INVOLVEMENT IN FISH FARMING AND THE WELLBEING OF YOUTHS IN SOUTHWESTERN NIGERIA

By

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Matric Number: 140179

A thesis in the Department of Agricultural Extension and Rural Development

Submitted to The Faculty of Agriculture in partial fulfillment of the requirements for the Degree of

DOCTOR OF PHILOSOPHY

Of the UNIVERSITY OF IBADAN

FEBRUARY, 2021

ABSTRACT

Youths constitute more than half of the Nigerian populace with strong potential for economic and social development. Nevertheless, due to widespread unemployment and underemployment, their potential to contribute to national development is limited. Government and other stakeholders' advocacy for greater youth participation in agricultural enterprises as a panacea for unemployment had resulted in improved involvement in Fish Farming (FF). However, empirical evidence on influence of youth involvement in FF on their wellbeing is scarce. Therefore, involvement in FF and the wellbeing of youths in Southwestern, Nigeria were investigated.

A five-stage sampling procedure was used. Based on prominence in FF, three states (Oyo, Ogun and Lagos), three Local Government Areas (LGA) from each state and a community from each LGA resulting in nine communities were purposively selected. Membership list of fish farmers registered with the Agricultural Development Programme and fish farmers association in each community were obtained and stratified into young (≤35years) and adult (>35 years). Using proportionate sampling to size, 112, 101 and 142 young fish farmers were respectively selected from the sampled communities in Oyo, Ogun and Lagos to give a total of 355 respondents. Interview schedule was used to collect data on respondents' personal and enterprise characteristics, Level of Involvement (LI: quantity of fish stocked, number of labour, number of ponds, number of cycles per year and years of involvement) in FF, benefits derived in FF, Factors Motivating Involvement (FMI) in FF, perception of FF as a good career option, participation in procedural FF activities, constraints to involvement in FF and wellbeing (objective and subjective). Indices of involvement (low, 18.0-22.5; high, 22.6-38.0), perception (favourable, 11.0-21.9; unfavourable, 22.0-27.0), objective wellbeing (worse-off, 20.0-46.9; better-off, 47.0-55.0), subjective wellbeing (worse-off, 13.0-46.8; better-off, 46.9-65.0) and overall wellbeing (worse-off, 1.0-16.9; better-off, 17.0-30.0) were generated. Data were analysed using descriptive statistics and multiple regression at $\alpha_{0.05.}$

Respondents were mostly male (85.6%), formally educated (97.6%), aged 32.6±3.7 years with 7.6±5.1 years of experience. Respondents had 5.4±4.1 fish ponds, stocked 5,085.0±3.2 fish, produced 2.9±2.3 cycles per year, generated ₦403,464.00 ± ₦3.90 per cycle and employed labour (96.9%). Self-dependency (1.92±1.07) and improved food security (1.90±1.06) were

major benefits derived from FF. The FMI in FF were profitability report (2.40±0.8) and self employment opportunity (2.24±0.4). Above half of the youths indicated favourable perception of FF as a career (63.1%), had high participation in procedural FF activities (59.7%) and low LI (59.2%) in FF. Constraints in FF were; inadequate access to capital (1.40±0.8), high cost of feed (1.36±0.7) and high startup costs (1.26±0.8).The youths were mostly better-off in their objective (51.3%), subjective (67.6%) and overall (52.4%) wellbeing. Wellbeing of youths was most predicted by their education (β =0.235), motivation (β =0.149), LI (β =0.120) and decreased by constraints (β=-0.102).

Involvement in fish farming impacted positively on the wellbeing of youths in Southwestern, Nigeria, by improving their access to life essentials, ability to meet basic needs, relationships and self-confidence. Fish farming could therefore prove effective in tackling youth unemployment and improving their wellbeing status.

Keywords: Youth unemployment, Procedural fish farming activities, Subjective well-being, Fish farmers association

Word count: 495

CERTIFICATION

I certify that this study was carried out by SAMUEL Olufunke Olubukola in the Department of Agricultural Extension and Rural Development, University of Ibadan, Nigeria.

Date	Supervisor Prof. Stella O. Odebode B.Sc (Ile Ife), P.G.D.E (Ibadan) M.Sc. (Ibadan), PhD (Ibadan) Professor of Gender and Generational Studies Department of Agricultural Extension and Rural Development, University of Ibadan, Ibadan, Nigeria.

DEDICATION

To the pillar that holds my life, the God of the whole universe, my enabler, author and finisher of this cause;

To my extraordinary mother and father
Elder Stella Oyebola Olaniyi and Engr. Matthew Folasayo Olaniyi

To my loving husband
Oladeinde Samuel

To my ever supportive and understanding gems: **OluwaDarasimi, Ireoluwatomiwa and Oluwaseuntowunmi Samuel**

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ACKNOWLEDGEMENTS

This remarkable feat was because the invisible God, the most blessed, the most glorious, most gracious, most powerful and most mighty made it so. Almighty, victorious thy great name I praise. God alone deserves the praise for starting and ending this project. The devil made it look like this kind of day will never come, but the most gracious God brought it to pass even in the least way I expected. I am eternally grateful.

I greatly appreciate my Head of Department, Prof. L.A. Akinbile and all lecturers in the Department of Agricultural Extension and Rural Development for their commitment to mentorship and tutoring, May the good Lord reward your efforts abundantly. Words are not enough to appreciate the efforts of my supervisor, Professor Stella O. Odebode, who only not played the role of supervisor, but also drew me closer as a dear child. She stood by me, motivated me and was a very strong force in completing this study. I learnt the act of hard work and motivation from her. Thank you, Ma. I also appreciate the selfless contribution of the postgraduate coordinator Dr. R. Olajide, your sacrifice and commitment to students success is highly commendable sir and I pray that the Lord will reward you abundantly.

The contributions of my friend, former class mate and colleague Dr. O. S. Fadairo is immensely appreciated and cannot be quantified. May the good Lord bless and honour you. I appreciate Dr. Olufolake E. Adelakun, Dr. I.O. Badiru and Dr. K.A. Thomas for taking time out to read through my work and contributing positively to it.

I equally appreciate Dr. Wale Adejumo who has become both a brother and friend in the course of supporting me in the project. You will forever be helped divinely, no word is sufficient to say thank you.

I cannot but thank Dr. Nathaniel Sangotegbe; Dr. Nat (as popularly called) for his enormous contributions in meticulously and strategically guiding the presentation of my post data results. For this and many more contributions, I appreciate you. Tope Omirin was very instrumental in data collection; he accompanied me on all the field trips and also put me through the rudiments of SPSS coding for my research questionnaire. Tope, thanks for the immense sacrifices you made.

I specially thank Mr. Fisayo (Ijebu), the (chairman of Catfish Farmers' Association Ibadan, Youths in fish farming, (Lagos) and all zonal extension officers who assisted me in my field work. God bless you tremendously

What can I say concerning my sweetheart, Oladeinde Samuel, you are more than a husband; you have taken the role of a father, friend and brother, you supported me through thick and thin; morally, financially and in all ways. Thank you for staying by my side. I really appreciate the love, patience and commitment to my cause

Ever supportive and sweet, my mother Stella Oyebola, you will forever be remembered and cherished, without the great and strong foundation you laid, this will not have been possible. Your prayers, encouragement and support will forever be immensely remembered. I equally thank my Dad, brother and sisters who stood by me during this period. I appreciate you all tremendously

To my children (Oluwadarasimi, Iretomiwa and Oluwaseuntowumi) whom we started and ended this journey together, I appreciate the sacrifices you made and the understanding you displayed in the course of this journey. It was not a small one. I love you. I pray you will achieve every good plan of God for your life in Jesus name.

I appreciate my Uncle; Dr. Ajibola Olaniyi, who passed away while I was still analysing my data. You are not late in my sight, your help and connection with Agric extension officers and youths in fish farming helped tremendously with my data collection process and pretest. Dear Uncle, it is a pity you did not wait to see this day. Continue to rest in the Lords bosom. You will forever be remembered.The journey to becoming a Doctorate Degree holder was very interesting, challenging and cumbersome. I am so grateful that it is finally completed; I really appreciate all who contributed in one way or the other. It was long, rough and tough but you all made it worth it.

SAMUEL Olufunke Olubukola (2019).

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INTRODUCTION

Human progress is currently being linked to entrepreneurial dispositions. There is now a growing awareness on the relationship between the wellbeing of people and their enterprise activities (Nwodo, 2015). Roy, Donaldson, Baker and Kerr (2014), explained that enterprise activities can impact positively on peoples' mental health, self-reliance/esteem and health behaviours of people. It can also help reduce stigmatisation and build social capital, ultimately improving wellbeing. An enterprise simply refers to a business or can be used to denote the actions of individuals who embark on, set up, invest in and shoulder the risk of running a business (Riley, 2015). In recent years, entrepreneurship has become a general axiom. Politicians continuously emphasize the need to establish a more entrepreneurial society, while the media frequently promote themes around successful entrepreneurs. This is due to the ability and potentials of entrepreneurial activities to positively impact the economy of nations and societies (Adejumo, 2001). Youth entrepreneurship can also greatly impact the social, cultural and economic progress of societies (OECD, 2013).

Presently, youth entrepreneurship and empowerment have become a global phenomenon dominating the developmental agenda, plans and strategies of developing and developed nations (Nwodo, 2015). Youths rank highly amongst the numerous assets of nations and posses tremendous potential to yield to their country's development. Young people can function as a good indicator of the scale of their country's sustainability and reproducibility. The degree of their agility, dependable conduct, and participation in society positively correlates with its progress. Youth Business International (2012) reported that youths involved in enterprises have greater sense of self-esteem and become more productive members of their families and communities, thus enhancing political stability, improving the general standard of the whole society and promoting national security.

Among youths, one of the most excruciating individual experiences is unemployment. The youth population everywhere is on the increase with profound presence of unemployment and restiveness; challenging global peace and economic growth (Nwodo, 2015).Youths are

the leaders of tomorrow, therefore no effort should be spared at developing their productivity and preparing them for responsibility.

Enterprise activities and innovative areas exist abundantly for youths to explore. These include; agricultural activities encompassing foodstuffs, restaurants, fast food vending etc. Solid minerals industry also offers quarrying, gemstone cutting/polishing and crushing opportunities. The Information and Communication Technology also offers opportunity in repairing mobile phones, computers and other computer related devices while allowing the printing and sales of recharge cards (Agbeze, 2012). Among these opportunities, agriculture and fish production are rated high on the list, as the agricultural sector contributes about 40% of the nation's Gross Domestic Product (GDP), and equally contributes to food consumption (Smallholders Foundation, 2013). Widely considered today as the pivotal link to economic growth and a means of entrepreneurial activity that needs to be assessed by the youth, agricultural entrepreneurship has gained wide spread popularity. It can create tremendous self-employment opportunities to the youths because of its rich network of functions (Federal Ministry of Agriculture and Rural development (FMARD); 2015). Agriculture has also been viewed as a way of engaging youths and encouraging entrepreneurship by various African Governments.

The term 'aquaculture' covers all forms of cultivation of aquatic animals and plants in fresh, brackish and saltwater. Aquaculture has the same objective as agriculture, that is, to increase the production of food and fish products. The aquaculture industry has experienced three times growth more than other livestock farming (United Nations Food and Agricultural Organization State of World Fish and Aquaculture 2012).

Fish farming is a subset of aquaculture which deals with the cultivation of fish in a controlled environment for the purpose of consumption or sales. In Nigeria, the fish enterprise is undoubtedly one of the fastest growing agricultural enterprises (FAO, 2012). Throughout the centuries, fish has been an important component of human diet in many parts of the world. Fish catches increased rapidly over the past hundred years due to improved technology which provided more powerful fishing engines and equipment. This

led to over fishing, a worldwide decrease in wild stocks and the need to increase fish production via fish farming (Carballo *et al*., 2008).

Nigerians are high fish consumers and offer the largest market for fish and fisheries products in Africa. Fish farming has thus become an important venture in the quest for food security and eradication of malnutrition especially among infants (Awotide, 2012). Fish farming is reported to be highly profitable as a venture, with returns of over 50% on investment if the planning and management are properly handled (Rufus et al., 2009). It also holds a strong appeal to people desiring additional sources of income and those who want to start their own businesses because they no longer wish to remain in the conventional white collar job.

Fish farming has the potential to supplement fish production from capture fisheries which is gradually decreasing due to the high increase in fish demand and increasing population figures (World Ocean Review, 2012). Despite its popularity in Nigeria, the fish farming industry can best be described as being at the infant stage when compared to the large market potential for its production and marketing (Nwiro, 2012).

Recently, the demand for fish products increased and affected fishing in the natural habitats (Federal Department of Fisheries, 2012). Also, unlimited opportunities abound in fish farming and it is widely recognised as the alternative and best solution to the current deficit in fish supply and demand in Nigeria (FMARD, 2015). Youth participation and integration in different aspects of Agriculture; particularly fish farming can help combat the issues of ageing farmer population, and huge gap in demand and supply of fish products in Nigeria (Global Employment Trends, 2013) youths still have the advantage of age and strength on their side. Not only will increased involvement of youth in agricultural activities reduce the problems of the ageing farm population, increase fish production, it will also help reduce the problem of youth unemployment. The youth as an individual can become empowered, employer of labour and help improve the living condition of the populace, thereby contributing to poverty alleviation.

Retrospectively, to achieve successful development in any segment of the economy, the role of the youths cannot be ruled out. Likewise in fish farming, meaningful development or

increased productivity cannot be achieved without examining the roles and possible contribution of the Nigerian youth. Onuekwusio and Okorie (2008) asserted that young people with higher literacy levels can bring the entrepreneurial spirit into agriculture.

Given the Nigerian youth unemployment situation, entrepreneurship remains a viable option to create jobs and reduce poverty. Entrepreneurship empowers them to develop their businesses, pursue their dreams and contribute to overall productive capacity and national development. Youth entrepreneurship reduces crime, poverty and income inequality. This indirectly induces an environment for national and regional economic growth and development (Mutezo 2005).

Previously, existing career options for university graduates were limited to governmental, non-governmental or private organizations, but recently, with the growing number of graduates, youth population and increasing dependency ratio (84%) in Nigeria, youth involvement in enterprise activities are gradually on the increase, with more youths turning to agriculture and particularly the fish enterprise as an alternative to the "not so forthcoming" white collar jobs. Olaoye, (2015) reported that "the conception that agriculture is principally the occupation of the elderly has reduced drastically as youths now engage in backyard farming as a means of secondary occupation to supplement their sources of income and to attain achieve a higher wellbeing". Enterprise activities in fish farming are therefore seen as an instrument for improving the wellbeing or quality of life of families and communities, and for sustaining a fit economy (Chandramouli *et al*., 2007).

Wellbeing is generally viewed as a description of the state of people's life situation (McGillivray, 2007). Wellbeing has been found to have an impact on many aspects of people's lives such as their health, work and social relationships. These relationships have also been found to impact on people's wellbeing. There are different conceptualizations of wellbeing, but all these concepts and definitions are related to the idea of how good life is or how satisfied any person is with his own life (Saari, 2011). Pollard & Lee (2003), referred to wellbeing as a "complex, multi-faceted construct that has continued to elude researcher's attempt to define and measure". While there is no single definition of well-being, it is pertinent to note that it entails meeting various essential human needs (e.g. being in good

health), as well as having the ability to pursue one's goals, thrive and feel satisfied with life. Although, it has multidimensional aspects, it is traditionally measured by economic indicators, such as the level of income, education, access to health etc. According to the United States department of health, (2014), wellbeing has a wide range of determinants across several themes of health, learning, work, environment, social inclusion, activity and relationship and Parenting and early years interventions. Studying an industry's wellbeing is a pointer to how they are fairing (Clay and Smith, 2010).

1.1 Statement of the research problem

The Youth Wellbeing Index; a pioneer report on the wellbeing of youths in the world classified the wellbeing of Nigerian youths as the lowest, amongst the wellbeing of youths surveyed in thirty countries of the world (International Youth Foundation and Center for Strategic and International Studies, 2014). This report is highly alarming, as youths constitute more than 60% of the entire Nigerian populace and represent the strength of any nation. They are highly critical to the social development of every nation. Regardless of a nation's natural resources and advantages, no nation can afford to disregard its youth population, as they are the building blocks of the future. Youths were marginalised, neglected and omitted in developmental agenda, thus endangering their wellbeing. The wellbeing of individuals, including youths, depend on a number of variables, from which income, employment and other job related issues rank high (EUROSTAT, 2012).

The world is facing a worsening employment crisis as about 201 million people are unemployed worldwide (International Labour Organisation, 2015). Youths are the worst hit, as they constitute about 40% of this number. They are three times more susceptible to unemployment than adults (ILO, 2018). In Africa, 60% of the unemployed are young people (Next Generation, 2014). Similarly, in Nigeria, 61.6% of Nigerian youths are unemployed (NBS, 2017) and this situation is made worse by the millions of young boys and girls with National Youth Service Corps (NYSC) discharge certificates entering the labour market every year with extremely limited opportunities for employment (Next Generation, 2014).This situation has been described by many stakeholders as a "ticking time bomb which now appears to be perilously close to exploding" (ILO, 2015). Lack of a steady source of income will impact the youth's physical and mental health, psychology, social life

and housing conditions, amongst other things. Furthermore, youth unemployment has national and global impacts. In Nigeria, unemployed youths are easily lured into kidnapping, civil unrest, terrorism and all related vices (Adejumola and Olajubulu, 2009).

It is highly unlikely that this increasing number of youths can all get access to "office or white collar jobs" (Global Entrepreneurship Monitor, 2013). The enterprise sector in Nigeria has therefore been identified as a place where numerous economic opportunities exist; one of such is fish farming (Small Holders Foundation, 2013). Due to rising middle class population, dwindling catches from the capture fisheries and a high (2.1 million metric tonnes) demand gap in current fish production figures vis a vis supply, fish farming, has been adjudged as having enormous potentials for wealth creation and sustainable jobs for the millions of job seeking young people (FMARD, 2014). Several studies have asserted that fish farming can be a lucrative and profitable enterprise. Adewuyi (2012) observed that when one naira is invested in catfish culturing by some young fish farmers in Kwara and Oyo States, a return of N1.55 and a profit of N0.55 was obtained. Akinbile (2009) further corroborated this by asserting that out of several production sub-sectors studied, fish sub-sector was part of those with the highest effects on households with the injection of one naira.

The Nigerian government has similarly, considered fish farming as a good means of engaging youths and reducing unemployment. At the Federal level, recent efforts to engage Nigerian youths in agriculture enterprises include: Youth Empowerment Schemes (AGRIC YES), Subsidy Reinvestment Programme (SUREP), Youth Enterprise with Innovation in Nigeria (YOUWIN!) and N-Power Agro. Several states such as Bayelsa, Kaduna, Rivers, Lagos, Oyo and Ogun also spearheaded varieties of youth initiativhes (NBS, 2014). Regularly, the government and other stakeholders advocate for greater youth involvement in fish farming.

In spite of this increasing awareness about opportunities in fish farming as a panacea for youth unemployment, many unemployed youths are yet to embrace the opportunities in fish farming (NAFIRRI, 2010). Similarly, little or no considerable research is available to assess the wellbeing of those youths currently involved in the fish farming business. Presently,

there exists a scarcity of literature on youths involvement in fish farming despite the fact that campaign for greater youth involvement in enterprise activities such as fish farming been on for decades, but the effects of this involvement on their wellbeing have not been sufficiently investigated. Therefore, there is a need to examine how fish farming has influenced the wellbeing of youths involved in the enterprise; with a view to encourage greater youth involvement and for enhancing youth wellbeing. Hence, the following questions are pertinent to the study:

i. What are the personal characteristics of youths in the study area
ii. What are the enterprise characteristics of youths in the study area?
iii. What is the frequency of participation of youths in preproduction, production and post-production activities on the farm?
iv. What is the level (intensity) of involvement of youths in fish farming business in terms of the number of ponds, fish production cycles, fingerlings stocked, employees and years of experience?
v. What are the benefits derived by youth from involvement in fish farming?
vi. What is the level of wellbeing of youths involved in fish farming in the study area?
vii. What are the factors motivating youth involvement in fish farming?
viii. What is the youth perception of fish farming as a good career option?
ix. What are the constraints experienced by youths involved in fish farming?

1.2 Objectives of the study

The general objective of this study is to ascertain how involvement in fish farming has affected the wellbeing of youths in Southwestern Nigeria. The specific objectives are to:

i. identify the personal characteristics of youths in the study area,
ii. assess the enterprise characteristics of youths in the study area,
iii. ascertain the frequency of participation of youths in preproduction, production and post-production activities on the farm
iv. establish the level (intensity) of involvement of youths in fish farming business in terms of the number of ponds, fish production cycles, fingerlings stocked, employees and years of experience

v. ascertain the benefits derived by youths via involvement in fish farming,
vi. ascertain the level of wellbeing of youths in the study area,
vii. examine the perception of youths on their involvement in fish farming as a good career option,
viii. identify the factors motivating youth involvement in fish farming,
ix. identify the youths perception of fish farming as a good career option
x. identify constraints faced by youths involved in fish farming,

1.3 Hypotheses

The following hypotheses, stated in null form, were tested in this study:

H_{01}: There is no significant relationship between constraints faced in fish farming and the respondents' wellbeing.

H_{02}: There is no significant relationship between benefits derived from fish farming and respondent's wellbeing.

H_{03}: There is no significant difference in the level of wellbeing of youths across Lagos, Ogun and Oyo States (Study area)

H_{04}: There is no significant difference in the level of involvement (intensity) in fish farming across Lagos, Ogun and Oyo States (Study area)

H_{05}: There is no significant relationship between the independent variables (personal characteristics, enterprise characteristics, level of involvement, benefits derived and constraints faced) to the wellbeing of youths involved in fish farming in Southwestern Nigeria.

1.4 Justification

This is a significant period worldwide, when globally, policy makers are concerned about the implementation of the Sustainable Development Goal (SDGs) and making plans for total inclusion. Youths can be critical success factors to the continuous efforts to increase production of food (Farming News Daily, 2012). This study is therefore imperative because of the increasing global call for the wellbeing of youths, the call for youth entrepreneurship and engagement in agriculture (Adekunle *et al.,* 2009). It will assist policy makers, development agencies and other stakeholders in the development world in identifying factors to consider when designing programmes for increased agricultural productivity and youth development/empowerment. It will also help in highlighting factors for arousing a favourable attitude in the younger generations' interest in agriculture.

This study is highly relevant, because beyond the call for increased participation of youth in agriculture, it examines the wellbeing of those youths currently involved in an aspect of agriculture (fish farming) and their peculiar constraints with the aim of exploiting these factors to induce greater youth involvement. By studying the wellbeing of youths in fish farming, insight will be provided into how positively or negatively, involvement has affected their wellbeing and how they got involved in the business. If involvement has significantly improved their wellbeing, such factors can be exploited to encourage unemployed youths to engage in fish business in order to better their wellbeing. Encouraging more youths to embrace fish farming as a means of improved wellbeing will not only contribute to solving the problem of high youth unemployment currently ravaging the country, but will also help address the widely known problems of ageing farmer population currently experienced in Nigeria (FDF, 2014). Finally, this study will serve as one of the pioneering work that accessed wellbeing using both its subjective and objective measures, and that also researched the wellbeing of youths involved in agriculture. In Nigeria, data on the wellbeing of youths in general or youths in agriculture are relatively scarce. The study contributes further knowledge to previously existing studies on youth, wellbeing and fish farming in Nigeria.

1.5 Operational definition of terms.

1) **Aquaculture**: Aquaculture deals with the raising of aquatic organisms under controlled or semi-controlled conditions for economic and social benefits. Aquatic organisms include fishes, molluscs, crustaceans and aquatic plants

2) **Entrepreneur:** An individual who, rather than working as an employee, runs a small business and assumes all the risk and reward of a given business venture, idea, or good or service offered for sale. He is a business leader and innovator of new ideas and business processes.

3) **Entrepreneurship:** This is the act of organizing, managing a business undertaking and assuming the risk in order to make profit.

4) **Enterprise**: This is another name for a business and it is also used to describe the actions of someone who shows some initiative of taking a risk by setting up, investing in and running a business

5) Fish Farming: refers to the sub-set of aquaculture that deals with the rearing of fish under controlled or semi-controlled conditions for economic and social benefits. It is synonymous in this text with fish culturing

6) Youth: Young people whose age bracket falls between ages 18 and 35years

7) **Wellbeing:** Wellbeing in this study is conceptualized as a term that describes the condition of a person's life situation. Deals with how happy, healthy and prosperous an individual is. It can either be assessed on the basis of satisfaction with the individual's life (subjective) or on externally observed facts (objective).

8) **Motivation:** is defined as the force that influences the youth to embark on fish farming

9) **Involvement in fish farming:** The process or act of taking part in fish farming

10) **Objective Wellbeing** refers to an external evaluation of wellbeing of fish farmers using measurable criteria and understanding of the social context.

11) **Perception of prospects of fish enterprise as a career:** This is the youths belief, opinion, or judgement about how promising fish farming is in achieving self-fulfillment and personal happiness and if they can recommend or encourage other youths to get involved in fish farming

12) **Subjective wellbeing**: refers to how fish producers think and feel about their life, it measures their satisfaction with particular aspects of their life, or with life overall. It is the way they perceive their life situation.

CHAPTER TWO

LITERATURE REVIEW

2.0 The Fish industry in Nigeria

Fish supply is basically from two sources: capture fisheries (marine and inland) and aquaculture. Capture fisheries depend on naturally recruited and occurring wild populations while aquaculture refers to the culturing of farmed fish and other aquatic organisms (Ipinmoroti, 2012). Nigeria has two major marine fisheries sub-sectors: the artisanal or small-scale and the industrial or trawl fisheries (Table 2.0). Marine artisanal fisheries activities are divided into two major components; the brackish water fisheries (with fishing activities in the creeks and estuaries where freshwater flowing down the river mixes with salt water moving up with high tide) and the artisanal inshore fisheries (with fishermen operating in waters of less than 40 m depth).

Fishery contributes about 4% to Nigeria's Agricultural GDP; it is a high foreign exchange earner, generating about 38.3 million USD annually and also provides direct and indirect employment to about 8.23and 18.27 million Nigerian (FDF, 2012). According to the American Journal of Experimental Agriculture, 2014, the fisheries sector in Nigeria accounts for about two per cent of National Gross Domestic Product (GDP), 40 per cent of animal protein intake and a substantial proportion of employment, especially in the rural areas; the sector is a principal source of livelihood for over three million people in Nigeria. Its advanced factors such as need for job creation, generation of supplementary income, nutrition improvement in rural areas, and creating multiple income channels for the development of aquaculture serves as attraction into fisheries business.

Nigeria is blessed with over 14 million hectares of reservoirs, lakes, ponds and major rivers capable of producing over 980,000 metric tonnes of fish annually (FDF, 2007).

a. Artisanal fishing – Artisanal fishery is the harvesting of fish from rivers, streams and lakes by small scale fishermen using both traditional and modern fishing gears. It entails hunting for fishes in their natural habitats along the coast line and the boundary of inland water bodies e.g. dams, lakes, rivers, lagoon etc. Reminiscent of hunting on land, artisanal

fishermen make use of small-medium sized canoes usually between 3-10 meters with basic tools such as traps, nets and hooks for catching fish. Artisanal fisheries in Nigeria account for majority of the country's fish production (Table 2.01). Yet, this sector is the poorest in terms of its standard of living, with the fishermen generally making a subsistence living.

b. Industrial/commercial trawlers – This refers to industrial fishing in-shore and offshore water of the seas. The UN law of the sea allows Nigeria the exclusive right to fish in zone up to 200 nautical miles (320km) from her coast. This zone is known as the Exclusive Economic Zone (EEZ). The establishment of national jurisdiction offers each country the chance to exploit the benefits of the zone for its use. Intense and uncontrolled exploitation of the fishes in the EEZ has resulted in dwindling catches and remarkable reduction in the catches of some species.

c. **Fish farming** – Fish culture, or intensive rising of fish, or fish farming, is a type of farming activity The main objective is to raise the largest amount of fish by the most economical means, which involves, keeping the pond and installations working efficiently ,providing the best conditions in the pond for the growth of fish, iincreasing the natural food in the pond, making the best use of wastes and artificial foods for increasing the amount of fish production (Akankali, Abowei and Eli, 2011). Fish are basically classified into two broad groups, those which possess fins used for movement referred to as fin fishes and those with shells as their outer hard and protective coverings; referred to as shellfish. Fin and shell fishes can be produced in some systems e.g. ponds, cages, pens, raceways etc as a result of over-exploitation from the wild. Any over-exploited species can be hatchery raised/reared and restock into the natural waters.

Table 2. 0: Production Figures by Sectors in Nigeria's Fish Industry

S/NO			2011	2012	2013	2014	2015
1	**Artisanal**	Coastal & Brackish water	346,381.00	370,918.00	418,537.00	435,384.00	382,964.00
		Inland: Rivers & Lakes	292, 105.00	297,836.00	326,393.00	324,444.00	311,903.00
		Sub-Total	638,486.00	668,754.00	744,930.00	759, 828.00	694,867.00
2	**Aquaculture**	Sub-Total	221,128.00	253,898.00	278,706.00	313,231.00	316,727.00
3	**Industrial**	Fish (Inshore)	19,736.00	27,977.00	37,652.00	29,237.00	10,727.00
		Shrimp (Inshore)	13,749.00	17,654.00	22,219.00	20,715.00	4,737.00
		EEZ	-	-	-	-	-
		Sub-Total	33,485.00	45,631.00	59,871.00	49,952.00	15,464.00
	GRAND-TOTAL		893, 099.00	968, 283.00	1,083,507.00	1,123,011.00	1,123,011.00

Source: National Bureau of Statistics (2017): Nigeria's fish production 2010-2015

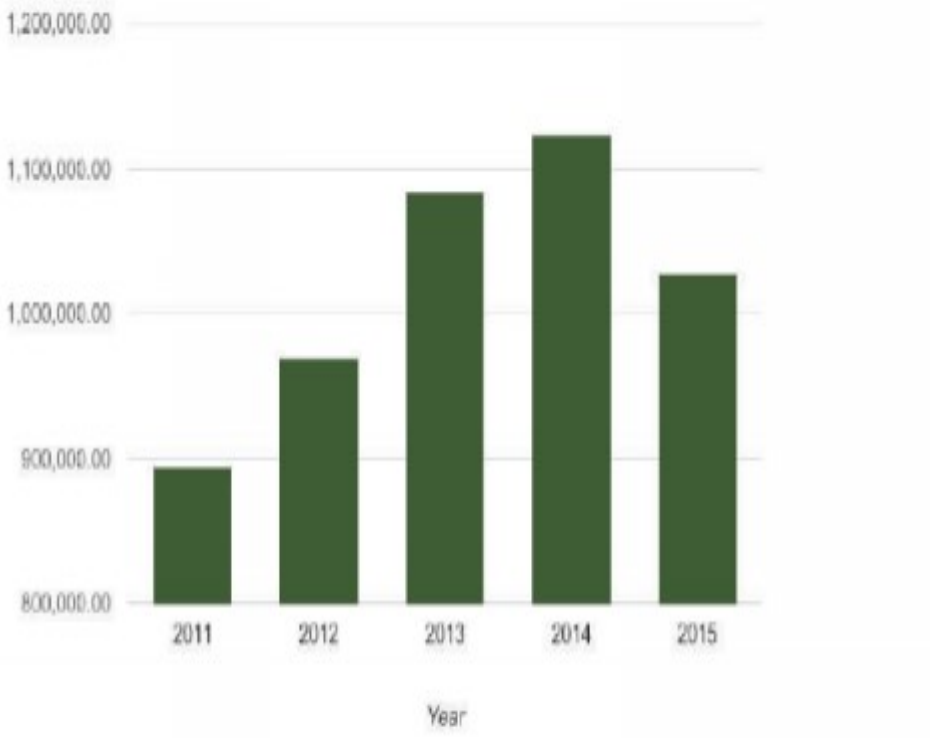

Figure 1: Fish production over 2010 -2015 in Nigeria in metric tonnes
Source: National Bureau of Statistics (NBS): Nigeria's fish production 2010-2015

2.1 Benefits of fish farming

2.1.1 Source of employment

Global statistics revealed that the fish farming sector employs about 25.4 million people in Africa, while more than 17.6 million are involved in other value chain aspects of fish farming (World Bank, 2013; FAO, 2016). Olaoye, Ashley-Dejo, Fakoya, Ikeweinwe, Alegebelye, Ashaolu and Adelaja (2013) affirmed that fish farming is profitable and can create good job opportunities while contributing to investor's livelihood. Likewise, Iheke and Nwagbara (2014) equally posited that fish farming is a profitable and viable investment capable of sustaining peoples' livelihood.

2.1.2 Good source of animal protein

According to Prein and Ahmed (2000), fish is rich in iron, calcium, iodine and vitamins. Hence, it serves as a source of nutrient to the body. The nutritional benefits derived from fish cannot be overemphasized. It contains nitrogenous compounds, lipids, carbohydrates, minerals and vitamins (FAO, 2006). Fish supplies 20% of proteinous food substances consumed in sub-Saharan Africa, it is also a good food source to millions of Africans, (FAO, 2014).

2.1.3 Source of income / revenue

Income is generated from fish farming from all the value chains of the enterprise (World Bank, 2016). Fish contributed significantly to the Nigerian GDP in 2018 (National Bureau of Statistics, 2018). Islam (2017) also posited that seasonality availability of fish differs from that of crops as it helps in reducing seasonal vulnerability among rural poor fisher folks by providing income and food in lean seasons

2.1.4 Household food security

Fish farming indirectly contributes to household food security of fisher folks through increasing income from the enterprise which in turn, can be utilised to purchase other staple foods (Béné*et al.*, 2007; Aiga*et al*., 2009). Given its relatively cheaper cost, fish has become the major source of nutrition for the people of Nigeria, it is the main product consumed in terms of animal protein in Nigeria. Apart from the fact that fishes are great sources of affordable protein which the human body needs in regular and specific quantities, the following can also be derived from fishes:

.

Fish oil soap

Body cream

Perfume

Beyond the above mentioned, fishes are now being used as raw materials for fillets, canning for eateries and fish feeds etc. The importance of fish is greater today than ever before and is steadily growing.

2.2 Gap in fish demand and supply in Nigeria

In developing countries including Nigeria, about 60 per cent of the protein requirement comes from fish. Though Nigeria's per capita fish consumption of 11kg against a global average of 21kg is quiet low, available supply still falls short of available demand. Statistics on fish production and supply in Nigeria have shown a consistent shortfall in the supply of fish, either farmed fish via aquaculture or capture from the wild, in spite of the effort in the past few years to increase production. According to the Federal Department of Fisheries (FDF), national demand in 2012 stood at 2,000,000 tonnes, with supply of 690,000 tonnes and a deficit of 1,329,000 tonnes; in 2014, a deficit of 1,404,000 tonnes was also recorded. Although there has been an increase in fish supply over the succeeding years, the growing population seemed to have paled the effort, especially from aquaculture. According to Fisheries SON (2016), total fish production from all fish activities and sources in Nigeria amounted to 1.7 million tonnes of fish while demand is 2.6 million metric tonnes, leaving a huge shortfall. It has been reported that in order to make up for the shortfall, the nation had embarked on fish importation, which has been a source of drain on the scarce foreign reserve. With this shortfall comes the opportunity for job and wealth creation as the Nigerian Institute of Oceanography and Marine Research (NIOMR) stated that over 10 million Nigerians are actively engaged in the upstream and downstream areas of fisheries operation.

The Minister of State for Agriculture also recently lamented that current annual national fish demand is in excess of 3.2 million metric tones while national production is about 1.1million metric tonnes from all sources, including aquaculture, artisanal and industrial fishing sectors, leading to a supply shortfall of about 2.1 million metric tonnes. According to the

minister, Nigeria imported over 2 million metric tonnes of fish before 2015. He however, admitted that fish production had doubled by 600,000 MT in the last three years, after government restricted food importation by directing fish importers to embrace backward integration through commercial aquaculture. FAO (2000), estimates the projected population and fish demand supply from 1997 to 2025, with domestic fish production by the year 2025 as 1.52 million tonnes (Table 2.2)

Table 2.2: Projected Population and Fish demand/supply, 2000- 2025

Year	Population (Million)	Fish demand (Million tonnes)	Fish supply domestic production (Million tonnes)	Short fall (Million tonnes)
2000	114.40	0.87	0.53	0.34
2001	117.60	0.89	0.57	0.32
2002	121.00	0.92	0.61	0.31
2003	124.40	0.95	0.65	0.30
2004	127.90	0.97	0.69	0.28
2005	131.50	1.00	0.73	0.27
2006	135.20	1.03	0.77	0.26
2007	139.10	1.06	0.81	0.25
2008	143.00	1.09	0.85	0.24
2009	147.10	1.12	0.89	0.23
2010	151.20	1.15	0.93	0.22
2011	155.50	1.18	0.96	0.21
2012	159.90	1.22	1.00	0.22
2013	164.40	1.25	1.04	0.21
2014	169.10	1.29	1.08	0.21
2015	173.90	1.32	1.12	0.20
2016	178.80	1.36	1.16	0.20
2017	183.30	1.39	1.20	0.19
2018	189.00	1.44	1.24	0.20
2019	194.40	1.48	1.28	0.20
2020	199.90	1.52	1.32	0.20
2021	205.60	1.56	1.36	0.20
2022	211.40	1.61	1.40	0.21
2023	217.40	1.65	1.44	0.21
2024	223.50	1.70	1.48	0.22
2025	229.80	1.75	1.52	0.23

Source: FAO, (2000): Projected population and fish demand and supply in Nigeria.

2.3 Challenges in fish farming

Several constraints inherent in fish farming have been highlighted by various scholars. Baruwa, Tijani, and Adejobi (2012) identified epileptic electricity supply, insufficient capital, high-cost of inputs, high-cost of labor and water pollution. In the same vein, Olaoye, Ashley-Dejo, Fakoya, Ikeweinwe, Alegebelye, Ashaolu and Adelaja (2013) indicated high cost of feeding, lack of storage facilities and predators as major limitations to fish farming. Similarly, Asiedu *et al*. (2017) equally reported that lack of access to funds and good fingerlings are major reasons fish farmers abandon their fish farms.

