a community. It could be noted from the analysis that the familiarity of the respondents with lake knowledge do not determine the poverty level of the respondents. Regression model containing the estimates and the contribution of each of the significant variables can be obtained and this can be used for predicting the income level of any individual. In conclusion, this implies that knowledge of artificial lake tourism may not affect or contribute to poverty level in Oyo state as stated by the finding of Hermans, 2016; Jovanovic and Ilic, 2016, who reported that knowledge of tourism had insignificant effect on poverty level of a community.

K-nearest neighbor analysis was used to classify the suggestive ways by which lake tourism can be employed for efficient and effective management of water in Oyo state. It could be seen from figure 4.5 that the suggested ways by which lake tourism can be employed for efficient and effective management of water in Oyo state are less effective. According to the plot, there is a low dimensional projection of the predictor space.

Factor analysis was carried out for identification and promotion of existing employment opportunities within the artificial lakes and for development of transportation facilities within and around the study area for the achievement of the SDGs. The result shows the priority and importance of the suggested approaches under each part and their level of contribution. It could see that under factor analysis of variables for identification and promotion of existing employment opportunities within the artificial lakes, statement 1 to 4 has eigenvalues total greater than 1, While the statement considered under factor analysis of variables for development of transportation facilities within and around the study area for the achievement of the human well-being has statements 1 to 3 having eigenvalues total greater than 1. Under the first heading, we considered 11 statements and under the second heading, 9 statements are considered.

Considering the factor analysis under identification and promotion of existing employment opportunities within the artificial lakes, the following statement were considered most effective: to promote productive employment and decent work through the development of artificial lake is necessary for sustainable development, adoption of artificial lake for tourism will increase employment opportunities in the community, development of communities' artificial lakes will ensure the achievement of advanced economic efficiency via job variation (i.e., fishing, transportation and tourism) and that adoption of artificial lake for tourism will inspire the enactment and advancement of micro, small and average-sized businesses in this community.

Under the second heading, the first three statement which are considered as variables for development of transportation facilities within and around the study area for the achievement of the SDGs are ensuring good road network in the community for the development of artificial lake is necessary for sustainable development, sustainable management of every accessible roads leading to the artificial lake in the community will

help in the achievement of human well-being and that sustainable management of road networks within the host community of artificial lake will offer availability of harmless, inexpensive, available and sustainable transport.

The research hypotheses of the study were also tested using chi-square. The results of the hypothesis one revealed a statistically significant of 0.041, which implies that adoption of artificial lake tourism will contribute to the reduction of poverty in the study areas. The results of the hypothesis two showed a statistically significant of 0.053, which implies that adoption of artificial lakes in these communities for tourism will not improve water management for human well-being. The results of the hypothesis three also revealed a statistically significant of 0.037, implying that the development of communities' artificial lakes will ensure the achievement of higher levels of economic productivity through job diversification (i.e., fishing, transportation and tourism). These findings complement the assertion of Rytu Aukstaitija (2003), that lakes contribute significantly to socio economic development of the surrounding region and provide various benefits that include influencing the microclimate, flood control, encouraging bio-diversity and replenishing groundwater. Lastly, hypothesis four of the study revealed an insignificant result of 0.065, which implies that the present conditions of transportation facilities within and around these communities are not adequate to achieve human well-being. However, the awareness of existence of artificial lake did not significantly influenced the perception of the adequacy of existing transportation infrastructure in the communities. This finding was in contrast with the report of Lankford and Howard (1994), who stated that the awareness of artificial lake influenced the perception of the community people to have a multimodal transportation facility in their communities.

4.11 Qualitative Analysis Results and Ethnographic Study of the Lakes

4.11.1 Preamble

This subsection contains on-the-sport information obtained from the study areas. The study took place at six different local government areas of Oyo State. These selected lakes were: Ido LGA (Eleyele artificial lake), Ibarapa East LGA (Opeki artificial lake), Atiba LGA (Erelu artificial lake), Ogbomoso North LGA (Yaku artificial lake), Iseyin LGA (Ikere gorge dam) and Olorunsogo LGA (Afonse dam). To achieve this, personal visitations were

made to the locations. Direct observation and oral interview of 6 different Key Informants which comprises of 6 scheme managers of the affected areas were carried out. Various questions were asked from the Key Informants to elicit information in achieving the objectives of the research (Appendix 1) as stated in the following sub-sections. Information about the location and attributes of each of the lakes were collected using a GPS (Global Positioning System) and a prospecting form.

4.11.2 Historical Background of Eleyele lake

The Eleyele lake was constructed in 1962 as a result of an impoundment on the Ona River, with the goal of providing raw water cleane and used to give drinkable water to Ibadan. A fence was built downstream of the Ona River's confluence with the Alagbaa River. The Department of Forestry (DOF) planted a forest reserve around Eleyele Lake and much of its watershed soon after it was impounded to protect it from siltation. The teak forest was also intended to provide wood fuel for a thermal electricity plant in Ibadan's Oke-Are neighbourhood (since decommissioned) and telephone/electricity poles. The study by Agbola (2003) to assess the impact of land use changes on the Eleyele (Figure 4.5) catchment has provided a foundation for further evaluation using other techniques for assessing changes that may occur in the catchment in terms of water quantity, water quality, and the catchment ecosystem.

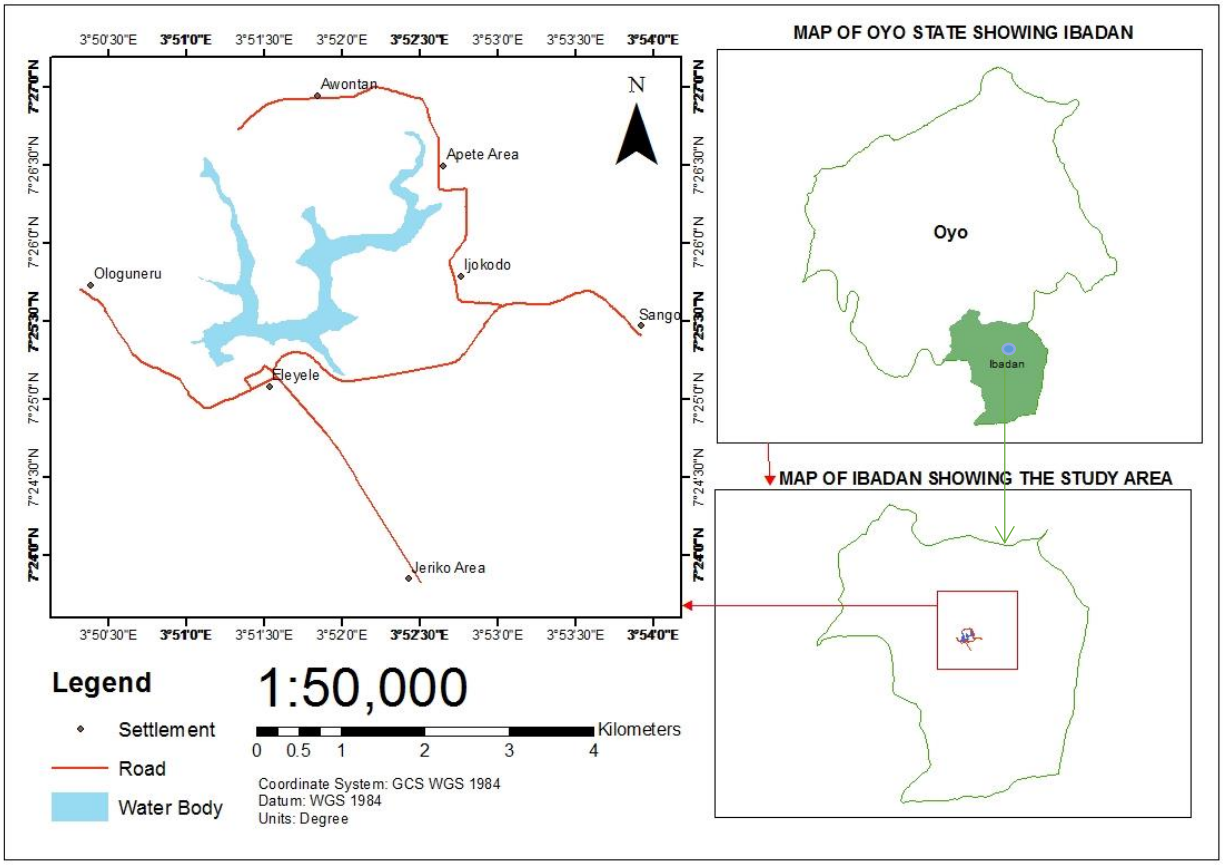

Figure 4.5: Map of Eleyele lake (Source: Eleyele Dam Safety Inspection Report (2016))

The overall height of the catchment is around 198 metres above sea level (amsl), and the slope is generally mild (Nwa, 1979). The Eleyele catchment is located in an area with an average annual rainfall of 1981.2 millimetres and a mean annual temperature of 28.80 degrees Celsius. Woody species such as Albizia glaberimma, Alchornea laxiflora, and Cissus arguta were among the indigenous vegetation of Eleyele (Nwa, 1979).

A temperature of between 26–30°C was recorded in Eleyele Lake by Onyema *et al*. (2003). In this study it appears to be favorable to the vector snails. The fluctuation pattern of temperature observed in this study agreed with the pattern reported by Iwugo *et al*., (2003) also reported the same pattern in Lagos with a mean temperature of 30°C. The range of water temperature observed during this study was similar to those reported for many water bodies in Southern Nigeria (Ogbeibu and Victor, 1995; Edokpayi and Osimen, 2001). The relatively high temperature recorded could be as a result of the time and season (late raining season-beginning of dry season-mid of dry season) of sample collection and also because similar observations are from the same geopolitical zones in Nigeria (Bolaji *et al*., 2012).

The embankment of the dam (Table 4.16) is 244 meters long overall (embankment 138 meters plus 106 meters for the spillway) and has a crest height of 13.0 meters. The dam is around 4.5 meters wide. On top of the crest is a 1.5 m wide concrete promenade that connects to a concrete block-work barrier on the downstream side. A non-gated Ogee weir spillway manages the reservoir's runoff. The spillway is 106 meters long, has a 14.5 meter peak height, and a 367.9 m3/s design flood volume. By using a sequence of concrete steps, a concrete-lined tailrace canal that simultaneously serves as a flow energy dissipator receives the overflow and directs it downstream (Eleyele Dam Safety Inspection Report, 2016).

Table 4.16: Main Features of Eleyele Lake

Description	Value	Units	Remarks
Reservoir Capacity	7	Mm3	With a fetch of 2.4km
Surface Area	160	ha	With a catchment area of 320 sq. km
Embankment Crest	14.5	m	
Full Supply Level (FSL)	182.3	m asl	
Gated /not gated spillway crest level	182.3	m	Un-gated Ogee weir spillway
Capacity of Free discharge weirs	367.9	m3/s	Design flood
Total length of Embankment	244	m	Embankment 138m plus 106m for spillway
Maximum height of foundations	185.4	m asl	
Crest width	4.5	m	Overlaid centrally with 1.5m wide concrete walkway which adjoins a concrete block -work barrier on the upstream side.
Downstream slope gradient	2.1H/1V		
Intake tower	180.6, 177.6 and 174.6	m nasl	with three intake elevation levels

Source: **Eleyele Dam Safety Inspection Report, 2016**

4.11.3 Report of the Scheme manager interviewed in Eleyele Artificial Lake Site

The researcher continues his visit to the Eleyele artificial lake site for interview with the scheme manager there. The scheme manager made me to realised that he had the knowledge of the existence of the artificial lake in the community. He stated that the primary purpose of the dam was to supply pipe-borne water to Ibadan Mega City. He stated his awareness of the intention of Oyo State Government in turning the scheme into a tourist attraction thus; "He *said a consortium has been formed and that a report has also be given to Oyo state government in that process"*. When asked what he knew about sustainable development, he said it was about leaving good heritage for the future generation without undermining the benefits to the present generation **(2020/KII/July/Eleyele)**. He said further that artificial lake could be adopted as touristic attraction which could enhance rapid and sustainable development provided its social negative impacts against the environment could be taken care of. In the affirmative that;

> artificial lake tourism could put an end to poverty. Nursing the fear that individuals, in precisely the underprivileged and the susceptible in the affected community will not have equivalent privileges to economic means as well as access to simple facilities because inequality is a phenomenon of life **(2020/KII/July/Eleyele)**. As to whether the adoption of artificial lake will ensure the implementation of progammes and policies to end poverty. He said and I quote "Yes, it will".

