

Analysis of Worth Assessment, Access Points and Credibility of Information Sources Used by
Artisanal Fish Farmers in Selected Coastal States of Nigeria

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Agriculture (Extension)*, at the North-West University

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DECLARATION

I Gbarabe Roland, declare that the thesis entitled “Analysis of worth assessment, access points and credibility of information sources used by artisanal fish farmers in selected coastal states of Nigeria” hereby submitted for the Degree of Doctor of Philosophy in Agricultural Extension has not previously been submitted by me for a degree at the North-West University or any other University. I further declare that it is my own work in design and execution and that all material contain in it that do not belong to me were acknowledged.

Gbarabe Roland

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LIST OF ACRONYMS

FAO	Food and Agriculture Organization
ICT	Information Communication Technology
AKIS/RD	Agriculture Knowledge and Information System/Rural Development
NAERLS	National Agricultural Extension and Research Liaison Service
PC	Personal Computer
MPH	Mile per Hour
UGC	User Generated Content
TV	Television
RH	Representative Heuristic
IPS	Inter Press Service
CBN	Central Bank of Nigeria
FIGIS	Fisheries Global Information System
GDP	Gross Domestic Product
MRC	Management Review Council
IAA	Integrated Aquaculture Agriculture
LIFDC	Low Income Food Deficiency commission
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
TEK	Traditional Ecological Knowledge
UNU-INWEH	United Nations Think Tank on Water
IAK	I Already Know
ELM	Elaboration Likelihood Model

PRSA	Public Relations Society of America
NEPAD	New Partnership for Africa's Development
VOC	Value of Clairvoyance
ADP	Agricultural Development Projects
USAID	United States Agency for International Development.

ABSTRACT

Information sources play a vital role in improvement of artisanal fish farming. However, the different sources of information do not receive equal attention by artisanal fishers, and, as a result a study on the worth assessment, access points and credibility of information sources used by artisanal fish farmers was conducted. This study was carried out in the coastal States of Nigeria, which included, Bayelsa, Rivers and Akwa Ibom states, which are in Nigeria in West Africa. The data for the study gathered were from primary sources using structured questionnaire. The data gathered were analyzed using descriptive and inferential statistics. The findings indicates that the majority of artisanal fish farmers were male (79.90%). A high proportion of artisanal fish farmers fall within the age bracket of 41 – 50 years (43%). This shows that artisanal fish farmers are predominantly young people. Majority (88%) of the artisanal fish farmers had one form of education or the other. This background of artisanal fishers affected information accessibility. Majority of artisanal fish farmers 243 (55%) earn monthly income between 11,000 Naira – 50,000 Naira. Artisanal fish farmers need information in nearly all the areas. Coastal artisanal fish farmer's information was highly motivated by farmer's groups, television, neighbor farmers, co-operatives, use of cell phones, extension agents, church meetings, input dealers, output buyers, credit agencies and friends who were regular and relevant. Some of the constraints associated with information dissemination included long distance to source of information, language barrier between artisans and information sources, cost of acquiring access points, technical languages of information by experts, unreliable nature of electricity for use of television, cell phones and laptops, and lack of libraries of access points in the fishing settlements. Illiteracy of artisanal fish farmers, shortage of extension workers, and distortion due to interpretation by interpreters, epileptic cell phone mobile network situation, and obtaining it was an expensive logistical problem, while some are abroad and expensive to reach. The regression analysis revealed that there is a significant relationship between the socio-economic characteristics of artisanal fish farmers and their information worth assessment. It also shows that there is a significant relationship between the socio-economic characteristics of artisanal fish farmers and the information access points.

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CHAPTER 1

INTRODUCTION

Despite numerous information sources with regard to fishing among artisanal fish farmers in the coastal states of Nigeria, the level of production for artisanal fish farmers is still low, culminating in capital flight due to huge importation of fish and fish products. It is therefore imperative to investigate the relationship between the socio-economic characteristics of artisanal fish farmers and information worth, as well as information access points.

This chapter presents an introduction, background to the study, the problem statement, research questions, objectives and hypotheses of the study. The chapter also highlights the significance of the study, its scope, limitations and the chapter summary.

1.1 Background to the study

The backbone of Africa's economy is agriculture. According to Dulle & Ngalapa (2014), 70 to 80% of Africa's poor people live in and around rural areas that are sustained by doing agribusiness. Simon & Kereke (2013) and FAO (2010) highlight that millions of people depend on fisheries as part of agriculture for a living in Nigeria. It is a source of employment. Fishery activities in Nigeria are executed through two main methods: artisanal or capture fishery and fish farming or aquaculture.

Artisanal fishery covers the operation of small-scale canoes, fisheries operating in the seaside territories, springs, tidal ponds, rivers, streams, lakes, inshore water and inland rivers by small-scale fishermen using both traditional and modern fishing gear (Bolarinwa, 2014; Okeowo, Bolarinwa & Dauda 2015). Artisanal fishery is the most important in Nigeria and accounts for 82% to 85% of her domestic fishery production and giving livelihood to one million artisans and 5.8million fisher folks in the secondary sector (Faturoti, 2010; Akinwumi, Akinwumi & Ogundahunsi, 2011, Simon et al., 2013). The majority of these people are small-scale artisanal fish farmers eking out a living from coastal and inshore resources. High quality fisheries are small-scale farmers for subsistence, little markets, largely utilizing customary angling methods and small canoes. They are found all over the world and are crucial to employment and food security.

The objective of artisanal fishing is local consumption as it is often an important source of inexpensive and accessible protein around coastal areas. Bolarinwa (2014); Okeowo et al., (2015) and Annune (2012), identified artisanal fish farmers as characterized by labour intensiveness, low

productivity, low income, low technology and lack of skillful techniques. Artisanal fishermen also make use of fishing nets of various sizes, hooks and lines, dugout canoes, boats and they have access to little information, which in most cases is not relevant to their trade and livelihood.

However, if increased production is to be achieved, artisanal fish farmers will need to keep abreast with information on current practices of fishing that are disseminated through various sources. Information dissemination is a significant tool for promoting national development and artisanal fish farmers can only make progress, increase production when essential information on fisheries is disseminated through the appropriate channels.

According to Ifukor (2013), information aids decision-making. He further states that information is any communication seen or perused that adds to learning, comprehension, or deals with issues that get societies ready for the challenges of life.