Furthermore, Niyonkuru, Nibona and Moreau (2015) grouped major factors militating against fish farming into: physical , technical material and financial factors , while citing topographical and soil constraints as major physical factors, insufficient technical skills as a technical factor and use of rudimentary equipment and poor packaging for transporting fingerlings as major material factors, while extreme poverty, lack of financial support or the lack of micro-finance institution constituted financial factors. In a related development, challenges to fish farming as observed by Akpabio and Iyang (2007) ranges from production (inadequate pond sizes, unavailability of improved species), environmental (low PH in pond, acidic rainfall), socio cultural (predations by animals), poor access to credit facilities poor policy formulation and implementation by governments, technological (lack of awareness of available technologies, poor yield from local technology), marketing (high cost of marketing fish produce, low selling price of produce).

Studies centered on youths also showed that young fish farmers are faced with myriads of constraints in fish enterprise. For example, Nnodim and Abbey (2019) in a study on constraints to fish farming amongst youths highlighted inadequate farm lands, poor skills in modern fish farming practices, insufficient time for practical sessions, poor fishing gears, poor funding and lack-lustre attitude towards vocational subjects as factors constraining fish farming among senior secondary agricultural students.

Aside production, economic, technological and social cultural constraints, Usman, Girei and Tari (2016) identified lack of access to information and inadequate funding as major

challenges in fishing enterprise. Bhuyan, Goswami and Kakati (2017) found that lack of good quality fish seeds (fry/fingerlings) of required size and number at the time of stocking , high cost of inputs like feed, inorganic fertilizer, and medicine constituted the most serious problem among fish farmers in developing countries. Pandey and Dewan(2006) found that pond related problems such as seepage, excess weeds posed negative effect on fish production, while Angral, Gupta, Gupta, Kant, Kumar and Sharma (2017) highlighted lack of adequate marketing channels, non-availability of insurance coverage, lack of knowledge regarding fisheries scheme as major factors militating fish farming in developing nations.

2.4 Fish rearing facilities

Since fish farming involves the rearing of different species of fish under controlled environment, several facilities exist in aquaculture to achieve this. Some of it is: flow through systems also known as raceways, ponds, cages, tanks and recirculating systems. (Ozigbo, Anyadike, Adegbite, and Kolawole, 2014).

2.4.1 Fish ponds

A fish pond is a controlled structure, artificial lake, or reservoir stocked with fish and used in aquaculture for fish farming, recreational fishing or ornamental purposes. The practice of culturing fish in ponds developed because growing fish in ponds can be a more useful practice for some purposes, when compared to catching fishes from lakes, rivers, or streams (Ozigbo *et al*, 2014). Freshwater fish ponds differ according to their source of water, the way in which water can be drained from the pond, material and method used for construction and the method of use for fish farming (Ajana, 2003). Fish pond system is the commonest agricultural techniques in Nigeria (FAO, 2002). Tidal ponds, reservoirs, storage tanks, raceways and fish farm tanks are not referred to as fish ponds (Wilcox, 1985).

Fish ponds may have any shape, as shown by barrage ponds whose shape depends exclusively on the topography of the valleys in which they are built. Also the feeding of fishes raised in ponds can be planned to be better suited to market demands. Size of ponds must be adapted to the species but also be easy to manage. If the width exceeds 50 metres, it becomes difficult to pull nets for harvest (e.g. 3 to 4 men on each side are necessary to pull a

60 m. net) rendering the ponds impractical. A good pond will show the following characteristics:

- A well designed water supply but also easy drainage.
- The drainage outlet (standpipe or monk) must be studied with care.
- Water inlet and outlet will be at opposite ends in order to ease water exchange within the pond.
- Good impermeability of the pond as a whole and strength/integrity of the pond's walls and edges.
- Access and possibility to work around the pond which must be accessible to vehicles (tractors/trucks & trailers etc.).

These ponds are usually equipped with water inlets and outlets to permit independent control of water addition and discharge. They are stocked with a specific quantity of fingerlings.. Fishes are harvested after reaching their market sizes. In a *complete harvest,* the pond is drained and all animals are removed from the pond for processing. In a *partial harvest,* only a portion of the animals are removed from a full pond using a seine net (Figure 4). Additional juveniles are often stocked into the pond after a partial harvest, and the production cycle is continued. Channel catfish, tilapia and carp family are often cultured in earthen ponds. Earthen ponds are more commonly used in tropical fish farming and represent the oldest fish farming facility.

2.4.1.1. Earthen ponds

These are artificial dams, reservoir, or lakes constructed for different species of fishes in order to retain some features of the natural aquatic environment (Plate 1). Earthen ponds are constructed manually, or mechanically, in a carefully selected site with high water retention ability. Earthen ponds were usually constructed with the use of shovels and diggers. However, in recent times, the use of excavators to dig ponds has been on the increase. An excavator can dig a pond that ten men will ordinarily dig in five days within just ten hours (Abiodun, 2016). For commercial pond construction, the use of excavator is more cost effective than manual construction. It also saves time and can attain good depths in hours.

The choice of land for earthen pond must take into cognizance availability of water. Other factors that must be considered include soil type, soil texture and soil permeability. A site located in an area that mainly has sandy soil costs more when it comes to construction because ponds constructed in such areas will need sandbagging to prevent the collapse of such a pond. Earthen ponds are very common in Nigeria. According to Ozigbo *et al* (2014), advantages of earthen pond over other types of ponds are:

1. It is similar to the natural habitat of fishes.
2. Fishes grow better in an earthen pond than in every other type of pond.
3. Maintenance cost is cheaper.
4. It can support different kinds of feed.
5 .It has natural capacity to control pollution.
6. Electric aerator is not needed to boost the oxygen level.
8. It allows fishes to grow faster.
9. It allows for easy water management

Plate 1: Earthen ponds

Source: Field Survey, (2017).

2.4.1.2 Concrete ponds

Concrete ponds are used in intensive fish farming systems. Here, 4-5 coaches of blocks are used to construct the pond above the ground level, using cement, sand and gravel in ratio 1:2:4 respectively with water (Plate 2). The pond floor can be well concreted to a thickness between 7.5cm- 10cm. Walls are plastered to a thickness of 5cm. The bottom can also be in concrete but for reasons of construction costs, only if the pond size does not exceed 200 m^2. Brick or stone walls must have strong foundations and, if they are built with bricks or blocks, they must be plastered, in order to avoid the effects of erosion. They are usually smaller than earthen ponds and should not exceed 1,000 m^2 surface area. This type of pond is more expensive to build and, therefore, should be made profitable by a higher production per volume utilised. Construction of concrete ponds is often handled by highly skilled professionals in civil/construction engineering. For any concrete pond to stand the test of time it must be well constructed. Conversely, the firmer walling reduces maintenance and re-building costs that will be necessary after a few years of operation, Concrete tanks for catfishes can be constructed below or above the earth surface. Using concrete ponds allow farmers monitor the hygiene factors in fish farming. Concrete ponds are must popular in urban areas where catfish farming are practiced. Abiodun (2016) further listed the advantages of concrete pond over earthen ponds as:

Advantages of Concrete Pond over Earthen Ponds

1. It is easy to manage; e.g. counting, sorting, sales and other management practices.
2. It is better for production of fingerlings and juveniles.
3. It can be constructed on dry land.
4. It cannot be flooded.
5. It has manageable surface area.
6. Diseases are easily detected and controlled.
7. Predators can be kept away or easily controlled.
8. Concrete ponds do not need demudding.
9. Waste feed can easily be discovered in concrete ponds.
10. It cannot be affected by weed and chemical pollution.
11. It may not need major maintenance for years.
12. Growth of fishes can easily be monitored.

13. Usage requires less manpower.

Fish farming can also be carried out in outdoor or indoor concrete or plastic tanks. Tanks can be inform of small aquaria (glass or plastic) or large fibreglasses. Production tanks varies in size and shape, however, round tanks between 5,000 to 10,000 liters are most commonly used (Barlow, 2015). Tanks need to be non- corrosive, therefore, plastic or fiberglass is recommended. Smooth round tanks with a conical shaped bottom are considered advantageous as this will assist with waste solids disposal during draining.

Plate 2: Concrete pond for fish farming

Source: Field Survey, (2017)

2.4.2 Fish Tanks

Fish farming can also be carried out in outdoor or indoor concrete or plastic tanks. Tanks can be inform of small aquaria (glass or plastic) or large fibreglasses. Production tanks varies in size and shape, however, round tanks between 5,000 to 10,000 liters are most commonly used (Aquatic life Support Systems, 2013). Tanks should be noncorrosive, therefore, plastic or fiberglass is usually recommended. Smooth round tanks with a conical shaped bottom are considered advantageous as this will assist with waste solids disposal during draining. Abiodun, (2016), listed the advantages of using **r**ubber/plastic Tank

1. They can be used to raise fishes almost everywhere.
2. They can easily be moved from one place to the other.
3. They can be used to raise fingerlings before they are transferred to the main ponds.
4. They are safe and secure because they can be used to raise fishes indoor.
5. They pose no threat to the environment i.e. they are environment friendly.
6. They can be used to learn the art and science of fish farming.
7. They are cheap and less expensive to maintain.

Aquatic life Support Systems (2013) reported that the advantages of using fiberglass tank is its ease of management, portability/movability and ease of fish monitoring at a glance.

2.4.3. Raceways:

Flow-through System, also known as a raceway, is an artificial channel used in aquaculture to culture aquatic organisms. It usually consists of rectangular basins or canals constructed of concrete and equipped with an inlet and outlet. Often, several raceways are built in series down the slope of a hill. Raceway systems are among the earliest methods used for inland aquaculture. Raceways are long, narrow earthen or concrete ponds that receive a continuous flow of water from a nearby artesian well, spring, or stream (Plate 3). A running water source maintains the water quality and oxygen level of the fish tank. They are concrete canals that can be partitioned with screens. A continuous water flow through is maintained to provide the required level of water quality, which allows animals to be cultured at higher densities within the raceway (Mirzoyan, Tal, and Gross, 2010).

This type of facility is often used for trout farming but is not as suitable for tilapia that prefers the calmer waters of a pond.. The complete drainage of a raceway is often difficult because different batches of fish are grown simultaneously in the different sections and the whole of the raceway must be completely empty of fish.

In a Raceway system, the water source is generally colder than lake or river water, because it comes from streams or springs flowing downhill. Moreover, the movement cools the water during transit and, therefore, a variety of cold water species are suited for this system. In this system, full utilization of water and resources is possible. The natural flow of water in many cases eliminates the need for pumps and filters.

Some of the most common coldwater raceway farmed fish include the following:

- Rainbow trout
- Freshwater shrimp
- Catfish
- Tilapia
- Juvenile Salmon

Raceway ponds and channels are designed in such a way that no water is stagnant at any time in the fish pond. If the water stops flowing, it collects dirt, debris and feces, which may become toxic for the fish, or may cause diseases. Many more fingerlings can be stocked into raceways and cages than into earthen ponds, but nutritionally complete formulated feed must be provided to fish grown in these systems. Rainbow trout are grown in raceways in many places. Other advantage of raceways is that it can protect the stock against predators (Worldwide Aquaculture, 2015)

Plate 3: Raceway

Source: Worldwide Aquaculture (2015).

2.4.4 Cages

Cages are used to raise fish in lakes, bays, or the open ocean and are constructed from flexible netting suspended from a superstructure floating on the water's surface, It involves the rearing of aquatic species, within enclosures in natural waterways. The fish cages are placed in lakes, bayous, ponds, rivers or oceans to contain and protect fish until they can be harvested (Gupta and Acosta, 2011). The method is also called "off-shore cultivation" when the cages are placed in the sea. Fish are stocked in cages, artificially fed, and harvested when they reach market size. Open systems are being implemented in a wide range of environments including freshwater rivers, brackish estuaries and coastal marine regions. Floating mesh cages are anchored to the seafloor and vary in size depending on the scale of operation and the species cultured.

2.4.5 Recirculating Aquaculture System (RAS)

A RAS is a series of culture tanks and filters where water is continuously recycled and monitored to keep optimal conditions year round. Instead of the traditional method of growing fish outdoors in open ponds and raceways, this system rears fish at high densities, in indoor tanks with a "controlled" environment. Recirculating systems filter and clean the water for recycling back through fish culture tanks. New water is added to the tanks only to make up for splash out and evaporation and for that used to flush out waste materials. In contrast, many raceway systems used to grow trout are termed "open" or "flow through" systems because all the water makes only one pass through the tank and then is discarded. To prevent the deterioration of water quality, the water is treated mechanically through the removal of particulate matter and biologically through the conversion of harmful accumulated chemicals into nontoxic ones.

Other treatments such as UV sterilization, ozonation, and oxygen injection are also used to maintain optimal water quality. Through this system, many of the environmental drawbacks of aquaculture are minimized including escaped fish, water usage, and the introduction of pollutants. The practices also increased feed-use efficiency growth by providing optimum water quality. Because of its high capital and operating costs, RAS has generally been restricted to practices such as bloodstock maturation, larval rearing, fingerling production,

research animal production, SPF (specific pathogen free) animal production, and caviar and ornamental fish production.

RAS occupy a very small area and allow the grower to stock fish at high densities and produce high yields per unit area. Recirculation aquaculture systems (RAS) represent a new and unique way to farm fish. These systems are very intensive and therefore require a high level in management of stock, equipment and water quality. They provide a predictable and constant environment for growing fish. RAS can be expensive to purchase and operate. For this reason, it is usually only economically viable to farm high value species in these systems. Is seen as an alternative to outdoor open ocean cage aquaculture, one in which the risk of environmental damage is high. Fish grown in RAS must be supplied with all the conditions necessary to remain healthy and grow. They need a continuous supply of clean water at a temperature and dissolved oxygen content that is optimum for growth. A filtering (biofilter) system is necessary to purify the water and remove or detoxify harmful waste products and uneaten feed (Helfish and Libey, 2013)

2.5 Species of farmed fishes in Nigeria

a. Carp family: - Carp are prolific and breed rapidly, and they are bred and fished commercially in Asia, Europe, southern Africa, and, on a smaller scale, the United States. As bottom feeders they stir up mud and uproot vegetation, often driving out other fish; on the other hand, they can survive in stagnant or polluted waters that most other fish do not inhabit.

The types of carp we have are

- Tench
- School of Koi
- Common carp fish

The carp was a luxury food in the middle and late Roman period, and it was consumed during fasting in the middle Ages. The fish were kept in storage ponds ('piscinae') by the Romans, and later in fish ponds constructed by Christian monasteries. The body of Carp is elongated and somewhat compressed. The fish has thick lips, two pairs of barbels at angle of mouth, shorter ones on the upper lip and an anal fin with 6-7 soft rays. Carps are

omnivorous, with a high tendency towards the consumption of animal food, such as water insects, larvae of insects, worms, molluscs, and zooplankton. Zooplankton consumption is dominant in fish ponds where the stocking density is high. They also consume the stalks, leaves and seeds of aquatic and terrestrial plants, decayed aquatic plants, etc. (FAO, 2009).
There are many advantages of carp fish farming, they are highlighted below as stated by Roysfarm (2016):

- Eat feed from variety of levels.
- Fish does not fight with each other for feed.
- Each fish stay in their own level.
- They are not cannibalistic
- Good disease resistance.
- Quickly gains weight and grow faster
- Eat low cost subsidiary feed.
- Tasty to eat and high demand in market.
- Have economic value.

Carp fish farming methods depends on the area or environment, availability of equipment, financial situation, knowledge and skills of farmer.

b. Catfish: Catfish are named for its feelers, or barbells, suggesting the whiskers of a cat. These feelers are used for finding food. The mud cat fish (*C. gariepinus*) popularly cultured fish in Nigeria is an omnivore in the wild with propensity of being carnivorous when starved (Abiodun, 2016) *Clarias* is a hardy fish and can survive in waters with low oxygen content because it can absorb oxygen directly from the air. The interest in culturing *Clarias gariepinus* arises from the fact that it is highly cherished and commands high market value. In other words, if the cost of production could be brought down considerably a good number will have the opportunity of buying it and this will undoubtedly increase protein intake which as at now in substandard The dorsal and pectoral fins are often edged with sharp spines that are used for defense. The body is scale less, either naked or with bony plates. They have an elongated cylindrical body with dorsal and anal fins being extremely long (nearly reaching or reaching the caudal fin) both fins containing only soft fin rays. The outer pectoral ray is in the form of a spine and the pelvic fin normally has six soft trays. The head

is flattened, highly ossified with the skull bones (above and on the sides) forming a casque. The body of catfish is covered with a smooth and scale less skin which is generally darkly pigmented on the dorsal and lateral parts of the body. The colour is uniform marbled and changes from greyish olive to blackish according to the substrate. On exposure to light, the skin colour generally becomes lighter. This African catfish is relatively insensitive to disease and does not have high water quality requirements.

The male and females of *C. gariepinus* can be easily recognized because the male has a distinct sexual papilla, located just behind the anus. This sexual papilla is absent in females. Species of *Clarias* are not easy to identify because they all look very similar. Two species of *Clarias* have been described from West Africa (FA0, 2012):

1. Clarias gariepinus,

2. Clarias submarginatus,

Colouration is variable and there is probably more variation in colour between individuals of the same species than between those of different species. *Clarias* may be almost completely black, or black with dark green mottling or olive, the belly is always white), *C. gariepinus* is the most important *Clarias* sp used in African agriculture. This is because of its ability to adapt to extreme pond conditions. The species has a high potential for culture because of its high growth rate, very efficient feed conversion, acceptance of relatively cheap feed and ability to withstand high stocking densities. It is also disease resistant and acceptable by consumers (Roysland Farm, 2015).

The kinds of cat fish are:

- Brown Bull Head Cat fish
- Channel Cat fish

Catfish makes up about 80 per cent of Nigeria aquaculture production while Tilapia constitutes 20 per cent (Small Holders Foundation, 2013).

c.**Tilapia:**

The name tilapia actually refers to several species of mostly freshwater fish that belong to the cichlid family. Although wild tilapias are native to Africa, the fish has been introduced throughout the world and is now farmed in over 135 countries (FAO, 2014). It is an ideal fish for farming because it can survive in crowdy environment, grow quickly and consume a

cheap vegetarian diet. These qualities translate to a relatively inexpensive product compared to other types of seafood. The benefits and dangers of tilapia depend largely on differences in farming practices, which vary by location. Unlike carnivorous fish, tilapia can feed on algae or any plant-based food. This reduces the cost of tilapia farming, reduces fishing pressure on prey species, avoids concentrating toxins that accumulate at higher levels of the food chain, and makes tilapia the preferred "aquatic chickens" of the trade (Barlow, 2015).

Because of their large size, rapid growth, and palatability, tilapia cichlids are the focus of major farming efforts (Andreas and Olrich, 2013). Like other large fishes, they are a good source of protein and popular among artisanal and commercial fisheries. In temperate zone localities, tilapia farming operations require energy to warm the water to tropical temperatures. Commercially grown tilapias are almost exclusively male. This is typically done by adding male sex hormone in the food to the tilapia fry, causing any potential female tilapia to change sex to male (Boruchowitz, 2006). Males are preferred because they grow much faster than females. Additionally, because tilapia are prolific breeders, the presence of female tilapia results in rapidly increasing populations of small fish, rather than a stable population of harvest-size animals. At 1.3 million tonnes per annum, China is the largest tilapia producer in the world, followed by Egypt with 0.5 million (FA0, 2018).

2.6 Management operations in fish farming

Management practices in fish farming range from pond fertilization, which increases the number of natural food organisms, to provision of a complete, formulated feed that supplies all nutrients necessary for growth

a. Pond Preparation

Ponds are totally drained and the pond bottoms dried prior to the application of pesticides. Tobacco dust is usually used to combat predators and/or wild species that may eventually compete with the cultured organisms for food and space. Ponds with acid-sulphate soils are repeatedly dried and flushed, i.e. filled and drained to remove the acids formed by pyrite oxidation. Agricultural lime is then applied to correct soil pH and bring it up to at least 6.5. Brackish water ponds are usually treated by spreading 1.5 l of agricultural lime per ha, followed by another 1.5 l worked into the soil. To stimulate and maintain the growth of

natural plankton, organic (e.g., chicken manure) or inorganic fertilizer (e.g., urea, ammonium phosphate) are applied to the pond bottom. After fertilizer application, water is let in to a depth of about 20-40 cm and gradually increased to 1 m a week after fertilization. Intensively managed ponds or ponds where artificial feeding shall be given, do not need to be fertilized. Extensive ponds need regular fertilization during the culture period to maintain the growth of natural food. Semi-intensive ponds may use a mix of fertilization and supplementary feeding. Ponds are stocked (i.e., live fish are put into the ponds) with fingerlings to make the best use of the naturally available foods in the pond..

b. Feeding

Fish/shrimp grown in semi-intensive and intensive culture ponds are given supplementary and full artificial feeds, respectively, the former to augment the natural food in the pond, the latter to totally replace the natural organisms in the water as a source of nutrition. A wide variety of feed ingredients is used to prepare supplemental/artificial feeds. The simplest fish feeds are prepared at the pond site using locally available raw materials like rice or corn bran, copra meal, and rice mill sweepings as sources of carbohydrates. These are usually mixed with animal protein like trash fish/fish meal, shrimp heads, and snail meat. Supplemental feeds for tilapia are prepared using 80% rice bran and 20% fish meal. Those for shrimps in improved extensive culture (low-density stocking but given dietary supplements for increased growth/production) usually include fresh raw materials like snail/mussel/clam meat or carabao hide and other slaughterhouse leftovers. Commercial feed preparations are also available now in a wide range of brand names, mostly for semi-intensive and intensive shrimp culture. These commercial diets consist of a number of ingredients like fish meal, blood meal, bone meat, and shrimp head meal (to serve as attractant for the shrimp), together with vitamin and mineral premix and carbohydrate sources like rice/corn bran or wheat. The crude protein (CP) content of these shrimp feeds is generally not lower than 30% to satisfy the high animal protein requirement of shrimps, actually estimated to be about 40% during the earlier stages of growth.

Commercial feeds usually come in various formulations to match the protein requirement of the culture organism, which as a rule, decreases with age. Thus, fish/shrimp feeds come in different forms as starter, grower, and finisher, with starter feeds having the highest CP

content of about 40% and finisher feeds having the lowest CP content of about 20%. Starter feeds are usually given on the first month of culture, finisher feeds on the last month, and grower feeds in between. The feeding rate is computed as a percentage of the estimated animal biomass in the pond, with higher rations given when the animals are small and gradually decreasing as they become bigger. The daily feeding rate usually starts at 5% and 10-15% of estimated biomass of fish and shrimps, respectively, and decreases to a low of 2% and 5%, for fish and shrimps, respectively, toward harvest. The daily feed rations are given in equal portions during the course of a day. Freshwater fish like tilapia are usually fed twice a day - early morning and late afternoon

c. **Water Management**

Water in the pond is kept at certain levels for optimal fish growth. In general, a pond water depth of 1 meter is considered best for culture of tilapia, carps, and shrimps. Pond water is not just maintained at a certain depth; its quality must also be kept high to ensure optimal growth of the culture organism. This is particularly important in semi-intensive and intensive culture systems where large amounts of metabolites are continuously excreted into the pond and where excess, unconsumed feeds add to the bottom load and serve to pollute the water. To prevent the deterioration of the pond environment, pond water is continuously freshened by the entry of new water from the river or water source (through the supply canal) while old water is drained through the outlet/drainage gate and through the drainage canal into the sea or river.

A flow-through system of water management that allows the simultaneous entry and exit of water into and out of the pond is essential in any high-density culture system. This is effected by the provision of separate inlets and outlets for all the ponds, each inlet regulating the flow of water from the supply canal to the pond and each outlet controlling the discharge of water out of the pond into the drainage canal. Both the supply and drain gates are so designed as to bring water into and out of the lower levels of the pond, where water quality tends to get poorer faster as a result of the accumulation of wastes and their subsequent decomposition. Pond water is also regularly sampled and measurements taken of basic/essential parameters, particularly dissolved oxygen, pH, and salinity. This is important

for the purpose of determining the need for corrective/remedial action to bring water quality to optimum levels and obtain good yields.

Dissolved oxygen levels are kept, as much as possible, above 5 ppm by pumping and aeration. Problems of acidity are corrected by liming. Salinity is an important parameter for penaeid culture and has to be maintained within a range of 15-25 ppt for best results. During summer months, high-salinity water can be diluted by mixing with fresh water from springs or deep wells.

d. **Pond Maintenance**

i. Fertilization

Aside from feeds and water management, the following pond maintenance procedures are carried out: regular application of fertilizers, lime, and pesticides; prevention of entry of predators; monitoring of the stock for growth rate determination as a basis of feeds and water management; and regular pond upkeep and maintenance. Extensive ponds are fertilized regularly using either organic fertilizers like chicken, cow, or pig manure, or inorganic fertilizers like urea, ammonium phosphate, or both, to maintain the plankton population in the pond. The fertilizers are either broadcast over the pond water surface or kept in sacks suspended from poles staked at certain portions along the pond periphery. Semi-intensive and intensive culture systems do not require fertilization since they are not natural food-based, except for those which grow plankton-feeders like milkfish whose diet is largely algae dependent.

ii. Liming

In addition to fertilization, ponds also need to be given regular doses of lime to maintain water pH at alkaline or near-alkaline levels (preferably not lower than six). Agricultural lime is broadcast over the pond and applied on the sides of the dikes to correct soil and water acidity.

iii. Elimination of Pests and Predators

Unwanted and predatory species which may have survived the application of pesticides during pond preparation or which were able to enter the pond through the gate screens or through cracks in the dikes, are eliminated by the application of pesticides, preferably organic, into the pond. It is also important that the gates are properly screened and the

screens kept whole, to prevent the entry of small unwanted fish into the pond. Double screens are usually installed at the main intake to ensure that pests and predators are prevented from entering the pond system.

iv. Stock Monitoring

The culture organisms are monitored closely and regularly to determine their rate of growth and the general condition of the stock. They are regularly sampled for length-weight measurements as a basis for determining/estimating their biomass in the pond and therefore their daily feed rations, as well as for making projections on harvest schedules and procurement of pond inputs.

v. Regular Upkeep and Maintenance of Facilities

The pond dike and gates are checked regularly for cracks that could lead to seepages and losses of stock. The dikes are best planted with grass or vegetative cover to prevent erosion. The gates and other support infrastructure are properly maintained for efficient operation.

e. Harvesting

Marketable-size fish are harvested at the end of the culture period by draining the pond and using harvesting nets to catch the fish. Tilapia is harvested using seine nets after the pond water is drained to half-level the night before. The fish in the catching pond are then harvested by seining and the rest hand-picked

2.7 Concept of youth

The conception of youth is not fixed but dependent on the subjective realities that shape the socio-cultural and spatial interpretations of its meanings (Ansell, 2005; Spence, 2005; Hine, 2009). This explains why policies and programs with respect to youth development are country-specific as noted by UNDP (2014).

The conceptualization of "youth" is believed to have dual meanings. Justifying this assertion, Jones (2009) that the word youths may be used to describe both 'an individual' and a 'fraction of the life journey'. However, when the meaning of youth is compared with the transition theory, the conceptualization of 'being youth' or 'becoming' an adult, conceptualizes youth as a 'transitional period' or 'transitional concept' (Wyn and White, 1997; Spence, 2005).

Previous study has shown that the conceptualization of youth has remained imprecise due to its differential meanings and multidisciplinary perspectives in which the construct is conceptaulised within specific cultures. In this light, youth studies as a 'broad church' has not only embraced research on all aspects of young people's lives, it has focused on multidisciplinary interpretation of youth constructions in the social sciences (Heath et al, 2009).

Based on context and time in social history, youth is described as the process of becoming an adult (Annett, 2000; Ansell, 2005; Ezeah, 2012). Conversely, transition theory conceptualizes youth as a transitional period of becoming an adult (Wyn and White, 1997; Spence, 2005). Conversely, it can be considered as a transitional period from 'childhood', to becoming 'young adults'.

Furthermore, youth can be conceptualized from biologically related constructs or perspective based on age related definitions (Wyn and White, 1997). For example, The 2003 World Youth Report (WYR) defined youth as a group of people between ages 15 and 24. This provides a comparative platform for understanding the complexities of the socio-economic and political limitations that impede youth transition and development.

Although meaning of youth primarily focuses on 'young men and women ages 15 -24', the 'expansion' of this age range to accommodate ages 25-30 (and above) are premised on realities of context, legal frameworks and youth policies obtainable per time in a country (UNFPA, 2010; UNDP, 2013). Adisa (2013) views a youth as a person between a childhood and adulthood age.

Young people', 'young adults' and most recently 'emerging adulthood', have been used to refer to youths (Annett, 2000; Ezeah, 2012). Honwana and De Boeck (2005) viewed youths as a socially defined group characterised by societal responsibilities and manifestations. Basically consideration youths from the perspective of social responsibility.

The youth, constitute the most important sector in any society. They serve as channels for the transmission of culture and the perpetuation of recognizable identity (Ansell, 2005). They also provide the manpower for the socio-economic development of the society. In the

rural sector, youth provide opportunities for generating the farming entrepreneurs and other rural professions. In addition, rural youth enjoy certain life experiences, which can be considered advantageous. These include a greater frequency of interaction with family, and hence less emotional problems. They also enjoy earlier and greater involvement in work roles, and have opportunity of becoming economically independent earlier than their urban counterparts (Adisa, 2013). Furthermore, the rural youth's contribute to family labour, they also constitute a moving force in the development of their communities.

2.8.1 Youth Unemployment – A global and local problem

The dispensation of today's young people is described as the biggest ever witnessed by the world. Larger than 3.6 billion people fall between the ages of 25, and 1.2 billion of this figure fits the most universal definition of "youth" – young people of ages 15 and 24 (Global Agenda Councils, 2013).

Even though with highly significant variation, youth unemployment rates considerably surpasses those of adult in all geographic locations (Table 2.8). The International Labour Organisation (1982) explained that "unemployment takes place when people are actively seeking for jobs but stay without jobs for over a five week period. The figure for global youth unemployment rate (13%), currently is thrice that of adults (4.3%) (ILO, 2016) as young people are thrice more likely to be unemployed when compared to their parents. Additionally, in 2010, NEET (Not in Employment, education or training) reported that a staggering 357.7 million youths around the world are not in training, education, or gainful employment (Global Agenda Councils, 2013). World leaders have naturally tagged this monumental problem the "global youth unemployment disaster"

According to Hannah (2015), the problem of youth unemployment became predominantly germane across both developed and developing nations after the global recession and the crumple of Lehman Brothers in 2008. For instance in India, available statistics reveals that, youths constitute about 65% of the population of India (1.27 billion), the country has one of the highest number of youth in the world out of which 75 million youth are unemployed (and on a daily basis, records the addition of over one million people to the labour market).

In America, the Center for American Progress recently reported that 10.6 million youths of American descent – a populace larger than that of New York City – are now unemployed

(Podesta, 2013). In America, younger people are two times liable to be unemployed than older people.

For Europe, Angela Merkel (Germany's chancellor), declared that 8 million young people are either jobless, out of education or training and this is a most pressing problem for the continent (i.e. one out of seven young person in Europe falls into this category (Generation Jobless, 2013). This problem has been said to be particularly acute in North Africa, with the highest rate of "able to work" but unemployed youths. About one in three people out of a population of 297 million – is between the ages of 10 and 24 in Africa and this figure is projected to double to around 561 million by the year 2050 (The World's Youth, 2013). About 30% of young people of working age are unemployed. This situation is also a critical in Saharan Africa, where almost 67% of young workers live in poverty.

As the populace of knowledgeable youths in Sub-Saharan Africa increases – estimations are that over the next 20 years, the number of youths ages 20 to 24 year with secondary school certificates will escalate from 42 percent to 59 percent (Coy, 2011; Devlin, 2013). Equally, the National Bureau of Statistics in Nigeria reported the startling youth unemployment rate (which is more than 50%). At the ILO (2012) symposium in Geneva, diplomats lamented the staggering global number of youths who have given up hope on getting securing a good job (United Nations, 2012). Equally, the subject of youth unemployment was the main focus of the World Economic summit in 2015. The team, made up of experts in business and leadership across the world unanimously contracted that youth unemployment is increasing at an alarming proportion.

Table 2.8.: Global youth unemployment rate

	Youth unemployment rate, 2007–17 (percentages)				Unemployed youth, 2015–17 (millions)		
	2007–14	2015	2016	2017	2015	2016	2017
World		12.9	13.1	13.1	70.5	71.0	71.0
Developed countries		15.0	14.5	14.3	10.2	9.8	9.6
Emerging countries		13.3	13.6	13.7	52.9	53.5	53.5
Developing countries		9.4	9.5	9.4	7.4	7.7	7.9
	Youth working poverty rate, 2007–17 (percentages)				Youth working poverty, 2015–17 (millions)		
	2007–14	2015	2016	2017	2015	2016	2017
Total emerging and developing		38.4	37.7	36.9	159.9	156.0	152.2
Emerging countries		31.2	30.2	29.3	107.3	102.7	98.4
Developing countries		73.3	72.2	71.0	52.6	53.3	53.8

Source: ILO, 2016**:** World Employment Social Outlook; Trends for youth 2016

2.8.2 Challenges faced by youths in Nigeria

Nigerian youths comprise of individuals within the age brackets of 18-35 (Nigerian 2009 National Youth Policy). According to Jega (2017) Nigeria has been acclaimed to one of the countries with the largest youth population in the world, with a figure of 33.652 million (Figure 2). Adebisi (2018) opined that youths in Nigeria are characterized as ambitious, passionate, energetic and talented. These authors also viewed Nigerian youths as industrious, sociable, materialistic, consumerist, religious, influenced by tribal sentiments and experiencing delayed transition to adulthood.

Youths are highly critical to the social development of every nation. Regardless of a nation's natural resources and advantages, no nation can afford to disregard its youth population, as they are the building blocks of the future. Previously, in Nigeria, the development of youths was not a priority in scheme of thing; youths were marginalized, neglected and omitted in developmental agenda.

This contributed to the myriad of challenges being currently faced by the youngsters, which includes but not limited to sexual harassments, personality disorders, depression, high rate of suicide, violence and personality disorders. Inadequate access to qualitative education, Information Communication Technology (ICT) and high rate of unemployment are major challenges faced by Nigerian youths (Adedokun, 2014; UNECA, 2006).

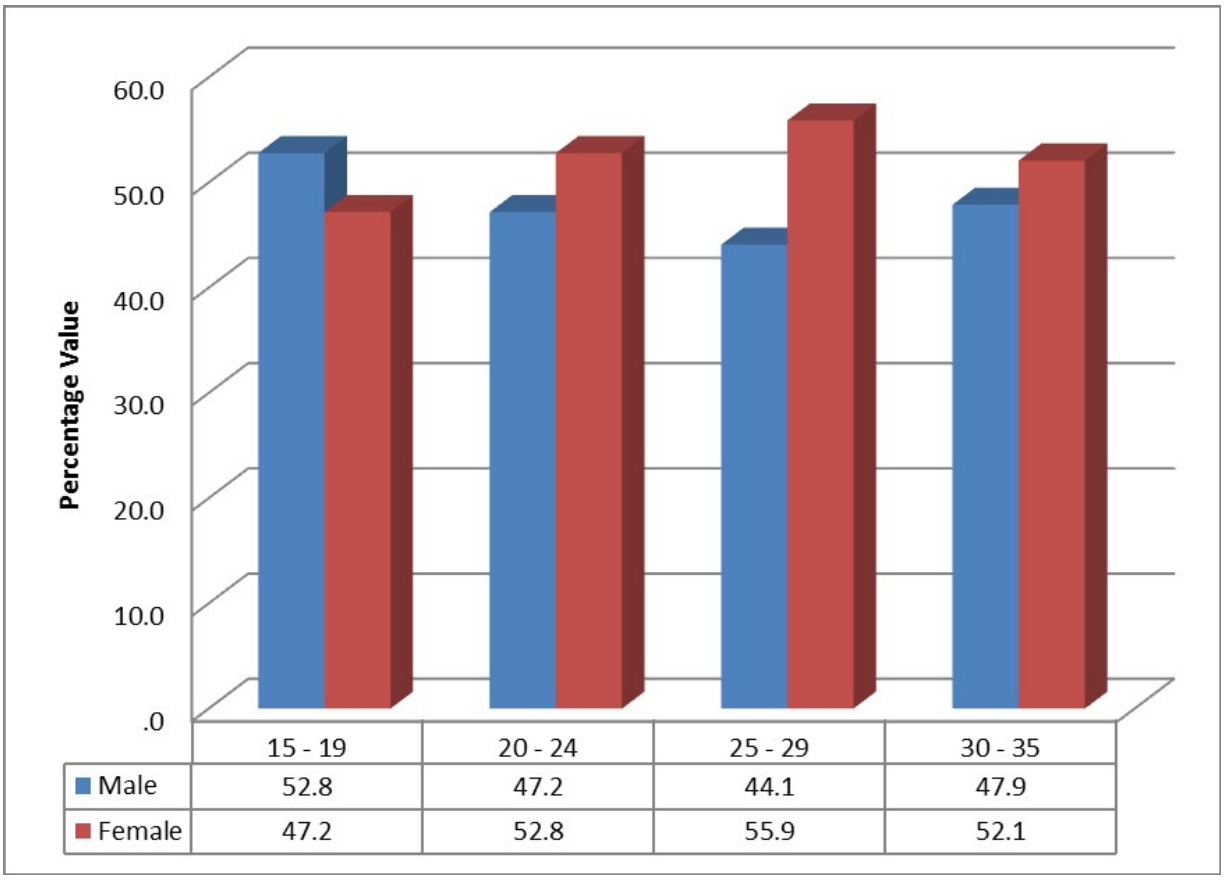

Figure 2: Percentage distribution of Youths in Nigeria by gender

Source: National Youth Baseline Survey (2012)

2.8.3 Youth Unemployment in Nigeria and Government efforts

Youth unemployment has being described as a time bomb waiting to detonate if not effectively handled. Over 60% of Nigerian youths are unemployed, (NBS, 2017). One foremost factor is population growth. According to the World Bank (2014), Nigeria's population has increased sporadically over the years. Rural – urban migration is another critical factor as many youths in Nigeria believe that they can get better jobs in the big cities. Other causes of youth unemployment as described by NBS (2017) are poor governance, ineffective targeting of the poor resulting in resources being thinly spread among competing projects, replication of functions, very poor coordination, lack of sustainable measures and population growth. From the lenses of gender, women are more plausible to be unemployed than their male peers. They face particularly strapping challenges in getting jobs due to early motherhood and lack of adequate education.