On the issues of general environment and protection of the artificial lake, the scheme manager explained that there were two sides to it, some of which will be positive while others will be negative. He lamented that, "*there will be negative impacts on vegetation, aquatic environment, aquatic species, air quality, habitats, ecosystem, soil and others, but the regular presence of people with adequate policies on ground will bring improvement*." The adoption of artificial lake for tourism according to Eleyele scheme manager will improve water management for human well-being because all hand will more or less be deck. Disposal of toxic wastes indiscriminately will be checked because of regular presence of both the officials and visitors. The development will ensure impartial right to harmless and inexpensive consumable water for everyone in the affected community. Hydro and

turbine energies could also be generated in the process. Proper work, private enterprise, ingenuity and novelty for the achievement of human well-being will be promoted.

The scheme manager stated further that the formulation and growth of macro, small and medium sized enterprises will be encouraged if Eleyele artificial lake is appropriated for tourism. The adoption of the artificial lake for tourism will enhance employment opportunities such as park manager, bar operators, restaurant, white collar officials, transportation, gym instructors, photographers, tour guides, horse riding, swimming instructors amongst others. Apart from job creation, promotion of local products, artifacts, souvenirs will adequately be involved **(2020/KII/July/Eleyele)**.

On the conditions of road leading to the tourist resort, the scheme manager said that;

> the roads were relatively okay but the round-about leading to the lake should be re-designed to ease the pressure of the grid lock. Ologuneru, Nihort and Idi-Isin should be opened up to decongest the major road **(2020/KII/July/Eleyele)**.

He buttressed that proper management of every accessible roads leading to the artificial lake in the community will help in the achievement of human well-being. He stated further that the present condition of transportation facilities within and around the study area are not adequate enough to human well-being. He reiterated that;

> if appropriate policies are put in place the adoption of the artificial lake for tourism will expand community's transport with distinct devotion to the desires of persons in susceptible circumstances, ladies, and children, those with frailties and elderly people. When asked to suggest other ways by which the artificial lake could be developed and sustained, he suggested that the study area could be turned to hydro power plant and for irrigation **(2020/KII/July/Eleyele)**.

He concluded by saying that water transportation should be promoted on the lake (multimodal transportation) to assist in decongesting Eleyele/Ologuneru/Apete/Awotan roads of traffic bottleneck.

4.11.4 Historical Background of Ikere Gorge Dam

One of the two sizable dams built by the government as part of the overall improvement of the water resources ability of the Ogun River basins is Ikere Gorge Dam. It is situated in the

Oyo state's Iseyin local government region, 33 kilometers northeast of Iseyin. The Ogun River (85%) has given the majority of the water to the reservoir out of the four rivers that feed it. The dam's intended output was 3,750 units per hour (at 62.5%-PLF against installed capacity) of electricity through turbines. According to the Ogun River Basin Development Authority's publication of March 1998, civil works on the dam were 99% completed while construction works on mechanical and electrical components stood at 95% completion (Ogun River Basin, 1998, pg. 50). The following is the description of services:

- Generate 6MW of electricity for dam operation and rural electrification.
- Supply 233 mcm (million cubic meters) irrigation water to the 12,000ha middle Ogun irrigation project, of which 3,000 ha (Phase-1) is currently being developed.
- Supply 92 mcm of raw water to the water compacts of Oyo state for treatment and distribution to Iseyin, Okeho, Iganna, and environs.
- Supply raw 80 mcm water to Lagos state water corporation for treatment and consumption within the Lagos municipality.
- Promote fish farming in the dam reservoir. 6. Promote tourism and recreational activities.

The national grid's insufficient capacity in Nigeria has a negative impact on the population's economic and social growth. Nigeria's hydropower potential is thought to be 10,000 MW or so, cautiously. Just around 19% has been used or developed as of yet. In Nigeria, the hydropower potential makes up around 29% of the entire electrical supply. One of the two sizable dams built by the authority as component of the master plan for the total exploitation of the Ogun River basins' prospective water resources is Ikere Gorge Dam. The dam was intended to use turbines to produce 3,750 units of energy per hour. Additionally, it will focus on providing transportation facilities for those who live close to the dam, as well as drinking water to Iseyin, Okeho, Saki, and the surrounding area, water to irrigate 12,000 ha of land during the dry season, water for fishing, and more than 82 million cubic meters of water to the Iju Water Works in Lagos. The planned plant has an installed capacity of 6 MW and is expected to produce 34,891,000 kwh of electricity annually.

The Ikere Gorge Dam is a huge earth fill dam in the Iseyin Local Government Area of Oyo State in Nigeria's south west. It is the world's second largest gorge dam, behind the one in Germany. According to the dam's project engineer, four rivers were trapped: Ogun, Owu, Amaka, and Oowe. The dam receives 95 percent of its water from the Ogun River. General Olusegun Obasanjo's military regime pushed for the dam's construction, which began in 1983 under the administration of Alhaji Shehu Shagari. The dam was designed to generate 6 megawatts of energy, provide water to local villages and Lagos, and irrigate 3, 000 hectares of agricultural land, among other things. The Ogun-Osun River Basin Development Authority, one of Nigeria's River Basin Development Authorities, is in charge of the Ikere Gorge Dam. O-ORBDA is in charge of the states of Oyo, Ogun, Osun, and Lagos. The Authorities are responsible for the ensuing tasks.

- To develop/harness surface and belowground water resources through the nation.
- To maintain the water resources across the nation.
- To manage gushing water torrents

The Ikere Gorge Dam, one of Nigeria's largest dams (Ministry of Water Resources and Rural Development Dam Register, 1995), is an earth fill multipurpose dam with a reservoir capacity of 690 million m3 and a total land area of 47 km2. It was built to serve the following purposes, according to the Ogun-Osun River Basin Development Authority. (O-ORBDA).

- To produce 6 megawatts of hydroelectricity
- To deliver irrigation water for 3, 000 hectares of arable farm land tagged middle Ogun irrigation project. Middle Ogun irrigation scheme is located at the bank of River Ogun between Iseyin and Oyo road.
- To make available 82 million cubic metres (mcm) raw water via the spill way to Ogun and Lagos state particularly Iju water works.
- To provide 17, 325 tons of maize, 954 tons of sorghum, and 3,630 tons of cassava tubers yearly.
- To serve as a tourism destination, particularly for students both within and beyond of Oyo state.

- To serve as a vehicle for transportation There are fifteen landing sites/villages, fisherman's according to the project manager for the Ikere dam. The dam allows people to travel between several fishermen's settlements in the Ikere area.

Ikere Gorge Dam has the following description;

Location – Ikere village (Iseyin Local Government Area of Oyo State)

Rivers Impounds – Rivers Ogun, Owu, Amaka and Oowe

Type – Earth fill dam

Total capacity – 690 million m^3

Surface Area – 47 km^2

Depth at intake tower – 35.599 meters

Intake tower length – 50 meters

(Source: Ogun-Osun River Basin Development, 2015).

4.11.5 Report of the Scheme manager interviewed in Ikere Gorge Dam

The scheme manager **(2020/KII/August/ISEYIN)** made us to realized that he had the knowledge of the existence of the artificial lake in the community. He stated that the primary purpose of the dam was to supply pipe-borne water to Ogun and Lagos state. He said he was aware of the intention of Federal government in turning the scheme into a tourist attraction. He said a *"consortium has been formed and that a report has also be given to Federal government in that process"*. He said further that the artificial lake could be adopted as touristic attraction which could enhance human well-being, provided its social negative impacts against the environment could be taken care of. In the affirmative, he said that artificial lake tourism could put an end to poverty.

On the issues of general environment and protection of the artificial lake, the scheme manager explained that there were two sides to it;

> Some of which will be positive while others will be negative. lamenting that there will be negative impacts on vegetation, aquatic environment, aquatic species, air quality, habitats,

> ecosystem, soil and others, but the regular presence of people with adequate policies on ground will bring improvement **(2020/KII/August/ISEYIN)**.

The adoption of the artificial lake for tourism according to Ikere gorge dam scheme manager will improve water management for community well-being because all hand will more or less be the deck. The development will ensure unbiased right to harmless and inexpensive consumable water in the affected community. Hydro and turbine energies could also be generated in the process. Decent job, entrepreneurship, creativity and innovation for the achievement of human well-being will be promoted.

The scheme manager stated further that "*the formulation and advancement of macro, small and average sized businesses will be encouraged if Ikere gorge dam is appropriated for tourism"*. The adoption of the artificial lake for tourism will enhance employment opportunities such as park manager, bar operators, restaurant, white collar officials, transportation, gym instructors, photographers, tour guides, horse riding, and swimming instructors amongst others **(2020/KII/August/ISEYIN)**. Apart from job creation, promotion of local products, artifacts, souvenirs will adequately be involved.

On the conditions of road leading to the tourist resort, the scheme manager said that the roads have completely deteriorated. He stated further that "*the present condition of transportation facilities within and around the study area are not adequate enough to achieve human well-being"*. He said if appropriate policies are put in place the adoption of the artificial lake for tourism will expand community's public transport with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons **(2020/KII/August/ISEYIN)**. When asked to suggest other ways by which the artificial lake could be developed and sustained, he suggested that the study area could be turned to hydro power plant and for irrigation.

4.11.6 Historical Background of Erelu Artificial Lake

The water corporation of Oyo state constructed the Erelu dam near the historic Oyo town. The dam was mainly constructed to provide water to the municipality and its surroundings. The dam has an impoundment area of 161.07 hectares and a drainage basin of 243.46 kilometers. Within the dam, irrigation is used primarily during the dry season for lowland

farming operations. The majority of the people living around the dam come from the Nigerian states of Oyo, Kwara, Ogun, Ogun, Osun, Ondo, Delta, Kogi, and Benue. The lake exhibits the two different seasons (dry and wet), which are characteristic of the southwest region of Nigeria. About 27°C was the average annual temperature, while 591.6 mm was the mean annual rainfall.

4.11.7 Report of the Scheme manager interviewed in Erelu Artificial Lake

My visitation to Erelu artificial lake **(2020/KII/August/OYO WEST)** revealed that the scheme manager has a vast knowledge of the existence of the artificial lake in the community. He stated that "*Oyo State had a 20 year rolling plan starting from 2016 on the project"*. Displayed a good knowledge of sustainable development. He defined sustainable development as a form of development that sees the need of the coming generation and planned for it. When asked whether he thought that if the artificial lake is made a tourist attraction, it will enhance rapid and sustainable development in the community for the well-being of the people, the lake had the capacity to achieve it.

The manager informed us that the artificial lake could be adopted as touristic attraction on a larger scale because it has been hosting tourists (students, researcher, white garment religious organsiations, socialists and others) for a long time. He therefore was of the opinion that;

> if the exercise (tourism) could be formalized it will enhance human well-being. The artificial lake tourism was capable of stopping penury in all manners with adequate collaboration of public private (PPP) **(2020/KII/August/OYO WEST)**.

In view of above, the manager said that men, womenfolk, in precisely the poor and the susceptible may not have equal rights but definitely they will have improved rights. He said that since the concept will be partially privatized the issue of rights will be consequent on the more your involvement the more your right. The adoption of the artificial lake for tourism will ensure the enactment of programmes and strategies to stop poverty in dimensions because there will be an enabling environment for such **(2020/KII/August/OYO WEST)**.

On the issue of environmental sanitation, the scheme manager said that the situation was good. He had the premonition that making the artificial lake a tourists' attraction will bring

in so many negative impacts on the environment (vegetation, aquatic environment, aquatic species, air quality, habitats and ecosystems, soil, noise and vibration, influx of people, workers, tourists, researchers, official visitors, labour displacement, transportations, accidents and others). He said that *effective environmental sanitation that will protect the artificial lake and enhance water management will be consequent on effective and efficient policy architecture and enforcement of the related rules and regulations* **(2020/KII/August/OYO WEST)**.