Information includes records vital to a client, while data alludes to crude unevaluated facts, figures, signs, events and items (Osikabor, Oladele & Ogunlade, 2011). It plays a vital role in agricultural development and production and its effective dissemination facilitates mutual understanding among farmers, scientists and extension workers (Ogola, 2015). Information is a significant element in the development of human society and shapes the way in which we think and act (Meyer, 2005). It is crucial for increasing agricultural production, improving marketing and distribution strategies (Oladele, 2006). Information also opens windows for best practices, sources of financial aid and new markets. In sum, information enables farmers to make informed decisions regarding production, marketing, and managing their lives and coping with everyday problems (Matovelo, 2008; Idiegbeyan-ose, Jerome & Theresa, 2009). Aina et al (1995), recognizes that information plays a vital part in improving and sustaining the agricultural production of any country. In addition, Ochieng (1999) asserts that access to information empowers individuals to make informed decisions with regards community development. Durutan (1999) supports these views and further states that agricultural producers already know that information is valuable and all they need is timeous access in order to improve agricultural production. According to Camble (1994) and Sturges & Neill (1990), lack of adequate and relevant information negatively affects any development process, including agriculture. Ferris, (2005) adds that access to accurate, timely and appropriate information enables farmers to make better decisions about what to produce, when to produce and where to sell the produce than those who do not have such information. Similarly, Byamugisha et al., (2008) note that using current agricultural information improves adoption of

farming techniques and knowledge of when to use manure or fertilizer, how to treat diseases and what crops to plant.

Okoedo-Okojie (2015) conducted an investigation that clarified that every system that initiates and enhances novel practices needs to disseminate such information to the general population, and support sustainable enterprises. Learning and data are basic elements for expanded farming.

To accelerate the pace at which information reaches artisanal fish farmers, several approaches have been used with the anticipation that these and technical information packages will be suitable to fish farmers. Mtega & Benard (2013), in their study, recognized inconsistent data framework, lack of reading and writing ability, miserable income, and absence of power and overwhelming expense of information communication technology (ICT) as factors that have constrained access to data benefits in rural hinterlands. Osikabor et al., (2011) identify the attributes of good information as relevance (the significance of the information), timeliness (the rightness of the information), and credibility (the integrity and exactness of the information). Others are cost-effectiveness (cheap but valuable source of information), consistency (the steadiness of the information), accessibility (the user-friendliness of the information) and usability (the ease with which the information is put to use). All these attributes lead to improved decision-making (Ogola, 2015; Osikabor et al., 2011).

The success of these attributes depends on the information access points. These information access points are the channels through which information is communicated to artisanal fish farmers. According to Mtega & Benard (2013), the sources of information dissemination farmers employ to access farm-related information were daily papers, diaries, announcements, extension specialists, companions, as well as radio and farmer groups. Furthermore, relatives, neighbour ranchers, extension administrators, input suppliers and broad communication were key wellsprings of data for agriculturists. Ogboma (2010) adds that the wellsprings of data utilized by artisanal ranchers were close to home involvement, workshops and seminars, companions and neighbours, Ministry of Farming, agribusiness magazines, extension officers, government officers, non-governmental organizations, horticulture libraries and blurbs.

However, the information disseminated through the information access points depends on the information needs of fish farmers. Artisanal fishermen need constant information to improve on fish production. Information needed in this situation entails learning new ideas or valuable specifics. Dooga (2010) shows that information is purposive in nature and this is a consequence of the need to fulfill specific objectives. In a similar vein, Dulle, Benard & Ngalapa (2014)

demonstrate that data becomes useful to an individual craving to find patterns and themes in the data. They maintain that information and needs are inseparable. In addition, Annune (2012) maintains that need entails what a person ought to have, , that which one cannot do without and that which is necessary for the wellbeing of the individual. He further identifies the following as some of the information needed by artisanal fish farmers: where to obtain loans, how to market fish, fish processing and storage. They need to know where to access modern fishing facilities, new methods of catching fish, organisation of fishery cooperatives. In addition, and most importantly, they need to navigate the reality of middlemen exploitation, Artisanal fishermen also need to acquire fishing tools at cheap rates, inasmuch as they need to understand the effects of water pollution and bad fishing practices.

Similarly, the worth of the information determines the information needs of artisanal fish farmers. Information that does not address the issue of farmers becomes marginal and is scored low on the value scale. The worth of the information is a subjective value, which is the impression of the artisans' total feeling of data and the sum the farmers are prepared to part with for a particular set of data at a given time. Information bolsters choices, choices trigger activities and activities influence the execution of the framework (Osikabor et al., 2011). Meanwhile, the source carrying such information must be credible. Kakade (2013) defines credibility as the degree of trustworthiness and mastery given to data at any particular time; and notes that believability of a source is flexible and not settled and that it is adaptable, with the difference in time and place.

Therefore, relevant information acquired and utilized by artisanal fish farmers enables them to increase their perception, expand their horizons, enhance competence, enlarge their sense of perspective and above all, increase their production. Artisanal fishery is one of the sub-sectors of agriculture carried out in coastal states and inland waters of Nigeria. In essence, artisanal fishermen who supply fish for domestic consumption primarily utilize Nigeria's inland water bodies for fishing. They are primarily illiterate people, young and old between the ages of 10-60 years in rural communities with a lot of fishing experiences. They have little or no basic education. In addition, Bolarinwa (2014) maintains that artisanal fishing is labour intensive, low productivity, low income, low technology and lack of skilful techniques. Artisanal fish farmers make use of fishing nets of various sizes, hooks and lines, dugout canoes and boats and have access to little information, which in most cases is not so relevant (Annune, 2012).

The worth of the information, therefore, becomes very important, as it is the reason for the artisanal fish farmers' preference for the access points to needful information. Detwarasiti (2005) confirms information worth as the amount the farmer is willing to pay for information prior to making a choice. Artisanal fish farmers attribute the worthiness of the information to its timeliness, adequacy and relevance at the information access points. The artisanal fish farmer's preference for the worthiness of the access points arises from the accessibility of information, the regularity of such technology, relevance of the technology and persistence of the technology. These attributes strengthen the credibility of the information sources to the artisanal fish farmers.

1.2 Statement of problem

Over the years, concerns on the level of fish production have increased in Nigeria. These concerns are linked to the need to enhance national development and food security in line with the Millennium Development Goals (MDGs), especially Goal 1 of eradicating food security problem by 2030. Information dissemination contributes to advancing national development. Artisanal fish farmers in many developing nations, most particularly in Nigeria, have restricted access to data and this is a major limitation to fish farming (Ogboma, 2010).

According to Lwoga, Stilwell & Ngulube (2011) information flow to farmers is a very important factor in developing fish production as well as helping fish farmers in the coastal areas of Tanzania to become updated about new fishing technologies and innovations. Annune (2012) maintains that the use of information by fish farmers could enhance fishing productivity through providing information on climate change; modern practices in fish farming; and timely access to market information. All this helps fish farmers to make correct decisions on how to sell their product and buy inputs. For this information to reach fish farmers, all depends on information sources, which are relevant, cost-effective and exhaustive. This gap could be filled by improving access to more information. There is need to urge fish farmers to get to and utilize more information to expand efficiency. Yet, previous studies (Annune 2012; Dulle et al 2014; Ijatuyi. 2016; Ogboma, 2010;) focus on information needs, information sources rather than analysis of the worth of information, access points and credibility of information sources.