Even though, Nigerian Youths are still highly plagued with the menace of unemployment and underemployment, several Governments have instituted diverse youth empowerment a schemes to foster self-dependence and sustainable livelihoods through organs such as the National Directorate of Employment (NDE) and Ministry of Women and Youth Development and National Poverty Eradication Programme and Industrial Training Fund. Some of them are:

a. The National Youth Employment Action Plan (NYEAP])

The initiative was premised on diversification of the economic base of the nation (specifically into agriculture industries); running vocational and entrepreneurial and skills centre for students and youths and FCT administrations; audit-evaluation, reformation and intensification of such job creation agencies as the National Directorate of Employment, and enhancing the environment for development of enterprises. Development Centres for entrepreneurship was established across the six geo-political zones to bridge the gap in youth development and entrepreneurship. The program benefited over 200, 000 youths\

b. The Subsidy Re-investment and Empowerment Programme (SURE-P)

This initiative was launched in the wake of the Federal Government's (FG) partial removal of oil subsidy in February 2012. SURE-P was coordinated by the Federal Ministry of Finance and directed by a group of experts to span across the three tiers of government. Its focus was on the appropriate management and investment of proceeds saved from the

removal of the funding on petroleum products. It allegedly marked the flagship of recent efforts to provide job opportunities to graduates of tertiary institutions. It comprised of a whole range of activities and programmatic schemes, including the Graduate Internship Scheme (GIS), Community Services Scheme (CSS), Vocational Training Scheme (VTS), and Community Services, Women and Youth Empowerment (CSWYE), among others.

According to Akande (2014), GIS was one of the greatest schemes of the SURE-P, it offered unemployed graduates the chance to experience a one-year placement in banks, ministries, and other agencies and parastatals serving Small and Medium enterprises. GIS main mandate was to facilitate the learning of practical skill and knowledge to prepare beneficiaries for the challenge of the labor market.

c. The Petroleum Technology Development Fund (PTDF)

Was to boost Nigerian capacities in engineering, geology, geo-sciences, management, economics and other relevant fields for the oil, gas and solid minerals sectors. Aside from direct scholarships to Nigerian beneficiaries, there are donations of infrastructure, furniture, publications and libraries, machinery and equipment to several educational institutions in the country. The NYSC Venture Price competition (operated by the Central Bank of Nigeria) promotes the entrepreneurship spirit and expertise in national youth service members, to encourage them pursues self-employment options. Their exposure includes rudiments of investment and feasibility reports, business start-ups and expansion. According to Ekong (2016), the underlisted are previous government efforts geared towards reducing youth unemployment

1. The Structural Adjustment Programme (SAP)
2. The National Directorate of Employment (NDE)
3. Small and Medium Enterprises Development Agencies (SMEDAN)
4. National Agency for Poverty Eradication Programme (NAPEP)
5. Better Life Programme
6. National Open Apprenticeship Scheme
7. The graduate job creation loan Guarantee scheme
8. Agricultural Sector Employment Programme
9. Subsidy Reinvestment and Empowerment Programme (SURE-P)
10. Youth Enterprise with Innovation in Nigeria (YOUWIN!)

Roberts (2007) opined that Governments should rise up to their roles if the potentials of youths would be maximized, they should resolve obstacles and help facilitate a successful transition to adulthood through pursuit of sustainable initiatives and policies aimed at poverty alleviation and provision of employment opportunities.

d. Government and youth empowerment programmes

Governments in Nigeria have come up with programmes to stimulate youth's interest in agricultural production and processing since the late 1980s. In 1986, the federal government established the National Directorate of Employment (NDE) to provide vocational training to the youth, and in 1987, the Better Life Programme was created to empower women, especially female youths in the rural areas through skills acquisition and healthcare training (Akpan, 2010). In addition, The Peoples Bank and Community Banks were established in 1989 and 1990 respectively, to provide credit facilities to low income earners embarking on agricultural production and other micro enterprises, with special consideration to youth engaged in agricultural production (Akpan, 2010). In 1992, the Fadama program was initiated to enhance food self sufficiency, reduce poverty, and create opportunities for employment for youths in the rural areas. In 2008, the Akwa Ibom state government initiated an integrated farming scheme for recently graduated agricultural students, and set up a micro credit scheme for youths engaged in agricultural production and processing. Other state governments also initiated graduate and school leaver's agricultural loan schemes in an attempt to encouraged youth involvement in agricultural production, empower those engaged in agricultural activities, and combat youth unemployment (Akpan, 2010).

Arokoyo (1992) and Ekong (2003) noted that the youth who have the energy to take up agricultural production do not believe or have the knowledge that agricultural production can really be a profitable venture. Thus, there arises the urgent need to really teach them to know the importance and prospects in farming and take to it, thereby increasing the farming population. Moreso, the youth need to appreciate the role of agriculture, stay back in the villages where there are abundant resources and make use of what they have in productive activities. This will really support the extension workers, who are already short in number compared to the farmers that have to be reached (Eremie, 2002).

The current challenges in development are so demanding that only the participation of people who are energetic, creative, innovative, productive and committed who could bring development should all be mobilized (Arokoyo, 1992; Mgbada, 2002; Solanke, 2004). These attributes which are critical to growth and development are substantially discernable in the youth. Thus, they constitute the major resource base for any country that wants to embark on any meaningful agricultural and rural development

2.8.4 Significance of youth self-reliance

Self-reliance

The concept of self-reliance is located centrally within the discourse of community development and is connected to related concepts like self-help, independence, mutual-help, indigenous participation and rural development. It advocates the need for people to improve their condition using local initiatives and resources in their own hands. The concept is fast being accepted as a new formula for community development because of its widespread acceptance in the development planning of most African countries. The concept of self-reliance has the tendency to give greater stimulus and cohesiveness to community development in these countries (Anyanwu, 1992). The definition assumes that youth use the resources at their disposal to proffer solutions to the challenges peculiar to their group and confronting them persistently. They also want to realize their dreams and be at the fore front of developing the communities.

Anyanwu (1992) contends that in most African countries, community development has depended significantly on voluntary cooperative efforts. This follows a traditional trait that clearly underscores the virtue of self-reliance. This explains the emerging trend in community development, which sees it as an important point of take-off for better living. The emphasis is to involve groups of people in planned programmes from which they may gain skills that will enable them to cope more successfully with the problems of their everyday lives.

Recently, the invaluable role of youths in the development has been brought to light and there is an increased rate of concern for youth issues, responsibilities and rights. Yet youth are invariably victims of exclusion from governance, decision-making and development process, which impact negatively on their desires for self-reliance and self-realization. The Human Development Report (UNDP, 1993) echoes the need for people to participate in

their own development, stressing that people's participation is becoming the central issue in the face of current challenges facing the world for development.

It is now widely accepted that there are many good reasons to promote self-reliance among young people.In addition to the above, youth self-reliance (YSR) will achieve the following in the developing economies.

i. The indigenous entrepreneur and managerial skills needed to transform the economy are developed.

ii. Labour intensive industry is boosted by YSR, which helps government to achieve the employment and income distribution objective.

iii. Encouragement of youth to be self-reliant enhances the exploitation of untapped industrial opportunities.

iv. The evenly distribution of wealth and regional economic balance objective of government is enhanced as the menace of rural/urban migration, which exacerbates urban congestion is checked.

v. There is higher value added to the domestic economies thereby checking the dumping of products from developed in developing economies.

vi. Indigenous technology is promoted through youth self-reliant programmes.

vii. The above will definitely improve the balance of trade and payment of the developing economies as well as strengthening the local currency coupled with the benefit of promoting exportation and preventing over reliance on a single commodity to earn foreign exchange. Over dependency on oil revenue has been the bane of industrialization in Nigeria.

Entrepreneurship undertakings are probably one the most effective means of making youth self-reliant. While caution should be exercised so that entrepreneurship is not seen as a panacea for curing all society's social ills, many experts such as Curtain (2000) warn, it has a number of potential benefits. An obvious, and perhaps the most significant one, is that it creates employment for the young person who owns the business.

2.8.5 Youth Entrepreneurship

Entrepreneurship is regarded as a potent tool to fight unemployment especially among the youth. It is regarded by many as the gateway towards self-sustainability, empowerment and economic development (Naude, 2013). Literature defines entrepreneurship differently but the common denomination seems to be the creation of a venture for profit. Morris, Kuratko and Covin (2011) defines entrepreneurship as a means to create something different and innovative, acquiring and utilisation of resources to implement a differentiated venture, exploiting opportunities to make profit, and taking calculated risks in venturing into untapped territory to create value. Ahmad (2010) mentions that risk taking is the one trait that distinguishes entrepreneurs from non-entrepreneurs.

Entrepreneurship can be viewed as a vehicle towards enhancing economic dynamism and activity as it remains critical in minimizing unemployment thus reducing the rate of poverty. Naude (2013) believes that a number of governments have shifted their attention towards entrepreneurship development to improve the lives of citizens and create a thriving economy; economic growth are in tandem with high levels of innovative forms of entrepreneurship.

In many countries of the world today, youth entrepreneurship is being recognised as a promising alternative and therefore progressively and actively promoted by various agencies. If promoted actively, it can help sustain growing economies and integrate youth into the workforce, besides leading to the overall development of the society.

Entrepreneurship in any society is a sign of progress. Building an environment that promotes creatively and provides opportunities for entrepreneurship calls for multi pronged strategies implementation and involvement at all levels including Government, industry, political, social as well as educational sectors. Becoming an entrepreneur potentially offers benefits to the young restive society's world Youth's natural disposition for innovation and change make them well suited for entrepreneurship, provided the community can give youth the right support to overcome their challenges and improve their odds of success. A city's economic development benefits from youth entrepreneurship in terms of employment creation, product and service innovation, market competition, community revitalization, and

income generation. Youth entrepreneurs face greater challenges than adult entrepreneurs, and therefore would benefit from talent development programs to support them with skills, mentoring, networking, and access to resources in order to increase their rate of success. Some benefits of youth entrepreneurship include:

- creating employment
- providing local goods and services to the community, thereby revitalizing it
- raising the degree of competition in the market, ultimately creating better goods and services for the consumer
- promoting innovation and resilience through experience-based learning
- promoting a strong social and cultural identity
- continuously creating and growing diverse employment opportunities different than the traditional fields available in a particular city

According to OECD (2013), youth entrepreneurship is on the rise, and a high proportion of developed countries' populations now prefer self-employment. Youth entrepreneurship benefits an economy by creating jobs, increasing competitiveness, creating innovative goods and services, creating a strong community and cultural identity, and producing income.

Understanding the subject of youth entrepreneurship begins with trying to identify and define the different types of youth entrepreneurships. With recent studies and based on the differentiation in the behaviour and attitudes, roles, functions, industry and many more relevant characterisations, new categorisation of youth entrepreneurship has been put forth by the researchers. Below are some of the types of youth entrepreneurship as defined by Khalil (2006).

1. Innovative Entrepreneurship

Is ability to think out of the box, to create new processes and business opportunities out of their innovative ideas. Currently we can name dozens of Innovative youth entrepreneurs in the world. Examples are Jack Dorsey - founder of twitter, Sergey Brin, Larry Page of Google and Mark Elliot Zuckerberg the founder of Face book.

2. Imitative Entrepreneurship

Most of the entrepreneurs in the developing countries and under developed countries who bring home tried and tested technologies from the developed world and establish them in the home country come under this category.

3. Fabian Entrepreneurship

Youth entrepreneurs who take on particular businesses from their previous generation and manage to grow the business without taking any major risk of deviating into new areas but improving efficiencies, processes and scale of operations etc are called Fabian Entrepreneurs.

4. Drone Entrepreneurs

Drone Entrepreneurs are the first generation entrepreneurs who manage the business handed down to them and continue to look at running the enterprise smoothly without taking any risks. This kind of attitude may be said to be an individual trait of the entrepreneur that leads him to manage the inherited business in a steady mode.

Entrepreneurship is an outcome of a lot of factors including values, beliefs, attitudes, innate spirit, inborn leadership, influence of environment, family, skills and many more. Therefore categorization of youth entrepreneurs can also be done into several types, based on various factors. Some of the classifications have been arrived at based on the type of business, based on technology, based on geography [Rural & Urban], gender, scale of operations etc. Business entrepreneurship which is one of the significant and dominant categories can be further sub divided into business, trading, industrial, corporate, agriculture, retail, service and social entrepreneurs.

2.8.6 Youth and Agriculture - Need to involve Nigerian youths in Agricultural activities

Africa's youth population is increasing rapidly, with the 15- to 24-year-old age group at 200 million, a figure that is expected to double by 2045, according to population experts. But agriculture could potentially provide enough food and jobs (United Nations Department of Public Information, 2014). In a 2013 report, Agriculture as a Sector of Opportunity for Young People in Africa, the World Bank added its voice to data by other organizations

showing that agriculture is Africa's largest employer and has the potential to absorb millions of new job seekers. According to the report, increased focus on agriculture could enhance productivity, reduce food prices, increase incomes and create employment. Young people's involvement in this process is crucial. "Although farming is now often done by the elderly, the profession's requirements for energy, innovation, and physical strength make it ideally suited for those in the 15 to 34 year-old age range; that is, 'the mature young,'" notes the Bank. The consensus among experts is that for agriculture to create high employment, young people must get involved. Masiyiwa (2013) stated that it is possible for agriculture to be both more productive and hip enough to attract young farmers. He noted that "smallholder farmer may still work the land…they will be using new seeds, fertilizers, modern methods; they will be young, they will be skilled and have cars outside their houses and market information on prices of their produce."

Massive involvement of youths in agriculture would create more jobs in areas of input supplying, food processing, marketing, production, distribution and administration. The report further analysed that "if only 5% of the current number of unemployed youths in Nigeria embrace any aspect of agriculture and if each should provide food to a minimum of one person per day. Over a period of 46 days, these numbers of youths would have successfully fed half of Nigerian's populace all things being equal. Practically, any agricultural production has the potential to feed more than an individual. This analysis therefore further reveals the enormous potential of agriculture to positively impact both the youth and the nation at large

Youths are the primary productive human reserve of socio-economic development. It is, therefore, essential to identify the roles of youth in conventional development. Nigerian youth are diverse in ethnicity, religion, and socioeconomic backgrounds. Such diversity necessitates customized initiatives to meet needs and activate their untapped potentials. If about 21.5% unemployed youths are gainfully involved in agriculture, there would be a rapid growth in the nation's economy. Agriculture is critical to the development of nations; this will involve embracing the full participation of youth in the agricultural sector. Youths are the heirs of farming generation and are very instrumental to food security. The ageing clan of smallholder farmers is less likely to adopt the new technologies required to maintain

increase in agricultural productivity. Efforts should also be made towards addressing the negative perception of youths as farmers are seen as uneducated, unskilled, and physical labourers with extremely low economic return.

Modern agriculture goes beyond tilling of soil and rearing of animals; the industry presently has numerous opportunities for youths. The UN World Health Organization predicts that " by 2030, 6 out of every 10 people will live in a city, and by 2050, this proportion will increase to 7 out of 10 people" meaning that more young people than ever before are moving to cities and towns to find work, leaving few behind to work in rural areas. With this predicted concentration of the global population in urban areas, it is easier to understand why the number of young farmers decline yearly. There is a compelling need to boost and sustain youth's interest and participation in agricultural production activities.

Over the years, the Nigerian government has attempted to stimulate youth interest in agriculture, as part of the efforts to reduce 'youth unemployment'-accounting for over 70 per cent of the national unemployment rate of 23.9 per cent (Nigerian Bureau of Statistics, 2015) by providing special incentives such as credit facilities for youths involved in agricultural production and processing. Recently, the government established the Technical Centre for Agriculture and Rural Cooperation ACP-EU (CTA), to establish policies, markets and Information and Communication Technologies (ICTs) programme to demonstrate to young people that innovation and creativity are very critical in agric operations. Increased involvement of youths in agricultural activities will address the quandaries of the ageing farm population, with the potential to decrease youth unemployment.

Agriculture offers the young generation an opportunity to make an impact by growing enough food to feed the world. Those who become farmers currently have the chance to be the generation that would end world hunger and alleviate malnutrition; they can equally help the industry to adapt to the rising issues of climate change. The advent of mobile phones and its subsequent adaptation in farming can also open the eyes of youth to the numerous opportunities and serve as diversion from stereotypes of traditional farming such that farming would become more exciting and impressive to the educated youths

Every youth has a role to play in any segment of agricultural/ food value chain which can ultimately result in improved food security, income and economic growth.Original and highly effective agricultural inputs are key success factors to any agricultural venture, therefore at the level of input supply, youths can involve in supplying different types of agricultural input. Such as: seeds, buds, seedlings, chemicals, tools/equipment and machines, pen pages, feeders, water systems, feeds, chemicals and vaccines, crates; aquaculture inputs: culturing and holding tanks, water testing and treatment kits, fish seeds, fish feeds, weighing scales, harvesting nets, drugs and vaccines. In the aspect of production, youths can be equally relevant by becoming producers of both consumable and non consumable foods. Post-harvest operations are other areas of agriculture open to youth involvement, food production requires post harvest handling and operation, and opportunities therefore abound for youths in form of engaging in post harvest transportation services, food processing, harvesting facilities and marketing.

Several causes have been pinpointed by previous studies as factors militating against youth involvement in Agriculture. For example, Adekunle *et al.* (2009) identified inadequate credit support, poor margins of profit, agricultural insurance, start up capital, while Kisingu, (2016) mentioned lack of ready market, poor roads, outbreak of diseases and inadequate knowledge and skills in agriculture as main challenges that hindered the youth involvement in agriculture.

2.9 Concept of wellbeing

Well-being could be uni-dimensional or multidimensional. In terms of substance and form, it could be perceived as having objective and subjective aspects. Economics view subjective well-being as life satisfaction i.e. satisfaction with life in general or satisfaction with each aspect of life such as career, finance, marriage. Christopher, Bernhard and Noll (2003) opined that subjective well-being is still an element of "welfare "and is usually interchanged with "quality of life". Similarly, in his description and study of wellbeing across districts of European Union, Stratham (2010) alluded that, wellbeing has dimensions of health, materiality, education, social and production spheres. Similarly, Pollard and Lee (2003) postulated that the measurement of wellbeing can be done with either positive or

negative indicators over its five different dimensions of psychological, social and physical, cognitive and economic.

Helliwell and Putnam (2004) had previously observed that several scholars' have used the terms subjective wellbeing without concisely defininig it. Ultimately, evaluations of well being usually measure peoples' happiness or contentment with life. People's level of dissatisfaction or satisfaction with their life in total, reliably indicates their feeling or perception about their life and this, in actual sense is their subjective wellbeing (Moum 1996). Still following the same school of thought, economists have accepted subjective wellbeing to mean an individual's satisfaction with life while agreeing with psychologists that the way individuals self perception is key to the way individuals feel satisfied in relation to his present possibilities expectations.

Furthermore, Vitterso (2015) also proposed subjective and objective components for QOL, he then tagged the subjective component as wellbeing and described it as a way in which people evaluate their lives.

Exploring the historical foundations to the concept of well-being is highly critical to its definition. Conventionally, two approaches have surfaced:

1. the Hedonic tradition focuses on constructs such as happiness, positive affect, low negative affect, and satisfaction with life (Bradburn, 1969; Diener, 1984); and
2. The Eudaimonic tradition, focuses on human development and positive psychological functioning (Rogers, 1961; Ryff, 1989).

Nevertheless, despite the different approaches, most scholars have agreed that wellbeing has multiple dimensions i.e, it is a multidimensional construct (Cordon, and Potts, 2009; Stiglitz, Sen, and Fitoussi 2009) and consequently, the variety of dimensions is now responsible for a confusing and incongruous research base (Pollard and Lee, 2003).

Bradburn's (1969) was one of the early researchers on psychological well-being. His study caused a shift from diagnosing psychiatric cases to studying psychological reactions of day to day lives of ordinary people. His discussion stemmed from his interest in how individuals coped with the daily difficulties that they faced. Bradburn explained that psychological well-

being, could also mean happiness and it's of primary importance. He connected this to the growing body of idea of Eudaimonia as postulated by Aristotle. Aristotle considered this to be the most important objective of all human actions. The bulk of Bradburn's study concentrated on the differentiation between positive and negative concerns. His model specified that, an individual will be high in psychological well-being in the degree to which he has an excess of positive over negative affect and will be low in well-being in the degree to which negative affect predominates over positive (Bradburn, 1969)

Although Ryff (1989) criticised Bradburn's work for not defining the basic structure of psychological well-being, an emphasis on positive and negative affect has been central to the work of Diener and Suh (1997). They believed that subjective well-being consists of three interrelated components: life satisfaction, pleasant affect, and unpleasant affect. Affect refers to pleasant and unpleasant moods and emotions, whereas life satisfaction refers to a cognitive sense of satisfaction with life (Diener and Suh, 1997) Headey (2006) picked up on the need for positive and negative affects to be seen as distinct dimensions, rather than opposite ends of the same continuum (Bradburn, 1969) as they are only moderately negatively correlated . This was more recently supported by Lee and Ogozoglu (2007) and Singh and Duggal Jha (2008). Ryff's early work (Ryff, 1989) identified portions of well-being including independence, environmental mastery, positive relationships with others, purpose in life, and realisation of potential and self-acceptance. Recent research have highlighted wellbeing in different concepts: ability to accomplish goals (Foresight Mental Capital and Well-being Project, 2008); happiness (Pollard and Lee, 2003) and life satisfaction (Diener and Suh, 1997; Seligman, 2002).

From economist perspectives, subjective well-being is defined as life satisfaction, it can be measured as either satisfaction with life in general or as a multi-dimensional construct; measuring satisfaction with each area of life. Christopher, Bernhard and Noll (2003) viewed subjective well-being as an element of "welfare". They further opined that subjective well-being can be used interchangeable with "quality of life". Similarly, while studying regional well-being and exclusion within some regions of European Union,
Stewart gives no explicit definition of well-being, but described it terms of five phases namely: material well-being, health, education and literacy, participation in the productive

sphere, and participation in the social sphere. Pollard and Lee (2003) postulated five different dimension of well-being with an array of both negative and positive indicators. The domains are: physical, psychological, cognitive, social and economic.

Several authors (Helliwell and Putnam 2004; Spiro and Bosse 2000), have adopted the use of the term subjective wellbeing and even wellbeing without a clear definition. Evaluations of well-being usually measure peoples' happiness or contentment with life. For instance, the Australian Unity Well-being Index is described as a "barometer of Australians' pleasure with their lives, and lifestyles in Australia" (Spiro and Bosse 2003). Moum (1996) observed that ranking peoples satisfaction/ dissatisfaction with their lives in general reliable indicator of how they feel about their lives, supplying a precise sense of individuals' subjective well-being. Sequel to this, economists have generally accepted life satisfaction as a constructive gauge of subjective well-being. However economists additionally accept the evidence from psychology research that individuals' expressions of life satisfaction replicate a variety of one of kind factors of their self-perception, related to their existence possibilities and outcomes. These may additionally be both subjective and goal ("inner" and "outer" qualities), and the extent to which people fee each of these might also vary. Diener and Suh (1997) put forward a model of subjective well-being with three domains: life satisfaction, unpleasant and pleasant affect. A person can measure highly on the subjective well-being aspect and rank low on other aspects

On the other hand, (QOL) is sometimes lumped with other subjective concepts such as satisfaction with life. Some scholars defined quality of life *as* well-being (explicitly - Felce and Perry (1995), Naess (1999), Kahn and Juster (2002) or implicitly – Janse et al (2004). Other models conceptualized well-being as a component of QOL. However, as far back as 1970s, Shin and Johnson (1978) seemed to move closer to defining well-being by stating that it is a universal measurement of a person's quality of life according to the person's specified criteria, and this judgement is still reflected in more recent literature (Zikmund, 2003; Rees, Goswami, and Bradshaw 2010; Stratham and Chase, 2010). Quality of life according to the World Health Organization (WHO, 1997) is an individual's opinion of his position in life according to culture and values of the society they live and in congruent to their goals, prospect, values and concerns. This, therefore justifies the positions of the proponents of subjective approach to well-being measurement, which argues that an

individual, rather than a second party better determines how satisfied he is with his life. This is unlike the objective approach where well-being is seen as better assessed based on the possession and quality of some sets of items, which the investigator feels have direct link with the peoples well-being.

Whatever approach is however being used, well-being is currently being viewed as a broad-ranging multi-dimensional, than a uni-dimensional concept, the measurement of which should be all-encompassing (WHO, 1997) This emphasis on achieving goals reflects the work of Emerson (1985) and Felce and Perry (1995), who believed that well-being stems from individuals' perception of their current situation and their aspirations. However, the term 'quality of life' is usually used interchangeably with the term well-being in a variety of disciplines. Many believe that this has made the task of defining well-being conceptually grimy (Morrow and Mayall, 2009). However, Stratham and Chase (2010) argue that the term well-being has enabled psychologists to 'de-medicalise' the concept of health. Consequently, it is now possible to consider quality of life separately from ideas of illness.

The broad nature concept of well-being makes it applied to many situations for a variety of purposes (Paim, 1995). Applications of the concept range from specific domains of well-being, such as economic, material, social, and psychological, to all other domains impacting upon people. The diversity results from the different reasons there are for using the concept and different approaches to measuring it. The particular measures that are used – or developed for use – in any particular context reflect the purpose of the measurement and the disciplinary and theoretical perspectives that inform the measurement.

Veenhoven (2004) while giving credence to the broad nature of well-being suggests that, very broadly, the term denotes that something is in a good state. Beyond that, the term does not, in itself, specify what is in a good state, nor the criteria for being in a good state. He further suggests that the term 'well-being' needs to be clarified by specifying what the term applies to and what constitutes the state of well-being.

According to Keyes (2002), conclusively, researchers from various disciplines have postulated several aspects of well-being including:

- Physical well-being.
- Economic well-being.
- Social well-being.
- Development and activity.
- Emotional well-being.
- Psychological well-being.
- Life satisfaction.
- Domain specific satisfaction.
- Engaging activities and work.
- Material wellbeing
- Non material wellbeing

These aspects can then be broadly summed up as material and non material wellbeing. The issue of wellbeing may be evaluated or studied from its material or non material component. Material or non material conditions of life.

Material well-being: Material conditions include the commodities and resources available to individuals and households. Material well-being is one dimension of human well-being. Material well-being is measured through income, consumption patterns or assets/wealth. In developing countries, assets of poor people often include land or livestock. No unique definition exists but the concept is most often thought as representing the stock of wealth used to generate well-being. Asset is a stock indicator and is also called wealth. Material well-being is shaped by many influences that affect the ability to make ends meet, not just income.

Non material wellbeing

Non material wellbeing however refers to the non tangible, non monetary or the psychological dimensions of wellbeing such as social connections, physical wellbeing and their access to life essentials

2.9.1 Determinants of well-being

Having looked at the various definitions of well-being, its constituents as well as the development of its conceptualization, it is important to identify the probable determinants of well-being. Therefore, looking from a subjective approach, the question then becomes, "what get people satisfied about their lives?" This section therefore looks into the various predictors of individual or covariate well-being. A number of aggregated factors have been identified and discussed in this section. These are personality factors, contextual and situational factors; demographic factors; institutional factors; environmental factors; and economic factors

A number of authors have identified and reported factors underlying differences in Subjective Well-being (SWB) ratings (Diener Eunkook Suh, Robert and Heidi., 1999). This section therefore discusses some of the uncovered correlates and determinants of SWB, classifying them in six broad groups. Van Hoorn André (2007) identified basic six broad groups of factors which determine well-being. These include:

(i) personality factors;
(ii) contextual and situational factors;
(iii) demographic factors;
(iv) institutional factors;
(v) environmental factors; and
(vi) economic factors

2.9.1.1 Personality factors

Psychologists have deeply studied the influence of personality on SWB, and found it to be the strongest and most dependable factor underlying differences in SWB between persons. In a famous study, Tellegen, Lykken, Bouchard, Wilcox, Segal and Rich (1988) compared levels of SWB for monozygotic and dizygotic twins raised together and raised apart. Their study shows that 40% of the variance in positive emotionality and 55% of the variance in negative emotionality is attributable to genes, whereas shared familial circumstances account for only 22% and 2% of observed variance respectively. Much work has assessed the role of measured personality characteristics and these are also consistently found to be highly significant predictors of SWB. Notably neuroticism and extraversion go a long way

in accounting for differences in levels of SWB (Hayes and Joseph, 2003). Also, while establishing link between personality and subjective well-being, Diener *et al* (1999) in Steel, Schmidt, and Shultz (2008: 214) concluded that, "it appears a substantial portion of stable SWB is due to personality".

While a number of theories were related to this connection, Gray's (1987) reinforcement sensitivity theory was considered particularly relevant. It indicates that two systems, a behavioral activation system (BAS) and a behavioral inhibition system (BIS), are connected to both personality and SWB (Elliot and Thrash, 2002). The BAS is linked to extraversion and regulates approach behavior by signaling the presence of rewards through the promotion of positive affect. The BIS is linked to neuroticism and regulates avoidance behavior by signaling the presence of punishers through the promotion of negative affect. Consequently, extraverts are more likely to attend to rewards and find them more positive, whereas neurotic individuals are more likely to attend to punishers and find them more negative. While positing that people tend to be happier in social situations, and because extraverts spend more time socially Steel, *et al* (2008) posited that they should be happier. Second, extraversion generally has a positive impact on peer, family, and romantic relationships, whereas neuroticism is often a negative predictor (Donnellan, Larsen-Rife, and Conger 2005). Consequently, it has been suggested that extraverts have more fulfilling social interactions, which also leads to greater levels of happiness (Reeves, 2000) and therefore Steel, *et al* (2008) conclude that personality is substantially related to SWB.

There have been many formulations and definitions of human well-being (Alkire 2002). Most commentators would agree that it includes basic material needs for a good life, the experience of freedom, health, personal security, and good social relations. Together, these provide the conditions for physical, social, psychological, and spiritual fulfillment. A distinction is sometimes made between the determinants of or means to well-being and its constituents—that is, well-being as an end (Dasgupta 2001). In other words, well-being is experiential, what people value being and doing. The determinants are sometimes expressed as commodity inputs, many of which are provided by ecosystem services. They include food, fiber, fuel, clean water, materials for shelter, marketed crops, livestock, forest products, and minerals. Enabling physical, environmental, and social conditions and

access—for example, to resources and space are also relevant as determinants of or means to well-being. Therefore, viewed within this frame, some key elements of well-being can be both determinants and constituents. For example, education and health can be both ends in themselves and the means to experience well-being.

2.9.1.2 Contextual and situational factors

Although inherent factors play a fundamental role in SWB, individual, contextual and situational factors have also been reported to be important sources of difference in SWB scores. Notably, a consistent finding across samples of individuals reporting on, amongst others, SWB is that better health is associated with higher SWB, and that married people report higher SWB than single, or divorced people. Wills and Hamilton (2007), using the various domains of National Well-being Index (NWI) also established relationship between various situational and contextual factors such as economic, standard of living, health, economy, among other factors.

2.9.1.3 Demographic characteristics

The third group of factors strongly associated with SWB concerns demographic characteristics. Gender and age in particular have been reported to be good determinants of SWB across samples. For example, women generally report higher SWB scores than men do, while SWB has been reported to be U-shaped with age. They asserted that happiness is U-shaped through the life cycle: high amongst the young, reaching a minimum at around 30 or mid 40s (depending on the study) and then lifts back up again. That is, SWB is higher among young people, declines in middle age cohorts and increases again at older age. In another study, Gonza´lez Gutie´rrez, Jime´nez, Herna´ndez, and Puenteage (2005) established relationship between nurses' positive affect and their age and relationship status showing the influence of occupation. It also established that these demographic variables played a significant role in the prediction of affect balance. Perhaps this is the reason Frey and Stutzer (2002) posited that although socio-demographic variables might not be as relevant from an economic standpoint in that they cannot be easily controlled, such as age, gender, and marriage, they have an effect on happiness and thus should be included as controls in regression analysis to avoid generating biases in the estimations. More fundamentally, these socio-demographic factors, in a way, make reference to the discussion

of set point theory and adaptation. Many studies have found that people completely adapt to changes in income yet they have an incomplete adaptation to other life events; that is their level of happiness is permanently affected by things such as a severe injury, widowhood and divorce, amongst others (Easterlin 2004).

2.9.1.4 Economic growth

Economic growth has also been tipped as an important factor. The argument that economic growth is by default good for health remains widely accepted, particularly among those arguing for the benefits of globalization and development aid (Dollar 2004; World Bank 2002). Material conditions and consumption are most prominently mentioned in these surveys. Income has also been reported to be an important determinant of happiness and hence, people's well-being. In 1974, Easterlin (1974) showed that, for the United States, individually self-reported happiness increased with individual income, although there were rapidly "decreasing happiness returns" to increases in income. The cross-individual relationship between income and happiness was found to be far from linear, and essentially flat for high levels of income. Although this is consistent with the diminishing returns to increases in consumption that are typically assumed for theoretical utility functions, there is debate on this topic. Thus, Easterlin found clear evidence of a positive effect of income on happiness at the individual level, in-line with the assumptions of standard economic theory—but in contrast with the findings of objective measures of quality of life (Easterlin 1974). However, Easterlin also found in the same study that aggregate national happiness over time was essentially flat, seemingly irresponsive to sustained increases in GDP per capita. This finding is often known as the "Easterlin Paradox," in that growth in per capita income is not reflected in increasing happiness.

Livelihood diversification and availability of livelihood resources have also been identified as possible economic factors that determine household well-being. Unfortunately, lacks of access to assets has been identified as the most important constraint to livelihood diversification in Nigerian rural communities, and therefore have the tendencies to affect well-being in the study area. Possession of even a small asset enables the households to take opportunities in the non-farm sector, particularly in the self-employment sector. For example, ownership of a sewing machine may induce a person to start his own tailoring

business. Similarly, possession of a bicycle may help the worker in going to the nearby town for non-agricultural employment. According to Kumar, Sing and Mathur (2006), availability and accessibility of livelihood assets by the rural households is directly proportional to the extent and type of livelihood activities of rural dwellers, and this affects their well-being significantly, by helping households build resiliency against negative dam consequences and associated constraints.

Finally, part of individual and cross-country differences in well-being is attributable to differences in economic circumstances. The literature has developed a quite clear understanding of the role factors like unemployment and inflation play in SWB (Becchetti, Stefano and Osea 2006). In particular, it is well-established that unemployment affects SWB through two channels: it has a direct negative effect on people who lose their job, keeping income constant, and an indirect negative effect on the entire population, higher risk of losing a job.

2.9.1.5 Institutional factors

Institutional conditions constitute a fifth group of factors found to have a systematic relationship with SWB. For instance, Frey and Stutzer (2000) had conducted a study on 6,000 residents of Switzerland shows that taking other things constant, individuals are happier the more developed the institutions of direct democracy and government decentralization in their area of residence, leading to increase in their well-being. Frey and Stutzer (2002) posited that although international and domestic issues (politics, war, and others) are rarely mentioned as determinants for well-being, studies have found that political institutions have an influence on people's happiness. At a more abstract level, Radcliff (2001) finds a positive relation between the ideological complexion of governments and levels of SWB. He also reports a positive correlation between qualitative features of the welfare state and SWB. Finally, Veenhoven (2000) finds that political and private freedoms add to SWB but only in rich countries. He finds that freedom does not always breed happiness. It was also shown that freedom is positively related to happiness among rich nations, but not among poor nations. Opportunity for free trade is positively related to happiness in poor nations, but not in rich nations.

2.9.1.6 Environmental conditions

Environmental conditions are an important factor in observed differences in SWB that operates strictly at a macro level. For example, Rehdanz and Maddison (2005), using data on 67 countries between 1972 and 2000, found that climate variables have a highly significant effect on SWB and that climate changes due to global warming might reduce SWB around the world in the next decades. In much the same fashion, the analysis by Becchetti, *et al* (2007) confirms the link between climate and SWB but indicates that global warming might, in contrast, lead to higher SWB worldwide.

2.9.2 Measuring well-being

Well-being is more difficult to measure than it is to define. Defining wellbeing is challenging, but its measurement seems to be even more overwhelming. In general, wellbeing measures can be classified into two broad categories: objective and subjective measures.

In the literature, well-being is measured using both objective and subjective measures. Objective measures of social reality are those which are not filtered by perceptions and are independent from personal evaluations. On the other hand, subjective measures are supposed to explicitly express subjective states, such as perceptions, assessments and preferences. The use of objective measures such as GDP, household income, household wealth and the income distribution, the proportion of children in education, educational attainment, life expectancy and crime rates are well established in research with children and young people's well-being. Although objective measures provide useful information on well-being at the macro-level, there. For example, Hicks (2011) terms the approach to using objective well-being measures as 'paternalistic'. It assumes that certain things are good or bad for well-being and these are included in the indicator set. There is the danger that what is measured becomes what matters rather than what matters being measured.

In general, well-being measure has been classified into two broad categories: objective and subjective measures. The first category measures well-being through certain observable facts such as economic, social and environmental statistics. People’s well-being is assessed indirectly using cardinal measures, in which values are assigned to items through which

well-being is being assessed. This is often the case with objective measures. On the other hand, subjective measures of well-being capture people's feelings or real experience in a direct way, assessing well-being through ordinal measures (McGillivray and Clarke 2006; van Hoorn 2007). Traditionally, well-being has been identified with a single objective dimension: material well-being measured by income or Gross Domestic Product (GDP. It then expanded to such measures as income per capita and poverty. The link between income and well-being rests on the assumption that income allows increases in consumption and consumption increases utility. Yet there is disagreement on how increases in consumption represent improvements in well-being. Moreover, GDP has its measurement flaws and does not capture all the aspects of human life. Thus, instead of relying on a single dimension, well-being measurements have progressed to encompass broader dimensions such as social and environmental aspects, and even human rights (Sumner 2007). Therefore it is now widely accepted that the concept of well-being is multidimensional, encompassing all aspects of human life (McGillivray 2007). Therefore, well-being can only be measured by capturing overall aspects of human life so that not one aspect is used to infer the overall well-being of a unit.