When asked what he felt about the adoption of the artificial lake for tourism vis-à-vis improvement in water management for human well-being, he said that "*the interests of both the policy makers and the populace will more on the project. Since the project will be a revenue generating one, there will be more fund to spend on water management"*. The manger stated that there will be equitable access to safe and affordable drinking water for all in the community but that still depends on the affordability (Demand cost implication). He stated further that government can use the scheme to generate medium power hydro-electricity **(2020/KII/August/OYO WEST)**. The manager was very optimistic that artificial lake tourism in the community will promote decent job entrepreneurship, creativity and innovation for the achievement of human well-being.

> the growth of SMEs will be improved upon. Diverse employment opportunities will be created such as restaurants, bars, photography, horse riding, Okada, the firms of transportation such as speed boating, water cruising media job, tour guide, tour guard security jobs, just to maintain a few. The artificial lake tourism will promote local culture and products because there will be demands for them **(2020/KII/August/OYO WEST)**.

When asked how he felt about the present condition of the roads loading to the community, the scheme manager said that the roads were pathetically bad. He said that he was not aware of any moves on the parts of government (federal, state and local). He stated that sustainable management of every roads loading to the artificial lake in the community will help in the achievement of human well-being. He said that the present conditions of transportation facilities with and arrow the community are not adequate to achieve suitable development, he thereafter suggested that the road infrastructural facilities be improved upon. The scheme manager emphasized the fact that the adoption of the artificial lake for tourism will expand

the public transport within and around the community and such expansion will pay attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons **(2020/KII/August/OYO WEST)**. In this case the manager entreated that public, private, partnership (PPP) may be necessary. He stated further that the scheme could be used to generate energy at a medium capacity for efficient and effective performance, issues of negative impacts on the artificial lake must be seriously looked into

4.11.8 Historical Background of Yaku Artificial Lake

The Water Corporation of Oyo State was historically created from the former Western Nigeria Water Corporation thanks to the Water Corporation of Oyo State (Amendment) Law of 2006 and the enabling Water Corporation of Oyo State Edict number 24 of 1977. On October 10, 1964, the Ogbomoso Waterworks Project was opened on Yaku land in Ogbomoso North Local Government Area of Oyo State by Chief Samuel Ladoke Akintola, the then Premier of the former Western Region.

According to Nigerian Tribune, the facility, which is a legacy of the former Western Region, tremendously benefited the populace by providing a steady supply of drinkable water. After General Gowon established states, the facility was absorbed by Oyo State Water Company. There are programs under the Ogbomoso district, including those in Yaku, Ogbomoso, Ajinapa, and Igbeti in the state's Oke-Ogun zone. Yaku is the district's administrative center.

The state corporation's mission is to "be the foremost water distributor in Africa," pertaining to material on its website. Additionally, the company cites the foregoing as its advantages: widely accessible production rate; manpower to manage all waterworks production stages; knowledgeable information technology and invoicing staff; an existing client base that generates high requirement for treated water; and a production cycle that complies with Nigerian and World Health Organization standards.

The (at the time) currently underway road infrastructure construction that destructed and entombed distribution channels, caused leaks and bursts, and created dry zones are among the problems listed as having an impact on its performance. Other problems include a lack of repair materials, outdated treatment facilities, electromechanical failure, and unstable

power supplies. Stakeholders have provided several explanations for the water corporation's current situation. Members of the host town bemoaned the fact that, despite the project's prior contributions, subsequent state administrations had given little to no consideration to funding and updating the amenities.

4.11.9 Report of the Scheme manager interviewed in Yaku Artificial Lake

The scheme manager of Yaku dam **(2020/KII/July/OGBOMOSHO)** affirmed his knowledge of existence of artificial lake in the community. He spoke of the plans set aside by the government for its development. He mentioned that;

> Government has promised to revamp the dam in order to make it useful to the community. On the concept of SDGs, he disclosed that the ideal was to take care of the wellbeing of coming generation. Stated further on the readiness of the government to adopt the dam and turn it to touristic attractions for the benefit of young and old. The revealing of the attraction will generate employment opportunities which can potentially reduce the level of poverty in the community **(2020/KII/July/OGBOMOSHO)**.

On the issue of equality to basic services, he said that several people in the community will benefit, especially the unemployed youths. There will be implementation of policies to end poverty in the community, as long as government is generating revenue from the attraction. This will benefit the entire community and thereby reduce poverty in the community.

The scheme manager of Yaku disclosed that *the "indiscriminate refuse dumping, sewage discharge among others have constituted majorly to the unpleasant look of the artificial lake and the environment altogether"*. However, the proposed adoption of the lake for tourism will enhance effective environmental sanitation, owing to the fact that, government will set aside policies to protect the attraction. He spoke further on the improvement in water management through the adoption of Community Lake for tourism **(2020/KII/July/OGBOMOSHO)**. The plan will afford the community to have access to potable water, as there will be proper sensitization on refuse disposal. On whether development of artificial lake will ensure impartial availability to harmless and inexpensive consumable water. He stated further;

> if adequate policies provisions are made by the government to take care of the lake, the lake will allow the community to enjoy

> safe and afford pipe-borne water. If the lake is made a tourist attraction, water management for human well-being will equally be ensured **(2020/KII/July/OGBOMOSHO)**.

When asked how he felt about promotion of decent job, entrepreneurship, creativity and innovation through sustainable management of artificial lake water, he has this to say, "the project implementation will definitely ensure that many people will gain employment **(2020/KII/July/OGBOMOSHO)**.

The scheme manager of the lake spoke about the formalization and growth of MSMEs in the community which could be enhanced through the adoption of the lake for tourism. He spoke on the influx of fishermen from the immediate and outside communities. He emphasized on the negative impacts that this could bring to the community, he therefore concluded that the activities of the fishermen and visitors may have negative effects on the aquatic species and other parameters **(2020/KII/July/OGBOMOSHO)**. He recommended that "*government should set aside working policies that will guide against this effect"*. He also spoke on how the development of the community artificial lake into tourist resort will promote human well-being through jobs creation. He equally said that the local culture will be promoted through the influx of the local tourists to the site.

The Yaku dam scheme manager affirmed that the present condition of the roads leading to the artificial lake was bad, though he confirmed the effort of the government to keep the roads in good shapes **(2020/KII/July/OGBOMOSHO)**. He stated that if every road leading the artificial lake is properly managed, this will help in achieving sustainable development. The scheme manager spoke on the negative potential impact of this lake,

> that the influx of cars and tourist will often time result in loss of vegetation in the environment. Different species that is alien to the original species in the environment will spring up due to the movements of vehicles and tourists. He recommended that appropriate car lot should be make available for cars to park. There should be walk way provided for tourists to use **(2020/KII/July/OGBOMOSHO)**.

He equally stated that government needs to dualise some of the roads in the community to allow easy passage of vehicles. He appeals to the private investors to partner with the government to ensure successful implementation of the project.

4.11.10 Historical Background of Opeki Artificial Lake

The Opeki River Dam is a moderate structure with a fixed maximum effective reserve of 1.78 million cubic meters (mcm) 365 days a year and an effective and reactive reserve capacity of 2.1 million cubic meters (mcm). This seems to be capable of supporting a cultivable command area (CCA) of either 200 ha of maize, nectarine, or 175 ha of pepper, or a practical mix of the three (3) crops, in along with delivering the 2.72 million liters per day (ml/day) raw water to the water processing facility. The processing plant's current capacity is insufficient for the expected demographic, and it urgently needs to be expanded to accommodate the anticipated future requirement of 11.6 ml/day and 17.6 ml/day by the years 2010 and 2025, respectively. While water delivery is the main goal, irrigation inside the surrounding region is a supplementary goal that may be considerably accomplished with appropriate reservoir capacity maintenance. On the basis of the FAO (1985) guideline for irrigation water, the level of the unprocessed water had also been determined to be suitable for agricultural output.

4.11.11 Report of the Scheme manager interviewed in Opeki Artificial Lake

The scheme manager **(2020/KII/July/ERUWA)** was able to answer all questions in our key interview guide. In respect of the first objective (End poverty in all its form (SDG 1), the scheme manager had these to say; "*I had a good knowledge about the existence of Opeki artificial lake at Eruwa. Stating that the primary plan of the government was to provide portable water to the surrounding communities". Secondary to this were the issues of irrigation and tourism.* He emphasized that Opeki was once a tourist resort. He showed us the tourists swimming pool that was overgrown with weeds and tress. He exhibited a vast knowledge of sustainable development which he described as the cultivation of maintenance for perpetual usage of endowments (naturals and artificial)". He said that if adequate policies are put in place the artificial lake could be re-adopted as touristic attraction which will definitely enhance rapid human well-being.

He stated with emphasis that adoption of the artificial lake in the community was capable of putting an end to poverty in all its form because such steps will lead to employment opportunities (public and private). In view of above he asserted that;

> if Opeki lake was adopted for tourism all people in especially the deprived and all susceptible within and around the community will have privileges to economic means and as availability of rudimentary facilities. In his words, inequality is a natural phenomenon but each person will be able to exhibit a fair right. Carrying out plans and strategies to terminate poverty in all its proportions in the community will be easier to adopt if Opeki lake is turned into a touristic attraction because there will be job opportunities for both white and blue collars jobs (Government official, private officials, security, food vendors, Okada riders, photographers, petty trading and others). The local culture and products will also be promoted because there will be sensitization to that effect **(2020/KII/July/ERUWA)**.

The scheme manager reiterated the facts that only weeds and unkempt surrounding bushes constitute the major environmental setbacks. During the dry season there were cases or bush burning resulting in formation of carbon (Co & CO_2) resulting into carbonic acid when it rains. The water weeds are also covering the water surfaces most decaying into the body of the water. "*If the artificial lake is converted into a tourism resort, adequate policies and provisions will be made that will protect the environment and in effect promote sanitation"* **(2020/KII/July/ERUWA)**. The lake will be adequately protected with resultant positive enhancement in water management. Routine sanitation exercises will also be carried out. So, in effect, the manager said that *adoption of the artificial lake will improve water management for human well-being*. On the issue of whether the development of artificial lake at the site will ensure equitable access to safe and affordable drinking water for all, the manager said yes, thereafter he suggested that *government can use the scheme to generate small scale electricity (alternating and turbine).* He concluded by saving that sustainable management of artificial lake in the community will promote job establishment, free enterprise, ingenuity and invention for achievement of human well-being.

The scheme Manger emphasized the fact that adoption of the artificial lake for tourism will inspire the enactment and development of micro, small and medium size initiatives in the

community (2020/KII/July/ERUWA). He mentioned business activities like *food vendor, Okada rider, photography, transportation and other activities within and around the site*. He stated further that tourism will enhance employment opportunities in formal and informal sectors. Various jobs relating to the promotion of local cultures and products will also be encouraged if the artificial lake made a tourist resort **(2020/KII/July/ERUWA)**.

The scheme manger lamented about the states of the roads leading to the study area, he stated that both the state and local government have promised to do something about it but they were still waiting for helps to come. He thereafter stated that *a "very sustainable management of every accessible road leading to the artificial lake in the community will help in the promotion of human well-being"*, because there will be more social and economic interactions with positive dividends. He said that the present conditions of transportation facilities within and around the community were not adequate to achieve human well-being. But if the site is made a tourist attraction, it will become the interest of public and private divisions. The manager specifically stressed that;

> the adoption of the site as a tourist resort will expand the communities public transport with exceptional devotion to the requests of those in susceptible situation, individuals, persons with frailties and elderly people because conveyance will be customized to suite various needs **(2020/KII/July/ERUWA)**.

When asked to suggest other ways by which the artificial lake could be developed and sustained, he was of the opinions that a very sound policy framework must be established with adequate enforcements (2020/KII/July/ERUWA). Sensitization through media, postal, fliers, banners and other will also be of essence.

4.11.12 Report of the Scheme manager interviewed in Afonse Artificial Lake

The scheme manager **(2020/KII/August /OLORUNSOGO)** stated that the primary plan of the government was to provide portable water to the surrounding communities. Provision of the dam for irrigation was also stated. He exhibited a vast knowledge of sustainable development which he described as the cultivation of maintenance for perpetual usage of endowments (naturals and artificial)". He said that "*if adequate policies are put in place the artificial lake could be re-adopted as touristic attraction which will definitely enhance rapid human well-being"*. He asserted that if Afonse lake was adopted for tourism

individuals, especially the less privileged and all helpless within and around the community will have access to economic means as well as access to basic services. In his words,

> inequality is a natural phenomenon but each person will be able to exhibit a fair right. Carrying out of plans and procedures to stop all forms of poverty in the community will be easier to adopt if Afonse lake is turned into a touristic attraction **(2020/KII/August /OLORUNSOGO)**.