Despite increasing availability of information sources, fish production lags behind considerably, resulting in fish farmers' low income, poor economy in fishing communities, fish shortage and capital flight due to fish importation (Annune & Ogbe 2000). Fishery contribution to Gross Domestic Product (GDP) is about 0.46% in 2013 (CBN 2013).

In light of the above, the Millennium Development Goal 1 of food security by 2030 will not be achieved. Previous studies (Annune 2012; Dulle et al 2014; Ijatuyi 2016; Ogboma 2010; Udoh & Philip 2011) examining artisanal fishing focused more on information needs, information sources rather than information worth, access points worth and credibility of information sources. The present study is unique in that it closes this lacuna by addressing the access points worth, information worth and credibility of the information sources used by artisanal fish farmers.

Although there are a few studies (Annune 2012; Dulle et al 2014; Ijatuyi 2016; and Ogboma 2010) in Nigeria on artisanal fish farmers, the studies are on a small scale. This present study closes the aforementioned gaps by focusing on a larger scale and sample size in Nigeria. Findings from this study therefore are more generalizable.

Only a limited number of studies have focused on addressing worth assessment, access points and credibility of information sources used by artisanal fish farmers. The present study becomes necessary and timely because sustaining engagement in fish farming is important, especially in the face of recent challenges facing the fishery sector in the coastal areas of Nigeria. The findings from the study inform policy makers and provide better understanding on the worth of the information and its access points for the artisanal fish farmers in the coastal areas of Nigeria.

1.3 Research questions

The research questions of this study were:

1. What is the influence of socio-economic characteristics of artisanal fish farmers on information worth assessment in the study area?
2. What is the relationship between socio-economic characteristics of artisanal fish farmers and information access points in the study area?
3. What factors influence the use of information access points by fish farmers in the study area?
4. What factors determine the credibility of information sources used by artisanal fish farmers in the study area?
5. What constraints are associated with access points, information worth assessment and credibility of information sources used by artisanal fish farmers in the study area?

1.4 Research objectives

The research objectives of this study consist of general and specific objectives.

1.4.1 General objective

The general objective of this study is the analysis of worth assessment, access points and credibility of information sources used by artisanal fish farmers in selected coastal states ((Bayelsa, Rivers and Akwa Ibom States) of Nigeria.

1.4.2 Specific objectives

The specific objectives of this study were designed to:

1. Determine the influence of socio-economic characteristics of artisanal fish farmers on information worth assessment in the study area.
2. Determine the relationship between socio-economic characteristics of artisanal fish farmers and information access points in the study area.
3. Identify the factors that influence the use of information access points by artisanal fish farmers in the study area.
4. Identify the factors that determine the credibility of information sources used by artisanal fish farmers in the study area.
5. Ascertain the constraints associated with information worth assessment, access points and credibility of information sources used by artisanal fish farmers in the study area.

1.5 Hypotheses

H₀₁: There is no significant relationship between the socio-economic characteristics of the respondents and their information worth assessment.

H₀₂: There is no significant relationship between the socio-economic characteristics of the respondents and their information access points.

1.6 Significance of the study

This research is important to government, national fishery policy makers, the public, information agents and artisanal fish farmers and researchers.

The study is relevant to the Government of Nigeria as it clarifies the literacy levels of artisanal fish farmers so that nomadic teachers are organized to establish adult education centers in these fishing communities. This is expected to improve artisanal fishermen's educational background and

achieving one of the goals of national policy on education. In addition, the study assists the government in identifying the information needs of artisanal fish farmers in order to liaise with information agents for effective information dissemination.

The study adds to the archive of research-based data available to the government as it exposes various methods through which information is disseminated to the artisanal fishermen and the need to improve on them, to ensure higher productivity. The study contributes to the National Fisheries policy formulation and development of fishermen`s knowledge for higher productivity. In addition, this study examines the public activities carried out by information agents in the fishing communities. In fact, it serves as a report of activities of information agents in the study area, noting the areas that call for synergies in the effective dissemination of information. The study highlights for the general public challenges that are associated with dissemination of agricultural information to artisanal fishermen. It highlights the information types that are counterproductive as well as factors affecting credibility of information sources. The suggestions made, if adopted, help in reducing the constraints faced by artisanal fishermen and increase fish production in the country.

It is important to information agents as it exposes the information needs of artisanal fishermen, thereby, helping them to acquire information materials based on their needs. The information needs of artisanal fishermen are discussed with information agents that may help in the dissemination of relevant and current information. The study benefits information agents as it identifies various methods of information available to artisanal fishermen in order to adopt the most effective ones for easy information dissemination.

This study enlightens fishermen about the availability of different methods of accessing information, to improve, utilize and enhance fish production in the coastal states of Nigeria. It is also important to researchers, as it is a starting point for future investigation on the artisanal fishery sector. It generates relevant and current literature in the field of information dissemination for researchers.

1.7 Scope and limitations of the study

This study was restricted to the artisanal fish farmers in rural communities concerning the three states, twelve local government areas, comprising major fishing communities in the three selected

coastal states of Nigeria. It emphasises socio-economic characteristics of artisanal fish farmers, their information needs, methods through which agricultural information is disseminated, factors affecting credibility of information sources, challenges associated with agricultural information dissemination. Ultimately, the study suggests ways for enhancing agricultural information dissemination to artisanal fish farmers.

This study was limited to data collected from twelve (12) local government areas of three (3) states in the coastal part of Nigeria due to lack of funds. In essence, generalisation of the findings could have been obtained if this study had covered other coastal states of Nigeria. Another limitation was inaccessible roads into the interior terrain of the fishing communities, which required a lot of trekking.

1.8 Definition of terms

The following are the terms used in the study and their operational meanings are therefore, provided:

1. Artisanal fish farmers are small-scale farmers fishing for subsistence or local, small markets, generally using traditional fishing techniques and small boats. It occurs around the world, particularly in developing nations, and is vital to livelihoods and food security.
2. Information and communication technologies refer to a range of communication technologies for delivering information.
3. Adoption refers to the artisanal fish farmer's decision to apply new techniques or technologies.
4. Innovation is a practice perceived as new by artisanal fish farmers.
5. Agricultural extension personnel refer to the government or Ministry of Agriculture staff responsible for helping farmers with vital information, technology and other services in order to increase production.
6. Communication is the exchange of information through verbal or non-verbal means.
7. Credibility refers to the reliability and usability of the information to achieve a desired aim.
8. Pluralism is the utilization of information from different sources, denoting diversity of views and stands rather than a single approach or method.
9. Access points are the various channels used in disseminating information to artisanal fish farmers.