2.9.2. 1 Objective Measures of well-being

It is often asserted that economists are primarily concerned with GDP levels and growth. However, it is important to step back a little and remember that what matters most as an "objective function" is people's well-being. A fundamental assumption of standard economic analysis is that people's well-being increases with consumption of food, clothing, housing, entertainment, and many other goods and services. It is primarily due to this assumption that GDP—all that is produced, and therefore either consumed or invested by a country in a year— is so often taken as the yardstick of well-being and progress. The fact that GDP is the sum of consumption and investment should, by itself, give an indication that GDP may not be the ideal yardstick of well-being. If large increases in GDP take the form of growth in investment rather than consumption, then GDP itself does not necessarily mean improved well-being. In more technical language, consumption is the most important, and very often, the only argument in the utility function used by economists in order to capture the extent to which consumption translates into the well-being of an individual. But the

question is whether it is valid to assume that more consumption leads to more utility? Easterlin and Angelescu (2007) argued that more systematic evidence on the limitations of using GDP as a yardstick for well-being comes from more direct indicators of quality of life.

It has also been argued that as far as objective indicators go, growth does usually and eventually translate into higher consumption of goods and services. But most studies suggest that the general conclusion is that while cross-country data show a correlation between GDP per capita and objective indicators of quality of life, for example, richer countries tend to have higher life expectancy, time series analysis provides very little support for GDP per capita causation of improvements in the objective indicators. A very comprehensive and systematic cross-country and time-series study by William Easterly of the relationship between GDP growth and improvements in objective indicators of well-being found that there was only robust indication that GDP growth was the prime cause for the improvement in three out of possible 81 indicators that included calorie intake, protein intake, and telephones (Easterly 1999). In addition, the evidence shows that growth comes accompanied with objective indicators of "bads" that lower quality of life, such as higher levels of pollution and, beyond a certain income threshold, dietary habits that increase obesity. Thus, growth sometimes brings with it the "consumption" of aspects that tend to lower well-being.

GDP has also been identified to have a number of measurement flaws. For example, Conceição and Bandura (undated) observed that some activities that are included in the GDP estimates are difficult to calculate, for example government services. As these services are given to consumers at a subsidized price, their output cannot be valued at market prices. Moreover, GDP does not take into account changes in asset values which influence a person's consumption patterns. Externalities such as pollution or the depletion of natural resources are not counted. Giovannini, Hall and d'Ercole (2007) also posited that GDP does not take into account non-market activates, such as housework or illegal activities, and the value of leisure.

Despite GDP's flaws, given that its data are readily available and reliable, it is still widely used as a proxy for well-being (McGillivray and Clarke, 2006). However, due to widespread agreement that well-being is multidimensional, different approaches have been taken to go

beyond the GDP measure, conceptualizing well-being in a more holistic way. One approach has been to construct objective measures to complement GDP, offering social and environmental information beyond the economic stance. Since the 1970s, many non-economic indicators have been created to complement GDP. Indicators in areas such as education, health and nutrition, environment and empowerment and participation have been elaborated to complement GDP. A second approach is to adjust GDP by monetizing different aspects that are not counted in the GDP measurement, for example, social and environmental factors (McGillivray 2007). However, the problem with some of these adjustments is that it is difficult to quantify and monetize some of these additional factors. Another further adjustment to GDP is to include differences in income distribution, for example, by providing weighted shares of growth by population groups. As income per capita is a national average, it does not provide the real income picture of the different population subgroups or regions, or even individuals. A third more complex adjustment is to take into account social and environmental factors such as the value of leisure or the damage of pollution.

Yet a third approach to go beyond GDP is to replace GDP by constructing composite measures that would capture the multidimensional aspect of well-being. These measures are usually constructed using different components, weighted in some way to form a single index. One of the first attempts to construct a composite index of well-being was in 1979 when David Morris from the Overseas Development Council created the Physical Quality of Life Index (PQLI). This index combined infant mortality, life expectancy and adult literacy (McGillivray 2007; Stanton 2007; Sumner 2006). Another example is the well-known and debated Human Development Index (HDI) created in 1990, combining income per capita, life expectancy at birth, adult literacy and education enrollment ratios. Although far from a perfect measure of welfare, some of the HDI's strengths lie on its simplicity and transparency (UNDP 2007).

Another method is the subjective approach to well-being measurement. SWB is a relative newcomer in terms of its relevance politically and its robustness empirically. Its theoretical rigour extends back to Bentham (1789) who provided an account of well-being that is based on pleasure and pain, and which provided the background for utilitarianism. Generally,

SWB is measured by simply asking people about their happiness. In this sense, it shares the democratic aspect of preference satisfaction, in that it allows people to decide how good their life is going for them, without someone else deciding their well-being (Graham, 2010). SWB is beginning to be used to monitor progress and to inform policy, or, rather, 'ill-being', in terms of depression rates and in the provision of cognitive behavioural therapy (Layard, 2005. More is now needed on the positive side of the well-being coin. Policy appraisal using SWB has interested academics and policy makers (Dolan and Kahneman, 2008). Generally, the approach focuses on how people experience or value the quality of their lives, in measures of satisfaction or happiness (Veenhoven 2004). OECD (2013) defined subjective well-being as good mental states, including all of the various evaluations, positive and negative, that people make of their lives and the affective reactions of people to their experiences. It is an individual's perception of how well he lives. Kok, *et al* (2009) also posited that a person's perception of his well-being may not only reflect his own quality of life, but also how he perceives his position relative to that of other people. In their own explanation of subjective well-being, McGillivray and Clarke, (2006) state that subjective well-being involves a multidimensional evaluation of life, including cognitive judgments of life satisfaction and affective evaluations of emotions and moods. Some economists use the phrase "subjective well-being" as a synonym for "happiness". SWB is comprised by four components:

i) Pleasant emotions
ii) Unpleasant emotions
iii) Global life judgment (life evaluation) and
iv) Domain satisfaction (marriage, health, leisure etc).

Happiness on the other hand, is a narrower concept than SWB and different from life satisfaction. Although both happiness and life satisfaction are components of SWB, life satisfaction reflects individuals' perceived distance from their aspirations while happiness results from a balance between positive and negative affect. According to Bruni and Porta (2007), SWB is a synonym of "being happy", that is, the Aristotelian approach of happiness as eudaimonia, whereas concepts such as "satisfaction" and "happiness" are considered "feeling happy" (a hedonic approach). Despite these differences, economists have used the

terms “happiness” and “life satisfaction” interchangeably as measures of subjective well-being (Easterlin 2004). There is no clear consensus on what “happiness” means. Therefore, instead of trying to define happiness from an outside perspective, economists try to capture it through other means. According to Frey and Stutzer (2002) there are two extreme concepts of happiness (subjective and objective happiness) and ways to capture them and one in the middle—experience sampling measures.

Subjective happiness asks people how happy they feel themselves to be. They result from surveys where people are asked to self-report about how happy they feel, all things considered. Easterlin (1974) and Frey and Alois (2000 pioneered the economic analysis of happiness data. Today there are several surveys that evaluate happiness. One type of question asks “Taken all together, how would you say things are these days: would you say that you are very happy, pretty happy or not too happy?” An example of this is the General Social Surveys (Dumbraveanu, 2014.) Also provided the second type of question, which requested people to rank their satisfaction with their, on a scale 0 to 10 as carried out in The World Values Survey—WVS.

2.9.2.2 Measuring material wellbeing

Several types of procedures have been employed previously to take account of material well-being. The Survey for IPP has designed one of the broadest sets of measures named the SIPP topical module on “extended measures of well-being

The survey highlighted over 70 objects of information on five relevant areas or “domains”:

(2) **Household appliances and electronic goods**- Does the household possess particular household items such as refrigerators, televisions, dishwashers, telephones, and computers;

(3) **Housing conditions**- including physical problems such as broken windows and leaky roofs, as well as the household’s rating of warmth, space, privacy, overall housing repair, and other aspects of housing comfort;

(4) **Neighborhood conditions**- such as traffic, street repair, abandoned buildings, and quality of relations with neighbors;

(5) **Community services**- ratings of police, fire, and medical services, as well as schools;

(6) **Ability to meet basic needs**-paying rent and utility bills, avoiding eviction, and having enough food in the household.

2.10 Empirical review of relationship between socio economic variables and wellbeing

2.10. 1 Gender

Klasen (2007) observed that women are not usually favoured by the gender differences across the world in terms of wellbeing. Women's week seems longer compared to men putting into consideration their unpaid work (Eurofound, 2013). Higher levels of depression are also reported by women and lower levels of wellbeing (UN World Happiness Report, 2012). Women commonly subsist in poorer circumstances than men, but tend to be more satisfied with life, if entrenched in the same condition with men (Boarini et al., 2013). Graham and Chattopadyay (2013) however reported a higher wellbeing level for women when compared to their male peers for many countries except women in the developing world.

2.10.2 Age

Several academic articles have revealed significant correlation between wellbeing and age, nonetheless, with divergence views. For instance, Bell and Blanchflower (2004) reported a high level of wellbeing among younger and older age groups in comparison with middle aged people. Conversely, Helliwell (2003) reported a higher wellbeing among middle age category. Worthy of note is that, several studies have also reported no relationship, while some others did report a positive relationship;, Bond and Corner (2004) discovered an insignificant relationship. Some findings also explained subjective well-being stabilising or increasing as human beings advance in years (Frijters and Beatton, 2012). Charles and Carstensen (2009) argued that people as people grow older; they are more satisfied with life, due to increasing awareness of mortality. They alluded that older people dedicate more time for activities that significantly impact more on their personal well-being instead of pursuing any future objectives.

Hansen and Slagsvold, (2016) propounded three possible causes of soaring subjective wellbeing in older ages. Firstly, dependent on personality or adaptive abilities (Diener and Suh, 1998). It assumes that no matter the alterations of an individual's subjective wellbeing by life's circumstances, they would always gravitate back to their reference point as determined by their personality.

The second school of thought as noted by George (2006) indicates that the aged are likely to reduce their wants, aspirations and values. This is expected to improve their well-being by decreasing the desires and feat gaps for the aged compared to the full-grown adults (Cheng, 2004). The ability to checkmate emotions is the third school of thought. It believes that human social goals transform with age, corroborating this, Carstensen (1991) opined that as people age, their craving to socialise decreases, and consequently the satisfaction obtained from socialisations.

2.10.3 Relationship between marital status and wellbeing

Empirical studies revealed how marriage improves people's life satisfaction level. Marriage as a social contract is expected to bring about an intimate connection that could help human beings cope with distress. Justifying this assertion, Umberson and Chen, (1994) posited that marriage brings about emotional support likely to improve well-being because it has the ability to provide a good support system to overcome life pressures. Frey and Stutzer (2002) alluded that marriage contributes to human being's sense of self- esteem, social support and friendship.

Furthermore, Musick and Bumpass, (2012) reported a correlation between adults psychological wellbeing and their married life. Burström, (2016) reported that people in marriage relationships or those engaged in cohabiting will testify greater life satisfaction than those widowed or unmarried. Verbakel (2012) also confirmed that live more satisfactory lives than those that are not.

Albeit, ongoing investigations have demonstrated that this kind of satisfaction (as derived from marriage or other social relationships) is also dependent on the nature of the marriage. Tricky relationships will negatively affect wedded people, while a fantastic marriage will in general give benefits, particularly for ladies and other grownups (Powers, Liu, and

Needham, 2006). The wedded will in general disregard issues with their life partners with the knowledge that their association is a significant wellspring of passionate closeness (Luong, Charles and Fingerman, 2011).

Research evidences abound that the wellbeing of women is greatly affected by the nature of the marriage relationship than that of the men (McClintock, and Tiedt, 2014),

2.10.4 Education and wellbeing

Education and wellbeing are highly correlated. Wilson (1967) observed that people who exhibit happiness are usually well educated. Recent research however, explains that the "drag along effect" of education is responsible for higher levels of educated peoples SWB and not the education itself. Education usually brings about better knowledge which enables peoples access, income and opportunities

Cuñado and de Gracia (2012) further explain that education could affect wellbeing either indirectly or directly. For instance, higher education directly influences wellbeing by bringing about a greater self confidence, while an instance of indirect influence of education on income and income opportunities, etc. that it provides. Diener, and Diener (1995) alluded that higher education leads to a more satisfactory life. Contrarily, Veenhoven, (1994) in developed countries, better educated people can be less satisfied with their life situation. This could be due to the principle of relative deprivation; better educated people have a higher expectation of life than what they usually get. Corroborating this, Aartes and Salinaz-Jimenez (2011), depicted that superior ambitions and job expectations usually come with high education and when this expectation is not met, life satisfaction, declines.

2.10.5 Social capital and wellbeing

Circumstances determine people's social network size. Clear relationship exists between satisfaction derived in life and social relationship. Helliwell (2001) established on the average, individuals' committed to voluntary courses can be happier with life situation . Membership of social groups can increase individuals subjecting wellbeing as much as one tenth of how marriage will.

2.10.6 Income and wellbeing relationship

In every study of wellbeing, the role of income cannot be overemphasized. Traditionally, it is believed that higher incomes automatically lead to higher wellbeing level amongst human

beings. Clark (2010) reported a significant correlation amongst the two variables. The rationale is that people can easily meet their basic needs when they earn higher and therefore become more satisfied. Correspondingly, Powdthavee (2003) reported that monthly income is a great predictor of subjective wellbeing. Møller (2007) observed the effect of higher pays on peoples life satisfaction and he concluded a positive relationship. Contrarily, Kirkcaldy (1997) however observed otherwise.

2.11. Youth Wellbeing

Young people make up around one quarter of the global population and constitute about 60 per cent of the population of those in Commonwealth countries (Commonwealth Healthhub, 2017). Despite increasing recognition of the importance of young people in the world today, measuring the well-being of young people continues to be a challenge. It is widely acknowledged that health goals can be better achieved if young people are fully engaged as partners and leaders in addressing social development issues through planning, monitoring and evaluating programs and policies.

Reports have shown that annually, at least one in five adolescents suffers from mental and psychological trauma, most commonly in the form of depression or anxiety. More than 2 million 10 to 19-year-olds are living with HIV: about one in seven of all new HIV infections occur during adolescence. An estimated 1.3 million adolescents died in 2015, mostly from preventable or treatable causes. Road traffic injuries were the leading cause of death in 2012, with some 330 adolescents dying every day (WHO, 2003).

As a result of the challenges in assessing youth status, a report, looking at youth development including the health and well-being of as well as other domains, has been developed by members of the Commonwealth Secretariat youth division. The Global Youth Development Index and Report, released in October 2016, measures the status of young people (defined as those aged 15 – 29) in 183 countries around the world. It also looks at a four other domains; education, employment and opportunity, political participation and civic participation.

According to the Lancet Commission on Adolescent Health and Wellbeing (2010), investments targeted specifically at young people are also shown to underpin wellbeing

across the entire life-course, yielding a “triple dividends of benefits” This means that when the health outcomes of a young person are improved today, it impacts their health trajectories as an adult in the future, and the welfare of the next generation of young people, when those adults become parents. The physical, cognitive, social, and emotional wellbeing of young people also affects their capacity to engage effectively in work and leisure, family life, and communities.

2.11.1 Youth Social wellbeing

This component of wellbeing refers to optimal functioning in society. According to Keyes (1998) social wellbeing consists of 5 dimensions. Social wellbeing is characterized by a positive attitude towards other people, the belief in growth of society, understanding of society, participation in society and identification with society. Findings of Keyes (1998) and Keyes & Shapiro (2004) illustrate that social wellbeing is related to social economic status (SES) and higher education**.**

There is very strong concurrent and longitudinal correlational evidence of the predictive importance of connectedness, being valued by the larger society, and institutional attachments for positive youth development. These social assets predict school success, mastery of all types of “taught” skills, long-term educational and occupational attainment, good mental health, positive personal and social identities, confidence in one’s efficacy, optimism, and good self-regulation skills of all kinds. These social assets also predict both the avoidance of involvement in problem behaviors and a relatively smooth transition into such key adult roles as intimate partner, spouse, parent, worker, and active community member (e.g Cairns and Cairns, 1994; Connell *et al*., 1995; Conger and Elder, 2000; Furstenberg *et al*., 1999; Wentzel, 1991; Werner and Smith, 1992). These relations hold for all groups studied. However, there have been very few experimental studies focused on assessing whether changes in these social assets are causally related to changes in either current well-being or future successful transition into adulthood.

The need to belong has been suggested to be one of the strongest human motivational needs (Bowlby, 1969, 1988; Rossi and Rossi, 1990). As a result, individuals act as though they are highly motivated to become a part of a larger social group, even if such associations are not

always good for them in the long run. Becoming integrated into a group usually entails adopting the group's social norms, behaviors, and values. As identification with the group becomes stronger and more long-lived, the individual is likely to internalize these values and norms. It is this internalization of values and norms that is likely to underlie the impact of social group membership on specific behaviors (Deci and Ryan, 1985). Under optimal conditions, these processes lead to the internalization of pro-social and moral values and goals. It is important to note, however, that individuals can form quite strong connections with antisocial or problematic groups or individuals. This is very likely to happen when connections with more prosocial groups and organizations do not form because the individual either fails in these healthier environments or is excluded or pushed out by the prosocial groups themselves (Cairns and Cairns, 1994; Fine, 1991; Sampson and Laub, 1993). Community programs provide an excellent venue for providing the opportunity to become socially attached to positive social institutions and peer groups with positive social values.

2.12 The Global Youth Wellbeing Index

The Youth Prosperity and Security Initiative at the Center for Strategic and International Studies (CSIS), in partnership with the International Youth Foundation (IYF), developed a groundbreaking Global Youth Wellbeing Index (Figure 3), to elevate distinct young people's issues and comparative status from within national and population-wide measures of national poverty, development, and wellbeing. The Index comprised 40 representative indicators across six domains of wellbeing: citizen participation, education, economic opportunity, health, safety and security, and information and communications technology. The Index considered the state of youth in 30 countries around the world, holding nearly 70% of the world's youth population. Among the forty indicators that made up the index, seven make up the economic opportunity domain: GDP per capita; economic climate and competitiveness; youth lending from a financial institution; youth involved in early-stage entrepreneurial activity; youth unemployment; youth not in education, employment, or training (NEET), and youths' income and wealth expectation.

The index discovered a strong correlation between economic opportunity and overall levels of youth wellbeing. Countries that perform best in economic opportunity were generally

those that perform best in the overall ranking of youth wellbeing; the United States, Japan, Germany, Australia, Thailand, Vietnam, Sweden, South Korea, United Kingdom, and China were the top 10 performers within the domain, eight of which place in the top ten countries in the overall rankings of youth wellbeing. Young people in wealthy and developing nations are challenged by real and perceived constraints in employment opportunities in the formal sector, financial inclusion, and the general economic climate and future prospects. For example, the United States, which ranks first in the domain, has high GDP per capita, scores well in measurements of the general economic climate, has significantly higher levels of youth lending, and lower levels of youth unemployment and idle youth not in education, employment or training (NEET)

Figure 3: Global Youth Wellbeing Index

Source: Centre for Strategic International Studies and International Youth Foundation (2014)

2.13 Theoretical Framework

A theoretical framework consists of concepts and, together with their definitions and reference to relevant scholarly literature, existing theory that is used for a particular study (Abend, 2013). Theories are formulated to explain, predict, and understand phenomena and, in many cases, to challenge and extend existing knowledge within the limits of critical bounding assumptions. The theoretical framework is therefore the structure that supports the theory of a research study. It introduces and describes the theory that explains why the research problem under study exists. The following theories have been considered relevant to this study:

1. Theories of motivation.
2. Theories of Well-being:
3. The Social Constructionism Theory (SCT)
4. Theories of entrepreneurship

2.13.1 Theories of Motivation

Theories of motivation can help us understand why people behave as they do (). No theory has a universal approach to explain human behavior, because human beings are complex in nature (Donnelly, et al. 1996). Two important groups of theories are content theories and process theories. Content theories are concerned with identifying what factors in an individual or the work environment that energize and sustain behavior. It finds answers to what motivates an individual in relation to their individual needs and wants. Process theories however, try to describe how behavior is energized, directed, and sustained. It deals with "How" the motivation occurs, i.e. the process of motivation (Businessjargons, 2015). Content theories of motivation were more relevant to conceptualization of motivation in this study. Below are some of the most important content theories of motivation:

1. Maslow's Hierarchy of Needs Theory (Chand, 2011)
2. Herzberg's Motivation Hygiene Theory (Chand, 2011)
3. McClelland's Need Theory (Chand, 2011)
4. McGregor's Participation Theory (Businessjargons, 2015)

For the purpose of this study, the Maslow's Hierarchy of Needs Theory is considered most relevant

2.13.2 Maslow's Hierarchy of Needs Theory

Maslow's need hierarchy theory is based on the human needs. Largely based on his clinical experience, as a clinical psychologist, Maslow classified all human needs into a hierarchical manner from the lower to the higher order (Figure 4). He propounded that once a given level of need is satisfied, it no longer serves to motivate man. Then, the next higher level of need has to be activated in order to motivate the man. Maslow identified five levels in his need hierarchy as shown in figure below**.**

Fig 4: Maslow's hierarchy of Needs

Source: Maslow, (1943). A theory of human motivation.

Each level of need in the hierarchy is summarised below:

1. Physiological Needs:

These needs are basic to human life and, hence, include food, clothing, shelter, air, water and necessities of life. They relate to the survival and preservation of human life. They exert tremendous influence on human behaviour. These needs are to be met first at least partly before higher level needs emerge. Once physiological needs are satisfied, they no longer motivate the man.

2. Safety Needs:

After satisfying the physiological needs, the next needs felt are called safety and security needs. These needs find expression in such desires as economic security and protection from physical dangers. Meeting these needs requires more money and, hence, the individual is prompted to work more. Like physiological needs, these become inactive once they are satisfied.

3. Social Needs:

Man is a social being. He is, therefore, interested in social interaction, companionship, belongingness, etc. The need to socialise and belong explains why people prefer to work in groups, even old people still wish to continue to work . Social need therefore refers to the need to bond with other human beings, be loved, and form lasting attachments with others. In reality, attachments, or lack of them, are associated with health and well-being (Baumeister, 1995). The satisfaction of social needs makes esteem needs more salient. Esteem need refers to the desire to be respected by one's peers, feel important, and be appreciated

4. Esteem Needs:

These needs refer to self-esteem and self-respect. They include such needs which indicate self-confidence, achievement, competence, knowledge and independence. The fulfillment of esteem needs leads to self-confidence, strength and capability of being useful in the organisation. However, inability to fulfill these needs results in feeling like inferiority, weakness and helplessness**.**

5. Self-Actualisation Needs:

This level represents the culmination of all the lower, intermediate, and higher needs of human beings. In other words, the final step under the need hierarchy model is the need for self-actualization. This refers to fulfillment. The term self-actualization was coined by Kurt Goldstein and means to become actualized in what one is potentially good at. In effect, self-actualization is the person's motivation to transform perception of self into reality.

According to Maslow, the human needs follow a definite sequence of domination. The second need does not arise until the first is reasonably satisfied, and the third need does not emerge until the first two needs have been reasonably satisfied and it goes on. The other side of the need hierarchy is that human needs are unlimited. However, Maslow's need hierarchy-theory is not without its detractors**.**

Despite the lack of strong research support, Maslow's theory found obvious applications in business settings. Understanding what people need gives clues into understanding them. The hierarchy portrays a systematic way of thinking about the different needs employees may have at any given point and explains different reactions they may have to similar treatment.

This theory of motivation propounded by Maslow assisted in raising indicators to evaluate which factors were responsible for youth involvement in fish farming, ranging from psychological need, safety needs or social needs. It helped the researcher to break down possible factors that might be considered as reasons for engaging in the fish enterprise by the youth. It was envisaged that each of this level of need might contribute largely to youth involvement in the fish business. For instance, a youth who is trying to satisfy the social needs of self respect, financial independency or trying to break free from the shackles unemployment or underemployment may be more motivated to participate in fish farming, if he views it as a means of becoming independent financially. However, another youth who is on the fifth level of the pyramid and trying to satisfy his self actualisation need may resent the idea, if he feels fish farming will not earn him the societal status desired.

2.13.3 Herzberg's Two-Factor Theory of Motivation

Frederick Herzberg advanced another content explanation of motivation in 1959. His theory was based on a study of need satisfaction among engineers and accountants. The theory is referred to as the two-factor theory of motivation (Lindner, 1998). Herzberg and his associates asked the subjects to think of times both when they felt especially good and when they felt especially bad about their jobs. Each employee was then asked to describe the conditions that led to these feelings. Based on the study, Herzberg reached two conclusions:

1. Some job conditions operate primarily to dissatisfy employees when they are not present, but the presence of these conditions does not build strong motivation. Herzberg called these "maintenance factors" or hygiene factors and he identified them as: Company policy and administration, Technical supervision Interpersonal relations with the supervisor, peers and subordinates, Salary, Job security, Personal life, Working condition, Status.

2. Some job conditions build high-level motivation and job satisfaction, but if they are not present, they do not prove highly dissatisfying. Herzberg described six of these "motivational factors": Achievement, Recognition, Advancement, The work itself, Responsibility, Growth Hertzberg two factor theories of motivation (Figure 5) informed the decision to evaluate factors motivating participation in fish farming. It highlights possible factors that might be considered as motivation for involvement and continued practice of the fish enterprise by the youth. It served as a guide in measuring job satisfaction of the youths involved in the fish farming

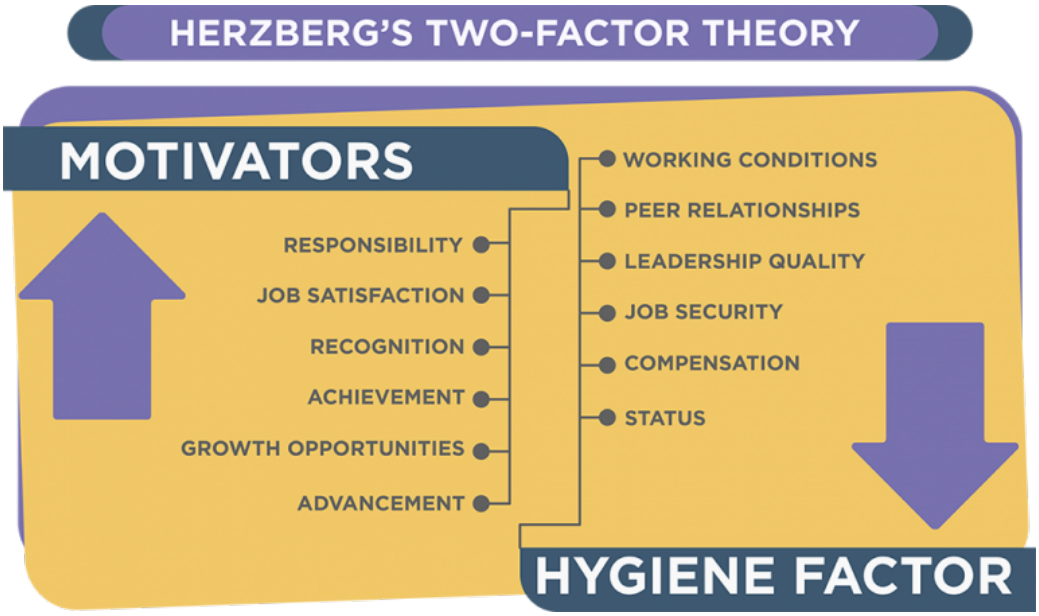

Figure 5: Hertzberg two factor theory of motivation

Source: Khan Academy (2013)

2.13.4 The Social Constructionism Theory (SCT)

This theory has different theoretical roots (Stam, 2002). Conrad (2006) explained the theory and posited that reality is socially constructed, and that cultural and historical aspects influence phenomena widely thought to be exclusively natural. The SCT emphasizes that meanings of phenomena is not necessarily found in the phenomena themselves but develop through interaction in a social context. The history and the culture are inextricably linked in the process of how the reality emerges and how the social actors perceive this reality. The theory further conceives that reality of a situation has two aspects; one aspect is the objective aspect because the reality is recognized as independent of the volition of the social actors and the other is the subjective aspect, because the reality is constituted, as construction, in to social life, with specific cultural and historical background. These last aspects, culture and history are fundamental aspects to define the specificity of the social constructionism theory.

The relevance of the social constructionism theory to this study is that wellbeing is a social concept and like all other social concepts, its measurement cannot be done independent of the volition of the social actors who for the purpose of this study are youths. In measuring the reality of a situation (wellbeing) subjective and objective aspect needs to be taken into consideration. This study will therefore employ both the subjective and objective means of measuring wellbeing. Subjective will consider how satisfied the youths are with their life as a result of involvement in fish farming, bearing in mind that perception of youths about their wellbeing will be influenced by the cultural and social contexts prevailing in their area

2.14 Theories of Wellbeing

There are a variety of different theories of well-being in philosophy and in psychology that take well-being to be an ideal to different degrees. Some theories define well-being in terms of people's psychology to a much greater degree than others. Theories that define well-being in terms of our psychology directly keep the ideal down to earth. Other theories define well-being in terms of objective values or the perfection of our human nature and these theories let the ideal move farther away from people's actual psychological perspective. These two approaches present us with a trade-off: The more we define well-being in terms of people's

subjective psychological states, the less ideal it seems and the less it looks like something of value that could be an important aim of human life. On the other hand, the more we define a person's well-being in terms of objective features of the world that do not have to do with his or her psychological states, the less it looks like something with which a person should obviously be concerned or something he or she has a reason to promote.

2.14.1 Carol Ryff's Model of Psychological Wellbeing

Carol Ryff was motivated by two things: firstly, well-being should not be restricted to medical or biological descriptions—instead it is a philosophical question about the meaning of a good life. Secondly, current psychological theories of well-being at that time lacked empirical rigor–they had not been and could not be tested (Ryff, 1995).To construct a theory that joins philosophical questions with scientific empiricism, Ryff mined for building blocks in a diverse selection of well-being theories and research, from Aristotle to John Stuart Mill, from Abraham Maslow to Carl Jung. She identified the recurrence and convergence across these diverse theories, and these intersections gave her the foundation for her new model of well-being -Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, and Self-Acceptance (figure 5). This model was highly relevant in measuring youth psychological wellbeing. The study aided in predicting and explaining the psychological wellbeing of youths as studied. The theory informed the decision not to narrow down youth's wellbeing to only physical or material evaluations, but to also explore the psychological aspect of their wellbeing, and this was measured adapting the items on the Ryffs model by measuring youths' self-acceptance, purpose in life (how achievable is their life purpose through involvement in fish farming), personal growth opportunities and the autonomy that involvement in fish farming affords.

Figure 6: Caroll Rylls six domain of psychological wellbeing

Source: Ryffs and Keyes (1995)

2.14.2 Subjective Theory of Wellbeing

Within the field of psychology, understanding subjective well-being (SWB) is a topic of much discourse. For more than fifty years, there has been a concerted effort to empirically investigate SWB, from its correlations to forecasting affect (Gilbert 2006) to cross-cultural differences (Scollon et al. 2005). Existing subjective wellbeing theories include Multiple discrepancy theory, orientations to Happiness Model**,** Mental Health Continuum: From Languishing to Flourishing' (Keyes 2002) and the Liking, Wanting, Needing also known as Hedonic happiness theory**.**

2.14.3 Multiple Discrepancy Theory

A second model of subjective well-being suggests that we compare experiences or emotions to some standard. Wilson (1967) discussed that satisfaction from the fulfillment of needs depends on the degree of expectation and adaptation. Michalos (1985) explained in his multiple discrepancy theory of satisfaction that individuals compare themselves to many standards such as other people, past conditions, ideal levels of satisfaction, and needs or goals. A discrepancy due to an upward comparison (my expectation was better than the actual vacation) results in decreased satisfaction whereas a downward comparison (my expectation was worse than the actual vacation) will result in an increase in satisfaction.

This theory is based on evaluating satisfaction derived from fulfilling particular needs using expectations as a criterion. It therefore gave credence to measuring youth wellbeing in this study on the basis of satisfaction with different aspects of their life, after venturing into fish farming. It was used to measure if they derived the expected satisfaction envisaged (based on their personal standards) from involvement in fish farming. It of course assumes that youth had some form of expectation of the fact that fish farming will better their life or current status, so if expectation is met, it will result in increased satisfaction of youth and of course, subjective wellbeing increases.

2.15 Conceptual Framework

Having gone through a review of existing theories, none of which can singlehandedly explain the factors of interest to this study. Therefore; a conceptual framework was derived from a synthesis of these theories. Miles and Huberman (1994) defined conceptual framework as a written or visual presentation that explains either graphically, or in narrative

form, the main things to be studied – the key factors, concepts or variables, and the presumed relationships among them. It is a schematic representation, presenting the various variables being measured in the study, the inter-relationships among these variables and the eventual outcome variable envisaged. Therefore, the conceptual framework in this study as shown in Figure 7 has been designed as an interface for three variable categories. The framework proposes that wellbeing will be affected directly or indirectly by some factors

2.15.1 Explanation of the Conceptual framework

a. Independent Variables

The independent variables are made up of the respondents' personal characteristics, enterprise characteristics, factors motivating involvement, perception of career prospects in fish farming, respondents' level of involvement in fish enterprise, youth participation in fish farm operations, benefits derived and constraints facing youths in fish farming. They are the variables which constitute the inputs of the framework. It is expected that this independent variables will directly influence the dependent variable (wellbeing) of this study.

At the first stage of the framework are the socio-economic and enterprise characteristics of the youth involved in fish farming in SW Nigeria. The variables measured under the personal characteristics are: age, sex, religion, education, household size, other sources of income and membership of association. Enterprise characteristics measured were; years of experience, number of fish ponds, quantity of fish stocked, income per cycle amongst others. This study proposes that these variables will have direct relationship with the factors motivating involvement in fish farming, level of involvement in fish farming and constraints faced in fish farming. For example, it is assumed that their age will affect their years of experience, education and marital status will affect their enterprise characteristics in terms of how much resource available for them to invest in the fish business. Consequently, their personal characteristics too will affect factors motivating involvement as seen on the second level of framework. Some highly educated youths might see fish farming as a job beneath their social status while age can affect their passion for the job. Why they got engaged could also affect their level of involvement and level of participation in fish management operations on the farm. A highly motivated youth or a youth who was genuinely passionate on involvement, might participate more in operational activities on the farm. Also, a youth who got involved as a means to an end might not share the same commitment to

participation in the operations on the farm; he might not be highly motivated about the job and eventually end up with an unfavorable perception about the prospects of the fish enterprise. Thus the second level in the framework depicts that motivation factors is expected to affect the level of fish production, and the level of involvement in fish enterprise, which could determine the kind of constraints faced by fish farmers, constraints too will predict the involvement level in fish farming.

At the third level of the framework, participation in fish farm operations is assumed to have a direct effect on the youth's perception about fish farming. For example, if participation is high on the youths part, such youth might perceive fish farming as stressful and time consuming and vice versa. The level of involvement also on the third level of the framework is expected to affect perception, while constraints will equally have an effect on level of involvement, perception and benefits derived from fish farming. A youth with low level of involvement might not perceive fish farming to be highly beneficial, likewise high constrains will taint perception and reduce benefits derived. It will also affect the scale of operation of the youth (level of involvement). All together, benefits derived from involvement, perception and participation are all expected to influence the well-being of youths in the study area

The intervening variables are variables researchers cannot directly influence but, which have some impact on the study. They include government policies, natural disaster and culture.

b. Dependent variable

The dependent variable is the wellbeing of youths in Southwestern Nigeria. The interaction between the independent and intervening variables of this study is expected to determine whether a youths wellbeing. Both subjective and objective wellbeing will be affected by interplay of all independent variables and youth wellbeing will be classified as better off or worse-off. The level of vulnerability of households to these shocks might also affect the over-all level of well-being of rural households in these places

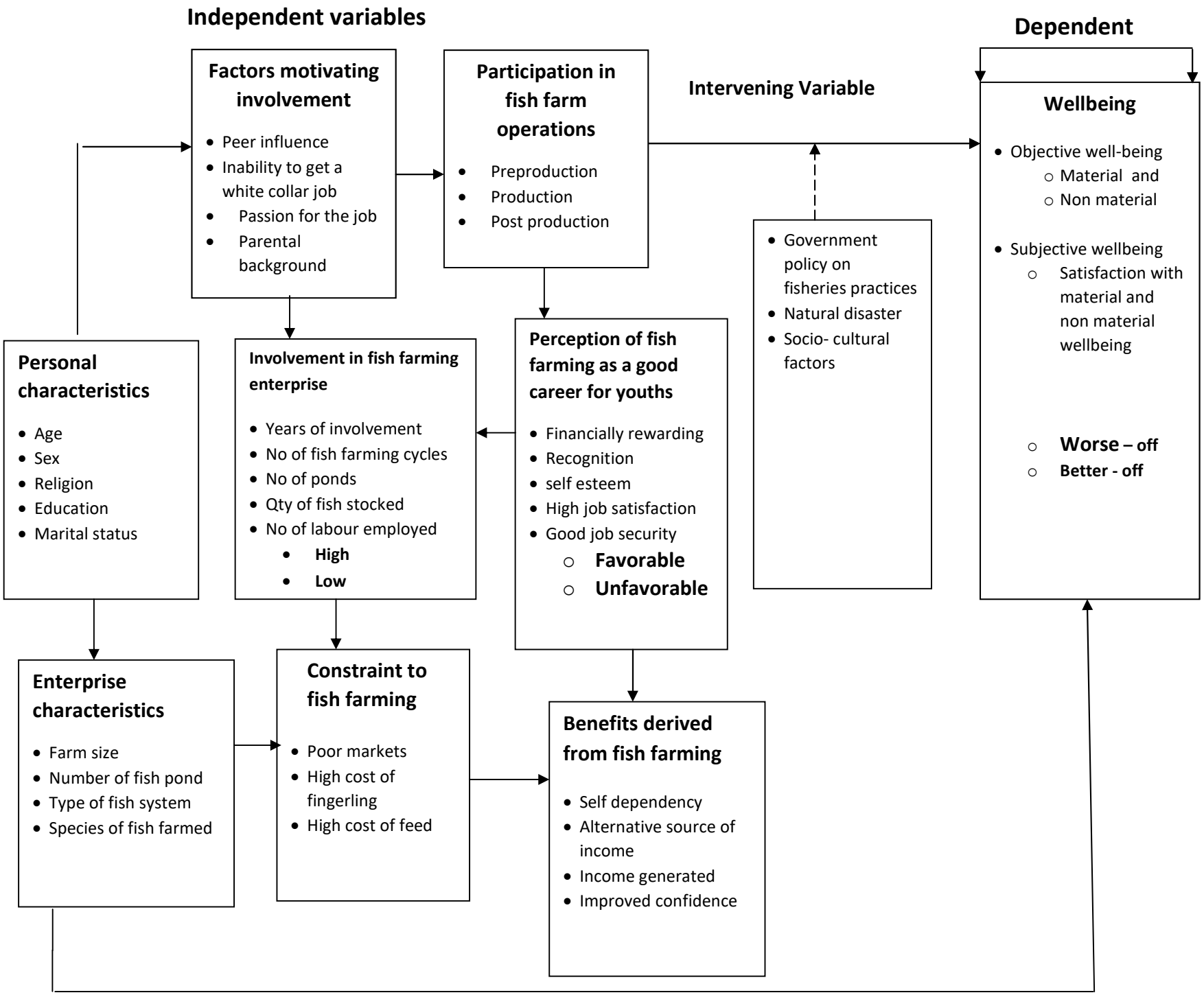

Figure 7: Involvement in fish farming and the wellbeing of youths in southwestern, Nigeria

CHAPTER THREE

METHODOLOGY

3.1 The study area

The study was conducted in Southwestern Nigeria. Nigeria is grouped into six agricultural zones, namely; North West, North East, North Central, SouthWest, South East and South South. The area lies within latitudes 6^{o} N and 9^{0} N of the equator and longitudes 3^{0}E and 6^{0}E of the Greenwich meridian. It is surrounded by the Republic of Benin in its west border, the Atlantic Ocean at the south border, Edo and Delta States on the east and Kwara and Kogi States on the north border (NBS, 2010).