Scheme manager reiterated the facts that only weeds and unkempt sorrowing bushes constitute the major environmental setbacks. During the dry season there were cases of bush burning resulting in formation of carbon (Co & CO_2) leading later into carbonic acid formation when it rains. The water weeds are also covering the water surfaces mostly decaying into the body of the water. The lake will be adequately protected with resultant positive enhancement in water management. Routine sanitation exercises will also be carried out. In this regard, the manager said that" *adoption of the artificial lake will improve water management for human well-being"* **(2020/KII/August /OLORUNSOGO)**. On the issue of whether the development of artificial lake at the site will ensure impartial right to harmless and inexpensive consumable water, thereafter he suggested "*that government can use the scheme to generate small scale electricity (alternating and turbine)"*. He concluded by saying that sustainable management of artificial lake in the community will promote decent job creation, entrepreneurship, creativity and innovation for achievement of human well-being.

The scheme manger reiterated the fact that adoption of the artificial lake for tourism will encourage the formalization and growth of micro, smell and medium size enterprises in the community. He emphasised on the business activities like "*food vendor, Okada rider, photography, transportation and other activities within and around the site"*. He stated further that tourism will enhance employment opportunities in formal and informal sectors. Various jobs relating to the promotion of local cultures and products will also be encouraged in the artificial lake made a tourist resort **(2020/KII/August /OLORUNSOGO)**.

The scheme manger lamented about the states of the roads leading to the study area. He thereafter stated that a very sustained management of every accessible road leading to the artificial lake in the community will help in the promotion of human well-being to be there

will be more social and economic interactions with positive dividends. He said that "*the present conditions of transportation facilities within and around the community were not adequate to achieve human well-being"*. But if the site is made a tourist attraction, at will become the interest of both the public and private sectors. The manager specifically stressed that the adoption of the site as a tourist resort will expand the communities public transport will special attention to the needs of those in vulnerable situation, women, children, persons with disabilities and older people because transport will be customized to suite various needs.

4.12 Potential Impacts of Artificial Lake Tourism for Human Well-being and Mitigation Measures

Studies relating to environmental, social and economic processes often contain feedback and responses from both the key informants and questionnaire respondents. Changes in both the magnitude and direction of environmental effect may be on the high or low sides.

Majority of the key informants agreed that artificial lake tourism will promote human well-being (positive impact) but they also emphasize that so many negative impacts will be consequent on the concept (i.e., water, air, soil, noise, health amongst others). In view of these Resource/Receptor or key issues, led assessment of impacts is of essence here as shown in the following sections.

4.12.1 Potential Positive Impacts of Artificial Lake Tourism

i. Improvement on the access road within and around the facility

ii. Increase in income for local business and vendors around the project area.

iii. Employment opportunities for qualified Nigerians most especially host communities around the artificial lakes

iv. Improved aesthetic values or the resort areas (within and without)

v. Better sanitation consequent on applicable policies, regulation and enforcement.

vi. Improvement in portable water provision.

vi. The security architecture of the area will be improved upon

vii. New businesses opportunity will be availed to the people of the local communities

viii. Artificial lake tourism will also assist in the improvement of the integrity and safety of the project area which will in turn make flooding and erosion unlikely events

ix. Loss of lives and properties synonymous with flooding and erosion will also be guided against

x. Improved water supply to the treatment plant and enhancement of the safety of the dam.

xi. Opportunities for tourism and commercial activities will increase

xii. Potential opportunity for fishing and other aquaculture activities at the reservoir will enhance proliferation and quick multiplication of fishes' species and growth.

xiii. Adequately regulated and controlled fishing harvesting will also lead to revenue opportunity to the host community.

As it was stated (supra), the responses of the people revealed that there will be both positive and negative impacts of tourism on artificial lake, hence the need to equally state some of the identified shortcomings and their possible mitigations (APPENDIX A).

4.13 Mapping and GIS Analyses of the Study Areas

Information about the location and attributes of each of the lakes were collected using a GPS (Global Positioning System) and a prospecting form. Each of the lakes was surveyed while information regarding the variables enumerated in the prospecting form was collected. The Geographic Coordinate System, Universal Traverse Mercator, World Geodetic Survey 84 datum was used as the projection for the GPS.

Table 4.17 Geographical Estimation of the selected Artificial Lakes

Lake	Latitude	Longitude
Erelu	7.887420°	3.902272°
Yaku	8.129951°	4.259222°
Ikere	8.176389°	3.736389°
Eleyele	7.423846°	3.858626°
Igbeti	8.761548°	4.160168°
Opeki	7.522039°	3.379964°

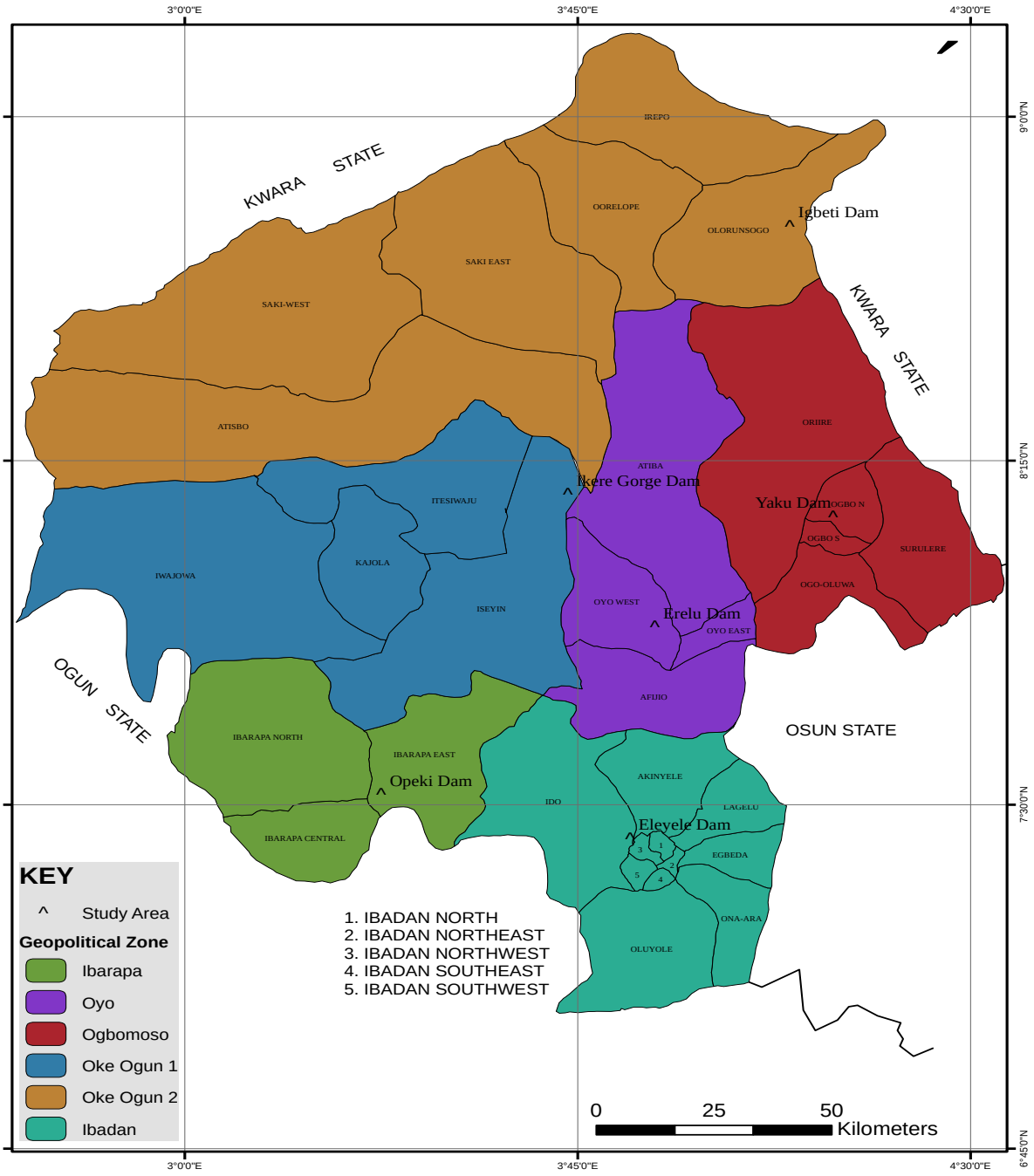

Figure 4.6: Map of Oyo State showing the location of each artificial lake (Source: Field work, 2020)

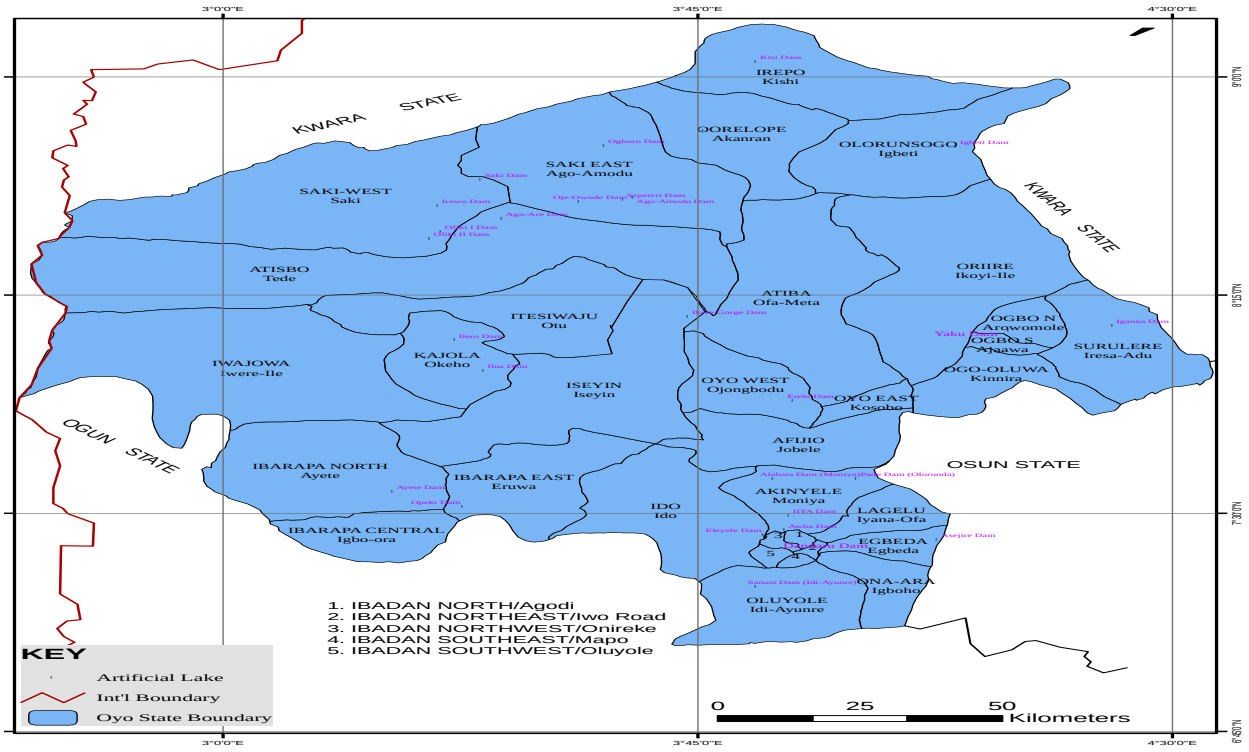

Figure 4.7: Map showing the locations of all the Artificial lakes in Oyo State (Source: Field work, 2020)

The geographic coordinates (in decimal degree) of all the lakes were taken with a Garmin *etrex* 30x handheld GPS (Version 2.30) with an accuracy of 3m. Pictures of the locations of each of the lakes were taken with the aid of a photographic camera. The geographic coordinates of the lakes, which were recorded as waypoints in the GPS were imported into the computer using the ArcGIS Explorer Desktop software and processed. The area extents of the lakes were digitised on Google Earth. All processed data were then converted and uploaded into ArcGIS 10.3 environment and the results were then exported into a well-embellished digitized map (See Figures 4.8) and Appendices 4 for the Mapping of each artificial lake selected.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The research was conducted for the evaluation of the influence of artificial lakes tourism on human well-being of selected LGAs in Oyo State, Nigeria, with emphasis on SDGs 1, 6, 8 and 11. It was evident from the study that; Nigeria is endowed with both natural and human resources, the existence of a wide range of tourist attractions; such as roomy rivers, ocean beaches and water banks for spas and swimming, wildlife from savanna and rain forest, magnificent water falls, scenic attractions which are parts of people, culture, tradition and norms. The relevance of artificial lake has been relegated to the background.