10. The worth of information is the value the artisanal fish farmers place on the information in making their choice on information source.
11. Access points are the various sources or channels through which information is disseminated to the artisanal fish farmers.
12. Worthiness - having adequate merit.
13. Trustworthiness is a moral value of virtue.

1.9 Chapter summary

The chapter outlined the different sections included in this chapter. The background to the study examines the importance of the fishery sector in agriculture, the role of information, role of various information sources. The chapter outlined the credibility of information and how this enhances increased fish production in the coastal states of Nigeria. The chapter provides a background to the study and examines the various information sources and their credibility in terms of the worthiness of such information sources about artisanal fish farmers' productivity. In this chapter, the meaning of information and its importance were also examined. It discussed the characteristics of good information, which include timeliness, relevance, credibility, cost effectiveness, consistency, accuracy, accessibility and usability. The chapter also discussed the information needs of artisanal fish farmers emphasizing the artisanal fish farmer with different information needs.

The chapter delineated the problem statement, the research questions, hypotheses, its objectives and significance of the study. The chapter defined some operational terms as used in this research.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Literature review is an important aspect of the research process. It provides information on recent trends and findings relating to the topic under consideration and facilitates the best approach for the study. This chapter reviews both national and international literature on artisanal fish farmers' agricultural information. The literature is discussed under the following headings: demographic characteristics of artisans, agricultural information, characteristics of good information, access points and worth of information, and constraints faced by fish farmers in accessing information, importance of artisanal fishery sector. The chapter further discusses the sources of agricultural information, agricultural information needs of artisanal fish farmers and information accessibility.

2.2 Demographic characteristics of artisanal fish farmers

Artisanal fish farmers are classified according to sex, age, household size, education and personal experience. Adesehinwa & Bolorunduro (2007) states that fishing is not an exclusively male occupation, although males are the most dominant group with experience of, at least, 1-10years. They further emphasize that the active age group of artisanal fish farmers in Lagos and Rivers State ranges from 31to 50 years with the dominant household of 6-10 members and have their primary, secondary school or tertiary education. Adeokun, Adereke & Opele (2006) maintain that artisanal fishermen are mostly men between 20-30 years who are still active and physically fit to paddle the canoes.

Artisanal fish farmers commonly have over fifteen years of fishing experience, married in Nigerian rural communities and the majority of them have both primary and secondary education. Information dissemination by extension agents through leaflets, pamphlets and other print media might have an impact in improving fishing activities in the area of study since almost all the fish farmers can read and write. Anyanwu, Mkpado & Ohaka (2009) and Onemolease & Oriakhi (2011) advance that fishing is exclusively male occupation, but the youth also participate least actively in fish production. They further assert that artisanal fish farmers in Onitsha North Local Government

have one level of education or another, with maximum household of 4-6 children and specialized in fishing.

In addition, Udoh & Nyienakuma (2008) assert that most people who engaged in fishing are male while females involve in other segment of the industry like processing and marketing. Large household size of fishers offers free and cheap labour for the family, most of the artisanal fish farmers have no formal education, engaged in early marriage and fishermen with long working experience have good skills and better approaches to fishing operations. They further assert that, through their experience, they were able to read the weather, water current and forecast market situation for their products. Adeokun et al (2006) have it that artisanal fishermen claimed they normally operate only under fair weather conditions.

Lawal (2002) advocates that majority of these fishermen have, at most, school leaving certificates and are aged between 21 and 50 years. In line with this, Yaro & Gana (2004), who carried out studies in Doko local government of Niger State, concludes that artisanal fishermen have primary and secondary education. They further state that, at least, members of this group could read and write in English, Hausa and Arabic. In addition, Anyanwu, Mkpado, & Ohaka (2009) state that artisanal fishermen in Nigeria total about half a million and approximately 42 percent of them are part-time fishermen who also engage in other economic activities, such as crop farming and tailoring. This indicates that some artisanal fishermen are full-time fishermen. In line with this, Weir (1987) maintains that there are about 15 million traditional small-scale fishermen in the third world, with half of them perhaps fishing on full-time basis. Also, Udoh & Philip (2011) observe that women were increasingly involved in fishing, but primarily as traders and fish processors involved in salting, smoking and drying.

On the other hand, Eyo (1992) states that artisanal fishermen operate mainly in family units. In line with this, Adeokun et al (2006) asserts that at 25 years and above, most rural people are married in most Nigerian communities. This implies that people in the active age group are engaged in fishing activities to generate income for the family. In addition, Annune & Ogbe (2000) advance that fishermen constitute the bulk of illiterate, poorest and most disadvantaged communities. The fishermen as well as fishing communities are sparse and not organised, making it difficult for the government to respond effectively to their needs. It is evidently clear that most

of these fishermen lack information on how to improve on their conditions of living and, therefore, wallow in abject poverty.

There are certain characteristics that are common to nearly all kinds of rural communities. One of these, according to Ojo (2008), is that they are thinly populated, with less than one thousand people in some localities with large families. The major characteristics are illiteracy, high birth and death rates. These are often the result of unhygienic living and superstition, and lack of basic amenities and infrastructure such as good houses, good roads, good hospitals, potable water, electricity and quality education. Fishing is a principal occupation for the uneducated people in the rural areas. Furthermore, Ojo (2008) distinguished, at least, five types of rural communities as follows: the town country community with farms scattered about a village centre; the open country community without any village centre, the village community whose sub-types includes the fishing villages and the mining village. Others include the mill village and the line village with farm homes built along the road at the end of long, narrow farms. These communities are subsistence rather than a market economy. They are highly superstitious. In addition, Aninweze (2004) states that common features, such as poverty, inequality, economic backwardness, poor housing, inadequate services, lack of communication facilities characterise rural dwellers. They lack libraries and live with inadequate extension services.

Apart from fishing, there are other activities that the fishermen participate in like farming various crops, which serve as other sources of income. Research shows that, among countries in the developing world, the people in the fishing sector are some of the poorest and most neglected (World Fish 2000). Similarly, Ayande & Tafida (2004) assert that artisanal fishermen live on the margins of lakes and river valleys far from social, educational and health facilities. This isolation is aggravated by declining fish stock and the high-risk nature of the activity. These groups of people are considered disadvantaged due to the isolation of their fishing communities. Fisheries are a sub-sector of agriculture that is operated as a small-scale enterprise by artisanal fishermen who acquire this practice through either traditional or their environmental terrain. The predominant craft used in artisanal fisheries are dugout and wooden plank canoes or a combination of both (Mabwaonuku, 1993).