Lagos, Ogun, Oyo, Osun, Ondo and Ekiti States makes up this zone with a population of 27,581,982 people (Nigeria-Planet, 2007). Main income generating activity in the area is small scale agriculture. Three of the states in Southwestern Nigeria were selected for the study based on high concentration of fish farms (NBS, 2014) and number of youths involved in fish farming (Table 3.1).

Table 3.1: **Youths involved in Fishing in Southwestern Nigeria**

States	Number of youths
Oyo	1, 105, 391
Ogun	885, 173
Osun	708, 901
Lagos	2, 014, 888
Ondo	802, 105

Source: National Bureau of Statistics and Federal Ministry of Youth Development (2014) National Baseline Youth Survey

3.1.1 Oyo State

Oyo State covers an area of 28,245.3 square kilometres. It lies at latitude 8°00' north and longitude 4°00' east. Oyo usually referred to as Oyo State to distinguish it from the city of Oyo, is an inland state in Southwestern Nigeria, with its capital at Ibadan. It is bounded in the north by Kwara State, in the east by Osun State, in the south by Ogun State and in the west partly by Ogun State and partly by the Republic of Benin. The state comprises of 33 Local Government Areas and covers an area of 32,249.1km^2 out of which 27,107.93km^2 is cultivable (OYSADEP, 2001). Oyo state is a state of small hills and lowlands, forests and grasslands. Ibadan is the capital city of Oyo State. Other major cities in Oyo State include Oyo, Ogbomoso, Iseyin, Saki, Eruwa and Igbo-Ora. The total population of the people is estimated at 5,591,589 (NPC, 2006). The bulk of this population resides in the rural area with farming as their main occupation. The zone is known for serving as a home to high number of fish farms and youths. The Climate is equatorial, notably with dry and wet seasons with relatively high humidity. The dry season lasts from November to March while the wet season starts from April and ends in October. Average daily temperature ranges between 25 °C (77.0 °F) and 35 °C (95.0 °F), almost throughout the year.

3.1.2 Ogun State

Ogun State is a state in Southwestern Nigeria. Created in 1976, and with a land area of 16.432 sq.km, it borders Lagos State to the South, Oyo and Osun states to the north, Ondo to the east and the Republic of Benin to the west. Abeokuta is the capital and largest city in the state. The state's appellation is "Gateway to Nigeria". The 2006 census recorded a total population of 3,751,140 residents, but recently the state Government gave a figure of 7.1million people (Ogun State Nigeria Government, 2017).Ogun State is peopled predominantly by the Egbas, Ijebus, Yewas, Remos and Aworis who belong to the main Yoruba ethnic group. It also has sub-groups, namely, Ketu, Ikale, Ilaje, Ohori, Anago and Egun Ogun State consists of twenty local government areas.

The state is notable for having a high concentration of fish farms (FMARD, 2014), industrial estates and being a major manufacturing hub in Nigeria ((Ogun State Nigeria Government, 2017). The State has abundant natural resources that include forest and water bodies as well as large quantities of mineral deposits, such as limestone, phosphate, granite stone, gypsum,

bauxite, bitumen, feldspar, clay, glass sand, kaolin, quartz, tar sand, gemstones and crude oil are available in commercial quantities. It is the largest producer of cement in the country with 13 million metric tonnes per annum.

3.1.3 Lagos State

Lagos, state is located on the coast of the Bight of Benin. It is bounded by the state of Ogun to the North and East, by the Bight of Benin to the South, and by the Republic of Benin to the West. From 1914 to 1954, the area included in the state was administered by the British as part of the colony of Nigeria. The provisions of the 1954 constitution led to the creation of the Federal Territory of Lagos (the 27-square-mile [70-square-km] area of Lagos Island, including the city of Lagos) and to the transfer of the city's hinterland to the administrative region of Western Nigeria. This arrangement restricted the expansion of Lagos city onto the mainland, however, and in 1967 the creation of Lagos state by the national government restored to the city sovereignty over its hinterland.

The state's mainly Yoruba population has grown more heterogeneous with the migration of other Nigerians and West Africans to Lagos city. Lagos state's agricultural and fishing output includes cassava (manioc), palm oil and kernels, coconuts, corn (maize), vegetables, fruits, and fish. These products are collected in the lagoon ports of Badagry, Epe, and Ikorodu and shipped to markets in Lagos city. The city of Lagos covers an immense area, coming in with a total of 1,171.28 square kilometers (Encyclopaedia Brittania, 2017) With the population continuing to grow, and currently exceeding rated at 21million (Lagos State Government, 2017), today, Lagos has a very diverse population due to heavy migration from other parts of Nigeria and surrounding countries. The Yoruba are the dominant ethnic group. There are more than 250 ethnic groups represented in Lagos, however, including the Hausa, Igbo, and Fulani (World, Population Review, 2019).

3.2 The study population

Youths of 18-35 years practicing fish farming in Southwestern Nigeria were studied. This age bracket is considered to be youths, according to the Nigerian National Youth Policy (2001) age specification for youth.

3. 3 Sampling procedure and sample size

Selection of youth for this study was based on a five stage multi-stage sampling procedure with stratification and levels of purposiveness (Table 3.3). The first stage involved the purposive selection of 50% of the states in Southwestern Nigeria based on two criterion of high concentration of fish farm and high number of youths involved in fish farming (refer again to table 3.1). Thus, Oyo, Ogun and Lagos States were purposively selected from this zone as the study areas. Lagos state has a large number of fish farms (FMARD, 2015) and youths involved in fish farming (National Baseline Youth Survey Report, 2012). Oyo and Ogun states also have considerable number of young people with fish farms compared to other states (NBS, 2012).

As seen in Table 3.3, stage two of the sampling procedure was also conducted based on prominence in fish farming within the states (according to information obtained at the state levels of the Agricultural Development Program office and the fish farming associations), three LGAs were selected per state (resulting in 9 LGAs in total across study area) and one community selected per LGA resulting in 9 communities (Figure 8) – this constituted the third stage of the multi-stage sampling procedure. In the fourth stage, membership list of the Fish farming associations and ADP offices were stratified according to young ($\leq$35years) and adult (>35 years) fish farmers. In the fifth and last stage of the sampling, proportionate sampling was done based on the result of the last stage and 40% of registered young fish farmers was selected to result in 112, 101 and 142 young fish farmers per state.

Table 3.3: Distribution of sampled youths in Oyo, Ogun and Lagos States

STATE	Agric Zone	LG	Community	% of youths Registered	40% proportionately sampled
OYO		Akinyele	Moniya	96	39
	Oyo Ibadan/ibarapa	Ido	Ido	107	46
	Saki	Saki- east	Ago –Amodu	66	27
					112
OGUN					
	Ikenne	Ikenne	Ikenne	57	23
	Ilaro	Ipokia	Idiiroko	71	29
	Ijebu ode	Odogbolu	Odogbolu	118	48
					101
LAGOS					
	Epe	Epe	Eredo	143	57
	ikorodu	Ikorodu	Odongunyan	116	47
	Badagry	Badagry	Alakoto meji	95	38
					142
					355

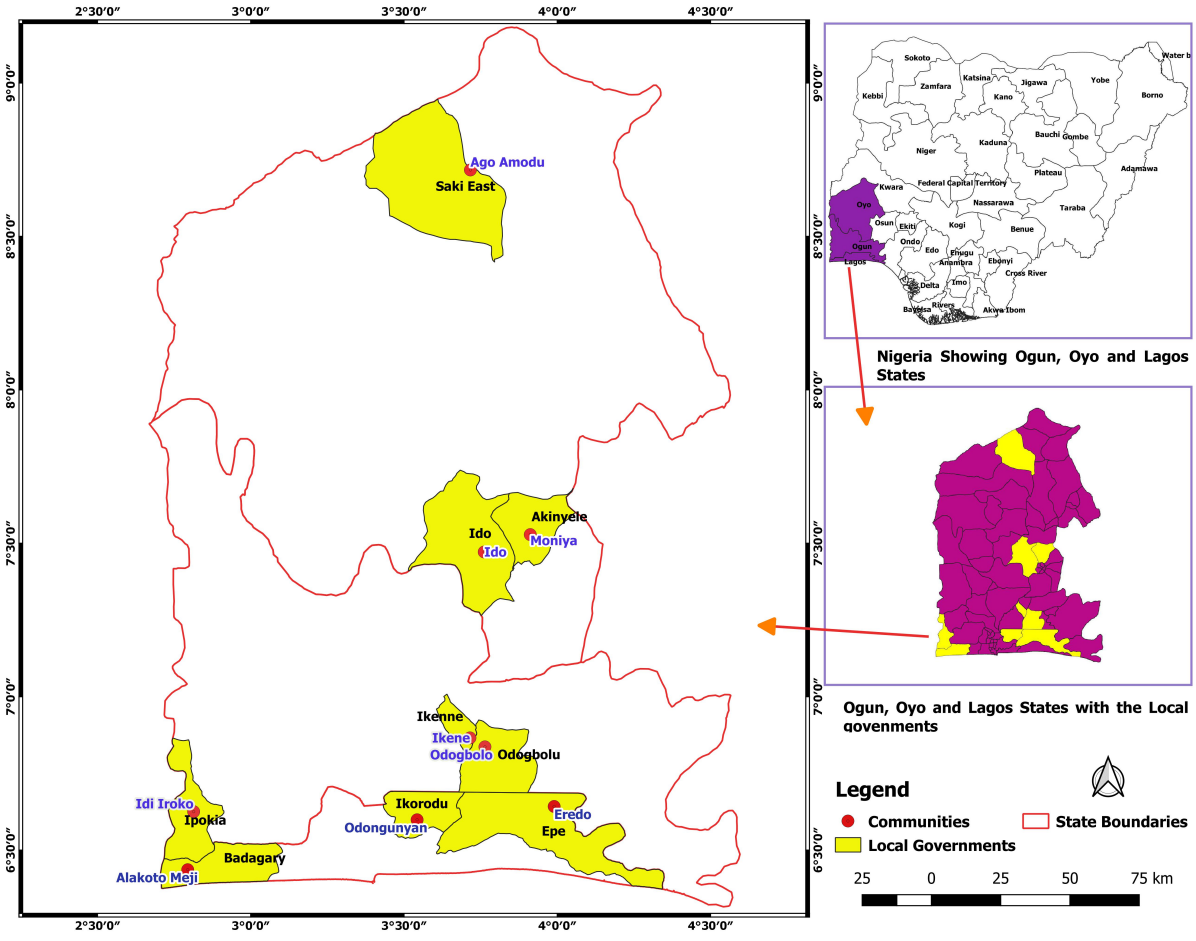

Figure 8: Map of Communities studied in Southwestern Nigeria

3.4 Instrument for data collection

Data were obtained using both qualitative and quantitative research methods. Qualitative data was obtained from the youths through the use of Focus Group Discussions (FGD). A total of 9 Focus Group Discussions, were conducted across the states, with 3 per state representing each LGA selected. Qualitative data generally provide a complement to explain the facts and figures obtained through the quantitative method.

Quantitative data were obtained through the use of structured interview schedules from each sampled youth. The structured interview schedule covered information on rural households' socio-economic characteristics, enterprise characteristics, factors motivating involvement, frequency of participation of youths in preproduction, production and post-production activities on the farm, level (intensity) of involvement of youths in fish farming business (the number of ponds, fish production cycles, fingerlings stocked, employees and years of experience), perception of youths about career prospects of fish farming, benefits derived, constraints faced, physical wellbeing, social wellbeing, psychological wellbeing and subjective wellbeing.

3.4.1 Validation of instrument

Instrument validation was by face and content validity. This was done to establish the degree to which the research tool achieved the measurement purpose. According to the assessment of experts and researchers in agricultural extension, agricultural economics and aquaculture.

3.4.2 Reliability of instrument

The instrument was pretested on farmer groups in Osun State, Southwestern Nigeria. Osun state was not part of the states selected for the study. The split-half method of reliability was employed to determine the reliability of the instrument. Items on the instrument were divided into two halves. Even numbers were assigned to one half and odd numbers to the other half. The reliability coefficient value of 0.83 was considered sufficient for reliability of the instruments.

3.4.3 Measurement of variables

3.4.3. 1 Independent variables

1. Personal characteristics

a. **Age**: This was measured at an interval level in terms of respondents' actual age in years.

b. **Sex**: This was measured on a nominal level as scores of 1 was assigned to males and 0 was assigned to female.

c. **Marital Status**: This was measured as single (1), married (2), widowed (3), divorced (4) Respondents were asked to choose as applicable to them from nominal values assigned to each.

d. **Educational Attainment**: Highest level of education of the household members were obtained on a nominal level as follows: No formal education () = 1, Primary education () = 2, Secondary education () = 3, Tertiary education () = 4, Postgraduate education () = 5

e. **Religion**: Respondents were asked to indicate their religions from the following, while assigning nominal values of 1, 2 and 3 respectively to Christianity, Islam and traditional religions.

f. **Household Size**: Actual number of people in the households of respondents was obtained and measured at an interval level.

2. **Enterprise characteristics**

a) **Number of fish ponds**: This was measured at an interval level as respondents stated number of functional ponds possessed.

b) **Years of experience:** This was measured at an interval level as respondents stated number years spent in fish farming.

c) **Number of cycles per year:** This was measured at an interval level as respondents stated number of fish cycles farmed in a year

d) **Sources of capital :** : Respondents were asked to tick their sources of capital from the following and nominal values were assigned respectively as follows: Donations from friends and family () = 1 , Personal savings() = 2 , Bank loans() = 3 , Loans from relatives () = 4, investors support () = 5

e) **Number of employees:** This was measured at an interval level as respondents stated number of employees on their fish farm.

f) **Type of pond system**: Respondents were asked to the tick the type of aquaculture system practiced and nominal values were assigned as follows: earthen pond () = 1 , concrete pond () = 2 , fish cage culture system () = 3 , integrated aquaculture system (RAS) = 4 , recirculating aquaculture system () =5.

g) **Income**: This was measured at interval level. Respondents stated income per fish farming cycle

h) Scale of fish production

		Cycle 1	**Cycle 2**	**Cycle 3**	**Cycle 4**
	No of fish stocked				

3. Factors motivating youth involvement in fish farming

A list of eleven items was adapted based on Hertzberg's two - factor theory of motivation and Maslows hierarchy of needs. Variables such as peer pressure, family background, opportunity for self-employment, self respect and sense of achievement were listed as possible factors motivating involvement. They responses were weighted on a three point scale of Agree, Uncertain, and Disagree and scores were assigned as Agree = 2, Uncertain = 1 and Disagree = 0. Maximum and minimum scores obtained were 0 and 22 respectively. Mean score obtained for this variable was 11.9. Motivation factors of youths involved in fish farming were ranked using their weighted mean scores.

5. Frequency of participation of youths in preproduction, production and post-production activities on the farm

A list of eighteen items was generated from literature on all fish farm operations. This list was segmented into preproduction farm activities, production activities and post production activities. Frequency of participation in all the fish farming operations was measured on a scale of always involved, sometimes involved and never involved with scores of 2, 1 and 0 allocated respectively. Minimum score obtained was 18 and maximum score was 38. From the mean scores obtained (22.58), respondents with scores of the mean and above were classified as having high level of participation in fish farm operations while those below the mean were classified as having low participation in fish farm operations.

6. **Perception of respondents on prospects of fish farming as a career option**

A list of eleven perception items were generated to respondents about prospects of fish farming as a career option, and this was measured on a five point scale of strongly agree, agree, uncertain, disagree and strongly disagree. Perception statements assessed prospects of fish farming as related to profitability, market opportunities, personal growth and development. Scores of 5, 4, 3, 2, and 1 were awarded to positive statements and the reverse for negative statements respectively. Minimum score obtained was 11 and maximum score was 27. From the mean scores obtained (20.89). Respondents attaining the mean score and above were regarded as having favorable perception while those below the mean score were categorized as having unfavorable perception about the prospects of fish farming enterprise.

7. **Level of involvement of youths in fish farming enterprise**

Involvement in fish farming enterprise was operationalised by standardizing and adding together scores from; quantity of fish stocked, years of involvement, number of ponds, number of employees, and number of fish cycles operated per annum to give a composite involvement index score.

A mean score of 1. 82 was obtained from the involvement index and respondents below the mean were classified as having high involvement and those below were classified as having low involvement in fish farming enterprise.

8. **Constraints faced by youth in fish farming**

Respondents were asked to indicate the constraints experienced as youths involved in fish farming. A list of sixteen constraints was generated with response options of not a constraint scored 0, Minor constraint scored 1 and major constraint scored 2. Mean scores for each constraint item was generated and used to rank the constraints in their order of severity. Some of the constraint items listed include: lack of technical know-how, inadequate access to credit, inadequate access to markets, prevalence of diseases, prevalence of pests etc.

9. **Benefits derived from fish farming**

Benefits derived from involvement in fish farming were listed on a fifteen item scale. Stated benefits included meeting daily needs, reduced dependency on parents. Scores of 0, 1, and 2 were assigned for not a benefit, benefit and strong benefit. Items were scored to form a composite score. From the composite score, the mean score of 17.12 was generated and

respondents within and above the mean scores were categorised as having high level of benefits while those below were categorized as deriving low benefits from fish farming.

3.4.3. 2 Dependent variable

The study dependent variable was on the well-being of youths involved in fish farming. Several authors have agreed that since wellbeing has many dimensions and it deals with every segment of an individual life, it should therefore take into account several aspects of human life which might require a vast number of indicators (Eurostat, 2012). The popular Stiglitz Commission on the Measurement of Economic Performance and Social Progress, set up by Nicolas Sarkozy in January 2008 also recognized the multidimensionality of well-being, it calls for the use of multiple measures when trying to cover well-being (Eurostat, 2012) and it insists on the incorporation of subjective measures as well as objective measures into wellbeing data. Easterlin (2007), similarly asserted, that comparing what people think with objective measures about their situation provides valuable insights on the relation between happiness and income.

The study therefore measured wellbeing both objectively and subjectively. Objective wellbeing was categorised into material and non - material wellbeing components. The material component was measured using four sub-components of income, housing, wealth or assets, and ability to meet basic needs, while non-material wellbeing was measured on four components of psychological wellbeing, physical wellbeing, social wellbeing and access to basic resources. Subjective wellbeing was measured by assessing respondents' satisfaction with material and non-material components of their life on a five point scale of completely dissatisfied, dissatisfied, neither satisfied nor dissatisfied, satisfied and completely satisfied with scores of 0, 1, 2, 3 and 4 assigned respectively.

3.4.3. 2.1 Objective Measure of Wellbeing (OW) (Non -Material components)

a. Physical Wellbeing

This was adapted from the Gallups health way index and the World Health Organisation Quality of life questionnaire (WHOQOL). Physical wellbeing was measured on a scale of weekly (W), Fortnightly (F), Monthly (M), Quarterly (Q) and Never (N). Scores of 1, 2, 3, 4 and 5 were awarded for positive statements and the reverse for negative statements. Mean scores for each physical wellbeing item was generated and each item ranked appropriately

b. Psychological wellbeing

Being a youth carries many risk factors which may have a negative impact on a young person's emotions, therefore their psychological state is crucial to their wellbeing. This study measured psychological wellbeing adapting four items from the Ryff's scales of Psychological wellbeing and taking input from the World health organization quality of life (WHOQOL, 1995) questionnaire. Measured on a 5-point scale with scores of 4,3,2,1 and 0 were assigned for positively worded statements and reverse for negatively worded statement. Mean scores for each psychological wellbeing item was generated and and each item ranked appropriately

c. Social wellbeing

This is very crucial for youths. It measures the extent to which they feel a sense of belonging and social inclusion; a connected person is a supported person in society. A list of 10 items was generated to measure social wellbeing of youths; social relationship was measured with sub-dimensions on personal relationships and social support on a yes and no basis. Yes was scored 1 and No was scored 0 and percentages were derived

d. Basic access to life essentials

Respondents were asked to indicate their level of access as indicated below. Basic Access was measured based on 7- items: access to food, shelter, healthcare, and a safe and satisfying place to live. Measurement was based on a scale of very accessible, accessible, moderately accessible, and not accessible with scores 3, 2, 1, and 0. A minimum score of 5 and maximum score of 18 was obtained with a mean of 12.7 .Respondents below the mean were categorised as having low access to life essentials while respondents with mean mark and above were categorised as having high access to life essentials.

3.4.3. 2.2 Objective measures of wellbeing (Material components)

Material wellbeing was measured adapting the Survey of Income and Program Participation topical module on "extended measures of wellbeing: Living Conditions in the United States, 2003 *Household Economic Studies* as reported by Bauman (2007). The material component was measured using four sub-components of income, housing, wealth or assets, and ability to meet material needs.

3.4. 3. 3 Objective wellbeing Score

To measure the wellbeing of youths in fish farming objectively; scores for both the material and non-material components of OW were generated, standardised and added together to give an objective wellbeing index. Mean score was generated from the objective wellbeing index and respondents below the average were categorised as having low objective wellbeing while those above the mean were classified as having high objective wellbeing.

To derive material wellbeing component for objective wellbeing; scores from income, assets, housing and ability to meet basic material needs were pooled together, standardized and added to give a material wellbeing index**.** To obtain the non-material component of the objective wellbeing of youths involved in fish farming; scores from psychological, social physical wellbeing and access to basic life essentials were standardised and added together to give a non-material wellbeing index.

3.4.3.4 Subjective Wellbeing

The subjective wellbeing of youths involved in fish farming was measured by adapting the approach of Organization for Economic Cooperation and Development, (OECD, 2013) which employed the use of subjective well-being in assessing the level of well-being of the people. The 10-point scale of OECD was increased to 13points in order to measure particular areas of youths life; satisfaction about physical wellbeing, access to internet and electricity, fish farming business, income from fish farming, physical environment, quality of food, number of meals ability to meet basic needs, psychological state, safety and social relationships were measured on a 5 point scale of completely dissatisfied, dissatisfied, neither satisfied nor dissatisfied, satisfied and completely satisfied with scores of 0,1,2,3,4 assigned accordingly. Each of the areas of life was ranked using the weighted mean, to give an indication of the area of life in which youth's were most satisfied. An index of subjective wellbeing was also generated. The mean score was obtained (46.5) and used as the benchmark with which the level of subjective wellbeing was categorized as high and low.

3.4.3.5 Overall wellbeing score

Respondents' overall wellbeing was obtained by pooling together objective (material and non material) and subjective wellbeing scores. These scores were standardised and added together to generate an overall wellbeing index. Mean scores were generated and

respondents with scores above the mean were classified as better off while those below were classified as worse off.

3.5 Data Analysis

The quantitative data for the study were entered on the spreadsheet with the codes specified providing a guide. Statistical analysis was carried out with the use of Statistical Packages for Social Sciences (SPSS) and Stata. Data were described with the use of descriptive statistics such as the means, frequencies and percentages. Tests of hypotheses were carried out using PPMC, ANOVA, Independent sample t-test and Multiple regression Model.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

This chapter presents the results, interpretation and discussion of the data collected for this study. The results are presented and discussed under main sections; personal characteristics, enterprise characteristics, constraints, factors motivating youths, benefits derived from fish farming, perception of fish farming as a good career option, objective wellbeing(material and non material) and subjective wellbeing results.

4.1 Personal characteristics of youths in fish farming in Southwestern Nigeria

4.1.1 Sex

Figure 9 shows the result on the sex of youths involved in fish farming. Majority (85.6%) of the youths were male across the states, while only 14.4% were female. Ele *et al.* (2013) equally revealed that the males (81%) were actively involved in fish farming than the females (19%) in Cross River State. In a study carried out in Osun State, only few women (8.3%) were involved in fish farming in the state (Olasunkanmi, 2013). Also, Olaoye (2013) reported that the fish farmers in Oyo State were largely males (84.2%) and the females were few (15.8%). According to Agboola (2011) in a study conducted in Osun State, majority (95.6%) of the respondents were male while the female constituted only 4.4%. The higher percentage of male to female catfish farmers indicates that fish farming involvement in the study area is gender sensitive. This could be attributed to the fact that agricultural production is faced with a lot of risk and uncertainties and women are risk averse. Another report by. Oluwasola and Ige (2015) confirmed that 80% of the fish farmers studied in the Ibadan Metropolis were men as also reported by Fregene, Inyang and Awotumote (2011).

In the study undertaken by Williams *et al.* (2012), it was equally observed that the fish farming enterprise in Lagos State was male-dominated. More than half of the respondents were males (60%) while, females constituted barely 40%. The male dominance in this industry might be an indication of improved household well-being, since majority of the youths are also married and can be described as household heads. Hence, male dominance is expected to impact positively on the wellbeing of the households. The dominance of male over female was however explained during the focus group discussion by respondents at the fish farm estates in Ijebu, Ogun State:

"Many female youths cannot afford the necessary capital and resources for starting a fish farm; hence they do not have their own fish farms, but work more as hands around fish farm owners; helping with feeding, harvesting and marketing"(October, 2016)

Male dominance in fish farming can also be viewed as a risk factor, because more women equally need empowerment and access to capital and other resources to live a meaningful life and have an acceptable level of wellbeing. Chioma and Adebayo (2012) previously asserted that female respondents were interested in fish farming but majority lacked financial capacity to establish fish farms. Furthermore, women in business have been adjudged to be better planners, risk takers, more creative and less prone to over confidence than their male counterparts (De Goeij and Smedt, 2008). The result of this study is contrary to that of Baluyut (2017), who reported that in China, their females are equal partners with the men in the task of fish production, and that women in China have contributed spectacularly to the success of the Chinese aquaculture industry. She further reported that Chinese women are involved in all fish farm management operations ranging from pond construction to feeding, harvesting and post harvesting activities. The Food and Agriculture Organisation, (2013) also reported that in Viet Nam, female participation in fish farming is as high as 56% in the North and 50% in the South, and that participation of Asian women in fish farming is increasing with more women now engaging in fish farming.

Shaleesha and Stanley (2000) reported that in fresh and brackish water aquaculture, women in India engage in carp polyculture, breeding and nursery raising, breeding of catfish and freshwater prawns in backyard hatcheries, ornamental fish breeding and culture of Spirulina and Azolla, net-making and mending, and feed preparation of carps and prawns. While in Thailand, the Philippines and India, women are more actively involved in fish marketing and processing than in producing.

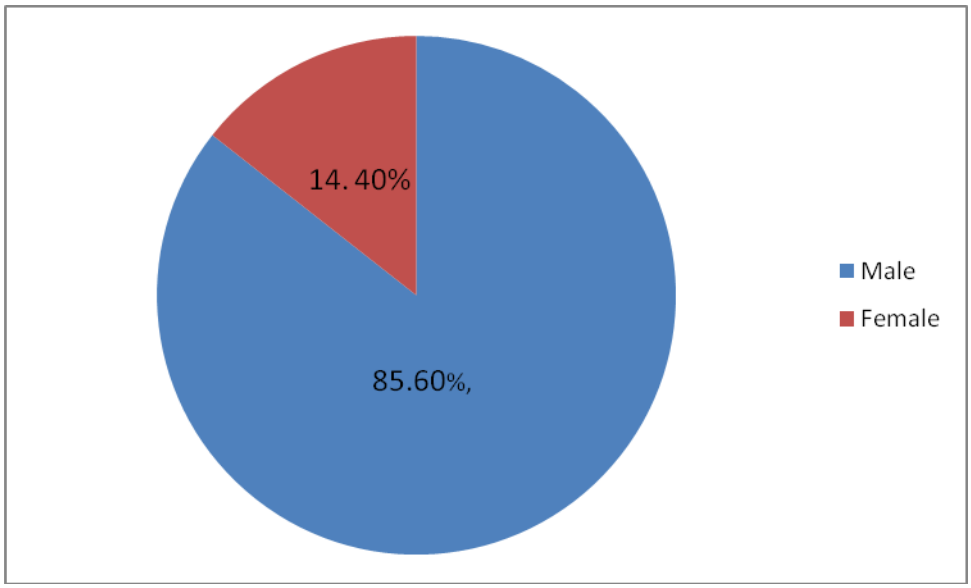

Figure 9: **Pie chart distribution of youths in fish farming by sex**

4.1.2 Age of respondents

The result in Figure 10 displays respondents' ages. Most (72.7%) youths involved in fish farming in Southwestern Nigeria were between 31 and 35 years of age, with an overall mean age of 32.6±3.7years. This mean, agrees with the result of Jiriko, Obianuko and Jiriko (2015) who reported an average age of 32.6 years for youths in farming from their study in Kaduna State. This age range gives a picture of a greater dominance of more matured youths amongst youths involved in the fish farming business. The figure shows that youths below 31 years are only about 27.3%. This indicates that such youths might not have the wherewithal in terms of experience, resources and capabilities to embark on the fish venture. At ages above 30 however, most youths are likely to become better empowered socially, financially and emotionally, they become more aware of their life purpose, responsible and focused and thereby increase their pursuit of financial dependence, stability and achievement of life goals. Also, at ages above 30, using the Maslows hierarchy of needs theory, youths would be highly concerned with meeting their psychological needs and self actualisation desires. Adeyemo (2010) asserted that thirty is an age that causes concern for many people leaving their 20s, he described life as getting "super serious at age 30, and many people get more focused with their career or take a career change at this time of their lives.

The fact that they are more purpose aware and desire great achievement could serve as high motivating factors as described by Hertzberg's two- factor theory of motivation which serves as a theoretical framework for this study. These factors are expected to affect their job performance, ability to take risks, ability to adopt modern innovation and ultimately their farm earnings and productivity as pointed out by Oluwasola and Ajayi (2013). Trujillo (2011) reported that job performance and productivity is higher in younger workers when compared with the older workers. In addition, age is expected to affect attitude towards seeking information and training. Olowosegun *et al*., (2004) had earlier reported positive correlation between age and adoption of innovation

George (2009) reported that the start and end of the decade of someone moving from age 30 upwards maybe characterized by significant life changes, major career changes are made at this age, major life relationships are formed and major relocation moves. Usually, around

the age of 30, people conduct a kind of life audit to evaluate its meaningfulness and they generally become aware and concerned about living a satisfactory life. At such age, youths assess their life path, career moves and are usually quicker to make adjustments necessary in preparation to get a more meaningful life. The wellbeing of youths within the ages of 31- 35 is therefore critical, as this is the age at which productivity heightens. The strength of development of any nation lies in the strength and drive of her youth.

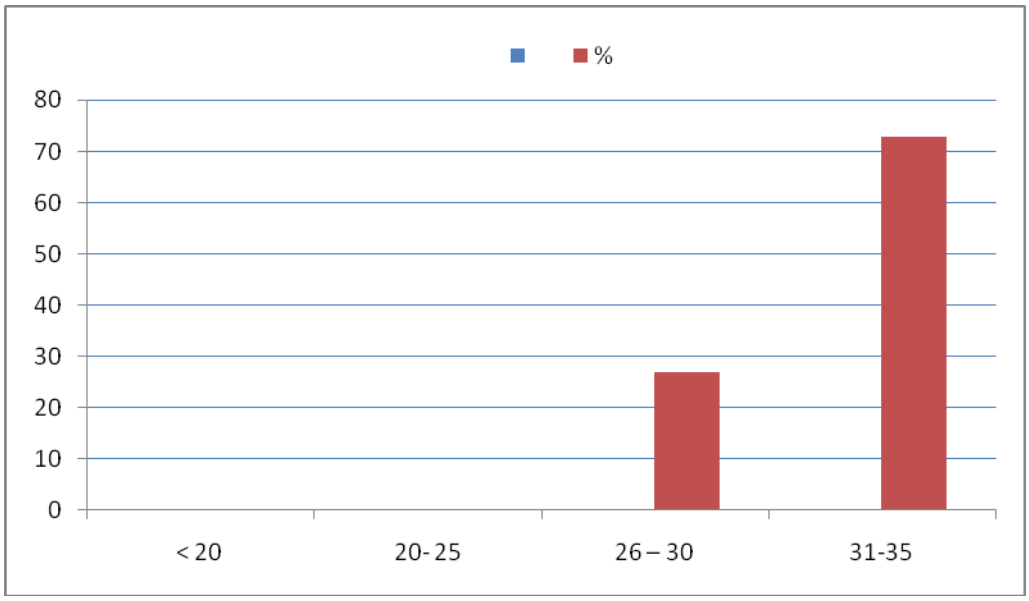

Figure 10: Bar Chart distribution of youths in fish farming based on age

4.1.3 Marital status

Result as shown in Figure. 11 reveals that 18.9 % of the respondents were single and majority (79.7 %) were married. The result of Awoyemi and Ajiboye (2011) previously reported that majority (67.7%) of the fish farmers in Osun State were married. Okoedo-Okojie and Ovharhe (2012) however had a contrary report, in a study conducted in Delta State; he reported a higher proportion (47.3%) of single correspondents.

The high proportion of the married youths is an indication that family labour could be available for fish production in the study area. This suggests that there may be high demand for food and additional income on the youth as the head of his house. The result of this study is expected, as the National Population Commission (2013) reported the average age of first marriage among Nigerian men to be 27.2 years; majority (72.7%) of the youths studied are matured youths, well above 27 years (going by the mean age of 32.6 years derived in this study) and are thus expected to be married. The predominance of married youths over single youths therefore confirms the earlier position of this study that majority of youths involved in the business are matured youths. It also suggests that majority of the male youths will have greater family responsibilities and therefore prioritise the wellbeing of their immediate household. Consequently, they will be more committed and dedicated to their business growth.

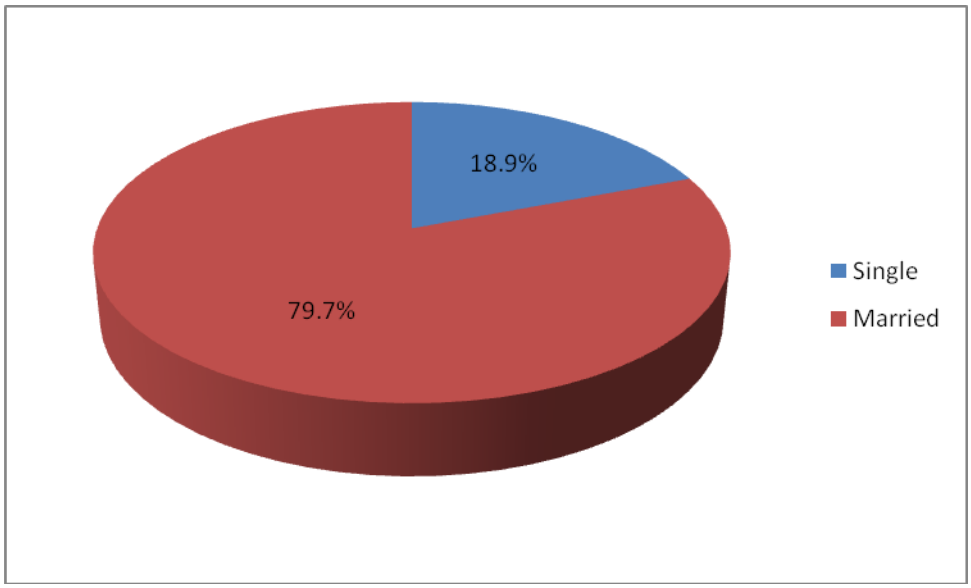

Figure 11: Pie chart distribution of youths based on marital status

4.1.4. Education

Figure 12 shows that 11.8% were post graduate degree holders, 30.1% were OND/NCE certificate holders, HND holders constituted 27% of respondents, secondary school leaving certificate holders constitute 21.4% and only 7.3% had primary education while 2.4% had no formal education. In previous studies, Ele *et al.* (2013) in Cross River State revealed that all the respondents were learned and highly educated as all had tertiary education. Similarly, Olasunkanmi (2013), in his study of fish farmers in Osun State, Nigeria, reported that more than half (52.8%) of his respondents were well educated. In the work of Agboola (2011), about half (43%) of the fish farmers in Osun State had tertiary educational qualification while few (13.3%) had primary educational qualification. Also, Anyanwu *et al*. (2009) reported that most of the fish farmers had secondary school education from his study of fish farmers in Imo state.