The central aim of the study therefore, was to examine influence of artificial lakes tourism on the human well-being of selected LGAs in Oyo State, Nigeria. To achieve this, several literatures were reviewed. Maslow's Theory of Human motivation was adopted as the theoretical framework.

5.2 Conclusion

Artificial lake tourism improved the well-being of people in their host communities in Oyo State. It enhances poverty reduction, water management, economic productivity, and community transportation system.

The economic benefits of artificial lake tourism to the host communities, local government, Oyo State and the Federal Republic of Nigeria are highly immeasurable. To every opportunity there is a responsibility therefore, the high-profile benefits of artificial lakes are inherent with pockets of adverse impacts but the gains outweigh the negative impacts. In view of all these, it is therefore pertinent to conclude that: There has been a pocket of artificial lake tourism in Oyo State (Agodi Garden, Eruwa, Igbeti, Erelu amongst others) but with this study, there was improvement and consequently a better social economic

position of the citizens. The belief of the majority of the people was that there will be overwhelming positive impact of artificial lake tourism on human well-being and in effect, alter for good the lives and well-being of the dwellers in the study areas in particular and Oyo State in general. The facilities that will be employed in the activities of the artificial lake tourism environment will also be within the category of best available technological practises and will be social, cultural and environmentally friendly. Mitigating process have been recommended for some of the negative impacts identified: pollution of air, soil, water, increase in noise, pressure on limited infrastructure, transmission of diseases among others. This study of human well-being from the standpoint of artificial lake tourism was therefore, have a number of significant positive values including but not limited to; eradication of poverty, increase in employment opportunities, boost in sanitation and provision of adequate portable water, and good transportation network as propounded in the Maslow's theory of human motivation..

5.3 Recommendations

The following recommendations were made based on the study findings:

1. There should be a critical assessment which will lead to actual provision of identified factors such as eradication of poverty, increase in employment opportunities, boost in sanitation and provision of adequate portable water, and good transportation network as shown in the findings of the study.
2. Integration of host communities' preferences into development framework should be encouraged as noticed in the qualitative research findings of the study.
3. The residents want to adopt the community artificial lakes for tourism as shown in the finding of the study. It is necessary therefore, that the tourism frameworks are developed by site managers with the involvement of the local communities, to reflect the peculiarities of the residents in and around the lakes. Creation of flexible lake tourism development framework is therefore imperative.
4. The qualitative result of the study revealed that community-based local resource management institutions does not exist in all the selected communities. Therefore, creation and strengthening of community based local resource management institutions is of necessity.

5.4 Contributions to Knowledge

The study contributes to the body of knowledge and serve as a springboard for further researches.

1. The preservation of artificial lake in any community is necessary for community well-being as a result of accelerated investment opportunities.
2. Artificial lake tourism will promote effective environmental sanitation and consequently enhanced water management.
3. Artificial lake tourism will help in achieving full and productive employment for all.
4. Artificial lake will expand the community public transportation as a result of creation of multi modal concept. In other words, water transportation will be developed to complement road transportation.

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Appendix 1: Interview Guide (for KII)

THE DEPARTMENT OF SUSTAINABILITY STUDIES
UNIVERSITY OF IBADAN, NIGERIA

Dear Respondent,

This Interview Guide seeks information for the purpose of PhD degree in Tourism focusing **on the artificial lake tourism and human well-being in selected communities in Oyo State, Nigeria**. Please kindly respond to the questions as presented. There is no wrong or right answer. Your confidentiality will be highly ascertained.

Thanks for your usual cooperation.

Local Government of the respondent ……..

Name of Artificial lake ……

Position of the interviewee ……..

- What is your knowledge about the existence of artificial lake in this community and what are the plans set aside by the stakeholders for its development?

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……
……

- What do you know about the concept sustainable development goals (SDGs)?

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……

- What is your thought about the adoption of artificial lake as tourism attraction, which could enhance rapid and sustainable development in this community?

……
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……
……

- As the first goal of sustainable development “End poverty in all its form” do you think the adoption of artificial lakes for tourism could be used to achieve this goal in this community and how do you think this could reduce extreme poverty?

……
……
……
……

- In line with your response above, do you think the adoption of artificial lake for tourism will ensure that all men and women, in particular the poor and the vulnerable in this community, have equal rights to economic resources, as well as access to basic services?

……
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……

- Do you perceive that the adoption of artificial lake for tourism will ensure the implementation of programmes and policies to end poverty in all its dimensions in this community and how do you think this can be actualised?

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……

- What can you say about the general environmental sanitation of the community by its member and how do you think the effective environmental sanitation in this community will protect the artificial lake and enhanced water management?

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……..

- Do you perceive that the adoption of artificial lake in this community for tourism will improve water management for sustainable development?

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- Do you perceive that the development of artificial lake will ensure equitable access to safe and affordable drinking water for all in this community and can you suggest ways in which government can use it efficiently to produce energy for the entire community?

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……

- Do you perceive that the sustainable management of artificial lake water in this community can promote decent job creation, entrepreneurship, creativity and innovation for the achievement of sustainable development, and what are the ways it could be managed sustainably?

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- What can you say about the adoption of this artificial lake for tourism and do you think it will encourage the formalisation and growth of micro-, small- and medium-sized enterprises in this community?

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- Will you say that the adoption of artificial lake for tourism will enhance employment opportunities in the community and what are the possible employment opportunities this could generate?

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- Do you perceive that the development of community's artificial lake will promote sustainable tourism that creates jobs and how do you perceive this in promoting local culture and products?

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……

- What can you say about the present conditions of the road leading to this community artificial lake, and do you think government are taking steps in other to put them in shape?

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……

- Do you perceive that sustainable management of every accessible roads leading to the artificial lake in this community will help in the achievement of sustainable development?

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……

- Do you perceived that the present conditions of transportation facilities within and around this community are adequate to achieve sustainable development?

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……

- Do you perceive that the adoption of the artificial lake for tourism can expand the community's public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons, and how do you think this can be actualised?

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- Suggest other ways you think the artificial lake could be developed and sustained

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Appendix 2: Questionnaire

THE DEPARTMENT OF SUSTAINABILITY STUDIES
UNIVERSITY OF IBADAN, NIGERIA

Dear Respondent,
This questionnaire seeks information for the purpose of Ph. D degree in Tourism focusing on the **on the artificial lake tourism and human well-being in selected communities in Oyo State, Nigeria**. Kindly respond to each of the questionnaire items. Your confidentiality will be highly ascertained.

Thanks for your usual cooperation.

Section A: Socio-Demographic Data

Name of Artificial lake ……..

Local Government of the respondent ……

Instruction: Please tick ( ) the option that best apply to you.

1. Sex: (a) Male ( ) (b) Female ( )

2. What is your age? ..……in years (Not date of birth)

3. Marital Status?
   (a) Single ( ) (b) Married ( )
   (c) Separated ( ) (d) Divorced ( )
   (e) Widowed ( ) (f)
Others…….....

4. What is your level of education?
(a) No Formal education ( ) (b) Primary School ( )
(c) Secondary School ( ) (d) OND/NCE ( )
(e) HND/University Degree ( ) (f) Others (specify)…….....……..

5. What is your religious affiliation?
   (a) Christianity ( ) (b) Islam ( )
   (c) Traditional religion ( ) (d) Others
(specify)……..

6. What is your job type?
   (a) Civil servant ( ) (b) Trader ( )
   (c) Artisan ( ) (d) Others
(specify)……..

7. What is your estimated monthly income? ……..

8. Do you have any knowledge about the existence of artificial lake in this community?
   (a) Yes ( ) (b) No ( )

9. Do you know what tourism is?
   (a) Yes ( ) (b) No ( )

10. Are you familiar with Artificial lakes tourism?
   (a) Yes ( ) (b) No ( )

11. Have you heard of the notion of sustainable development?
   (a) Yes ( ) (b) No ( )

12. If yes, in what connection have you heard of Sustainable Development?
   Several alternatives are possible here.
   ( ) on TV ( ) in the newspapers ( ) on radio
   ( ) from friends ( ) via the internet Others (specify)……

Section B: Artificial lakes tourism contribution to the reduction of poverty

Kindly respond to each statement given below and tick the answer that best represents your view: **(**SA (Strongly agree) - A (Agree) - D (Disagree) - SD (Strongly disagree)**)**

S/N	Items	SA	A	D	SD
13	Wiping out poverty in the World through the adoption of artificial lakes tourism is necessary for sustainable development				
14	Preserving artificial lake in this community is necessary for sustainable development				
15	The development of existing artificial lake could bring development to the entire community and enhance sustainable development				
16	Adoption of artificial lake for tourism cannot reduce extreme poverty in this Community				
17	Adoption of artificial lake for tourism will reduce the proportion of population below the international poverty line, by sex, age, and unemployment status in this community (i.e., people living on less than $1.25 a day)				
18	Adoption of artificial lake for tourism will ensure that all men and women, in particular the poor and the vulnerable, have equal				

	rights to economic resources, as well as access to basic services in this community				
19	Embracing artificial lake tourism can cause re-distribution of wealth and enhance poverty reduction for the host community				
20	Adoption of artificial lake for tourism will build the resilience of the poor and those in vulnerable situations in this community on any economic shock				
21	Embracing artificial lake tourism can reduce poor people exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters in this community				
22	Adoption of artificial lake for tourism will ensure the implementation of programmes and policies to end poverty in all its dimensions in this community				
23	Adoption of artificial lake for tourism will support accelerated investment in poverty eradication actions in this community				
24	The host community can play a role in encouraging artificial lake tourism to boost the local economic capacities				
25	Reduction of poverty for sustainable development, host community needs to be educated on how to protect their artificial lakes				

Section C: Adoption of lakes tourism for efficient and effective water management in Oyo

Kindly respond to each statement given below and tick the answer that best represents your view: **(**SD (Strongly agree) - A (Agree) - D (Disagree) - SD (Strongly disagree)**)**

S/N	Items	SA	A	D	SD
26	Ensuring availability of water in the community through the development of artificial lake is necessary for sustainable development				
27	Development of artificial lake in this community will enhance efficiently and easily accessible water source				
28	Effective environmental sanitation by all members of the community will protect the artificial lake and enhanced water management				
29	Adoption of artificial lake in this community for tourism will not improve water management for sustainable development				
30	Sustainable management of artificial lake water in this community can lead to the achievement of sustainable development				
31	Adoption of artificial lake for tourism will afford this community with fresh and clean water for its consumption				
32	Presence of artificial lake is an important economic factor for a community (i.e., drinking water, tourism amongst others)				
33	Artificial lake water can be used efficiently to produce energy for the entire community				
34	Development of artificial lake will ensure equitable access to safe and affordable drinking water for all in this community				
35	Adoption of the community's artificial lake for tourism will improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials				
36	Development of artificial lake in this community will ensure the supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity				

37	The host community can play a role in encouraging sustainable management of artificial lake water				
38	To ensure availability and sustainable management of water, host community needs to be educated on adequate and equitable sanitation and hygiene in order to protect their artificial environments (lakes)				

Section D: Identification and Promotion of existing employment opportunities within the artificial lakes

Kindly respond to each statement given below and tick the answer that best represents your view: **(**SD (strongly agree) - A (agree) - D (disagree) - SD (strongly disagree)**)**