These artisanal fishermen are characterized, according to Dada (2004), by intensive labour, low capital investment and low productivity. They also have low level of technology with relatively

low capital investment and smallholdings, resulting in low catch per unit effort. Tobor (1990) describes the characteristics of artisanal fishermen to include low capital layout, low operational costs, low technology application, labour intensive, with poor fish distributing network, low revenue as well as poor processing methods and high post-harvest losses which represents 35-40% landed weight. Also, Achagh-Hyande (2005) affirms that fishing communities are isolated both geographically, socially and the standard of living of these fishing households is low.

The process of catching fish is undertaken at a minimal level, that is, skillful techniques are not employed. Majority of the artisanal fishermen utilise low cost craft, lack a market for their products, and lack inputs, credit facilities and other social amenities and vital infrastructures (Kehinde & Awotunde, 2004). They wallow in poverty due to lack of improved technological tools for fishing. Food and Agricultural Organization (FAO 1991) opines that artisanal fishery is identified by low technology, lack of modern equipment, low fund to expand and, thus, makes the bulk of fisher folks' operation labour-intensive with little or no opportunities to expand. Coastal artisanal fishery sector of Nigeria is scattered among numerous large and small fishing settlements. Majority of these settlements are characterized by their remoteness, are cut off from the main national roadway system, and have to be approached by either boat or trekking several kilometres from the nearest road head. They further maintain that they use wooden canoes of various sizes. It is labour intensive because of the limited capabilities of the craft and gear which results in low productivity. Traditional marketing channels that are dominated by fish mums who are often wives or mothers of fishermen (Gnanadoss & Aderounmu, 2001) handle the sector.

Nazca (2010) observes that this sector is characterized by low level of technology, sometimes paired with low level of organization and industrialization, conserved traditional practices. It makes up to 133 metric tons of the world's total catch. Wikipedia (2010) states that coastal fishing villages are often isolated and sited around a small natural harbour, which provides safe haven for a village fleet of fishing boats. In addition, they are characterized by nets of various sizes, hook and lines that are operated from dugout canoes. Despite the circumstances surrounding the artisanal fishery, its importance is indisputable.

2.3 Agricultural information

Information is a vital resource that farmers need to cope with changes in production environment. It enhances skills and efficiency of production. Human beings express diversified information

needs in their day-to-day activities. Reitz (2010) defines information need as a gap in a person's knowledge that, when experienced at the conscious level as a question, gives rise to a search for an answer. After identification of information needs, the information user embarks on a search for information.

Access to and usage of information are necessary for improving rural people's livelihood (Etebu 2009). Despite its key role in socio-economic development, very few people in developing countries have access to adequate information. Haki Elimu (2005) describes lack of information as one of the major problems facing people in Kilosa District of Morogoro Region in Tanzania. In most cases, information provision in rural areas takes place through socio-economic development projects; however, developers do not view information provision as their first priority (Meyer & Boon, 2003).

Information is facts or knowledge obtained or learned from research and/or research (Smith, 2001). These are the facts or knowledge people face in their daily lives to answer questions. The types of information required vary from common physiological information to individual psychological information. Everyone needs information for decision-making. In development contexts, information needs are closely linked to work, the level of socio-economic development and the local agro-ecological conditions, according to Lwoga et al, (2010). The rural poor's information needs are closely related to their jobs and basic survival goals. Although physiological needs generate basic and frequently shared information requirements, individual needs vary between individuals. A number of factors, including social, cultural and economic reality, needs can affect such personal information. Other factors, such as age, educational level, gender and income of the information seeker may also influence information needs. Lwoga et al. (2011) noted that, in terms of demographic, social, cultural and economic factors, rural information needs are distinct. Identifying information requirements is the first step to meet information needs.

An information-seeking process involves a number of further steps, including identifying information sources, consulting the sources and accessing information. Information is seen to be a significant resource in the day-to-day lives of human beings. Mtega & Benard (2013), in their study, describe information to play a significant role in decision-making process, thus making it the lifeblood of any society and important for successful developmental activities.

The role information plays in improving agricultural development cannot be overemphasized. Bachhav (2012), in his study, confirmed that the use of information in the agricultural sector is enhancing farm productivity in various ways, such as information on weather trends, best practices in farming, regular access to market information and where to sell and buy products and inputs. In their studies, Babu et al. (2011), Adeogun et al. (2010) and Dulle et al. (2014) confirmed that knowledge of farmers' agricultural information needs and sources could help guide extension and other agricultural programs to better target specific groups of farmers. Countless research shows that the problem of fish farmers is access to information; and that, even with the advent of information technology which has succeeded in eliminating bottlenecks in information dissemination, constraints to access to information are still a real experience (Mahapatra, 2012; Osikabor et al., 2011).

Agriculture is regarded as the engine of development in most developing countries and agricultural information is a major tool for the development of small-scale farmers as it contributes to the livelihood of people both in urban and rural areas (Benardet al., 2015). Information needs of artisanal fish farmers would include technology and technical information, commercial and marketing information, finance and investment opportunities and legal information and regulations. Agbamu (2006) classified agricultural information into four categories, namely: technical, commercial, socio-cultural and legal information. He defined agricultural information as all published and unpublished knowledge on all aspects of agriculture. Ofuoku et al., (2008) states that information opens windows for sharing experiences, best practices, sources of financial aid and new markets. He emphasized that information is a power to which every individual should have access.

Information is an indispensable factor in the practice of farming and it is the basis of extension service delivery. Oladele (2006) states that information is vital for increasing production and improving marketing and distribution strategies. The enhancement of local fish production can be achieved by improving capacity in terms of enhancing access to information, which can be achieved through enhanced information-seeking behavior by the use of information communication technologies (Akinbile & Alabi, 2010). Information can be said to be knowledge based on facts, which arise because of generated data or experience. Aina (1995) defined information as the data for decision-making. It is a resource that must be acquired and used in

order to make an informed decision. Those who possess appropriate and timely information are likely to make a more rational decision than those without information.

Fish farmers need to have access to information to improve productivity. The National Agricultural Development and Research Liaison Services (NAERLS) and its related information centers provide agricultural information (Ekoja.2003). The various agricultural research institutes and schools of agriculture in universities, federal and state ministries of agriculture are also other sources of agricultural information (Adomi, Ogbomo & Inoni. 2003). Oladele (2006) Fish farmers in Nigeria are faced with the greatest challenge of the fact that literature is replete with poor access to agricultural information. Despite the great progress in information technology and dissemination, this constraint persisted.