Similarly, Olagunju *et al.* (2007) revealed that in Oyo state, 63.3% of his respondents had tertiary education. The high level of education might be due to the metropolitan nature of the study area and its implication is that the respondents will be very receptive to innovation in their methods of production. The result of the current study shows that majority of the respondents were well educated which is in line with other previous research studies as elucidated above. It is clearly suggested that youths in fish farming are well educated class and some even possess tertiary education and post graduate degrees. This could imply that the fish farming enterprise requires application of technical and scientific knowledge. Youths are therefore at an advantage as their level of education should give them an edge in running the business, and maximising farm operations. Education plays a central role in youths and predisposes them to a experiencing a higher level of creativity (Jiriko, Obianuku and Jiriko, 2015). In a study of the attitude of youths towards fish farming in Abeokuta,. This high level of education is expected to affect their wellbeing. Ryff & Keyes (1995) revealed that psychological wellbeing is scientifically related to a higher social economic status (SES) in terms of educational attainment. Keyes & Shapiro (2004) also reported that social wellbeing is related to SES and higher education**.**

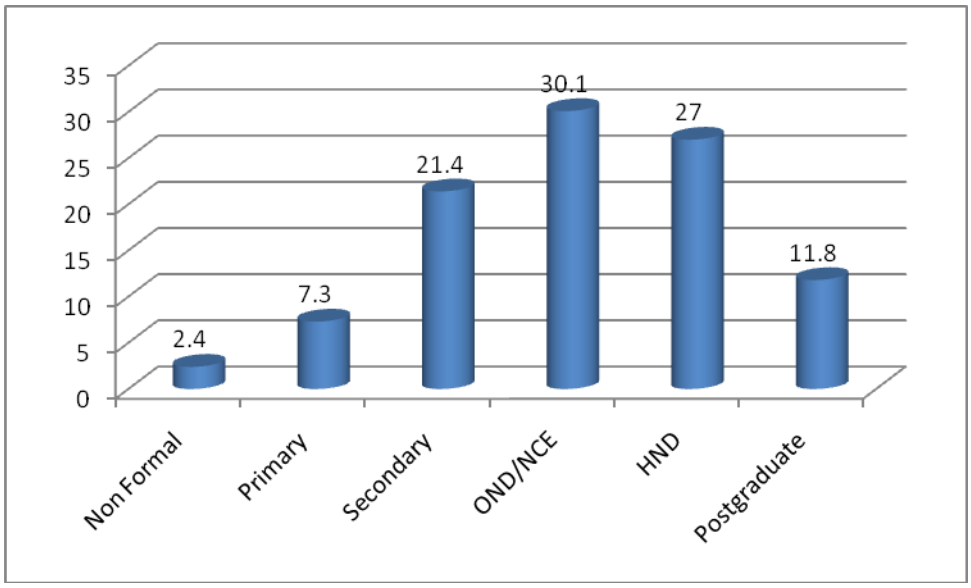

Figure 12: Percentage distribution of youths in fish farming by educational status in Southwestern Nigeria

4.1.5 Household size

As seen in Figure 13, majority (64.2%) had a household of between 4 - 6 persons with a mean of 4.8. Olayemi *et al.,* (2013) had earlier reported in a study conducted in parts of southwestern Nigeria that many fish farmers had household size ranging between 4 – 6. According to Akegbejo-Samsons and Adeoye (2012), in a study conducted in Southwestern Nigeria, the mean household size of the fish farmers was 8 persons. Henri-Ukoha (2012) reported that most (63.3%) of the fish farmers had household size of 1 to 5 persons with a mean household sizes of 5 persons. Olaoye et al. (2011) in a study conducted in Ogun State revealed that most (80%) of the fish farmers had household sizes of 2 to 6 persons. Olaoye *et al*. (2013) in a study conducted in Oyo State revealed that majority (68%) of the fish farmers had household sizes of 4 to 7 persons with a mean of 6 persons and standard deviation of 0.563.

Okoedo-Okojie and Ovharhe (2012), reported that majority (48.7%) of the respondents had household sizes of 1-5 persons, with a mean household size of 4 persons. This is a reflection of the age respondents, which may result in young families and low household size. Simitoyin and Sanda (2013) reported that majority (68%) of the fish farmers in Osun State had small household sizes of 1 – 5 persons. Olayemi et al. (2013) reported in a study conducted in Ibadan that majority (60%) of fish farmers studied had household sizes that ranged between 4-6 with a mean of 4.84.

The result of Oluwemimo and Damilola (2013) revealed that family sizes were very small with 78% of the farmers having between 1 and 5 members while average family size was only 3.8 members. Olagunju et al. (2007) found that majority (53.3%) of the fish farmers in Oyo State had household size of 5 – 10 persons. The findings of Aphunu and Nwabeze (2012) revealed that majority of the respondents had family sizes of between 1 and 5 persons in their households. Penda et al. (2013) in a study undertaken in Benue State revealed that the average household size was 5 members. This funding indicates a fairly large family size with the implication that more family labour will be readily available. Tsue et al. (2013) in a study conducted in Benue State revealed that the household size of catfish farmers showed a mean of about 7 people. The implication of this is that family labour would be readily available when needed in any catfish farming operation. Large size of catfish farmers‘

household manifests in high use of family labour in catfish production activities which stood at an average of 828.25 man-days. . In the work carried out by Dawang et al. (2011) the average family size was 8.05, with a standard deviation of 6.27 while the maximum number was 35 and minimum was 03.00. This result shows there may be enough labour in an average household for fishing work daily from family labour.

The mean household size obtained in this study, is however a bit lower than the average household size of other fish farming studies conducted in the area as reported by Adebayo and Damilola (2013). This could be because respondents are younger and still in their child bearing age, with greater possibility of bearing more children in the nearest future. Level of education might have affected the size of households. Akpotu (2008) observed that as level of education increased in households, its size decreases. Therefore, household size is a parameter expected to affect the wellbeing of farmers. Households with more members require more resources to ensure an acceptable wellbeing level.

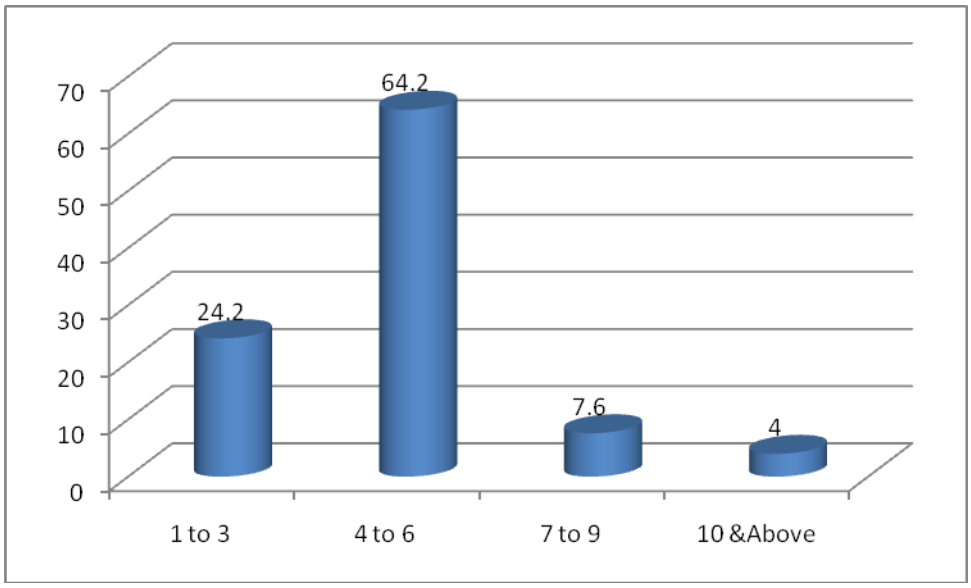

Figure 13: Bar chart on distribution of youths in fish farming by household size in Southwestern Nigeria

4.1.6 Other sources of income

More than half of the youths (56.3%) had other sources of income as seen in figure 14. This result suggests that a large percentage of young fish farmers are also involved in other businesses in order to sustain their wellbeing. Other occupations youths were involved in were: commercial motorbike transportation, welding, farming of vegetables and rice, teaching, government jobs, trading, sales of fish feed and animal husbandry. The reason for this was explained in the FGD, by participants in Ogun State at the Ikenne fish farm Estate, participants said:

> *"Fish farming is very seasonal, we face a lot of constraints in terms of high feeding costs, risk of natural disasters and marketing challenges that makes our output and returns very unpredictable and sometimes even fall to a loss, so we need to always have an alternative income activity (October 23, 2017)*

Additionally, youths involved in fish farming who were members of the Catfish Farmers Association in Lagos state, explained that:

> "*It takes 3-4 months for fingerlings to mature, we will need something to keep body and soul together during that time, and it is not only the fish that needs to eat, our families have to eat also. Therefore, we have to look for other means of augmenting income apart from fish, man must chop". (October 23, 2017)*

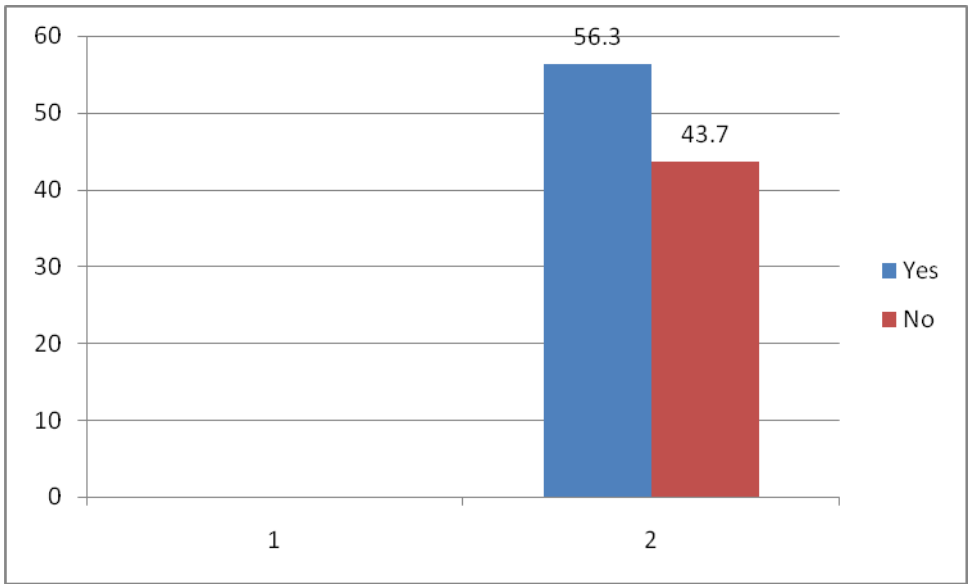

Figure 14: Bar chart on distribution of youths in fish farming by other sources of income in southwestern Nigeria

4.1.7 Membership of association

Capital is very key to agricultural production in general and fish farming in particular. This necessitates small scale farmers to rely on capital sources from personal savings, relations, cooperatives and contributions. These sources of capital are grossly inadequate and ineffective in providing the necessary assistance to farmers. Many farmers have therefore turned to self help groups for assistance (Alufohai, 2006).

Fish farmers in Lagos State are generally involved in one form of self help group or cooperative organization to carry out their production activities such as improvement on fish farming practices (that is, adoption of new technology) income growth and stability, business growth, purchase of inputs like fingerlings, feed and other basic needs such as clothing, food and shelter. One of the ways to improve the lots of these fish farmers' welfare and productivities is cooperative society membership and participation. Without an iota of doubt, the cooperative society has been known to assist the farmers tremendously to advance their productivities as well as their wellbeing. Through cooperatives, fish farmers have been able to access more support for their fish production

Majority (62.8%) of the youths in this study belonged to one association or the other (Figure 15). Mignouna (2011) observed that membership of association enhances social trust, idea and the exchange of information in peoples' lives. The points made during the FGD across the states, corroborates Mignouna (2011) observations. Many of the youths stated reasons why they belonged to fish associations. They include: networking, financial assistance, sharing of ideas, knowledge and information, access to government initiatives, to gather more experience and for getting access to market. This is in line with Simanowitz (2006) who reported that social and financial supports are some of the primary reasons rural dwellers belong to associations. Membership affords access to resources and credit facilities that can enhance wellbeing. Youths who do not belong to any association stated no time, personal decisions, lack of proximity to associations and lack of interest, as reasons for not belonging to any association.

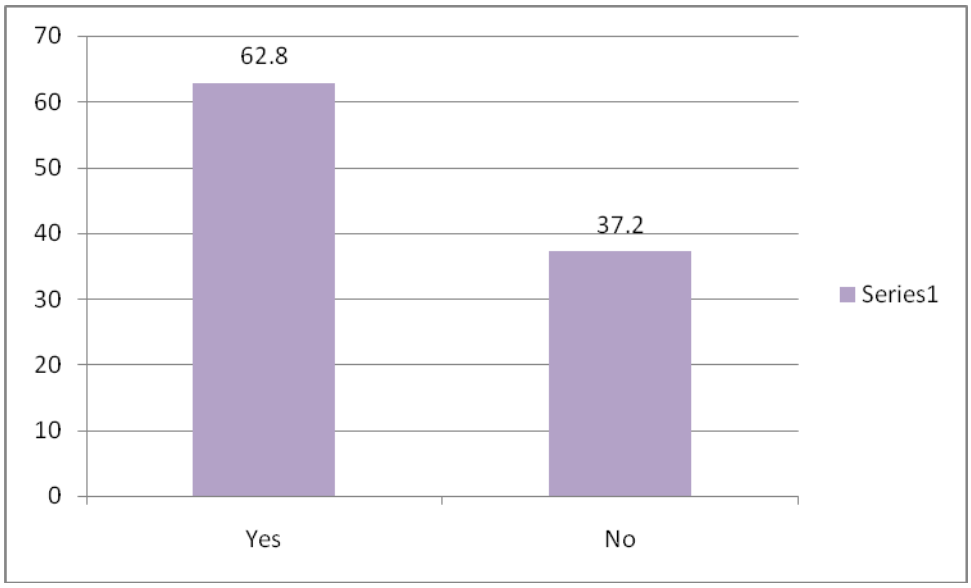

Figure 15: Bar chart distribution of youths in fish farming in Southwestern Nigeria by Membership of Association

4.1.8 Religion

Religion has been observed and reported as a means by which people's minds are conditioned, such that they are hardly bothered in the face of various life challenges which may confront them. The results as presented in Figure 16 reveals that majority of household members in the study area were either Christians or Muslims. Only 0.2% was traditional worshippers. Hence, the study reveals that close proportions of 49.4% and 48.3% were Christians and Muslims respectively. This implies that Christianity and Islam are the dominant religions of youths in fish farming in the study area. This can be due to the high level of education of the youths in the area of study. Religion, beliefs and other religious activities have been adjudged to impact on subjective wellbeing or happiness of people. A number of studies find that religious people are happier than non-religious ones (Graham and Crown 2014 and Abdel, 2007). Individuals who are more committed to their religious faith and spiritual convictions are happier, healthier, and have more coping resources at their disposal than those for whom religion and spirituality are less important (Ellison and Fan, 2008). Religious and spiritual individuals also tend to report higher levels of perceived (internal) control than their less religious peers.

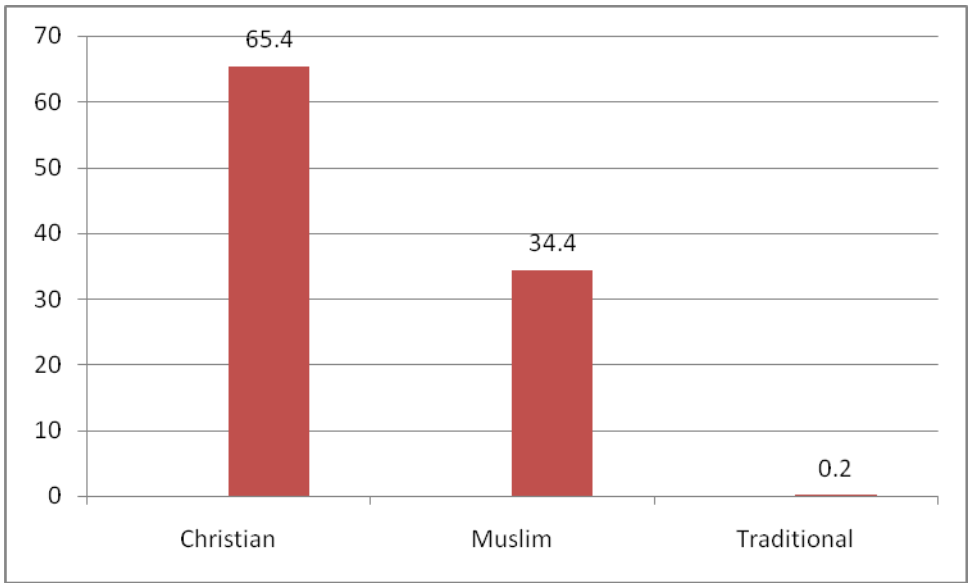

Figure 16: Bar chart distribution of youths in fish farming in Southwestern Nigeria according to religion

4.2 Enterprise characteristics

Enterprise characteristics are traits or features particular to a business. Enterprise characteristics studied in this research work were years of experience of the enterprise owners, number of fish ponds, number of fish cycles, type of fish ponds, number of employees, number of fish stocked, annual income and sources of capital.

4.2.1 Years of experience in fish farming

Results from Figure 17 shows that almost half (46.2%) of the youths surveyed had between 6-10 years experience in fish farming, while 37.7% had between 1-5 years of experience. The average years of experience obtained was 7.6 ± 5.1 years as shown in the figure. This result reveals a dominance of youths with 6-10 years' experience in fish farming, followed by those with experience below 6 years. Juxtaposing the average years of experience obtained in the study (8), and the average age of youths obtained in this study suggests that majority of these youths ventured into fish farming around age 25 as reported also by Kareem *et al*. (2013) in his study. The number of years of experience indicates that majority of the respondents are not new to fish farming. Hence, it is expected that more of the youths will have higher risk mitigating and constraints facing abilities, higher productivity and better efficiency in managing costs, time and other factors of production. This is consistent with the findings of Jiriko *et al* (2015) who reported an average of eight years of fish farming experience among youths in Nigeria.

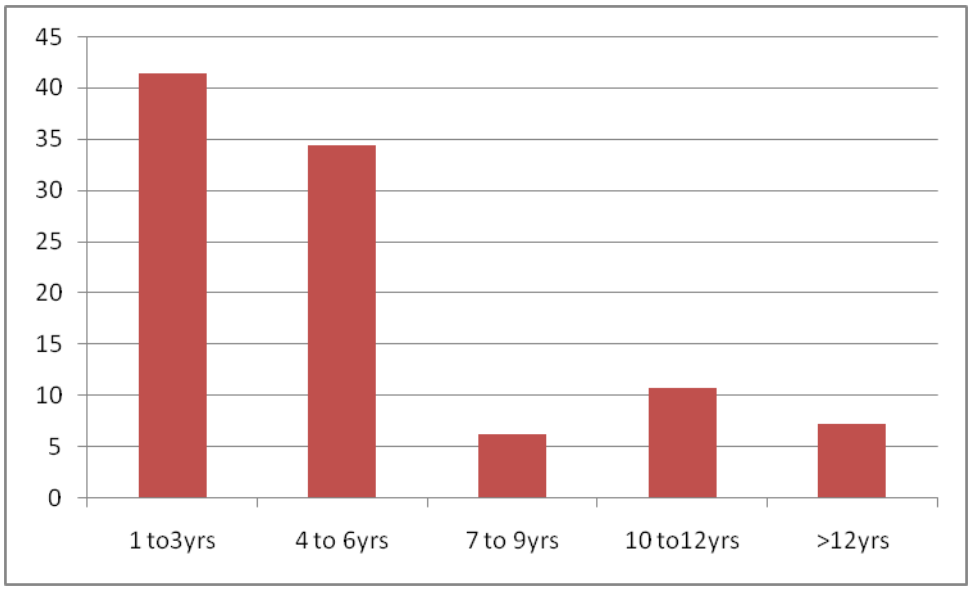

Figure 17: Bar chart distribution of youths in fish farming in Southwestern Nigeria according to years of experience

4.2.2 Number of fish ponds

The number of ponds and sizes owned by fish farmers determine the capacity to produce. Figure 18 reveals that more (41.4%) of the youths possessed between 1-3 fish ponds, 34.4 % of youths possessed 4-6 fish ponds while only 22.4% had above 6 ponds. This result suggests a dominance of fish farmers with just one to three ponds among the youths as also reported by Kareem *et al.* (2013) in Ogun State, showing that the farmers are mainly small scale farmers. Results of this study is similar to that of Edet, Nsikak-Abasi, and Esu (2009) who reported that the number of operational ponds per individual fish farmer studied in Akwa ibom was mostly on small size less than 5 ponds (53.4%), with 33.3% having 5- 10 ponds while just 13.3% had over 10 ponds. The result of this study also suggests that because of respondents relatively young age, family responsibilities and years of experience, they might not have many resources to invest in fish farming at their current level. Earlier results from this study showed they started with personal savings and gifts from relatives and friends. This will obviously affect the number of ponds they can lease, construct and stock for production.

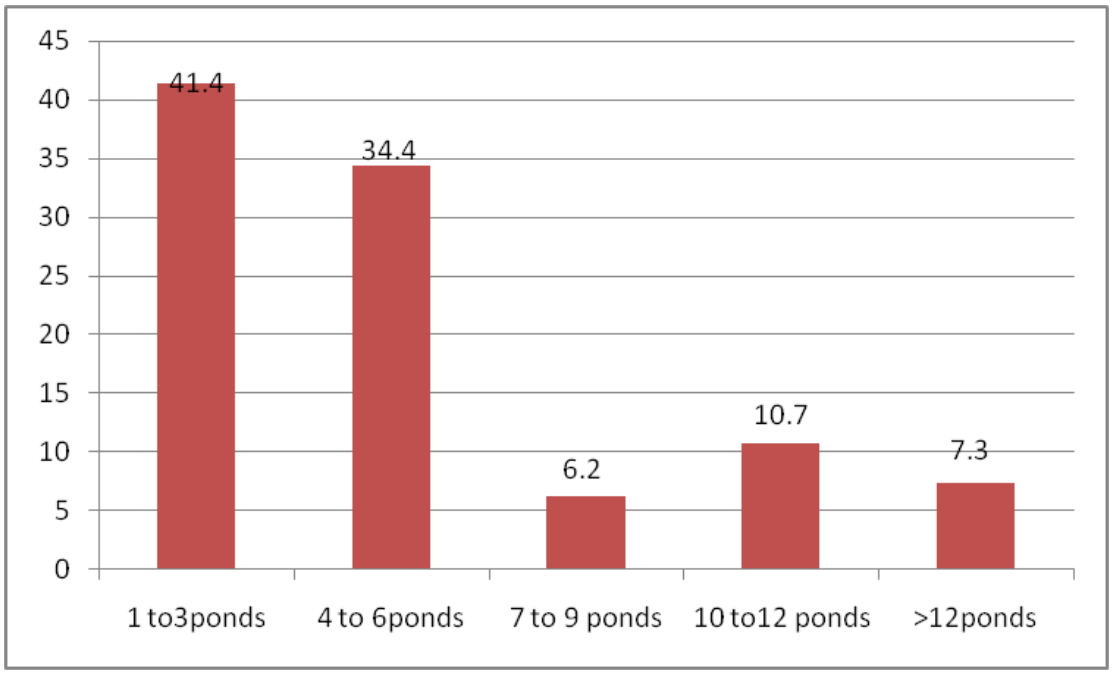

Figure 18: Bar chart distribution of youths in fish farming in Southwestern Nigeria according to number of fish ponds

4.2.3 Number of fish production cycles per year

Figure 19 shows the result of number of fish cycles respondents were able to carry out in a year. A fish cycle is the period of time fingerlings would take to mature into table size fish. Majority (91.3%) of the respondents were able to do 1-3 fish cycles per annum. The mean number of fish cycle per year was three. This result suggests the dominance of fish farmers with three fish cycles per annum; implying maximization of fish cycles possible for a fish pond per year. The result further confirms and buttresses the fact that the mean years of experience previously reported positively impacts their production practices. This is expected to affect their wellbeing. Hundeyin-Agoro (2011) also reported that a greater proportion of his sampled population in a study conducted in Ikorodu fish farming estate in Lagos state harvested three times in a year.

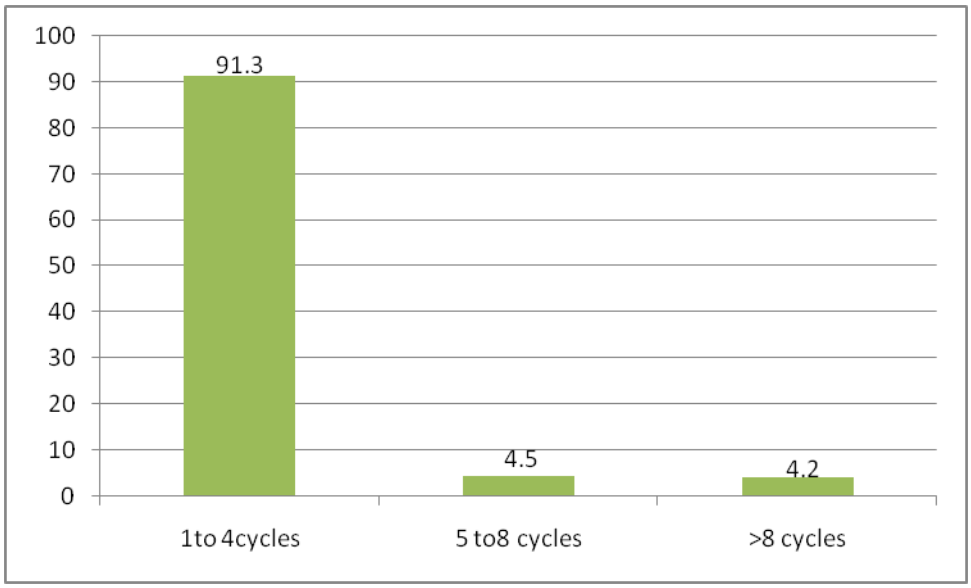

Figure 19: Bar chart distribution of youths in fish farming in Southwestern Nigeria according to number of fish production cycles

4.2.4. Type of fish rearing facility

Earthen pond (73.0%) was prominently reported among fish farmers in the study area as shown in Figure 20, this is closely followed by concrete pond (23.9%) and fish cage (3.1%). This finding is in agreement with Ogundari and Akinbogun (2010) who reported that earthen pond was the major pond type used by fish farmers in Nigeria. The reason for the use of earthen pond could be attributed to its low cost compared to concrete and fish cage.

In tandem with this, fish farmers, in Oyo state, during the course of the FGDs explained that:

"Earthen pond was preferred because of the cheaper cost of construction.
"Earthen ponds are preferable because they have the ability to raise more fishes than concrete ponds of the same size".

"Earthen pond is easier to build and maintain than concrete ponds (November 2,2017)

Participants from Epe Local Government Area of Lagos state equally explained that:

"Fishes raised in earthen ponds grow bigger and do better as they find the environment closer to their natural habitat than concrete(November 2, 2017).

Offem, Ikpi and Fidelis (2010) also confirmed that fishes in earthen ponds grow bigger and do better than those in concrete pond, because the earthen pond replicates the natural environment of the fish pond better than the concrete pond.

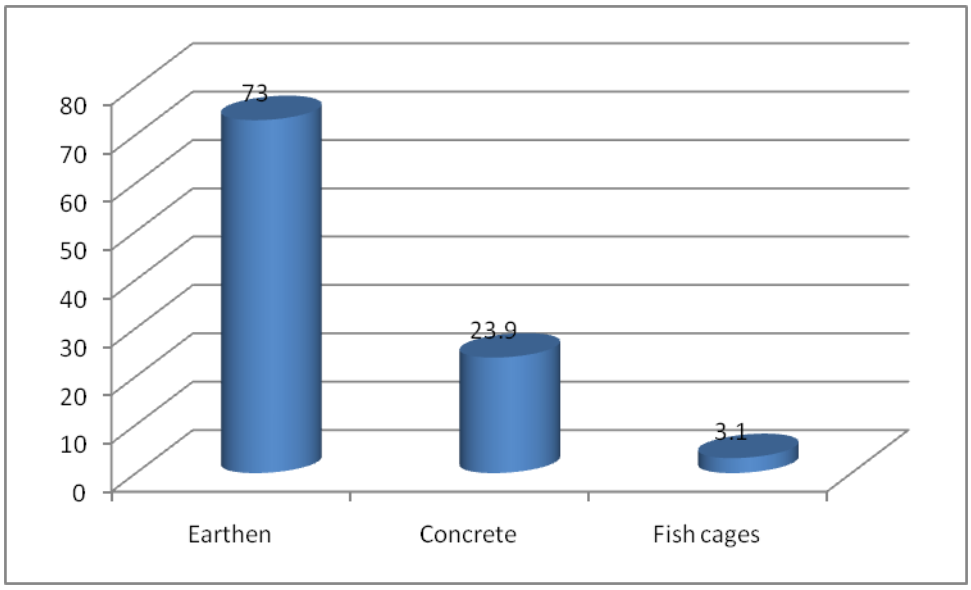

Figure 20: Bar chart distribution of youths in fish farming in Southwestern Nigeria according to type of fish farming system

4.2.5 Number of employees

The distribution on number of employees as shown in Figure 21 reveals that most (54.4%) of the youths had at least one employee, 7.9% had more than three employees, while 37.7% relied on self labour. There is a dominance of youths with one to two employees, suggesting and confirming the dominance of small scale operation of fish farming amongst the youths. The fact that majority had at least one employee suggests that fish farming can help to reduce the unemployment rate in areas where it is embraced. This result correlates with the findings of Olaoye, Ashley-Dejo and Adekoya (2014) that there are more young fish farmers making use of hired labor than those relying on self-labour.

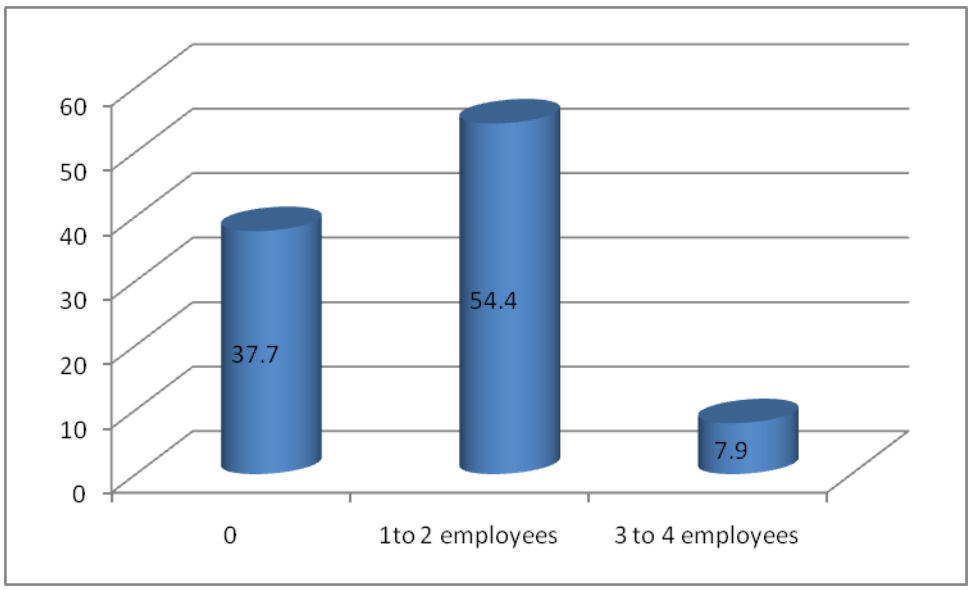

Figure 21: Bar chart distribution of youths in fish farming in southwest Nigeria according to number of hired hands/employees

4.2.6 Quantity of fish stocked

Figure 22 shows the mean fish stocked across ponds. An average of 1,832, 1, 5501, 1,968, and 1,970 fingerlings were respectively stocked across ponds 1, 2, 3 and 4. The quantity of fish stocked per pond is an indication of the scale of operation. Most of the ponds had less than 2000 fishes stocked per cycle. This compares with the result of Oluwasola and Ajayi (2013) that studied fish farmers in Ogun state and reported that majority (76.0%) of the fish farmers stocked less than 2,000 fishes in their ponds. The fish stocking rate is low and adequately falls into the small scale category of fish farmers. This will expectedly affect profit from the business.

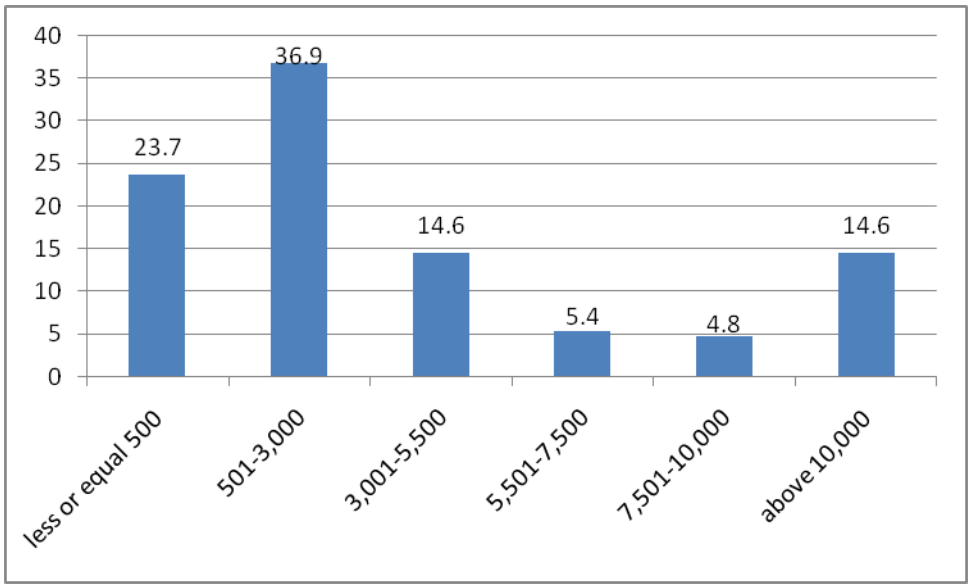

Figure 22: Bar chart distribution of youths in fish farming in Southwestern Nigeria according to quantity of fish stocked

4.2.7 Income

As shown in Figure 22, almost half (49.3%) of the youths earned between ₦300, 001 – ₦500, 000, followed by 27.0% who earned ₦ 100, 001 to ₦ 300, 000. Only few (1.5 %) youths earned above ₦ 700, 000 per cycle. The mean income for the youths involved in fish farming in this study was N403, 464 ± 6.9 per cycle. This translates to a little over ₦ 100, 000 income made by the youths per month. This amount is far higher than the current monthly minimum wage being paid by the Nigerian civil service and the average private sector employer of labour for people with OND/NCE. This result shows that fish farming can be a good source of income for the youths. Edet, Udoe and Uwae (2018) also reported a Net farm income (NFI) of ₦125,000 per cycle for fish farmers in their study in Calabar, Nigeria

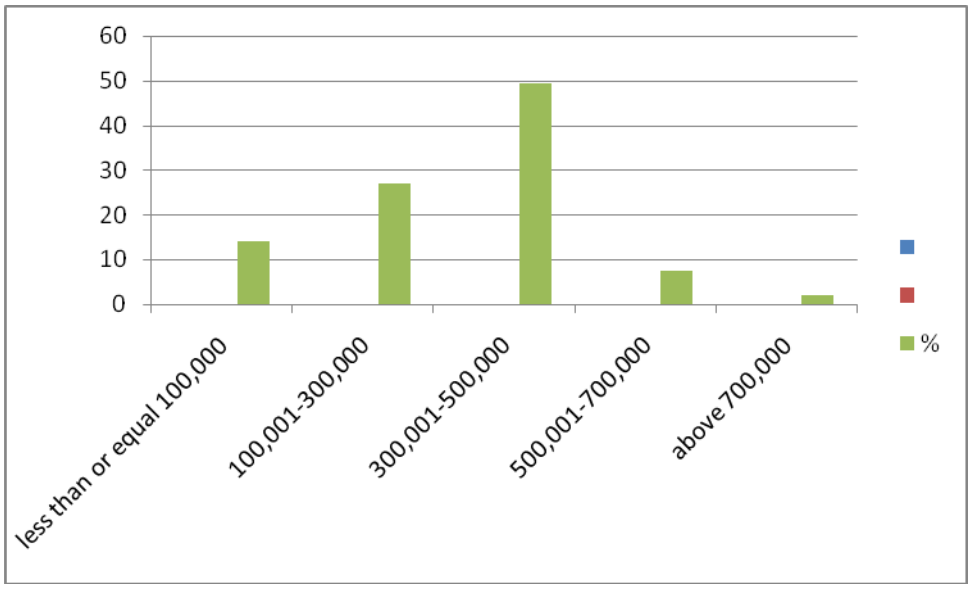

Fig 22: Bar chart showing distribution of youths in fish farming in Southwestern Nigeria according to income

4.2.8. Sources of capital

Capital is a very important requirement for fish farming. Figure 23, shows that majority (71.1%) of the youths across the state indicated personal savings as their source of capital, 13.8% indicated friends and family members, 5.6% from bank loans, 3. 7% from loans given by relatives and 5.9% from investors. Also during the Focus Group Discussion, youths emphasized the inability to access loans as a reason for not using it as capital source and they pointed out how this limited their production activities; the few that could access loans reported exorbitant interest rates.

This result correlates with that of Yahaya (2015) where 76.9% of fish farmers studied in Lagos state indicated personal savings as their main source of start –up capital for fish farming, and only 3.5% of the fish farmers used start-up capital from other sources(loans from cooperative and money lenders). Also, William et al. (2012) reported that a large percentage (80%) of the farmers started with their personal savings. The result of this study confirms that bank loan was an unprofitable source of capital for youths embarking on fish farming. Additionally, reliance on personal savings to start their business suggests that majority of the farmers had some sort of livelihood activities engaged in from which they were able to gradually save up to start their fish farming business.