S/N	Items	SA	A	D	SD
39	Promote productive employment and decent work through the development of artificial lake is necessary for sustainable development				
40	Adoption of artificial lake for tourism will reduce employment opportunities in the community				
41	Development of community's artificial lake will ensure the achievement of higher levels of economic productivity through job diversification (i.e., fishing, transportation and tourism)				
42	Adoption of artificial lake for tourism will encourage the formalization and growth of micro, small and medium-sized enterprises in this community				
43	Sustainable management of artificial lake water in this community can promote decent job creation, entrepreneurship, creativity and innovation for the achievement of sustainable development				
44	Development of community's artificial lake will help to achieve full and productive employment for all women and men, including for young people and persons with disabilities				

45	The existing employment opportunities within and around this artificial lake can be promoted through tourism				
46	Development and adoption of artificial lake for tourism will substantially reduce the proportion of youth employment in this community				
47	Adoption of artificial lake tourism will provide immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking in this community				
48	Development of community's artificial lake will promote sustainable tourism that creates jobs and promotes local culture and products				
49	Adoption of artificial lake tourism will improve the capacity of community financial institutions to encourage and expand access to banking, insurance and financial services for all				

Section E: Development of transportation facilities within and around the study area for the achievement of the SDGs

Kindly respond to each statement given below and tick the answer that best represents your view: **(**SD (strongly agree) - A (agree) - D (disagree) - SD (strongly disagree)**)**

S/N	Items	SA	A	D	SD
49	Ensure good road network in the community for the development of artificial lake is necessary for sustainable development				
50	Sustainable management of every accessible roads leading to the artificial lake in this community will help in the achievement of sustainable development				
51	Sustainable management of road networks within the host community of artificial lake will provide access to safe, affordable, accessible and sustainable transport systems for all				
52	The present conditions of transportation facilities within and around this community are not adequate to achieve sustainable development				

53	Adoption of the artificial lake for tourism will expanding the community public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons				
54	Development of transportation facilities in this community through artificial lake tourism will enhance integrated and sustainable human settlement, planning and management				
55	Adoption of the artificial lake for tourism will provide universal access to safe, inclusive and accessible, green and public spaces in the community				
56	The host community can play a role in encouraging sustainable management of transportation facilities leading to artificial lake water				
57	To ensure accessible and sustainable management of road network, host community needs to be educated on proper usage of transportation facilities in order to boost the image of their artificial lakes.				

APPENDIX 3

Potential Negative Impacts of Artificial Lake Tourism

S/N	ATTRIBUTES	POTENTIAL IMPACTS	MITIGATIONS
1	Vegetation	• Clearing of bushes of include uprooting of trees around the artificial lake for construction of facilities could lead to loss of vegetation • Dispersal of seeds by tourists and vehicles and equipment's could lead to the introduction of exotic species of plants which could out-compete the native species leading to and alternation of species composition and prevalence.	• Restriction of bush clearing and trees uprooting to facilities areas only • Allow vehicles and equipment to only the space allowed for parking. This will prevent seed dispersal through man/vehicle /plants. • Medicinal plants should be identified for preservation. Such valuable could only be uprooted which unavoidably necessary to do so and specie must be replanted in another location if necessary. • Paved or/and dedicated roads and routes are to be contracted for both vehicles and tourists
2.	Aquatic environment	• Use of harmful chemical products within and around the artificial lakes • Indiscriminate discharge of waste products (water, solid materials, gas, gasoline, oil, grease etc.)	• Ensure that no harmful chemicals are used indiscriminately within and around the artificial lakes • Engage the services of accredited wastes manager to dispose wastes as appropriately • Provision of adequate toilets/rest rooms. • Solid and liquid wastes are to be handled properly. • Provision of waste bins with lids at the strategic locations. • Ensure the enthronement of good policies and legal framework on sanitations

		• Impacts of bush clearing activities using fire and chemicals	and the corresponding enforcement or such regulations. • There should be regulation in place to control and prevent the usage of fire and chemical in bush clearing.
3.	Aquatic species	• Human activities on the aquatic species	• Appropriate polices and regulations.
4.	Air Quality	• Burring of vegetal matter, may generate smoke other gaseous particulate emissions which could lead to degradation ambient air quality. • Noxious emission from vehicles and other equipment	• Avoid open incineration as much as possible • Adhere to standard emission • Best practices regulations
5.	Habitats and ecosystems	• Ecosystem fragmentation consequent on human activities	• Avoid indiscriminate killing of animals and ensure support for biodiversity conservation efforts.
6.	Soil	• Vehicular movement could create landscape scarification around various project areas. • Excavation and refilling could change the soil structure and composition with attendant erosion • Introduction of external filling materials such as sand, gravel, granite, late rate could lead to contamination of the soil.	• Make sure that vehicles are parked in designated places. Vehicles to ply dedicated paths. • Refilling materials must be free of contaminants. • Clearing must be monitored to ensure that only the portions required for projects are cleared

		The component soil materials could be altered including the pH level. • Clearing of vegetation around the artificial lakes could expose the soil to wind and rain which could lead to soil erosion and alteration of soil structure and fauna. • Improper management of construction wastes and excavated materials could lead to soil pollution.	• If possible, source for materials from within and arrow the sits external materials. • Ensure proper management of construction wastes and excavated materials
7.	Noise and vibration	• Potential increase in noise and vibration as a result of movement and vehicular traffic • Noise and vibration as a result of entertainment (musicals, human etc.) • Impact of noise and vibration on the psychological stress of residents of the communities (sick, aged, disablement)	• Regulate the indiscriminate use of horn, siren and other traffic alert sound. • All musical gadgets to be controlled. Club houses to be fitted with sound prove materials. Security to look into issues that could generate commotions. • Policies must be put in place to control noise and vibrations. Information or such regulations must be ensured.
8.	Influx of peoples (permanent and temporary workers, tourists, researchers, official visitors etc.)	• Employment of more permanent/ad-hoc- staff. • Facilities operators (hotel, kitchen/restaurants, bar, photographers, tour guides, transport operators, vendors etc.) • Tourists (local and international). • Influx created pressure on limited social infrastructures (within and in the host communities)- Accommodation, power supply, transportation etc.	• Training and retraining • Training and retraining • Tourism regulations

		• Alterations and adulteration in values, customs and culture of the people of the host communities. • Influx of people of questionable characters that may affect the standard of living in the host communities • Possible introduction of social vices and increased crime rates. Teenage pregnancies (abortion), robbery, vandalism, prostitution, kidnapping, terrorism and other anti-social behaviors.	• Involvement of public private partnership • Involvement of public private partnership • Adequate information's on the values and culture of the local people • Adequate operational laws and enforcement • Adequate polices / regulations with necessary implementations
9.	Labour displacement	• Irrigation land may be used for modern day amusement facilities • Fishermen that use local/crude implement may be displaced. • Transportation/cruising through paddled canoes may be replaced with speed/cruising boats. • Illiterate /underage labour will be replaced with informed and matured labour	• Irrigation farmers to relocated to another area around the artificial lakes. • Retraining and sensitization to be encouraged. • Cooperative/partnership to be formed to meet up with the demand of the day. • Encourage the effected labour to consider other sources of income while the underage should go and learn formal trades.
10.	Transportation	• Potential traffic congestion	• Appropriate traffic management and provision of good and alternative roads.

			Creation of water transportation (multi modal system), using Flow Theory and Special Interaction Model (Complementarity, intervening opportunity and transferability).
11.	Accidents	• Increase in road traffic accidents as a result of host, agent and environment higher interactions • Water (accidents) workers and tourists.	• Road traffic safety measures to be put in place (road signs, sleeping police, traffic wardens etc.) • Water guard to be employed (Drowning, boat capsizing, swimmer's error etc.

APPENDIXE 4

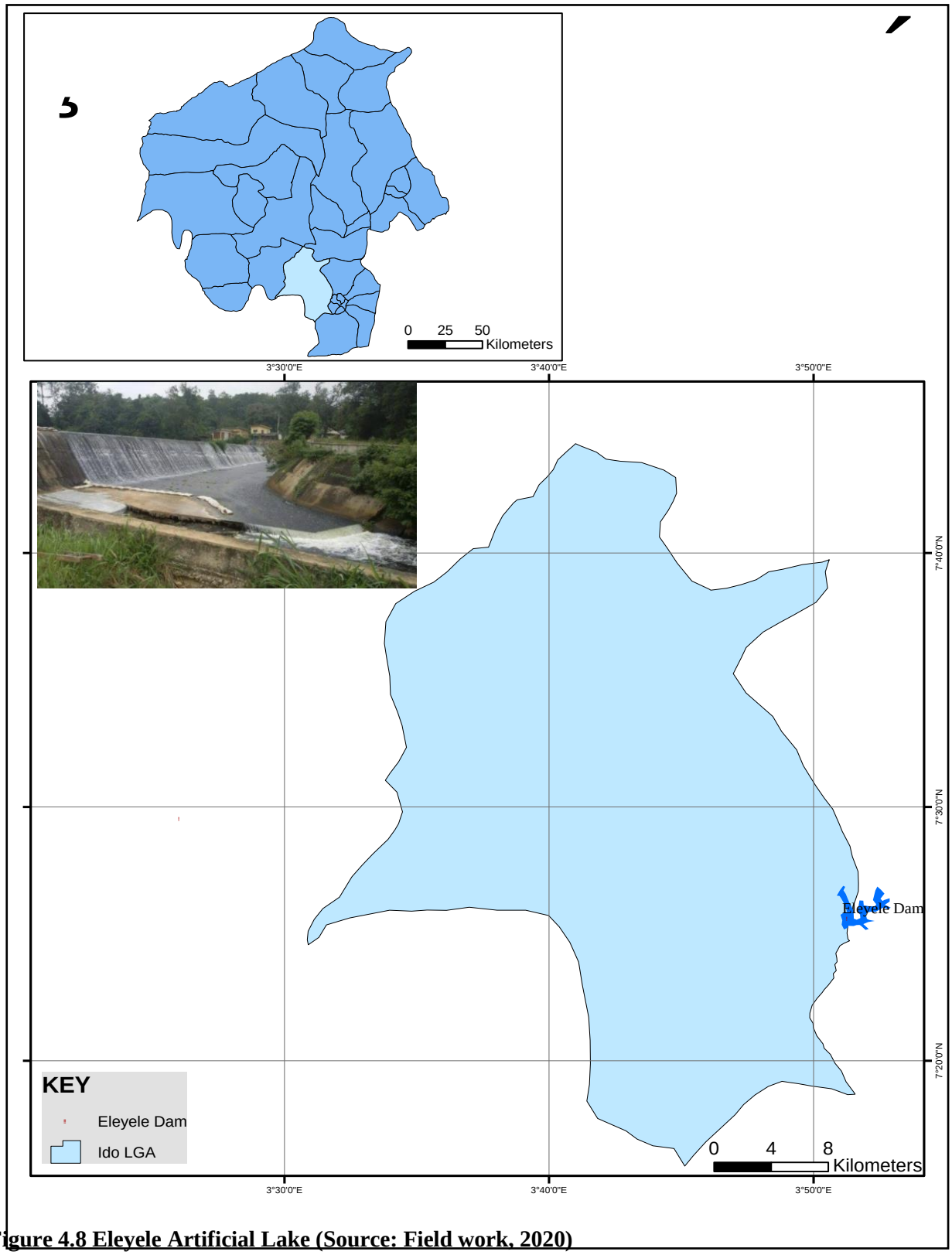

Figure 4.8 Eleyele Artificial Lake (Source: Field work, 2020)