2.4 Characteristics of good information

The properties of good information refer to attributes that give meaning to the recipient of the information. Ijatuyi (2016) states that information is classified into four categories, as technical, business, social and cultural, and that such information should be accurate, up-to-date and relevant. Osikabor et al., (2011) and Dulle et al., (2014) have indicated that relevance, timeliness, precision, efficiency, reliability, usability, completeness of data and the level of consolidation are the qualities of good information. Relevant data lead to better decision-making. They are not relevant if it does not concern your problem. The key aspects of the concept of relevance are: the value of information and its place in decision-making. Furthermore, information includes processed data that are useful for a user. These data are placed in a meaningful and useful environment and communicated to the beneficiary who uses them for decision-making (Dulle & Ngalapa, 2014; Osikabor et al., 2011). The communication and acceptance of intelligence or knowledge includes information. The information will evaluate, advice, shock and empower, decrease vulnerability, detect additional options or help dispose of unimportant or poor options. In addition, information should include data prepared and relevant to a customer. It is data that have been put into a meaningful and useful context and communicated to a recipient who uses them to make decisions, (Dulle & Ngalapa, 2014; Osikabor et al., 2011). Information involves the communication and reception of intelligence or knowledge. Information will help to appraise, notify, surprise and stimulate, reduce uncertainty, reveal additional alternatives or help eliminate irrelevant or poor ones and also influence individuals and stimulate them to action. Experience and research show that there are many qualities of good information. Great and accurate information is sufficiently

complete and reliable for the purpose, and it is necessary to target the right person. It is also communicated in good time for its purposes, contains correct details and is communicated via a user-readable channel (Osikabor et al., 2011). Furthermore, such information would possess the following, accessibility, validity, consistency, in due course, fit for purpose, cost effective, relevant, and correct level of details and understandable.

2.5 Access points and the worth of information

An access point is a station that transmits and receives data. An access point is used as a connector of users to other network users. Each access point can serve multiple users in a defined network area and are automatically transferred to the following when persons are beyond the range of an access point. In order to improve the fish production levels of fish farmers in rural areas, information access points are established or used to disseminate information effectively (Dada 2004).

The selection of a source of information depends on several factors. According to Dulle & Ngalapa (2014) and Ogboma (2010), these include: level of income, the size of the farm, age, geographical location and education. Small and negligible farmers have had less information than medium and large farmers (Meitei & Devi, 2009). Newspapers, farm owner groups, radio stations, television, posters, neighboring farmers, meetings, journals, community leaders, cooperatives, computer operators, extension agents, other farmers, telephones, videos, Laptop-Latin's, input-dealers, output buyers, loan agencies and town criers are all examples of access points.

Dulle & Ngalapa (2014) claimed that fish farmers in accessing agricultural information used fellow farmers, neighbors and farmers' cooperative society as preferred sources of information. They further indicated that the sources of information used by fish farmers included personal experience, workshops and seminars, training, friends and neighbors, Ministry of Agriculture, magazines of agriculture, extension officers, local government officers, non-governmental organizations and libraries of agriculture and posters.

Boz & Ozcatalbas (2010) also revealed that family members, neighbor farmers, extension services, input providers and mass media were key sources of information for fish farmers. Therefore, in view of the fact that each farmer prefers certain information sources or channels to others, it is important to do a thorough study before opting for an information source or channel to address the information needs of fish farmers in the coastal region.

Information is an indispensable factor in agricultural practices and it is the basis of extension service delivery. It is defined by Adereti et al., (2006) as data that have been put into a meaningful and useful context, which are communicated to recipient who uses them to make decision. Fish farming information can be considered as all published or unpublished knowledge in all aspects of fish farming/and fish culture production. According to Adereti et al.(2006), an individual consciously or unconsciously engages in information search in order to find appropriate information that can fill the information gap thereby regaining physiological and psychological balance.

Farmers including seaweed farmers in Africa, lack access to modern processing technology and market information (Matovelo, 2008). However, the efficiency of technologies generated and disseminated depends on effective information sources, which are the key processes of information dissemination (Oladele, 2006). Thus, artisanal fish farmers' sources of information shape the kind of decisions they make.

2.6 Constraints faced by fish farmers in accessing agricultural information

Information is a pillar for the improvement of agricultural production; therefore, every farmer has the right to acquire agricultural information. However, in accessing this agricultural information, artisanal fishermen are confronted with a number of constraints. As noted by Ochogwu (1993), information materials cannot be accessible to rural communities because of high cost. Hardship is the major problem in information accessibility as the poverty rate in most artisanal communities is very high. As a result of this, they cannot afford the cost of information materials such as books, magazines, newspapers, and radio/television. Ikoja-Odongo (2001) asserts that the inability to secure required information by fishermen was due to a variety of causes, including inability to go to places where information may be located, lack of specific place to get information, ignorance resulting from illiteracy, language barrier and inappropriate private sources of information. Otoló (2006) further indicated that most riverine villages are not aware of a place called library where information can be obtained. This is due to lack of formal education to enlighten them on the various ways of getting information, especially library which is a place regarded as a storehouse of information on improved agricultural practices.

According to Otoló (2009), another factor that impedes artisanal fishermen from having access to agricultural information is lack of nearby library. Most of the rural riverine villages have no libraries and grassroots libraries that help to disseminate agricultural information. Adomi, Ogbomo

& Inomi (2003) have it that absence of library is an impediment of rural farmers' access to information that can enhance their agricultural practices and production. Even in places where libraries are located, they are only stocked with other materials written in foreign languages that have no bearing on rural dwellers. Nwalo (2000) maintains that, the surest way of raising the standard of life in rural areas is through the provision of useful and reliable information at the grassroots through Library services. Once the people's minds are liberated from superstition and ignorance, they will not only insist on their rights but will also take advantage of scientific and technological breakthrough in improving their standard of living.

Kantumoya (1992) confirms that, in most tropical African countries, the national information networks are biased against the lower social groups, like the artisanal fish farmers and other rural dwellers. He observes that most of the information meant for public consumption is disseminated through newspapers, television or radio stations that, for various reasons, are out of reach of rural dwellers.

Artisanal fish farmers can only have access to information when disseminated in their own dialect. Thus, as pointed out by Sawyer (2008), language is another hindrance to accessibility of information. Omoyemi & Yisa (2004) opine that, for information to be effectively accessed, the language in which the information is communicated must be the one with which artisanal fishermen are conversant.

Furthermore, Otolu (2006) asserts that awareness has not been created in rural areas about the importance of radio, television and libraries as major sources of information dissemination. Aninweze (2004) states that lack of awareness on the part of rural dwellers, negligence of government and its agencies, and sentimental attachment of rural dwellers to their culture make it difficult to disseminate information to them. Since they lack awareness as to where to seek information, it does not readily get to them.

According to Otolu (2009), the high cost of mobile services, lack of personal television, lack of electricity and lack of handsets or mobile phones are some of the factors that hinder access to information accessibility. Adeokun et al (2006) confirm that abject poverty, lack of electricity in rural fishing villages and lack of accessible roads hinder access to information by artisanal fish farmers. Where there are no good roads leading to the fishing communities, librarians and extension workers will find it difficult to disseminate information to these rural dwellers. Otolu

(2009) asserts that lack of visitation by agricultural extension officers stands as an obstacle to information accessibility.