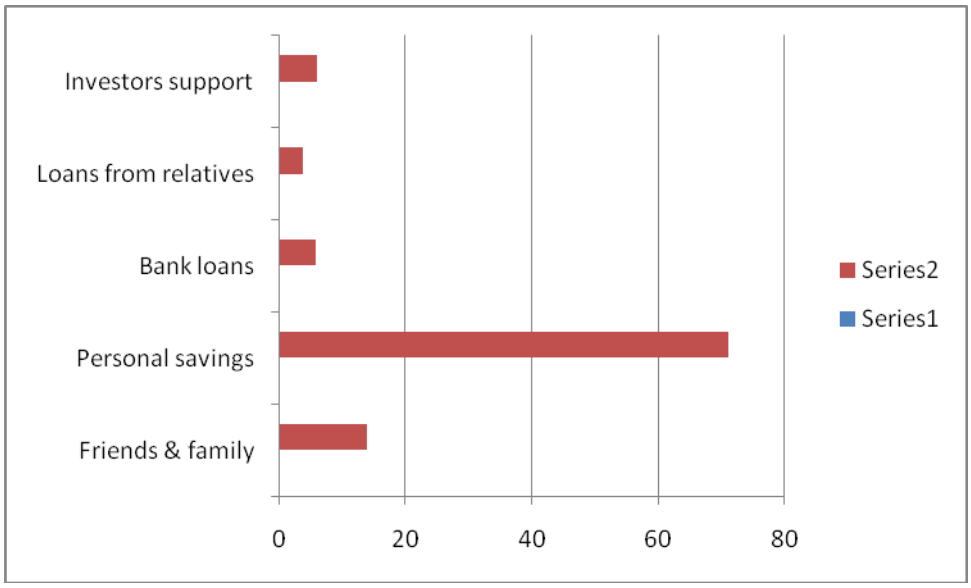

Fig 23: Bar chart showing distribution of youths in fish farming in Southwestern Nigeria according to sources of capital

4.3. Factors motivating respondents' involvement in fish farming

Table 4.3 reveals the result of factors motivating youths into fish farming. The factors were genuine interest for fish farming, ease of start-up, profitability, parental or relative influence, profit motives, opportunities for self employment and alternative source of income, access to free resources, self respect and fish farming graduate. Across the states, majority (88.7%) agreed that genuine interest was a factor that motivated them into fish farming; while only 8.5% were not genuinely interested in fish farming and others uncertain as at the time they ventured into the business. Genuine interest ranked first on the list of motivating factors, with a mean score of 2.80 ±0.2. This is against apriori expectations because, naturally, it would seem that profitability or means of livelihood would be the highest motivating factor.

This result however, shows a dominance of youths venturing into fish farming because they genuinely had interest in it. On the other hand, it suggests that many youths have not embraced fish farming because of a lack of genuine interest, it therefore seems logical that the limited number found in the business were motivated by genuine interest. Ifejika, Ayanda and Sule (2007) reported that in a population of about 100 fish farmers their study sampled, only 20% were youths, indicating low participation of youths in fish farming.

Report about the profitability of fish farming was the second highest motivating factor. This is expected for every business man is into business for profit motives. Following genuine interest and report of fish farming profitability, the possibility of deriving alternative income from fish farming ranked third on the list of motivating factors with a mean score of 2.30 ±0.1. The result suggests that if youths perceive fish farming as an alternative source of income generating enterprise, they would embrace it. Current economic pressures make more Nigerians seek multiple sources of income in order to meet basic needs. This result also corroborates earlier result in this study and explains why large proportions (56.3%) of the youths have other sources of income.

The fourth ranking factor was opportunity for self employment. An appreciable number (60.8 %) of youths agreed that fish farming was a self employment opportunity for them. Unemployment, as a possible motivating factor for involvement in fish farming ranked 5th on the list of motivating factors, with only 34.6% agreeing that a lack of job pushed them

into the fish farming business. The percentage of youths that disagreed was quite high (44.80%) and against a prior expectations that inability to secure a white collared job would have been a high motivating factor for the youths, considering their level of education. This result, however, confirms why genuine interest ranked first. The result of this study shows that high unemployment rate in south western Nigeria might not automatically push youths into fish farming. In this study, most of the youths surveyed did not consider unemployment as a highly motivating factor, suggesting an explanation to why many unemployed youths have still not considered fish farming as a solution to their unemployed state, the main reason for this apart from genuine interest could be a lack of capital and information. During the focus group discussion, participants sampled at the Youth in Agriculture Association in Lagos state explained that:

> *"Getting into fish farming as an unemployed graduate would be very difficult except one gets support; this is due to the amount of the initial capital that is not so easy for younger people to pull together"(September 2, 2017)*

Being a graduate of fish farming, ease of startup, self respect and access to free resources ranked 7th, 8th, 9th and 10th respectively on the list of motivating factors. This suggests that youths in fish farming were not motivated into it because of ease of start up, self respect or free resources. Although, during the focus group discussion, youths in Ogun state revealed they had access to rent ponds both concrete and earthen for as low as 10,000 Naira per annum in different fish estates. Some of them also disclosed access to credit from feed manufacturers and that proximity in the fish estate made buying and selling easier as they cooperated to do a lot of things together.

The result of this study does not however agree with that of Adelodun, Bankole, Rafiu, Morawo and Ajao (2015), who studied youths in Ibadan Metropolis and reported that 66.7% of respondents were into fish farming just as a means of survival, 43.3% found themselves in fish farming due to the unemployment rate in the country and 50% did not see fish farming attractive enough.

Table 4.3: Distribution of respondents based on factors motivating involvement in fish farming

Items	Disagree		Uncertain		Agree		Mean	Rank
	F	%	F	%	F	%		
Genuine interest	4	1.1	36	10.1	215	88.7	2.80	1st
Easy to start	156	43.9	94	26.5	105	29.6	1.76	8th
Lingering unemployment	159	44.8	73	20.6	123	34.6	2.21	5th
Learnt it is profitable	50	14.1	81	22.8	224	63.1	2.40	2nd
Influence of relatives	185	52.1	67	18.9	103	29.0	2.12	6th
Self employment opportunity	29.5	31.0	9.2	9.0	63.4	60.0	2.29	4th
Access to free resources	106	29.9	55	15.5	194	54.6	1.67	10th
Self respect	183	51.5	68	19.2	104	29.3	1.68	9th
Alternative income	72	20.3	67	18.9	216	60.8	2.30	3rd
Graduate of fish farming	168	47.3	101	28.5	86	24.2	2.03	7th

Source: Field Survey, 2017

4.4 Frequency of participation of youths in preproduction, production and post-production activities on the farm

The management operations in fish farming activities were categorised into pre-production, production and post production activities.

4.4.1 Participation in pre-production activities

As revealed in Table 4.4, amongst the three pre-production activities studied: specie selection, liming of pond and input purchasing, more youths (60.8%) were always involved in input purchases ($\bar{x}$=1.60) and liming of pond (42.0%) than specie selection (33.8%). This result suggests respondents attach a good level of significance to liming of pond and purchasing of fish inputs. Andy, Charles, and Craig (2013) reported that the carbonate component in lime raises the soil's total alkalinity, pH, microbial activity in the pond soil, and increases the availability of phosphorous to phytoplankton, thus confirming the importance of this activity to fish farming. In addition, Emmanuel, Adegbite and Kolawole (2014) also confirmed the sensitivity of liming practice to a successful fish farming cycle, they stated that 'the amount of lime to be used should be carefully calculated to avoid inducing an excessively high water pH, which may increase ammonia toxicity and mortality of the fish stocked.

4.4.2 Participation in production activities

In Table 5.4, amongst the fish production activities surveyed, more than half of the youths were involved in pond management (59.4%), feed production (56.3%), feeding (57.5%) and medication (57.5%). Overall, more youths participated in production activities (14.6 ±3.1) than preproduction or post production activities The FGD results also corroborate this. Participants from Ikorodu in Lagos agreed by stating that:

"Also, we have to be involved in feed production, so we can monitor the feed quality and negotiate for better deals in ingredient purchase".

Regarding feed production, youths in Oyo state, explained the reason for participation in feed activity during the Focus Group Discussion thus:

"*Adulterated feed ingredients are everywhere in the market. If you buy feed without doing a good test of ingredients, it will affect productivity. So we go and buy by ourselves, or join with other youths, whereby one of us will conduct the whole exercise and deliver the feed to the farm"(October 23,2017)*

4.4.3 Participation in post production activities

Table 4.4 further shows the result of participation of youths in post fish production activities such as; harvesting, grading, prospecting for markets, weighing, packaging and selling. More than half of the youths (60.3%) participated in weighing, 57.5% in grading, and 40.8% in selling. More youths participated in weighing and grading than in packaging and selling.

Table 4.4: Distribution of respondents based on frequency of participation in preproduction, production and post-production activities on the farm

Variables	Never		Sometimes		Always		Means
	F	%	F	%	F	%	
Pre-production							**4.09**
Input purchases	3	0.8	136	38.3	216	60.9	1.60
Specie selection	31	8.7	204	57.5	120	33.8	1.25
Liming of pond	65	18.3	141	39.7	149	42.0	1.24
Production							**14.67**
Fish stocking	53	14.9	156	43.9	146	41.1	1.26
Pond Management	4	1.1	140	39.4	211	59.4	1.58
Feed production	3	8.5	125	35.2	200	56.3	1.48
Feed purchasing	4	1.1	194	54.6	157	44.2	1.43
Feeding	3	0.8	148	41.7	20.4	57.5	1.57
Medication	3	0.8	148	41.7	20.4	57.5	1.68
Spawning	10	2.8	169	47.6	176	49.6	1.47
Test cropping	5	1.4	204	57.5	146	41.1	1.50
Cropping	-	-	47	69.6	108	30.4	1.40
Post Production							**7.15**
Prospecting for market	6	1.7	237	66.8	112	31.5	1.30
Grading	37	10.4	114	32.1	204	57.5	1.57
Packaging	1	3	218	61.4	136	38.3	1.39
Selling	1	0.3	209	58.9	145	40.8	1.58
Weighing	4	1.1	137	38.6	214	60.3	1.61

Source: Field Survey, (2017)

4.5 Level of participation of youths in preproduction, production and post-production activities on the farm

Table 4.5 shows the youths participation in all the fish farm operations. More than half of the youths (59.7%) highly participated. This result suggests that the youths channeled high energy and youthfulness into their fish farming business. This also confirms that they enjoy the business venture as earlier posited and have committed themselves to it. This is expected to affect their output and subsequently their wellbeing. According to Adewale, Oladejo and Ogunniyi (2005) youths have the energy, level of education, and other desirable qualities that can promote all the sub-sectors of agriculture and the tenacity required to make a success out of fish farming.

Table 4.5: Categorisation based on participation in preproduction, production and post-production activities on the farm

Level of participation	Score	F	%	Mean	Minimum score	Maximum score
Low	18 -22	130	40.3	22.58	18	38
High	23 -38	225	59.7			

Source: Field Survey, (2017)

4.6 Involvement of youth in fish farming enterprise

Table 4.6a shows the result of fish farming variables pooled together to measure involvement of youths in fish farming in Southwestern Nigeria. Number of fish ponds, number of fish cycles, number of employees, years of involvement and quantity of fish stocked by youths were used to derive involvement as adapted by Kadiri (2016). Table 4.6b shows that more than half of the youths (59.20%) were not highly involved in fish farming enterprise relative to the sampled youths in terms of number of ponds, fish cycle, labour and quantity stocked. This result suggests that as youths they do not have much personal resources to fully deploy into the fish business, they only used the minimal resources within their disposal into the business since they had a favorable perception of the business. In addition, youths involved in fish farming were faced with many constraints, these constraints affected the level of involvement as apriori expected and conceptualized in the conceptual framework.

George *et al*., (2010) asserted that with greater youth involvement in fish farming, Nigeria can be self-sufficient in fish production; experience increase in fish production output and thereby become a net exporter of fish and fisheries products.

Table 4.6a: Distribution of involvement of youths in fish farming enterprise in S.W Nigeria

Variable	Category	Frequency	%
Quantity of fish stocked	less or equal 500	84	23.7
	501-3,000	131	36.9
	3,001-5,500	52	14.6
	5,501-7,500	19	5.4
	7,501-10,000	17	4.8
	above 10,000	52	14.6
	Total	355	100.0
Number of ponds			
	1-3	147	41.4
	4-6	122	34.4
	7-9	22	6. 2
	10-12	38	10.7
	>12	26	7.3
Number of fish cycles			
	1-4	324	91.3
	5-8	16	4.5
	>8	15	4.2
No of hired hands			
	0	134	37.7
	1-2	93	54.4
	3-4	28	7.9
Years of involvement			
	1-5	164	37.7
	6 – 10	37	46.2
	11-15	20	10.4
	Above 15		5.7

Source: Field Survey, (2017)

Table 4.6b: Categorisation of level of involvement of youths in fish farming enterprise

Level of involvement	F	%	Mean	Minimum score	Maximum score	S.D
Low	212	59.70	1.82	0.01	10.41	1.31
High	143	40.3				

4.7 Benefits derived from involvement in fish farming

Table 4.7a shows the benefits derived by respondents. Majority (72.1%) agreed that self dependency was the most derived benefit from fish farming (1.92±). This implies that involvement in fish farming can make youths become self dependent; Oginni (2015) youths can be made self reliant via the vehicle of entrepreneurship (Oginni, 2015). The International Youth foundation (2015) also reported that one of the four things young people worldwide prioritize is the chance to start their own business, as they do not see the desired white collared jobs coming anytime soon. This finding shows that fish farming has a positive effect on reducing youth dependency ratio in Nigeria (83%).

Amongst others, alternative sources of income ranked second During the Focus Group Discussion, many of the youths explained that;

> "*Because of the time frame involved in raising fishes, capital implication and seasonal variations , it is good for anyone seeking to raise fishes to have another steady source of income from which they can always direct resources or fall back during the off peak seasons usually encountered in fish farming"(November 20, 2017).*

Financial freedom (1.57±0.2) and access to health (1.50±1.4) care ranked lowest on the benefit list. The youths did not rate financial freedom high on the scale of benefits derived from fish farming; infact only 50% agreed that fish farming gave them a moderate level of financial freedom. Majority of the youths were also engaged in other occupation in order to complement or justify income from fish farm, this also confirms the fact that practicing at the current level of production (more youths operate 4 ponds) and with the high constraints faced in fish farming (high feed cost, flooding and poaching), youths are not yet totally financially free as a result of involvement in fish farming

Retrospectively, Abiodun (2015) asserted that with the current situation of the Nigerian economy, and the inflationary challenges of food prices, families in Nigeria need more than two viable streams of income to survive and become totally free of financial issues.

Youth stated improved confidence as the third ranking benefit derived from fish farming, 70% of the youths reported improved confidence as one of the high benefits derived. This could be because of the self dependency fish farming affords them. Once a youth is self dependent, able to cater for both personal and family needs, the level of confidence increases. Improved skill was also rated at per with improved confidence. Farming fish has improved their skill in this specialized area and this skill acquired can be of a good advantage to youths.

Table 4.7 Distribution of respondents' based on benefits derived from involvement in fish Farming

Benefits	Nota benefit		Low		Moderate		High		Mean	Rank
	F	%	F	%	F	%	F	%		
Alternative source of income	60	16.9	42	11.8	126	35.5	127	35.8	1.90	2nd
Improved confidence	73	20.6	37	10.4	131	36.9	114	32.1	1.81	3rd
Access to market	86	24.2	34	9.6	163	45.9	72	20.3	1.62	6th
Self dependency	70	19.7	29	8.2	114	32.1	142	40.0	1.92	1st
Financial freedom	94	27.5	38	5.6	148	50.0	75	16.9	1.57	9th
Access to healthcare	100	28.2	46	13.0	138	38.9	67	18.9	1.50	10th
Improved individual food security	78	22.0	42	11.8	135	38.0	100	28.2	1.72	5th
Improved housing condition	88	24.8	44	12.4	148	41.7	73	20.6	1.59	7th
Improved savings	75	21.1	71	20.0	135	38.0	74	20.9	1.59	7th
Improved skill	62	17.5	38	10.7	136	38.3	119	33.5	1.87	3rd

Source: Field survey, (2017)

4.7.1 Categorisation of benefits derived by youths in fish farming

Table 4.7b reveals a categorisation of benefits derived by youths involved in fish farming. Majority (68.2%) of respondents derived high benefits from fish farming, while 31.8% derived low benefit from fish farming. This result shows that fish farming is very beneficial to respondents and can help improve self confidence and self dependency, making youths more responsible citizens of their nation. Nabafu (2013) reported fish farming as a very beneficial venture that can be embarked on in the fish value chain. Thus, wellbeing is expected to be positively impacted.

Table 4.7b: Distribution of the level of benefits derived from fish farming

Benefits level	F	%	Mean	S.D	Min	Max
Low	113	31.8	17.12	8.67	10.0	30.0
High	242	68.2				

Source: Field survey, (2017)

4.8 Constraints youths experienced in fish farming

The highest constraint faced in fish farming as shown in Table 4.8 is inadequate access to credit (1.40±2.5). Respondents indicated that credit for running farm operations and feeding fingerlings was not accessible and therefore they could not operate on the appropriate level of production. During the Focus Group Discussion, many youths pointed out that access to credit was a major issue and that except there is an additional income source to rely on while the fish is growing in the pond, fish farming would be very stressful for farmers

High costs of feed (1.36±2.0) ranked second on the list of constraints amongst the 14 constraints evaluated, with majority (73.5%) agreeing that the cost of feeding fishes was too exorbitant, especially those who had fingerlings and had to rely on imported feed. Farmers complained about the everyday rising cost of feed and how several youths could not continue in the business. Corroborating these findings, respondents at Ikenne fish farm, Ogun State stated during the FGD that;

> *"Some of our colleagues have gone back to Okada riding, and palm tree business because they cannot meet up with the everyday rise in cost of fish feed" (November, 11, 2017)*

High start up costs (1.26±1.5) and inadequate access to land (1.06±3.1) ranked third and fourth on the list of constraints. This agrees with the work of Olaoye (2015) who studied young fish farmers in Ogun State; he observed that inadequate capital affects fish production. His study also discovered that high interest rates, land related problems, inadequate capital, unfavourable policies of Government unavailable fish feed were high amongst the list of constraints. This outcome is supported by Ugwumba and Chukwuji (2010) in their research on imperative constraints to catfish production as high feed cost, and capital issues Also, Olaoye (2014) reported high cost of feed, fingerling procurement, incidence of diseases/pests as major constraints reported in his research on small holders farmers in Ogun State.

Table 4.8: Distribution of respondents' based on constraints faced in fish farming

Items	Not a constraint		Minor		Major		Mean	Rank
	F	%	F	%	F	%		
Lack of technical know-how	148	41.7	94	26.5	113	31.8	0.90	8th
Inadequate access to capital	81	22.8	51	14.4	223	62.8	1.40	1st
Inadequate access to land	113	31.8	111	31.3	131	36.9	1.05	6th
Inadequate access to information	14.4	40.6	168	47.3	43	12.1	0.72	13th
Inadequate access to market	133	37.5	150	42.3	72	20.2	0.82	11th
Prevalence of diseases	158	44.5	135	38.0	62	17.5	0.73	13th
Prevalence of pests	137	38.6	129	36.3	89	25.1	0.86	10th
Flooding	112	31.5	107	30.1	136	38.3	1.07	4th
High cost of feed	72	20.3	83	23.4	114	56.3	1.36	2nd
Poaching	94	26.5	147	41.4	114	32.1	1.06	5th
High cost of medications	133	37.5	152	42.8	70	19.7	0.82	11th
Labour	122	34.4	155	43.6	78	22.0	0.88	9th
Transportation cost	116	32.7	127	35.8	112	31.5	0.99	7th
High start up costs	81	22.8	99	27.9	175	49.3	1.26	3rd

Source: Field survey, (2017)

4.9a Perception of youth on fish farming as a good career option

Table 4.9a on the perception of youths about fish farming as a career option reveals that about 44.9% of the youths agreed with the statement that fish farming was very rewarding, 44.8% agreed that the Government has good intentions for the business, 46.8% agreed involvement in fish farming can make them relevant globally and locally, 44.2% agreed that the business does not hold much career prospects for them while 31% disagreed on this. More youths (45.1%) agreed that fish farming should be promoted amongst youths. Quite a number (39.9%) of youths however agreed that they would gladly leave fish farming for another viable option, 39.7% were uncertain while 19.7% disagreed. Adelodun *et al*., (2016) earlier reported that the perception of youths about the fish farming sector may have an influence on their production and subsequently on their wellbeing.

Table 4. 9a: Distribution of respondents based on perception of fish farming as a career option for youths

	SA		A		U		D		SD	
Items	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**
Very rewarding	82	23.1	74	20.8	57	16.1	59	16.6	83	23.4
Responsible for where I am today	72	20.3	88	24.8	87	24.5	74	20.8	34	9.6
Government has good intentions	54	15.2	88	24.8	133	37.5	55	15.5	25	7.0
Can make me relevant globally and locally	100	28.2	66	18.6	79	22.3	23	6.5	87	24.5
Does not have much career prospects for me	119	33.5	38	10.7	89	25.1	21	5.9	88	24.8
Should be promoted amongst youths	115	32.4	45	12.7	70	19.7	25	7.0	100	28.2
I would gladly leave fish farming for another viable choice	109	30.7	35	9.9	141	39.7	21	5.9	49	13.8

SA= Strongly agree, A =Agree, U= Uncertain, D = Disagree, SD = Strongly disagree

Source: Field Survey, 2017

4.9b Categorisation of respondents based on their perception of fish farming as a career option for youths

Table 4.9b shows the perception level of youths. The result shows that majority (63.1%) had favorable perception of fish farming, while 36.9 % had unfavourable perception. This favourable perception of fish farming confirms the previous findings that majority of the youths currently engaged in fish farming in Southwestern Nigeria embraced it because of genuine interest.

This result is contrary to the findings of Adelodun (2016) whose study reported that youth in fish farming in Ibadan metropolis perceived fish farming as not attractive. He stated that "majority of the limited number of youths in fish farming are involved in it due to unemployment in the country so fish farming serve as just a means of survival to them. The result of this study, however, corroborates with the result of Olaoye (2015) that although 60% of his sample viewed fish farming as hard, stressful and requiring large capital investment, the general disposition was however favourable.

Table 4. 9b: Categorisation of respondents based on their perception of fish farming as a career option for youths

Perception Categories	All respondents (n=355)				
	Scores	F	%	Mean	Std dev
Unfavourable	11-21	131	36.9	20.89	2.84
Favourable	22-27	224	63.1		
Total					

Source: Field Survey, 2017

4.10.0 Well-being of Youths involved in fish farming in Southwestern Nigeria

This section presents the wellbeing of youths involved in fish farming in Southwestern Nigeria. Results were presented for objective wellbeing (non material and material components), subjective wellbeing and overall wellbeing.

4.10.1 Objective wellbeing (Non - Material components)

Non-material wellbeing of youths involved in fish farming composed of access to life essentials, psychological wellbeing, physical wellbeing and social interactions and social connections according to OECD (2014).

4.10.1.2 Access to life essentials

Table 4.10a reveals the youth's access to basic life needs. Life essentials assessed were clean water, health care, internet, electricity, food and housing. Across the states, all the youth respondents agreed that clean water was either very accessible or accessible to them, with only 7% reporting moderate access and no youth lacked access to clean water. This result suggests that access to water, which is a very basic life essential, is not a problem to youths involved in fish farming. It is also a good description of the mental and physical conditions of youths. Access to clean water (2.40 ±2.2) rated highest amongst all the access variables surveyed. This could be because majority of these youths live in houses where tap water via borehole or well is available. The result on type of housing shows that 40.0% of the youths lived in two bedroom apartment and about 30% lives in three – four bedroom apartment, only 12.1% lives in *face me I face you* houses. This shows a large proportion of the youths could afford to rent comfortable houses. Water availability is usually not problematic in such apartments. Those who do not have water facilities usually have neighboring houses from which they access water.

Access to good housing ranked second ($\bar{x}$ = 2.28) on the list, with 64.5% having access to good housing. Majority (99.7 %) had good access to healthcare and only 0.3% said they did not have access to healthcare. Accessibility to good healthcare services is very important to the wellbeing of youths. This result implies that involvement in fish farming activities does not adversely affect their health nor does it negatively affect their access to healthcare. Earnings from fish farming can help them in dealing with healthcare related costs. If youths

are self dependent, they can take care of their health and every other area of their lives. Health care ranked third on the list of life essentials assessed with a mean score of 2.22.

Access to internet facilities ($\bar{x}$ = 1. 84) ranked second to last amongst items listed. Youth income and number of dependents can significantly affect the amount a youth can afford to spend on internet browsing. Electricity is very important to the wellbeing of the youths, without electricity they cannot live a good quality of life. Access to electricity ranked 6th ($\bar{x}$ = 1.80) on the list. Only 26.5% had good access to electricity while 24% had moderate access. Thus, most youths involved in fish farming in Southwestern Nigeria do not have sufficient access to power. During the FGD, youths in all the three states stated that:

> "*On the farm, we do not have government sources of electricity to power our machines; we therefore depend on fueling our generators whenever we need light to power farm operations, these, increases our cost of production"(November 20,217)*

Youths spend majority of their time on the farm and since constant source of power is not available, it can significantly affect their subjective wellbeing and productivity. Yahaya (2015) also reported the effect of access to life essentials on the wellbeing of fish farmers, he stated a positive correlation between wellbeing and access.

Half (50.1%) of the youths had sufficient access to food, 35.8% had very good access while only 4.5% reported no access to food. Access to food ranked fourth on a list of 6 factors with a mean score of 2.17. Result for this indicator suggests that youths involved in fish farming have a fair access to food. This could be because; earnings from fish activities were able to feed them. This is therefore expected to influence their overall-well-being.

Generally, 35.2% of respondents have very good access to good housing, 57.7% had average access to good housing while 6.8% had moderate access and only 0.3% of the youths do not have any access to good housing. This result implies that housing is not seen as a problem by majority of youths involved in fish farming. This agrees with Habib *et al.* (2008) who reported that good housing and food remains critical to human health, comfort and general well-being. This confirms the position of CSIS & IYF, 2014, that youth access to

information, electricity, good housing and food is essential to their wellbeing. Good access to life essentials results obtained in this study is expected to contribute to youth wellbeing.

Table 4.10a : Distribution of respondents based on access to life essentials

Access to life essentials	NA %	MA %	A %	VA %	Means X	Rank
Access to clean water	-	7.0	45.1	47.9	2.40	1st
Access to healthcare	4.2	11.0	63.1	36.9	2.22	3rd
Access to internet	11.3	38.9	18.9	44.2	1.84	5th
Access to electricity	11.5	23.9	38.0	26.5	1.80	6th
Access to food	4.5	9.6	50.1	35.8	2.17	4th
Access to good housing	0.3	6.8	57.7	35.2	2.28	2nd

Source: Field Survey, (2017)

4.10.1.3 Psychological wellbeing

Psychological wellbeing is very important to the general wellbeing of the youth. This variable measured the youth's goals, achievement, confidence level, feeling of failure and ability to help others. Table 4.10b also shows the result of the psychological wellbeing, majority, 80% agreed they usually take time to review their past mistakes/work on learning from it ($\bar{x}$ = 4.10), 77.8% agreed that fish farming does not affect their confidence to speak in public ($\bar{x}$ = 4.0) and 69.3% do not feel inferior to their other mates who are involved in white collar jobs ($\bar{x}$ = 3.6), more than half (54.4%) disagreed that they sometimes feel like a failure, due to the problems encountered in fish farming ($\bar{x}$ = 3.5).

This result suggests that involvement in fish farming gives an opportunity for youths to learn on the job and an opportunity for self improvement. It also does not negatively affect youths self confidence and self esteem. Thus, youths involved in fish farming were not ashamed of being identified with it. This correlates with the result of Kusemiju and Kusemiju (2004). During the focus group discussion across the states; many of the youths stated that:

"*We do not feel inferior in any way, we are proud to be our own bosses as fish farming accords us the flexibility and timing to do our things*" (October 15, 2017)

Table 4.10b: Distribution of respondents based on psychological wellbeing

Psychological wellbeing	SD	D	U	A	SA	Mean	Rank
Feel like a failure as a result of problems in my fish business	24.5	29.9	24.8	10.4	10.4	3.5	7th
I have confidence to speak in public	8.5	4.2	9.6	20.3	57.4	4.0	2nd
I have confidence to judge myself based on what I think is important and not on others thoughts	11.0	7.9	19.7	35.2	26.2	3.6	5th
I feel easily intimated when with other fish farmers	8.2	18.3	9.6	27.9	36.0	3.7	3rd
I do not feel inferior to other non fish farmer colleagues	8.5	7.9	14.4	32.4	36.8	3.6	5th
I can afford to help people from my earnings on a small scale	3.1	15.2	21.4	38.0	22.3	3.7	3nd
I usually review my past mistakes and act on learning from it	4.2	2.8	13.0	48.2	31.8	4.1	1st

Source: Field survey, 2017

4.10.1.4 Physical wellbeing

This aspect of the youth's wellbeing is very important as it affects their life and work. A youth who is not physically fit will not be productive on the farm and in life (CSIS & IYF, 2014). As presented in Table 4.10c, majority (60.6%) do not pay regular visits to the hospital as a result of sickness from fish farm activities ($\bar{x}$= 4.3), more than half also (55.8%) agreed they never fall sick as a result of pressure from fish farm work ($\bar{x} = 4.2$) did not rely on using medical aids and for those that do; they reported it wasn't related to their involvement in fish farming. Almost half (47.3%) stated they do not get injured from their fish farm work at all, injuries from involvement in fish farming include; scratches during fish harvesting on the palms and accident on farm road as farm access roads are not good. This result suggests that injuries from fish farm related activities are not so serious as to affect the wellbeing of the fish farmers.

In regards to frequency of hospital visitation, only 0.8% visit the hospital on a weekly basis,14.6% on a quarterly basis, 16.6% visit at least monthly while majority (60.6%) have never visited the hospital on account of sickness related to involvement in fish farming. This suggests fish farming involvement will not significantly affect their physical health. The result of this study confirms the postulation of Adebisi (2018) who opined that youths in Nigeria are energetic and talented and are strong enough to survive in fish business.

Table 4.10c: **Distribution of respondents based on physical wellbeing**

Physical wellbeing	Weekly	Fortnight	Monthly	Quarter	Never	Mean	Rank
Reliance on medicine to aid physical strength	5.9	3.9	16.3	20.3	45.9	4.0	
Falling sick as a result of pressure from fish farm	2.5	3.7	7.0	35.5	51.3	4.2	
Regularity of injuries from fish farm activities	3.7	2.5	17.2	29.3	47.3	4.1	

Source: Field Survey, (2017)

4.10.1.5 Social wellbeing

Social wellbeing was measured to determine the youth's social support and relationships. As presented in Table 4.10d, majority (87.3%) of the youths had someone to discuss intimate and personal matters among their fish farmer contacts. This result suggests that the youths get along well with other youths in the business since they spend long periods on their fish farms, this is most likely to foster some form of close relationship amongst them. Apart from having people they could discuss with, majority (80.8%) of the youths also had at least two fish farmer contacts they could rely on for help in times of need. Majority (75.2%) also indicated that they have friends among their fish farming colleagues who have helped them in at least two out of four pressing situations. More than half of the youths (56%) also reported they could count on their fish group for support in times of need.

This result suggests that as expected of youths, youths in this study have a vibrant social life and connection both in fish farming and outside the fish farming network. Youths have a tendency to be more social than adults and involvement in their business might not serve as hindrance to socialising. . Secondly, membership of professional associations is expected to aid their productivity on the fish farm and therefore translate to improved wellbeing. Research facts and findings (2003) affirmed that relationships are very valuable to the wellbeing of humans and compared it to financial capital because it aids people to obtain things they value, such as information, emotional support, material assistance, access to job opportunities, and wider social contacts.

According to Olasunkanmi (2013), most of the fish farmers (72.2%) in Osun state did not belong to any fish farmers 'association. Agbebi (2012) revealed that majority (58.9%) of the fish farmers in Ekiti State did not belong to any social group while 27.8% subscribed to co-operative societies. Majority (65.9%) stated they belong to other groups, apart from fish farming related groups. This is not surprising as youths are usually very social and peer oriented.

Okoedo-Okojie and Ovharhe (2012) found that most of the respondents (80%) belonged to associations and membership of association could prove useful in sourcing and utilizing of the relevant agricultural information, and make the work of extension workers easier and

more effective. The findings of Aphunu and Nwabeze (2012) revealed that majority (43.8%) of the fish farmers in Delta State belonged to fish farmers Association for the purpose of credit and accessibility to information. Solomon *et al*. (2013) in a study carried out in Lagos State revealed that majority (86.7%) of the fishers did not belong to any fishery association while 13.3 per cent belonged to a fish association.

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Table 4.10d: Distribution of respondents based on social wellbeing

Social wellbeing				
	No F	**%**	**Yes F**	**%**
I have a fish farmer friend with whom I can discuss personal and intimate matters	45	12.7	310	87.3
I have at least 2 fish farmer contacts I can rely on in times of need	68	19.2	287	80.8
I have received help in at least two out of four occasions from such when I needed it most	88	24.8	267	75.2
I can rely on my local fish group if I need support	153	43.1	202	56.9
My fish business allow me hangout time with my loved ones at least twice a month	147	41.4	208	58.6
My fish farming activities allows me time to involve in voluntary organizations	128	36.1	227	63.9
I belong to other social groups apart from fish farmers group	121	34.1	234	65.9
I do not belong to other social groups because of my involvement in fish farming	164	46.2	191	53.8
I am active in my fish farm cooperative	141	39.2	214	60.3

TA= Totally agree, MA =moderately agree, U= Uncertain, MD = Moderately Disagree, TD = Totally disagree

Source: Field Survey (2017).

4.10.2 Objective wellbeing of youths involved in fish farming in Southwestern Nigeria (Material Component):

Material wellbeing was measured on the basis of assets, ability to meet basic needs, housing and income.

Assets

As displayed in Table 4.10, majority (66.2%) of the youths did not have personal farmlands (55.5%), farm building (74.4%), personal cars (80.6%), farm vehicle (83.1%) and personal computers (81.1%). This result could be because they are youths, they have not yet amassed the wealth to build houses or they might not be so encumbered at that age to building houses. This might not have significant effect on their wellbeing, as most of them either rent or lease houses. Most youth in Nigeria would rather rent nice apartments, marry and settle down, before thinking about buying land and building house. Regarding, having personal computers, laptops or tablets are assets that youths have in today's world, but surprisingly majority of youths in fish farming do not have personal computers. This suggests computers might not be seen as a priority tool for working on the farm. Secondly, with the advent of smart phones, youths could easily use their smart or mobile phones to do what they might have done using computers, so they might not place much priority on buying computers.

Retrospectively, however, this result could also imply a limited use of modern day ICT tools and softwares for record keeping, spreadsheet related activities and stock keeping even amongst youths. Regarding ownership of generator as an asset however, more than half of the youths (68.5%) had generators and bought it from their fish farm income. Since access to electricity is low as displayed in Table 5.10, majority (68.5%) had generator and purchased it from their fish earnings. Generator is also an asset that is critical to the wellbeing of the youths.

Ability to meet material needs

Three key material need obligations usually serves as challenge to most families, they are; payment of children school fees, rent and food needs. Once a family can meet up or is not unduly pressured about meeting bulk family needs, their wellbeing is guaranteed. In this study, more than half (58.3%) of the youths never had issues with meeting their children's school fees, only 27.6% of the youths occasionally had issues with meeting their children's school fees, while just 14.1% always had issues paying children's school fees.

Concerning rent payment which is also a bulk material need that usually pressurizes the household heads, 78.0% of the youths never had issues with paying rent while only 6.8% always had issues; others stated they had issues paying their house rent only occasionally. This suggests that youths in fish farming can comfortably pay for their rent from fish farming earnings

Income

About half (49.3%) of the farmers earned an income of between ₦300, 001 – ₦500, 000 per cycle. The mean income per cycle amounted to₦403, 464, translating to ₦100, 866 per month, which might be considered fair despite the high constraints. Participants during FGD placed emphasis on

"*high constraints in terms of availability of resources which led many youths to abandon farm as at the time of this field work.(September 23,2017)*

Also participants agreed that "for youths to thrive in fish farming, they need solid financial support from another steady and stable income source to wade through budding stages of fish business. Tim (2010) also reported that rural household's income was notoriously subject to seasonal variability especially in Nigeria.

Housing

About half (40%) of the youths live in 2 bedroom apartments, while 19.7% live in one bedroom apartment. A few proportion of the youths (10.7%) live in four bedroom apartments while the rest (12.1%) live in *face me I face you(t*his is the name given to apartments built to house a minimum of about 6 rooms with a long corridor separating the rooms into equal number and rooms are rented out to different families). The house has a joint kitchen, toilet and bathroom to be shared by the different occupants of the house. The

housing result as shown in Table 4.10 suggests youths involved in fish farming do not have housing challenges and that they have a fairly good housing condition. If almost half live in 2 bedroom apartments, using the mean household size of four people obtained in this study, this translates that a family of 4 people are occupying two bedrooms, separate living room, kitchens, toilet (at least one) and bathroom facilities. This is fair in current Nigerian standard. One bedroom apartments too usually have such unshared facilities and occupants would still be more comfortable than living in *face me I face you* and sharing basic house amenities. This result correlates with early report by NBS (2018) that housing conditions common for Nigerians in recent times are the two bedroom typed apartments.