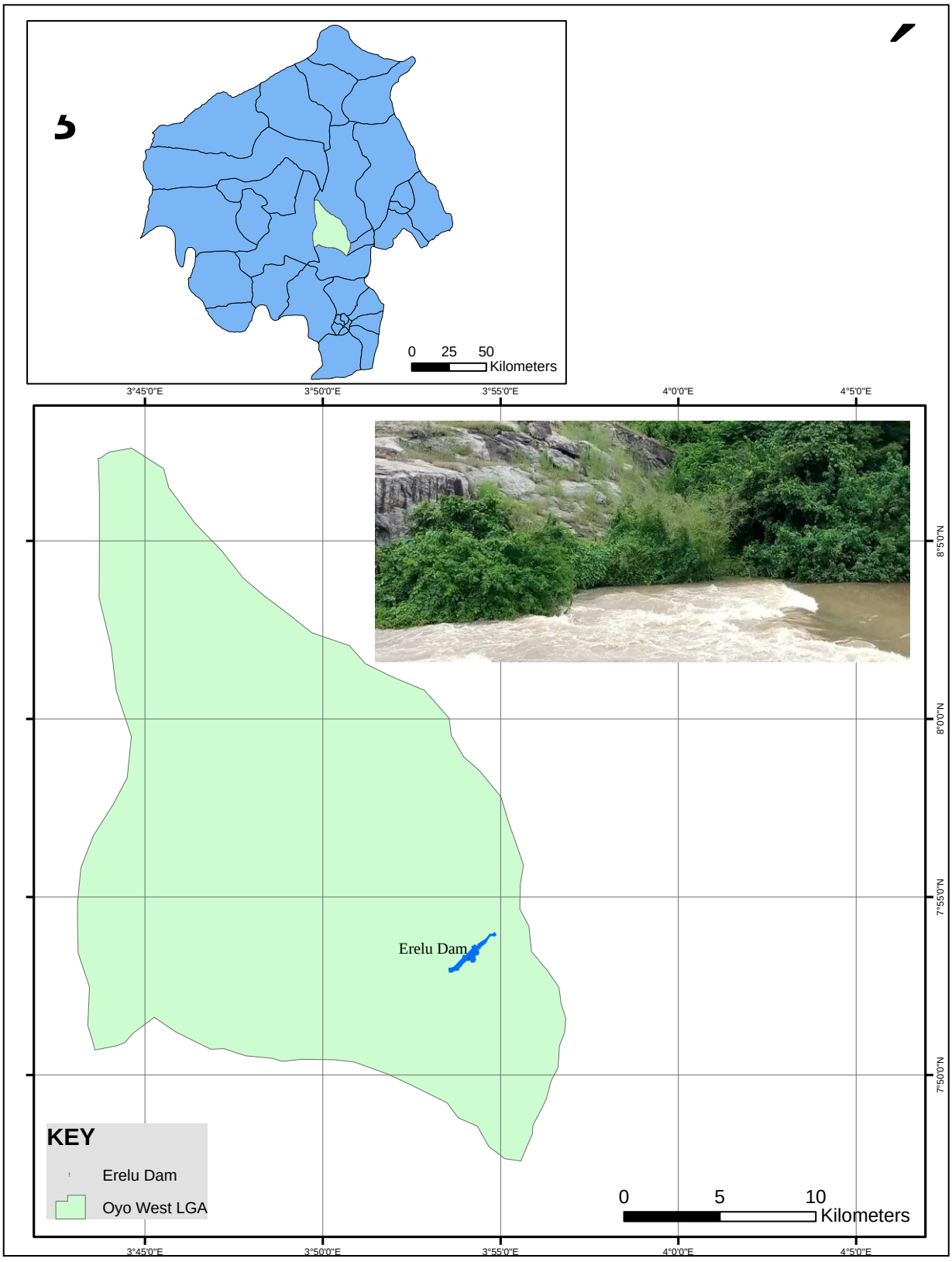

Figure 4.9 Erelu Artificial Lake (Source: Field work, 2020)

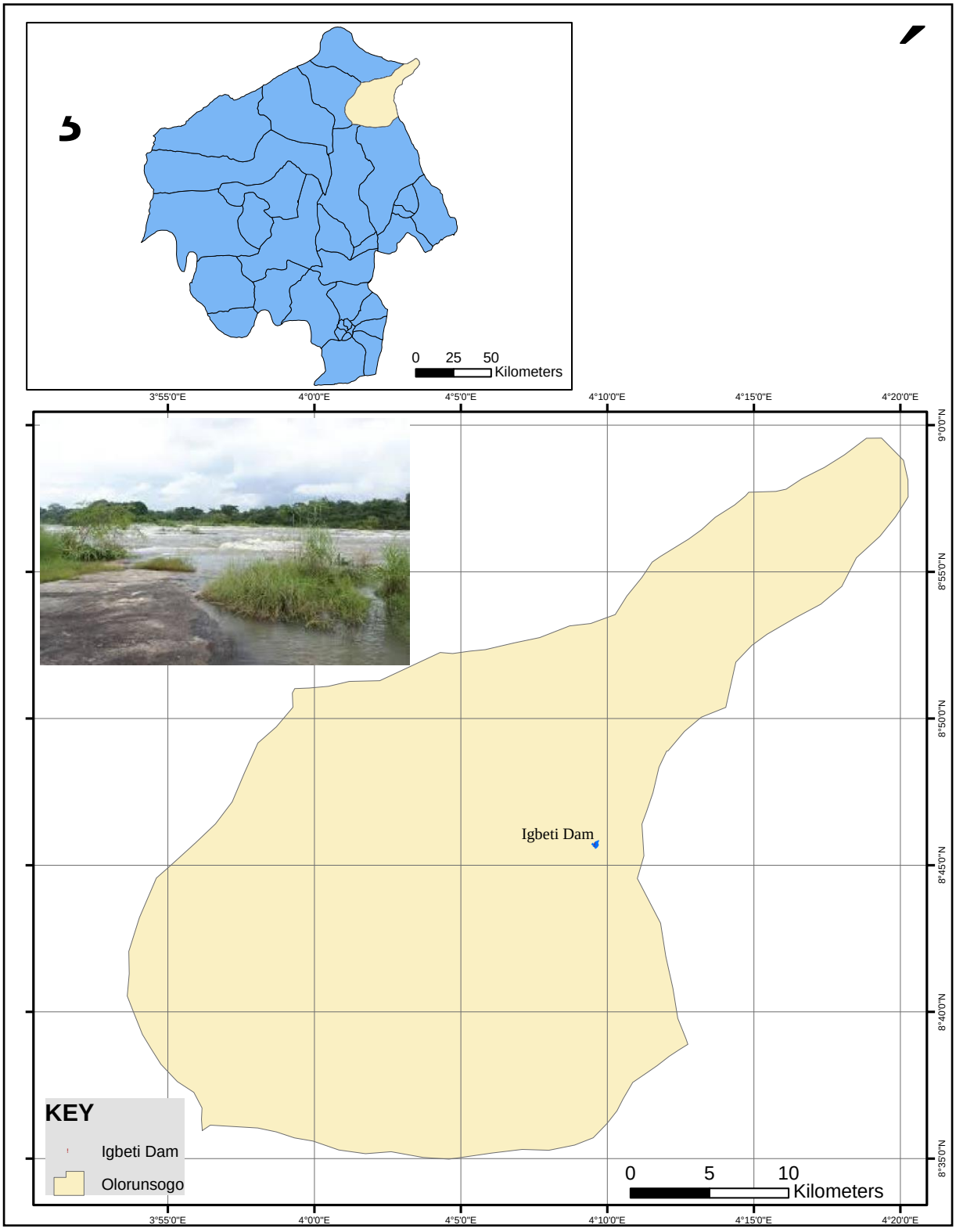

Figure 4.10 Igbeti Artificial Lake (Source: Field work, 2020)

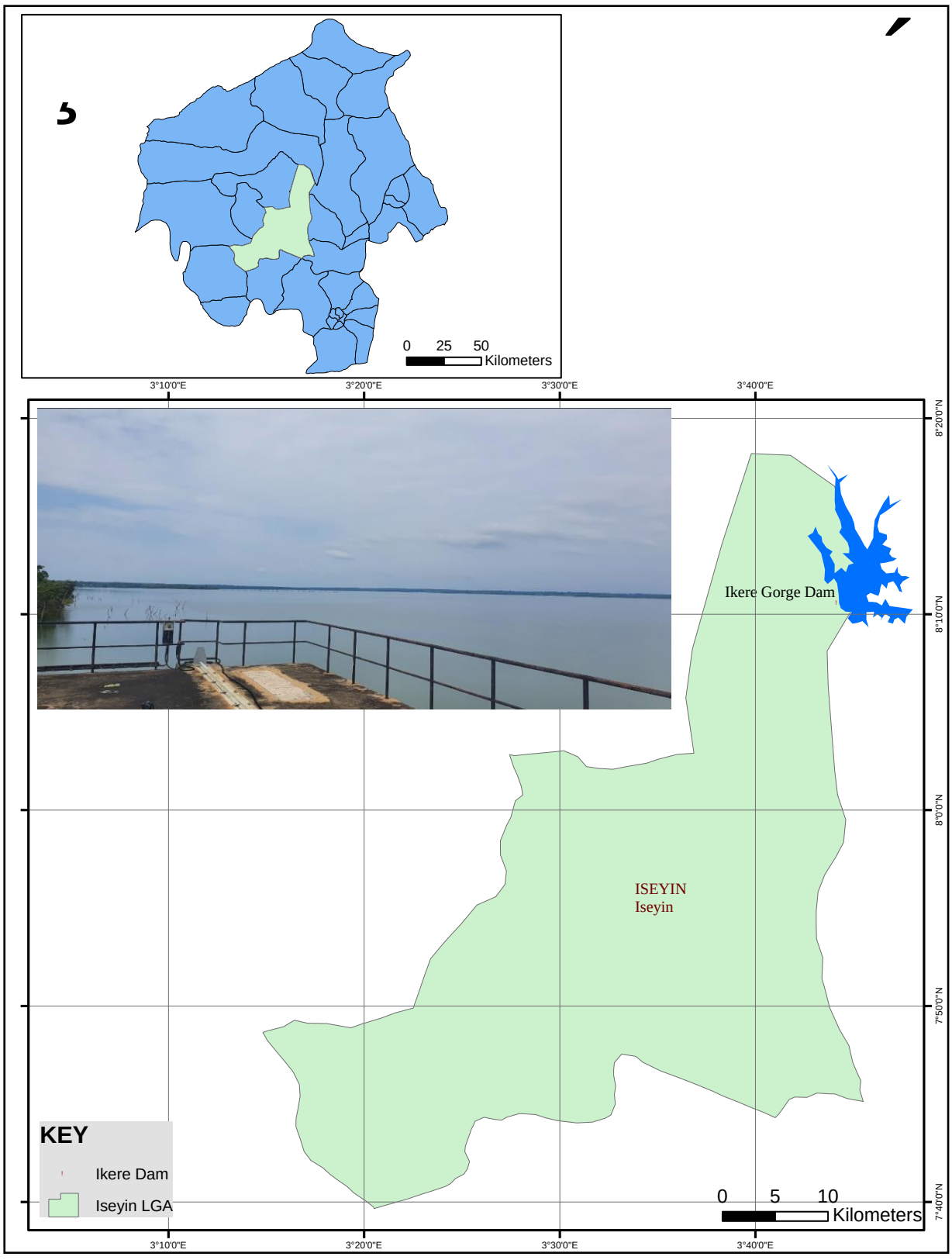

Figure 4.11 Ikere Gorge Dam (Source: Field work, 2020)