Omoyeni et al (2004) note that there is also shortage of personnel while the workload is much and there exists a communication gap. That is, majority of these artisanal fishermen are illiterates and need to be communicated in vernacular. Therefore, if the extension workers/public librarians do not speak the same language with rural dwellers, information dissemination becomes a problem unless with the help of an interpreter. This may retard their production rate. Annune (2000) asserts that, remoteness of fishing settlements, lack of roads and dispersed fishing villages make extension services minimal. The remoteness of fishing communities makes extension workers feel reluctant to visit such places especially if they have to cross water bodies that they may not be familiar with. In addition, lack of motivation on the part of government can serve as an obstacle to effective extension services to artisanal fishermen.

Furthermore, Ozoma (1998) identifies scarcity of extension workers as a problem that hinders access to information. Lack of agricultural extension officers could be what is responsible for lack of visits to most of the artisanal fishermen. He further ascertains that, through agricultural development programs, extension services in most parts of the country solely rest on this program to operate the training and visit system to reach rural small-scale farmers. In addition, cold attitudes of fish folks towards dissemination of fishery information and non-availability of research institutes/libraries hinder extension workers in carrying out this task. Public libraries and extension services are the key to unlock the fish production information that is usually consigned to the pages of academic journals and research publications. Also, Neiland & Bene (2004) proffer various reasons for not having access to information as lack of target extension services and illiteracy of operators, leading to inability to access information on resources and market opportunities.

Lucky & Achebe (2012) emphasized the problem of low level of education among farmers, which affects their understanding of information as a challenge. Lwoga (2009) also noted that the technical language used in the transmission of information also limits the use of information. Ifukor (2013) identified communication channel and illiteracy as obstacles to information dissemination and communication. Annune (2012), Dulle et al (2014) and Babu et al. (2012) found that the lack of support in agricultural processes, illiteracy, language barriers, library shortages, lack of extension workers, poor government control, and policy control and delay in feedback on

information were attributed to the challenges facing farmers when they were given access to farming information.

Babu et al. (2012) found that farmers' main constraints were reliability, poor availability, lack of knowledge of the available information sources and lack of timely information in their study about farmers' information needs and behavioral research. Bernard et al. (2015) argued that the restrictions on fishermen are associated with a lack of information services and an insufficient culture of knowledge-sharing. Inappropriate/non-useable information infrastructure, high level of illiteracy, low incomes, electricity shortages, and high ICT costs have also restricted the accessibility of information services in rural areas.

2.7 Importance of high quality fishery segment

Fishery is an important subsector of agriculture in Nigeria's economy. It consists of artisanal coastal and inland fishery, aquaculture and offshore industrial fishery. Fishing is carried out in Nigeria's many rivers, creeks and lagoons while trawlers operate along the coast. However, the total annual catch supplies only 50% of the country's seafood needs, estimated at 800,000 metric tons (IPS-Inter Press Service, 2017).

Inland fisheries are both capture fisheries and aquaculture of inland fish species for food, income, or recreation. In discussions of global capture fisheries, inland fisheries are often overwhelmed by marine fisheries because of the sheer magnitude of reported marine catches, (marine catches are approximately seven times higher than inland catches (FAO, 2014b)). However, several lines of evidence (e.g., consumption studies) suggest that inland fisheries' harvest is often unrecorded or drastically underreported, particularly with reference to the prevalence of small-scale or artisanal fishing (i.e., subsistence and local trade) in inland waters (Hortle 2007; FAO 2010a, 2012; Welcomme et al. 2010; Bartley et al. 2015). In addition to harvest, inland aquaculture has experienced considerable growth over the past decade. Considering both aquaculture and capture fisheries, inland fisheries contribute over 40% of the world's capture fisheries and aquaculture production (excluding plants, mammals, crustaceans, echinoderms, and mollusks) (FAO-FIGIS 2014).

Despite their demonstrably large contribution, public support and political will are often difficult to obtain for inland fisheries and, consequently, they generally receive little consideration in water resource allocation decisions (Cooke et al. 2013). Generally, issues that may adversely affect

inland fishing, such as climate change or invasive species, do not rank highly among issues of public concern (Novacek, 2008), and the time horizon of inland fisheries issues is often beyond the traditional scale of political action (Kates & Clark, 2001). While strong laws do protect fish and fisheries in some cases (e.g., U.S. Endangered Species Act), they are not the norm globally. Only one-third of countries with inland fisheries even submit catch statistics to FAO (FAO, 2010a).

2.7.1 Trade and food security

International trade in fisheries products has been shown to have a positive effect on food security in many developing countries, stimulating increased production and generating foreign exchange, which can be used for food imports and enhancement of trade-based entitlements of people engaged in fishing and fish processing. Lynch et al (2016) states that fish processing for export can also generate employment, particularly among young women, though export-orientation in fisheries reduces the quantity of fish available to traditional fish processors (typically middle-aged women with little education), thus affecting their livelihoods.

Fishery contribution to Gross Domestic Product (GDP) was about 0.46% in 2013 (CBN 2013). Although the contribution of fishery to the GDP is very small, it occupies a very significant position in the primary sector as it contributes over 40% of the animal protein intake of the people, particularly the resource-poor (Sanni et al. 2009). Osagie (2012) stated that an estimated 10 million Nigerians are actively engaged in the upstream and downstream areas of fisheries operations, and provide raw materials for the animal feed industry. CBN (2013) also states that artisanal fishing from coastal and brackish catches and inland rivers and lakes account for about 691.61million metric tonnes, representing 78.93% of the total fish production in the year, with an estimated 899.00 million metric tonnes. In the same year, it was estimated that the domestic fish demand was 1.5million metric tonnes. Welcomme et al. (2010) also confirmed that inland fishes are important food and nutritional resources, especially to rural economies in developing countries. According to them, fisheries contribute significantly to food security and economic security by providing primary sources of animal protein, essential nutrients and income. The food and income benefits provided by inland capture fisheries and aquaculture can afford opportunities for empowering individuals where opportunities in other sectors are limited. They further state that over 90% of global inland capture fisheries production is used for human consumption, the majority of which is in the developing world. FAO (2014) affirmed that inland fisheries provide food for billions and livelihood for millions of people worldwide.