Table 4. 10.2 : Distribution of respondents according to their material wellbeing

Material Wellbeing	Do not have	Borrowed	Rented	Did not get it from fish earnings	Got it from fish earnings
Assets					
Farm land	55.5	5.1	18.0	66.2	10.7
Farm building	74.4	2.0	9.6	6.1	7.9
Farm vehicle	83.1	2.3	2.5	5.1	7.0
Personal car	80.6	2.3	0.8	7.0	9.3
Motor bike	83.7	0.6	0.6	2.4	12.7
Personal computer	81.1	0.3	0.6	6.8	11.2
Generator	10.7	0.3	1.4	19.2	68.5
Personal house	74.4	1.1	7.6	9.9	7.0
Tricycle	87.9	2.8	0.8	3.4	5.1
Ability to meet material needs	**Never**	**Occasional**	**Always**		
Children's school fees	58.3	27.6	14.1		
Rent	78.0	15.2	6.8		
Food	80.0	17.1	2.9		
Housing	**F**	**%**			
Face me I face you	43	12.1			
One bed room apartment	70	19.7			
Two bedroom flat	142	40.0			
Three bedroom	62	17.5			
Four bedroom	38	10.7			
Total	355	100.0			
Income per Cycle	**F**	**%**			
< _100,000	52	14.1			
100,001-300,000	96	27.0			
300,001-500,000	175	49.3			
500,001-700,000	27	7.6			
Above 700000	7	2.0			

4.10.3 : Categorisation of objective wellbeing

Table 4.10.3 shows the level of objective wellbeing, more than half (51.3%) of the youths had a higher objective wellbeing relative to the sampled mean. This result implies that a little over half of the respondents have a high wellbeing when assessed using measurable criteria observed using their social relationships, access to life essentials, physical wellbeing, psychological wellbeing and material items (income, assets, housing and ability to meet material needs). The result of this study correlates with Ojo *et al* that youths involved in enterprise activities have a potential of living a better quality of life

Table 4.10.3: Level of objective wellbeing of youths involved in fish farming in Southwestern Nigeria

Wellbeing categories	Scores	F	%	Mean	S.D
				46.5	9.8
Low	20 - 46	173	48.7		
High	47- 55	182	51.3		

4.11 Subjective Wellbeing

Subjective wellbeing measured respondents' satisfaction with the different aspects of their lives. As shown in Table 4.11, respondents satisfaction with their physical health (3.86 ±1.1) rated highest amongst other items rated, with majority of the respondents (77.4%) being satisfied with their physical health. Satisfaction with quality of meals (3.79±2.2) and psychological state (3.73±3.2) rated second and third respectively with majority (74.9%) agreeing they were satisfied with their quality of meals and psychological state (72.7%). This result suggests that issues relating to the physical, psychological and feeding of youths involved in fish farming are satisfactory as also indicated in the objective measurement of physical wellbeing. It confirms that youths are satisfied with their physical, psychological and quality of meals. On satisfaction with income from fish farming, 60.0% of the youths were satisfied with the income they could generate from fish farming, 25.1% were neither satisfied nor dissatisfied while only 14.8% were not satisfied with the income from fish farming. Majority earned between N300, 000 –N400, 000. During the Focus Group Discussion across the states, youth stated that;

"*if all things are equal, as at now we can invest 250,000 to cultivate a pond of catfish and at the end of three/four months earn between N400,000 to N450, 000, but if all things are not equal, you might not even get anything except the amount spent feeding them"(November15, 2017).*

On *s*atisfaction with fish farming business as a whole, 26% of the youth involved in fish farming were neither satisfied nor dissatisfied, 6.8% were dissatisfied, while majority (60.9%) were satisfied with the fish business. On satisfaction with social relationship, 66.8% of the youths were satisfied with social relationship afforded by involvement in fish farming, while 12.1% were not and 21.1% were neither satisfied nor dissatisfied. Objective result shows that majority of the youth had strong social connections, they had at least two friends amongst their fish farming colleague who can be relied on in times of need, local support from their fish group and they can hang out at least twice with friends and family in a month if they choose to.

Majority, also (74.8%) also expressed satisfaction with the quality of meal and 64.2% were satisfied with the number of hours the business affords them to sleep. Overall satisfaction with physical health ranked highest, quality of meals ranked second, psychological state ranked third, number of meals ranked fourth and physical safety ranked fifth. Electricity and internet ranked least on the scale of satisfaction, corroborating the result from the objective measures for access to life essentials. The result of this study is in line with that of Helliwell (2003) who reported that good access to life essentials can lead to a higher subjective wellbeing for people.

Table 4.11: Distribution of respondents' based on satisfaction with different aspects of life

Variables	CD	D	NS/DS	S	C/S	Mean	Rank
Fish farming in general	6.5	6.8	25.9	52.4	8.5	3.65	8th
Physical environment	8.2	4.8	17.7	51.3	18.0	3.66	7th
Number of meals	9.3	1.7	17.5	51.5	20.0	3.71	4th
Quality of meals	6.5	3.9	14.6	53.8	21.2	3.79	2nd
Fish farming income	9.0	6.8	25.1	53.5	5.6	3.40	11th
Physical health	7.9	3.1	23.9	54.9	10.2	3.86	1st
Ability to meet basic needs	6.8	0.8	18.6	60.3	13.5	3.56	10th
Psychological state	5.6	4.2	17.5	61.4	11.3	3.73	3rd
Physical safety	11.5	9.0	28.5	37.2	13.8	3.68	5th
Social relationships	11.8	13.5	32.4	33.5	8.7	3.59	9th
Access to internet	6.5	6.8	25.9	52.4	8.5	3.33	12th
Access to Electricity	8.5	4.2	23.1	52.7	11.5	3.14	13th

CD = Completely dissatisfied, D= dissatisfied, S = Satisfied, C/S = completely satisfied

Source: Field Survey, 2017

4.11.1 Level of subjective wellbeing

Table 4.11 shows the subjective wellbeing categorisation of youths involved in fish farming. The result shows that more than half of (67.6%) of the youths had a high subjective wellbeing relative to the sampled mean. This confirms that greater part of youths experienced satisfaction with their access to life essentials, physical health, income, psychological state, social wellbeing and the quality of meals. The result for objective wellbeing shows that a little over half (51.3%) of the youths had a high wellbeing and subjective result equally shows a higher percentage with a higher wellbeing (67.6%).This is in line with Easterlin (2007) assertion that comparing what people think with objective measures about their situation provides valuable insights of their wellbeing. With this result, youth overall wellbeing is expected to be better off.

Table 4.11: Categorisation of respondents by subjective wellbeing

Wellbeing categories	Scores	F	%	Mean	S.D
Low	13 – 46	115	32.4	46.5	9.8
High	47 – 65	240	67.6		

Source: Field Survey, (2017)

4.12 Categorisation of respondent's overall wellbeing (Objective and Subjective wellbeing)

The result for the overall wellbeing of youths involved in fish farming in Southwestern Nigeria is presented in Table 4.12. More than half (52.4%) of the youths were better off in wellbeing relative to the sampled mean. This suggests that many youths in fish farming are better off in their wellbeing status.

The result for wellbeing of youths in fish farming is not in line with the findings of the International youth wellbeing index of 2014, the index scored Nigerian youths as having the lowest wellbeing amongst 30 countries of the world. This could firstly be as a result of the index not adequately adapting their indicators and methodology to the peculiar Nigerian situation. For example, the age range used in the International Youth wellbeing Index Report showed youths of 15-24 years as against the generally acceptable age range of youths in Nigeria (18-35) which was adopted by this study. Youths of ages 15-24 in today's Nigeria are usually still shuffling between secondary school, tertiary level education, National Youth Service scheme (NYSC) and seeking for employment. At this age, majority of Nigerian youths are still living with their parents and are not self dependent.

Secondly, it could also be because the index did not incorporate the use of subjective measures of wellbeing to assess youth wellbeing. The result of this study equally buttresses the advantage of combining both objective measures and subjective measures of wellbeing than just using subjective measures or objective measures alone. Eurostat (2012) insisted on the incorporation of objectives measures into wellbeing data.

Table 4.12: Categorisation of respondents overall wellbeing (Objective and subjective wellbeing)

Wellbeing categories	scores	F	%	Mean	S.D
				16.5	4.1
Worse off	1-16	169	47.64		
Better off	17-30	186	52.40		

Source: Field survey (2017)

4.13 Test of hypotheses

The results of the hypotheses tested in this study are presented in this section, implication of the findings are also discussed.

4.13.1: Hypothesis 1: Test of relationship between constraints in fish farming enterprise and respondent's wellbeing

This hypothesis tests for the presence of a significant relationship between constraints faced in fish farming and the wellbeing of youths in fish farming. From the correlation analysis shown in Table 4.13, a significant relationship exists between constraints and wellbeing ($r = -0.349$, $p<0.05$. This relationship is negative in nature, showing that the higher the constraints, the lower the wellbeing.

Adebayo and Daramola (2013) earlier reported problems confronting catfish production; being a major specie in Nigeria as: poor management skills, inadequate supply of good quality seed, lack of capital, high cost of feed, faulty data collection, lack of environmental impact consideration and marketing of products. According to George *et al.* (2010), the major problem hindering the promotion and development of the aquaculture industry in Nigeria has been the scarcity of fish fingerlings and that the major factors militating against the production of high quantity of fish seed are energy and water quality related problems arising from skills gap in the industry.

High constraints in production factors can significantly hinder the wellbeing of youths in the fish farming industry. This is because every major constraint will work to decrease the scale of production, level of involvement which will subsequently affect benefits derived and ultimately culminate in reduced youth wellbeing. For young people to find fish farming attractive, the Government and stakeholders have to actively get involved in providing a more conducive enterprise environment for these youths.

Table 4.13. Correlation analysis of constraints and well-being of youths involved in fish farming

Variables	r- Value	p value	Decision
Constraints and wellbeing	-0.349	0.000	Significant

4.14: Hypothesis 2: Test of relationship between benefits derived from fish farming and wellbeing of fish farmers

Table 4.14 reveals the result of test of relationship benefits derived from fish farming and the wellbeing of fish farmers. There was a significant relationship between benefits derived in fish farming and the wellbeing of youths in fish farming ($r = 0.288$, $p < 0.05$). This relationship is also positive in nature and expected, the higher the benefits derived from fish farming, the higher the wellbeing of youths. This implies that the benefits of self dependency, improved confidence, alternative source of income and improved individual food security derived from fish farming have a positive impact on the youths. This is in line with the findings of Chandramouli *et al*., (2007) who reported that enterprise activities in fish farming is a tool for enhancing the wellbeing of investors.

Table 4.14: Pearson Product Moment Coefficient showing relationship between benefits of involvement in fish farming and well-being of youths involved in fish farming

Variables	r – value	P value	Decision
Benefits and wellbeing	.288	0.000	Significant

4.15: Hypothesis 3: Test of difference in level of wellbeing across sampled states (Oyo, Ogun and Lagos)

The result in Table 4.15 reveals there was no significant difference in the overall level of well-being across the three sampled states ($F = 0.684$, $p > 0.05$). This shows that the level of well-being of youths in fish farming does not differ significantly across Oyo, Ogun and Lagos states. This result is apriori and might be due to the fact that all youths sampled live in the same geographical region (Southwestern Nigeria) and might be subjected to similar and not significantly different constraints, benefits, level of involvement and other factors determining youth wellbeing. An analysis of the means however shows that youth in Lagos state had the highest level of wellbeing, while those in Oyo had the lowest. Overall, this level was not significantly different from that of other states as seen in Table 4.15 showing the means and wellbeing index.

Table 4.15: Analysis of Variance table showing differences in the wellbeing of youths across Oyo, Ogun and Lagos states

	Sum of squares	Df	Mean square	F	Sig
Between groups	23.48	2	11.74	.684	.505
Within groups	6040.50.	352	17.16		
Total	6063.98	354			

Table 4.16: Duncan mean separation of wellbeing of youths across Southwestern states

Index of wellbeing

States	N	Subset for Alpha
Oyo	105	19.11
Ogun	110	19.62
Lagos	140	19.70

N=355

4.16 Hypothesis 4: **There is no significant difference in the level of involvement of youths across areas of study (Oyo, Ogun and Lagos state)**

The result displayed in Table 4.16 reveals that no significant difference exists in the level of involvement of youths across the three sampled states ($F = 2.177$, $p > 0.05$). This shows that the level of involvement of youths in fish farming does not differ significantly across Oyo, Ogun and Lagos states, suggesting similar level of involvement amongst youths in this region. This could be because of the proximity of the geographical region. Youths had similar access to capital, labour, land and other resources

Table 4.16: Analysis of variance in the difference in the level of involvement (intensity) in fish farming enterprise across Oyo, Ogun and Lagos states

	Sum of squares	Df	Meansq	F	Sig
Between groups	7.402	2	3.701	2.177	0.115
Within groups	598.348	352	1.700		
Total	605.750	354			

Not significant p>0.05

4.17: Hypothesis 5: Factors determining the wellbeing of youths involved in fish farming in Southwestern Nigeria

The result of the regression analysis as shown in Table 4.17 indicates that household size (β =-0.002, p = 0.006) income from fish (β =-0.230, p = 0.000), motivation for starting fish farming (β =0 .149, p = 0.001), education (β = 0.235, p = 0.000), constraints (β = -0.102, p = 0.041), involvement (β = 0.120, p = 0.007), benefits (β = 0.224, p = 0.000) income from other sources (β = 0.144, p = 0.018) and membership of association significantly influenced the level of wellbeing.. This work agrees with Nguyem (2009) that income has significant effect on peoples happiness. He also discovered that farmers below 40 years are happier with higher income levels than older farmers.

As seen in Table 4.17, income from other sources of occupation also had a significant effect on youth wellbeing, but the impact from fish farming had a greater effect on wellbeing as seen by the beta value.

Table 4.17: Result of Regression on factors determining the wellbeing of youths involved in fish farming in southwest Nigeria

	Unstandardised coefficient		standardized		/
Variables	**Beta**	**Std error**	**Beta**	**T**	**Sig**
Age	-0.15	0.053	-0.13	-0.278	0.020
Sex	-0.332	0.525	-0.29	-0.632	0.781
Marital status	1.500	0.463	0.154	3.238	0.532
Education	3.330	1.199	0.133	2.778	0.001
Household size	0.003	0.106	-0.002	-0.32	0.006
Motivation	1.273	0.428	0.149	2.974	0.974
Other sources of income	1.304E-5	0.000	0.144	2.891	0.004
Income from fish	3.903E-6	0.000	0.230	4.389	0.000
Benefits derived	0.107	0.026	0.224	4.099	0.000
Constraints	-0.54	0.029	-0.102	-1.877	0.041
Perception	-0.005	0.026	-0.009	-0.187	0.852
Level of Involvement	0.407	0.149	0.129	2.725	0.007

This research established how involvement in fish farming affects the wellbeing of youths in Southwestern Nigeria. Results from the study revealed that youth involved in fish farming were predominantly males, Christians and averagely 32.6 years of age. The level of education was high with 30.1%, 27% and 11.8% having "OND, HND and postgraduate degrees respectively. Majority were married with an average household size of 5 people. Most of the youths in fish farming in Southwestern Nigeria are small scale fish farmers with an average of 7 years experience, 1- 3 ponds and stocking between 1,100 – 2,000 fingerlings per pond, with an average income of N403, 464 per cycle. There is a dominance of youths with three hired hands, earthen ponds (73%) and personal savings (71.1%) as sources of capital. Most of the youths were also involved in other businesses apart from fish farming, other sources of income were; civil service, okada riding, vegetable farming, pig farming to complement income from fish farming.

Genuine interest, reports on profitability of fish farming and source of alternative income ranked first, second and third as highest motivating factor for involvement in fish farming, while access to free resources, self respect and ease of startup rank lowest amongst nine items. Self dependency, alternative source of income, improved skill, and improved confidence ranked 1st to 4th on the list of benefits derived from fish farming business for the youths. The highest constraint faced in fish farming is inadequate access to credits, high cost of feed, high start up costs and inadequate access to land. Majority (63.1.3%) had favorable perception of fish farming, while only 36.9 % had unfavorable perception of fish farming as a career option for youths in general.

A little over half (51.3%) of the respondents had a high objective wellbeing, 67.6% had a high subjective wellbeing and 52.4% had a high overall wellbeing. Youths were highly satisfied with different aspects of their lives. Satisfaction with physical health ranked highest, quality of meals ranked second, psychological state ranked third, number of meals ranked fourth and physical safety ranked fifth. Electricity and internet ranked least on the scale of satisfaction. The results of the objective wellbeing corroborated that of the objective measures, even though, more respondents (67.6.1%) reported a higher subjective wellbeing than that of objective (51.3%)

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 SUMMARY

In recent years, entrepreneurship has become a general axiom. Politicians continuously cite the need to create more entrepreneurial societies while newspapers and television programmes frequently create themes around successful entrepreneurs. This is because entrepreneurial activities have been found as capable of making positive impacts on the economy of a nation and the quality of life of the people. Presently, youth entrepreneurship and empowerment have become a global phenomenon dominating the developmental agenda, plans and strategies of developing and developed nations. Youths are one of the greatest assets that any nation can have. Not only are they legitimately regarded as the future leaders, they are potentially and actually the greatest investment for a country's development. Several stakeholders have defined the youth in different ways, for instance, the United Nations, defines 'youth', as those persons between the ages of 15 and 24 years. The African Youth Charter defined the "youth" as persons between the ages of 15 and 35 years," while the Nigerian National Youth Policy (2001) defines the youth as all young persons of ages 18-35 years. This Nigerian definition of youth will be adopted for this study. Among the youth population, one of the most damaging individual experiences is unemployment. The youth population everywhere is on the increase with profound presence of unemployment and restiveness challenging the global peace and economic growth. Previously, existing career options for university graduates were limited to governmental, non-governmental or private organizations, but recently, with the growing number of graduates and youth population, coupled with the high rate of unemployment and youth dependency ratio (84%), Government and other stakeholders' have started advocating for greater youth participation in entrepreneurship; particularly agricultural entrepreneurship. Among several existing enterprise opportunities, agriculture and fish production rates high on the list as the agricultural sector contributes about 40% of the nation's GDP, provides 70% of the labor force and 80% of consumed food. In Nigeria, the fish enterprise is undoubtedly one of the fastest growing agricultural enterprises.

Youth involvement in agriculture are therefore on the increase, albeit slightly, with more youths embracing agriculture and fish farming in particular as an alternative to the "not forthcoming" white collar jobs (National Baseline Youth Survey Report, 2012), as panacea to bridge the huge gap between fish demand and supply in Nigeria, to help solve the problem of ageing farmer population bedeviling the nation and most importantly to reduce youth unemployment and improve youth wellbeing. Wellbeing is generally viewed as a description of the state of people's life situation (McGillivray, 2007). There are different conceptualizations of wellbeing, but all these concepts and definitions are related to the idea of describing "how good is life" or how satisfied people are with their lives (Saari, 2011**).** Wellbeing can also be a good indicator of how participants in an industry are doing (Clay and Smith, 2010).

The Youth Wellbeing Index; a pioneer report on the wellbeing of youths in the world classified the wellbeing of Nigerian youths as the lowest, amongst the wellbeing of youths surveyed in thirty countries of the world (International Youth Foundation and Center for Strategic and International Studies, 2014). This report is highly alarming, as youths constitute more than 60% of the entire Nigerian populace and represent the strength of any nation. There is, therefore, a need to examine if involvement in fish farming can positively influence the wellbeing of youths, so as to have empirical basis for garnering greater youth involvement in fish farming towards improving youth wellbeing. However, empirical evidence on this is scarce, hence, this study aimed to examine the wellbeing of youths practicing fish farming in Southwestern Nigeria.

This study, in order to achieve both the core objective formulated a number of research specific objectives. Each of the specific objectives was developed with a relevant variable in mind that has direct or otherwise link with the well-being of the rural households, taking a clue from the literatures and theories. The study therefore specifically investigated involvement in fish farming and how it affects the wellbeing of youths practicing fish farming in the study area; determined the factors motivating involvement; assessed the benefits derived from involvement. Other objectives assessed the perceptions of youths about fish farming as viable career options for young peoples, the frequency of participation

in fish preproduction, production and post production activities on the fish farm and constraints faced in fish farming in the study area.

A number of research hypotheses were tested, all stated in null form. Hypotheses were formulated to test significant relationship between respondents' well-being, which is the dependent variable and their level of involvement in fish farming, benefits derived and constraints faced. Tests of differences in level of involvement and well-being were also carried out. Last hypothesis tested was on significant contribution of each of the independent variables of the study while holding other variables constant.

A conceptual framework, hypothesizing a network of inter-relationship among the various independent variables and how these relationships may likely affect respondents' well-being was also developed. The conceptual framework was organised in line with propositions from theories, as well as established and suggested inter-relationship among variables taken from literatures. In all, three theories were reviewed. Extensive literature review was also conducted on the key concepts of the work. This covers divergent issues on factors determining youth involvement, youth in agriculture, youth in fish farming, different government interventions on youth entrepreneurship in Nigeria, importance of fish farming, relationship between each personal characteristics and wellbeing. It also explores dimensions of wellbeing and its determinants. The concept of objective and subjective measures of wellbeing was extensively reviewed in literature to buttress the methodology adapted by this study.

The study was conducted in Southwestern, Nigeria. Lagos, Ogun, Oyo, Osun, Ondo and Ekiti States makes up the Southwestern zone with a population of 27,581,982 people (Nigeria-Planet, 2007). Main income generating activity in the area is small scale agriculture. 50% of the states in Southwestern Nigeria were purposively selected for the study based on high concentration of fish farms and number of youths. Multistage sampling procedure was used to select 355 respondents from Oyo, Ogun and Lagos states. Youths of 18-35 years practicing fish farming in Southwestern Nigeria were studied according to the Nigerian National Youth Policy (2001) age specification for youth. Selection of youth for this study was based on a five stage multi-stage sampling procedure with stratification and

levels of purposiveness. Oyo, Ogun and Lagos States were purposively selected from this zone as the study areas, three LGAs were selected per state (resulting in 9 LGAs in total across study area) and one community selected per LGA resulting in 9 communities – this constituted the third stage of the multi-stage sampling procedure. In the fourth stage, membership list of the Fish farming associations and ADP offices were stratified into young (≤35years) and adult (>35 years) fish farmers and proportionate sampling done which resulted in 112, 101 and 142 young fish farmers in Oyo, Ogun and Lagos states respectively. Wellbeing of youths in fish farming enterprise was first measured objectively for material and non material components of youth's life. Non material components were: Psychological, social, physical and access to life essentials were evaluated, while income, assets, housing condition and ability to meet material needs were material components measured. Mean scores generated and level of objective wellbeing was obtained. This method was guided by the Survey of Income and Programme Participation topical module on "extended measures of wellbeing: Living Conditions in the United States, 2003 *Household Economic Studies* as reported by Bauman (2007). For subjective measurement, youth wellbeing was measured based on their satisfaction with material and non material aspects of their lives as adapted by OEDC (2014). Interview schedule was employed to elicit information on enterprise characteristics, level of involvement and wellbeing of youths. Data obtained were analysed using frequencies, percentages, PPMC and multiple regressions

The interview schedule used to collect quantitative data was both content and construct validated, after which the reliability of the instrument was tested using split-half method. Quantitative data were presented using percentages, means, and chats, while qualitative data were also discussed in accordance with the tools used to achieve each objective. The test of hypotheses was carried out using appropriate statistical tools for each of the hypotheses. PPMC, ANOVA, independent sample t-test (Student t-test) and Tobit Regression were used to test the hypotheses.

5.1 Conclusion

The study concludes that involvement in fish farming had a positive effect on the wellbeing of youths in Southwestern Nigeria. Income, benefits derived, motivation for involvement, membership of fish associations, quantity of fish stocked, number of fish cycles number of ponds and number of labour were fish farming factors that determined the level of wellbeing of youths. Youths involved in fish farming were better off in wellbeing and derived benefits of self dependency, improved confidence and improved skill from involvement in fish farming. As anticipated, youths were able to direct the high energy and passion attributed to their age into the business

Intrinsic factors such as genuine interest, good report about the profitability of fish farming, were major driving forces for involvement, extrinsic factors such as income derived was key in sustaining youths involvement in the enterprise. If greater efforts are channeled into providing existing young fish farmers, assistance in the areas of feed, financing and starting up costs; fish farming will serve as an effective weapon that can be used to tackle the problems of low wellbeing, unemployment and underemployment currently ravaging the youths in Nigeria. Similarly, good report of their performances will filter to youths in need of better wellbeing (due to lack of unemployment or underemployment) and it will be a good motivating factor for involvement.

5.2 Recommendations

1. This study therefore recommends that government and all stakeholders involved in youth development, empowerment and fish farming should devise greater and more wide reaching interventions targeted towards helping youths currently practicing fish farming and not just prospective youths.
2. This intervention should be targeted towards maximisation of their returns on investment, strategies on reducing high feed costs, poaching, flooding and accessing cheap credit sources
3. Youths currently involved in fish farming are encouraged to connect themselves to fish farming associations by becoming members, as this have potential of contributing to their wellbeing.
4. The level of education in this study had a significant effect on wellbeing, therefore youths are encouraged to regularly involve in fish farming related training as this will enhance their ability to deal with the dynamic nature of constraints faced in fish farming.
5. The result of this study showed that youths involved in fish in Southwestern Nigeria are mainly small scale fish producers and that the higher the level of involvement, the higher the wellbeing of youths. Therefore, it is recommended that quantity of fish stocked, number of fish ponds, cycle, number of labor should be rigorously targeted during intervention programmes for youths practicing fish farming.
6. To garner greater youth participation in fish farming, programme and project planners of all stakeholder bodies can exploit the highest ranking motivating factors in this study (genuine interest, good report about the profitability of fish farming and the attraction that fish farming has, as an alternative source of income).
7. The dominance of male over the female youths involved in fish farming should be tackled. Special intervention programmes aimed at female youths should be designed and implemented by various stake holders.
8. In order to encourage more youths into fish farming, government at state levels should have permanently established structures and processes for attracting and helping youths interested in fish farming to start off, such that awareness of this process and procedures will be an ongoing initiative for all time.

9. Agric extension agents can help young fish farmers by exposing them to modern and cheaper fish farming systems, feeding alternatives and cheaper credit sources.
10. Every initiative designed to encourage youths into fish farming should adequately provide for long term sustainability of the fish farms beyond the training and engagement period.
11. Media programmes displaying the success and progress of youths in fish farming can be embarked on to motivate genuine interest for other non-involved youths.
12. Extension officers should work with research institutes to disseminate new inventions in type of fish culture system that can be adopted to solve flooding issues
13. Youth focused and youth led roundtable discussions should be regularly held by stakeholders with youths in fish farming business to continually assess progress and emerging challenges
14. Since youths participated more in production aspect of farm management operations such as feeding, pond management and administering medications, intervention efforts can also be targeted towards boosting their capacity in this area.
15. Stakeholders should be actively involved in encouraging youths to join fish farming associations at all level as membership will positively impact their wellbeing.

15.4 Contribution to knowledge

The study contributed to knowledge by establishing the level of wellbeing of youths involved in fish farming in Southwestern, Nigeria. Youths involved in fish farming had a high level of wellbeing.

1. The study established factors motivating youth involvement in fish farming. Major factors discovered were the youths' desire to be self dependent and self employed. This will aid government and stakeholders to isolate factors to consider when designing programmes for increased agricultural productivity and youth development/empowerment.
2. The study was able to isolate the constraints faced by youths involved in fish farming. Major constraints were access to capital, high cost of feeding, high startup costs and flooding.
3. The study established the level of involvement (intensity) of youths in fish farming. Youths had a low level of involvement in terms of number of ponds, number of fishing cycles, quantity of fish stocked, years of involvement and number of labour

4. The study also contributed to knowledge by exposing the major benefits derived by youths in fish farming. They were self dependency, improved food security and improved savings.
5. The study contributed to knowledge by using both subjective and objective methods to measure wellbeing, thereby buttressing the literature on wellbeing and establishing empirical facts that situational comparisons yield better results.
6. The study was able to determine the perception of respondents about fish farming as a good career option for youths. Youths had a favourable perception of fish farming despite facing major constraints in the fish enterprise.
7. The study contributed to knowledge by assessing whether youths directed their youthful energies and passion into their business. Most youths participated more in production activities as against preproduction and post production activities
8. The study contributed to existing body of knowledge by exposing fish farming factors that affected the wellbeing of youths. The factors were income from fish farming, level of involvement in fish farming(intensity), constraints and factors motivating involvement in fish farming

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*A*PPENDIX

INTERVIEW SCHEDULE

UNIVERSITY OF IBADAN, IBADAN

DEPARTMENT OF AGRICULTURAL EXTENSION AND RURAL DEVELOPMENT

Dear Respondent,

I am a research student of Agricultural extension and Rural Development from the above mentioned institution. I am conducting a survey to examine the effect of involvement in fish farming on the wellbeing of youths in Southwestern Nigeria. All information you offer will be used mainly for academic purposes and responses provided will be kept strictly confidential. Please be assured your participation will not be revealed under any circumstances, neither will your name be printed or used in any report.

Kindly examine each item carefully and respond as accurately and sincerely as possible. Thanks you for your cooperation. Olufunke Samuel.

Respondents Details	
Farm location	
State where farm is situated	
Date of Survey	

A. Personal Characteristics

1. Age in years ( )
2. Sex: Male ( ), Female ( )
3. Religion: Christianity ( ) Islam ( ) Traditional ( ) others ( )
4. Marital status: Single ( ) Married ( ) Divorced ( ) Widowed ( )
5. Educational Status: No Formal Education ( ) Primary ( ) Secondary ( ) OND/NCE( ). HND/B.Sc./B.A ( ) Post- Graduate ( ) Others (Specify)
6. Household size – State actual number of members ( )
7. Do you belong to any fish farmers association? Yes [ ] No [ ]

8. If yes why? ----------
9. If No why? State reasons ----------

B. Enterprise Characteristics

10. Years of experience in fish farming? State actual years ( )

11. Number of fish ponds (**)**

12. How many fish cycles are you able to do per year**?**Please state actual number ( )

13. How many employees do you have**?** Please state actual number ( )

14. Do you receive advisory or any other agricultural support services from the Agricultural Development Programme (ADP)? Yes [ ]No [ ]

15. Type of fish pond:a. Earthen Pond ( ) b. Concrete Pond ( ) c. Fish cages ( ) d. Integrated fish system ( ) e. Recirculating systems ( )

16. Sources of capital?a. Donations from Friends and Family ( ) b. Personal Savings c. Bank Loans ( ) d. Loans from relatives ( ) e. Investors support ( )

17. Please state your Income from fish farming per cycle? ----------

18. Please state your income from fish farming per year ?----------

19. Scale of fish production

		Cycle 1	**Cycle 2**	**Cycle 3**	**Cycle 4**
	No of fish stocked				

20. Do you have any other sources of Income? Yes ( ) No ( )

21. If yes, please state other businesses you have and how much income you receive from it

	Other business	**Income per week**	**Income per month**
1			
2			
3			

~~**C.**~~

~~**D.**~~

Motivating Factors

22. Kindly tick from the options below which reason is applicable as motivating factor for getting involved in fish farming

S/N	STATEMENT	Agree	Uncertain	Disagree
1	I ventured into fish farming because I have genuine interest in fish farming			
2	I ventured into fish farming because I thought fish farming business is easy to start			
3	I ventured into fish farming because I heard it is profitable			
4	My relatives were involved in fish business, this influenced my decision to venture venturing into fish farming.			
5	Fish farming will allow me time to socialize and relate with other people			
6	I was fully convinced that fish farming is the business for me			
7	I saw fish farming as an opportunity to be my own boss			
8	I could not get a job, so I took up fish farming			
9	I had other options but I recognized a business opportunity			
10	I went into fish farming so as to be respected			
11	I saw it as an alternative source of income.			

E. Involvement in fish farm activities

23. Please indicate how frequently you are involved in listed fish activities by ticking the options listed below:

S/N	Fish farm Activities	Always involved	Sometimes Involved	Never Involved
	Pre-production			
	Input purchases			
	Specie selection			
	Liming of pond			
	Production Activities			
	Stocking			
	Fish Management			
	Feed production			
	Feed purchases			
	Feeding of fish			
	Medication			
.	Spawning			
.	Water management			
.	Fish Sampling			
.	Harvesting			
	Marketing			
.	Sourcing for markets			
.	Grading			
.	Weighing			
.				

.	Packaging			
.	Selling			

SN	Benefits of being a fish farmer	High	Moderate	low	Not a benefit
1	Alternative source of income				
2	Improved Confidence				
3	Access to market				
4	Self – dependency				
5	Financial freedom				
6	Access to healthcare				
7	Improved individual food security				

E. Benefits derived from fish farming

4. Kindly indicate if any of the under listed are benefits derived from fish farming

Please state any other benefits derived if not listed

SECTION TWO

This section aims to examine different aspects of the youth's wellbeing. Please tick and answer concisely and with sincerity.Thanks

24. Please answer the questions below as related to your physical and mental wellbeing; weekly (W), Fortnightly (F), Monthly (M), Quarterly (Q) and Never (N)

1. Physical and mental Wellbeing

	Physical and Mental Wellbeing statements	**W**	**F**	**M**	**Q**	**N**
Physical health	How often do you experience health problems that get in the way of normal activities on your fish farm?					
	How often do you have to depend on any medicinal substances and medical aids?					
	How often do you fall sick as a result of pressure from your farm??					
	How often do you get injuries from working on your fish farm?					
	How often do you visit the hospital as a result of sickness from your fish farm?					
Mental health and healthy behavior index	How often do you have difficulty remembering important things relating to fish farm management?					
	You usually demonstrate the ability to concentrate on key business issues for required hours necessary					
	How often do you undertake health checkups as a result medical conditions related to fish business					
	How often do you Engage in any type of sporting activities					
	Drinking alcoholic drink of any kind (beer, wine, spirits, liqueurs or other alcoholic beverages)					

26. Psychological wellbeing. SA means strongly agree, A means agree, U means uncertain, D means Dsagree and SD means strongly disagree

SN	Psychological wellbeing	SA	A	U	D	SD
1	I have clearly written and well defined goals for my fish farm					
2	I have achieved most of the goals I set for my fish farm in the last three years					
3	Most times I feel like a failure due to the problems I encounter in my fish business.					
4	Because I am involved in fish farming I do not have the confidence to speak in public					
5	My involvement in fish farming has given me the confidence to judge myself based on what I think is important and not by what other people think					
6	I feel easily intimidated when I am with other fish farmers					
7	I do not feel inferior to my colleagues who are not fish farmers					
8	My fish farm enables me to help others at least once a week					
9	I have improved my ability to balance my fish farm and other activities in terms of time					
	attend seminars and training on fish production or management at least twice a year					
	My involvement in fish farming has made me realize I need to further my education					
	I usually review my past mistakes in my fish business and act on learning from it					

25. Please indicate how much you spend on the items listed below on a monthly basis in Naira

S/N		Below 5000	5000-10000	10000-20000	20000-30000	30000-40000	Above 40000
1.	**Food**						
2.	**Shelter**						
3	**Clothing**						
4	**Dependents**						
5	**Debts**						

26. Please respond appropriately to the following questions relating to your social wellbeing

SN	Social Connections	Yes	No
1	Do you have anyone with whom you can discuss intimate and personal matters		
2	Do you have at least two people that you can count on in times of need		
3	You have received help from such people (or any others) in at least two out of four situations when you needed the help most.		
4	Can you rely on your local fish group for any form of support in times of need?		
5	Hangout with friends, colleagues and relatives at least twice a month		
6	Regularly get involved in work for voluntary or charitable organizations		
7	Belong to other social groups or associations apart from fish farmers groups		
8	Are you active in the fish association you belong to?		

29 Please tick any asset you have amongst those listed

	Sub - Components		**Do not have**	**Borrowed**	**Rented**	**I have**
Ii	**Asset**					
		Farm land				
		Farm building				
		Farm vehicle				
		Personal car				
		Bicycle				
		Computer				
		Generator				
		Personal house				

30 Please indicate how often you have difficulties with paying the underlisted**:**

	Always	**Occasionally.**	**Sometimes**
Children School fees			
Rent			

31. Please indicate which of these describe your bedroom arrangement. a. Have a bed room to myself ( ) b. share bedrooms with one person ( ) c. share bedrooms with more than one person ( )

32. Please indicate which of these describe the toilet facilities available in your house. a. pit latrine ( ) b. Water System( ) c. no toilet ( )

33. Please indicate which of these describe the house you live ? Face me I face you ( ), One bedroom apartment (.), Two Bedroom Flat (.)

27. Which option best describes your access to the under listed life essentials VA = Very Accessible, A = Accessible, MA= moderately accessible, and NA= not accessible

A	Access to clean water	**VA**	**A**	**MA**	**NA**
B	Access to healthcare				
C	Access to prescribed drug				
D	Access to internet				
E	Access to electricity				
F	Access to food				
G	Access to good Housing				

28. Please indicate how satisfied you are with aspects of your wellbeing. CD = Completely Dissatisfied, D = Dissatisfied, NS/DS = Neither Satisfied or dissatisfied, S= Satisfied, CS = Completely Satisfied.

		CD	**D**	**NS/DS**	**S**	**CS**
	How satisfied are you with your physical environment					

	How satisfied are you with the number of meals you take per day					
	How satisfied are you with the quality of your meals?					
	How satisfied are you with income from fish farming activities					
	How satisfied are you with your physical health?					
	How satisfied are you with your ability to meet basic needs?					
	How satisfied are you with your psychological state?					
	How satisfied are you with physical safety?					
	How satisfied are you with your social relationships					
.	How satisfied are you with your access to internet?					
.	How satisfied are you with your access to electricity?					
.	How satisfied are you with the fish farming business?					
.	How satisfied are you with the number of hours available for your sleep?					

29. Please indicate how you feel about fish farming as a career option for you

S/N	Statement	Agree	Uncertain	Disagree
	I feel fish farming is very rewarding.			
	I think I would have fared better financially as a government employee than as a fish farmer			
	If I had not been a fish farmer, it would have been very difficult for me to attain my current status			
	I believe government has good intentions for the fish business in the nearest future			
	I do not think my involvement in the fish farming can make me become relevant either locally or globally			
	I do not think that fish farming has much career prospects for me			
	I feel fish enterprises should be promoted amongst Nigerian youths as a means of entrepreneurship			
	Fish entrepreneurs are not well recognized and respected in the society			
	Fish business presents me the opportunity for personal growth and development that I have always wanted			
	I cannot confidently introduce my loved ones to engage in the fish enterprise			

30. Please indicate if any of the under listed are constraints faced by youths involved in fish business

S/N		NOT A CONSTRAINT	MINOR CONSTRAINT	MAJOR CONSTRAINT
	Lack of Technical know-how			
	Inadequate access to credit/capital			
	Inadequate access to Land			
	Inadequate access to information			
	Inadequate access to Markets			
	Prevalence of diseases			
	Prevalence of pests			
	Flooding			
	High costs of feed			
.	Poaching			
.	High cost of medications			
.	Labour availability			
.	Transportation costs			