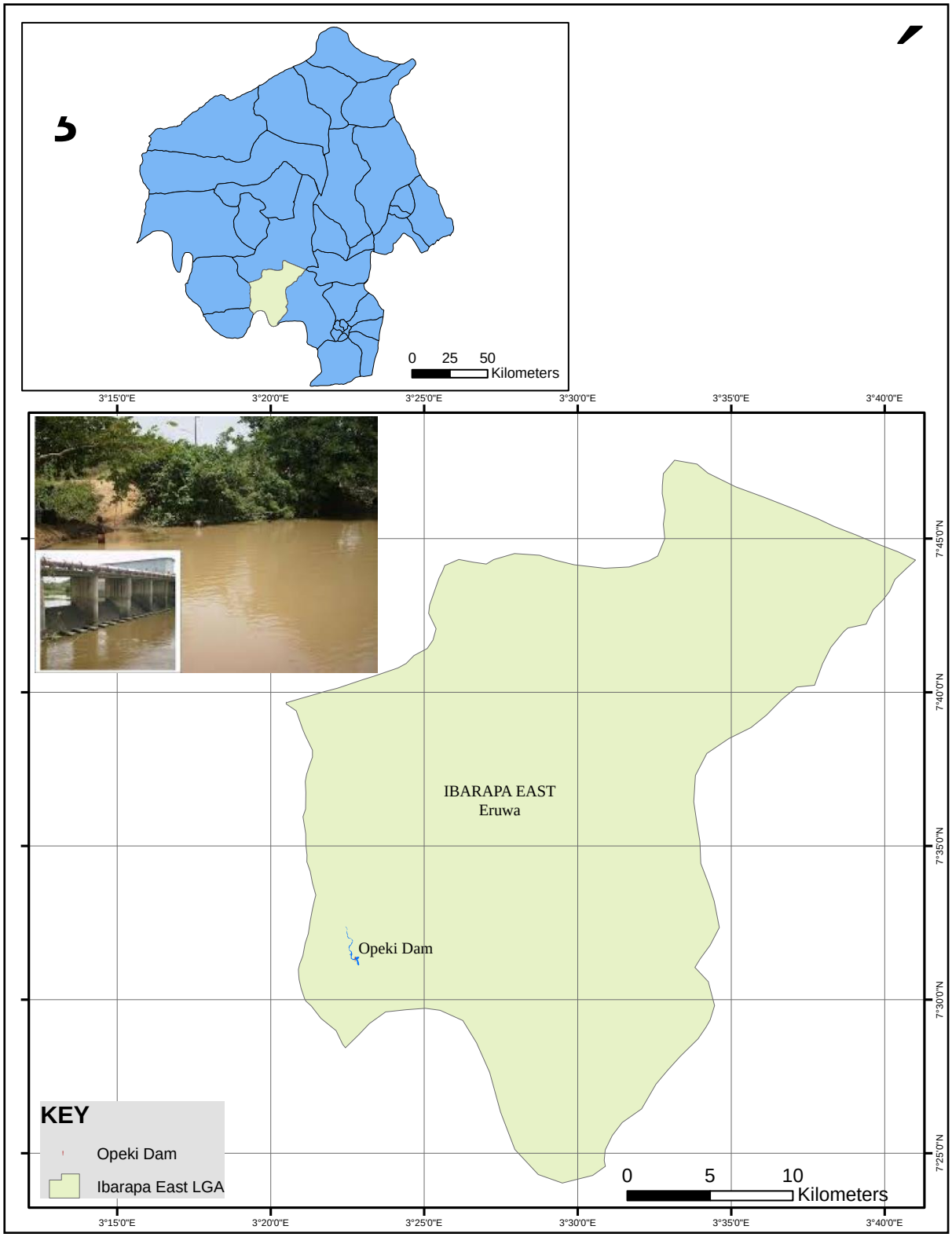

Figure 4.12 Opeki Artificial Lake (Source: Field work, 2020)

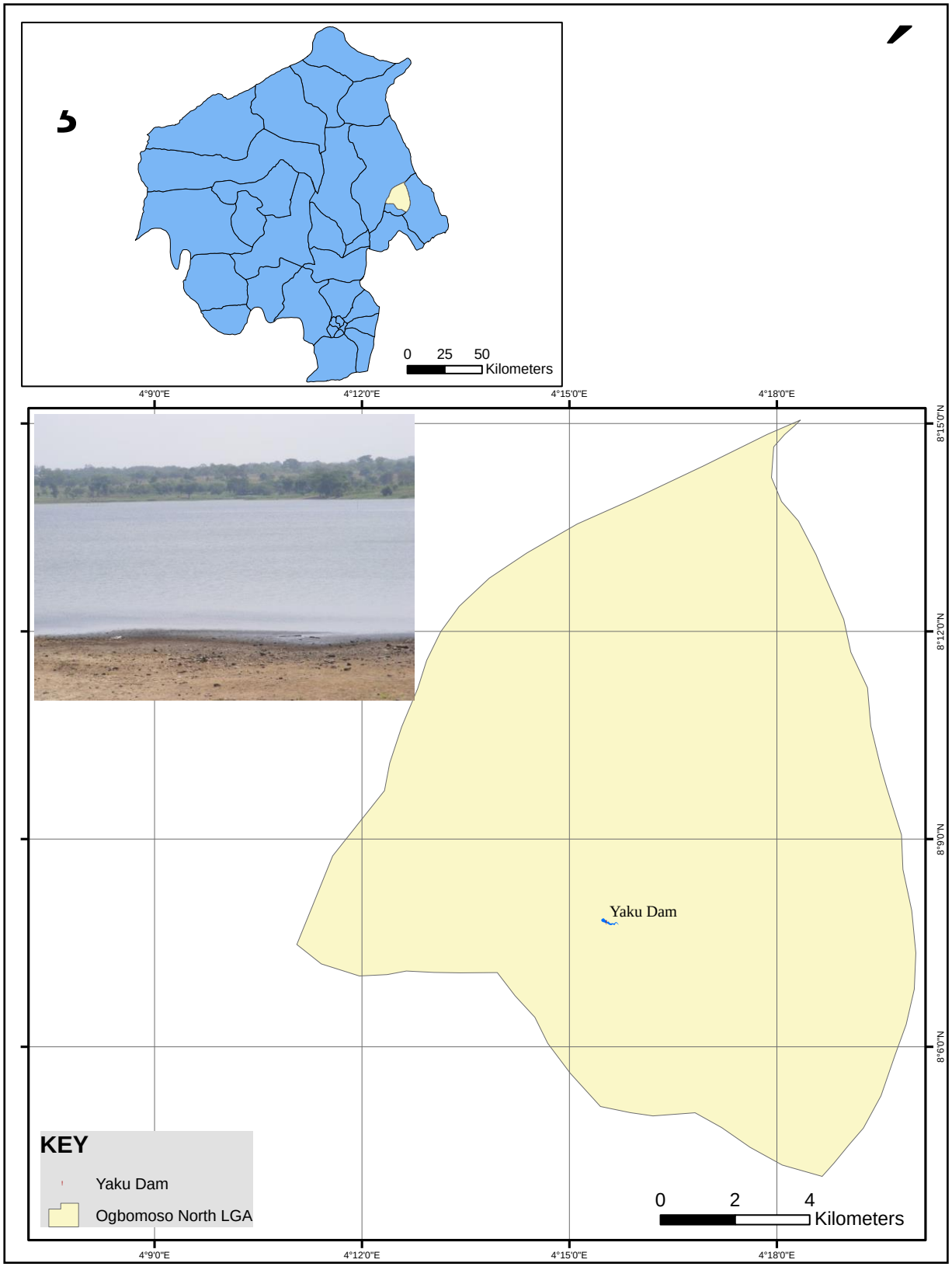

Figure 4.13 Yaku Artificial Lake (Source: Field work, 2020)

APPENDIX 5

Table 3.1: National Population Commission (NPC) figure for Oyo State

Name	Status	Population Census 1991-11-26	Population Census 2006-03-21	Population Projectiossn 2016-03-21
Oyo	**State**	**3,452,720**	**5,580,894**	**7,840,900**
Afijio	Local Government Area	82,792	132,184	185,700
Akinyele	Local Government Area	140,118	211,811	297,600
Atiba	**Local Government Area**	**...**	**168,246**	**236,400**
Atisbo	Local Government Area	...	109,965	154,500
Egbeda	Local Government Area	129,461	283,643	398,500
Ibadan North	**Local Government Area**	**302,271**	**308,119**	**432,900**
Ibadan North East	Local Government Area	275,627	331,444	465,700
Ibadan North West	Local Government Area	147,918	154,029	216,400
Ibadan South East	Local Government Area	225,800	266,457	374,400
Ibadan South West	Local Government Area	277,047	283,098	397,700
Ibarapa Central	Local Government Area	...	103,243	145,100
Ibarapa East	**Local Government Area**	**...**	**117,182**	**164,600**
Ibarapa North	Local Government Area	...	100,293	140,900
Ido	Local Government Area	53,582	104,087	146,200
Irepo	Local Government Area	...	121,240	170,300
Iseyin	**Local Government Area**	**170,936**	**255,619**	**359,100**
Itesiwaju	Local Government Area	...	127,391	179,000
Iwajowa	Local Government Area	...	102,847	144,500

Name	Status	Population Census 1991-11-26	Population Census 2006-03-21	Population Projectiossn 2016-03-21
Kajola	Local Government Area	...	200,528	281,700
Lagelu	Local Government Area	68,901	148,133	208,100
Ogbomosho North	**Local Government Area**	**104,295**	**198,859**	**279,400**
Ogbomosho South	Local Government Area	65,958	100,379	141,000
Ogo Oluwa	Local Government Area	36,188	65,198	91,600
Olorunsogo	**Local Government Area**	**...**	**81,339**	**114,300**
Oluyole	Local Government Area	91,527	203,461	285,900
Ona-Ara	Local Government Area	123,048	265,571	373,100
Orelope	Local Government Area	68,566	104,004	146,100
Ori Ire	Local Government Area	103,611	149,408	209,900
Oyo East	Local Government Area	...	124,095	174,300
Oyo West	Local Government Area	...	136,457	191,700
Saki East	Local Government Area	...	108,957	153,100
Saki West	Local Government Area	...	273,268	383,900
Surulere	Local Government Area	64,097	140,339	197,200
Nigeria	**Federal Republic**	**88,992,220**	**140,431,790**	**193,392,500**

Source: National Population Commission (NPC), 2017

APPENDIX 6

Analysis of the Objective of the Study

Table 3.3: Analysis of Objective, Data Collection and Method of Analysis.

S/n	Objectives	Data required	Analytical method
1	Explore the way by which artificial lakes tourism will contribute to the reduction of poverty in Oyo state	Structured questionnaire, Key informant interview, review of literature.	Descriptive statistics (Frequency, percentage, mean, Content and Regression analysis
2	Identify the ways by which lakes tourism can be employed for efficient and effective management of water in Oyo state.	Key informant interview, structure questionnaire, review of literature.	Descriptive statistics (Frequency, percentage). Content and K-nearest neighbor analysis
3	Observe the existing employment opportunities within and around the artificial lakes in Oyo state and proffer ways of promoting them.	Key informant interview, Structured questionnaire.	Descriptive statistics (Frequency, percentage), Content and Factor analysis
4	Assess the development of transportation within and around the study area for the achievement of the SDGs	Key informant interview, structure questionnaire.	Descriptive statistics (Frequency, percentage), Content and Factor analysis

APPENDIX 7: Enumeration and locations of all the Artificial lakes in Oyo State

(Source: Field work, 2020)

S/N	Name of Dam	Location	Local Government	Local Government Head-Quarter
1	IITA Dam	IITA	Akinyele	Moniya
2	Erelu Dam	Erele	Oyo West	Ojongbodu
3	Yaku Dam	Yaku	Ogbomosho North	Ogbomosho
4	Ikere Gorge Dam	Ikere	Iseyin	Iseyin
5	Asejire Dam	Asedjire	Egbeda	Egbeda
6	Awba Dam	U.I.	Ibadan North	Bodija
7	Igboho Dam	Igboho	Orelope	Igboho
8	Afonse Dam	Igbeti	Olorunsogo	Igbeti
9	Kisi Dam	Kisi	Irepo	Kisi
10	Iganna Dam	Iganna	Iwajowa	Iganna
11	Okeho Dam	Okeho	Kajola	Okeho
12	Irawo Dam	Irawo	Atisbo	Tede
13	Ogboro Dam	Ogboro	Saki East	Ago Amodu
14	Ilero Dam	Ilero	Kajola	Okeho
15	Ilua Dam	Ilua	Kajola	Okeho
16	Ago-Amodu Dam	Ago-Amodu	Saki East	Ago Amodu
17	Sepeteri Dam	Sepeteri	Saki East	Ago Amodu
18	Ofiki I Dam	Ofiki	Atisbo	Tede
19	Ofiki II Dam	Ofiki	Atisbo	Tede
20	Saki Dam	Oge	Saki West	Saki
21	Sanusi Dam (Idi-Ayunre)	Idi-Ayunre	Oluyole	Idi-Ayunre
22	Pade Dam (Olorunda)	Olorunda	Akinyele	Moniya
23	Ayete Dam	Ayete	Ibarapa North	Ayete
24	Oje-Owode Dam	Oje Owode	Saki East	Ago Amodu
25	Ago-Are Dam	Ago-Are	Atisbo	Tede
26	Alabata Dam (Moniya)	(Moniya	Akinyele	Moniya
27	Eleyele Dam	Eleyele	Ido	Ido
28	Opeki Dam	Eruwa	Ibarapa East	Eruwa