Critically, the contribution of inland fisheries to meeting food security is considered grossly underestimated as small-scale artisanal fishing activities are carried out in obscure rural communities where the catches and what quantity and value of fish are not recorded. However, Bartley et al. (2015) opine that they represent the primary animal protein source for many of the rural poor and are crucial for global food security. Inland fish are particularly important in addressing “hidden hunger” micronutrient deficiencies and their related health issues (Kennedy et al. 2003). Inland fishes provide protein, omega-3 fatty acids, vitamin D, calcium, B vitamins, vitamin A, iron, zinc, and lysine to those where other nutritional sources are not available or are cost-prohibitive (Thilsted et al. 1997; Roos et al. 2007; Youn et al. 2014). Particularly in the developing world, small fish eaten whole provide an important source of nutrients (e.g., calcium and vitamin A) that are difficult to obtain through other dietary sources (Roos et al., 2007). Consumption of inland fish has been shown to mitigate the effects of some micronutrient deficiency-related illnesses, such as rickets in Bangladeshi children (Craviari et al., 2008). Secondly to direct human consumption, inland fish can also be used in feed for livestock and aquaculture operations.

2.7.2 Economic security

Eighty percent of inland capture fisheries operate in the developing world (Kapetsky 2003). The rural poor conduct this enterprise often for subsistence and small-scale economic security. Inland capture fisheries and aquaculture are fundamental to food security globally. In many areas of the world, inland capture fisheries are a last resort when primary income sources fail because of economic shifts, war, natural disasters, and water development projects. They serve as social safety nets, providing alternative and supplementary sources of income, employment and food (Welcomme et al., 2010).

Besides income and livelihoods through direct fishing activities, inland fisheries generate substantial income and job opportunities through secondary service activities such as the provision of fishing gear and maintenance, fish processing and distribution (Welcomme et al., 2010). Statistics on the economic contribution of inland capture fisheries are limited because the outputs are local in scope, with fish traded locally or consumed directly by the fishing families (FAO & World Fish Center, 2008). However, the value of particular inland fisheries provides some indication of economic importance. A study of six river basins in West and Central Africa, for example, found that local capture fisheries supported 227 000 full-time fishers and had a first-sale

value of US\$295 million (Neiland & Bene, 2006). In the Lower Mekong Basin, total fish production is estimated at 3.9 million tonnes, with a first sale value of US\$7 billion (MRC, 2010). Perhaps more importantly, the value of inland fisheries transcends economic statistics because these fisheries also serve a critical subsistence purpose where fishing does not entail financial transactions.

2.7.3 Empowerment

Inland fisheries provide opportunities to empower individuals to meet their own physical and psychological needs and provide for their dependents. This role is, particularly, important in poverty prevention for marginalized populations, including ethnic minorities, the rural poor and women (Weeratunge et al., 2014). For ethnic minorities in the Mekong Basin, lack of land ownership prohibits involvement in agricultural activities (MRC, 2010). Inland fisheries empower them with a low investment opportunity for subsistence and livelihood. Women, as another example, typically have low empowerment in developing countries, although they comprise 20% of the world's inland fishers and complete around 90% of post-harvest processing (FAO, 2014b). For comparison, women comprise 43% of the agricultural labour force in developing countries (FAO, 2010b).

Inland capture fisheries and the individuals they empower are threatened by new and intensive ways of manipulating global freshwater resources, including hydropower, flood mitigation, recreation and agriculture and aquaculture ventures (Orr et al., 2012). To address these concerns, cooperative management has had some success in creating more sustainable fisheries governance institutions (Jentoft 2005). These systems, developed by government institutions working with stakeholders to create systems of mutual benefit, make joint management decisions and empower groups to produce more effective solutions than either party could have done on its own. Successful co-management attempts, those that empower the participants, thrive in the developing world, such as the 2011 regulatory overhaul of the Zambian side of Lake Kariba (Madzudzo et al., 2014).

However, cooperation attempts can fail if power structures are too unevenly distributed. For example, hydropower proposals on the mainstream of the Mekong River have largely neglected implications for fisheries (Orr et al., 2012). Successful co-management operations must create environments in which individuals are empowered by their communities to engage government

officials and participate in the decision-making process that influences their own well-being (Jentoft, 2005).

Employment in fishing and aquaculture has grown rapidly over the past few decades, increasing more than threefold from 13 million people in 1970 to over 41 million in 2004. Employment in the fisheries sector has grown more rapidly than both world population and employment in agriculture. Most of this growth is in Asia, where over 85 percent of the world's fisher folk live, and is largely due to the expansion of aquaculture in this period (FAO, 2006 and FAO, 1999). While the number of people employed in fisheries and aquaculture in developing countries has been growing steadily, it has been stagnant in most industrialized countries. This decline is most pronounced in capture fisheries, while employment in aquaculture has increased in some industrialized countries. Millions of women in developing countries are employed in fisheries and aquaculture, participating at all stages in both commercial and artisanal fisheries, though most heavily in fish processing and marketing. In capture fisheries, women are commonly involved in making and repairing nets, baskets and pots, baiting hooks, setting traps and nets, fishing from small boats and canoes, and collecting seaweed, bivalves, mollusks and pearls. They are rarely involved in commercial offshore and deep-water fishing (FAO, 2006 and FAO, 1999).

In aquaculture, women feed and harvest fish, attend to fish ponds and collect fingerlings and prawn larvae. They play a major role in fish processing in many parts of the world, using both traditional preservation methods and working in commercial processing plants. In addition to affecting food supply, the status of fish stocks in capture fisheries is likely to threaten the livelihoods of small-scale fisher folk and traditional fish processors as competition for limited resources increases. Larger-scale operators with greater access to capital and gear are already emerging in many areas, leading to changes in the structure and location of post-harvest activities and concentrating ownership and control of resources. In India, for example, fishing practices are changing with rising investment, and higher levels of mechanization and motorization. These developments have led to greater centralization of landings and competition over the catch. In the past, small-scale traders were able to purchase fish from local fishers at decentralized beach-based landings, sometimes accessing fish through husbands or taking the fish on credit and paying once they had sold it. The increasing centralization of landings, however, has led to fierce competition at landing sites, favoring those with greater access to credit and infrastructure and marginalizing traditional fish processors and petty traders (FAO, 2007).

2.7.4 Recreational services

In industrialized countries, the economic value of recreational fisheries exceeds subsistence and commercial fisheries in inland waters (FAO 2010a). Recreational fishing and tourist activities, in particular, have strong economic effects for the experiential activities in addition to the market value of the fish (Southwick Associates 2013). These expenditures are not limited to those enterprises directly linked to fishing activities; they generate jobs in other sectors including the tourism industry, restaurants, and hotels. For example, the annual net value of recreational fishing and its associated activities in the Laurentian Great Lakes is as high as US\$1.47 billion (Poe et al. 2013). Recreational fishing is yet to be developed in Nigeria, but the potential of fishery in reversing economic trends is enormous.

2.7.5 Human health and well-being

Even when consumed in small quantities, fish constitute nutritionally important value for many people's diets in developing countries. It is a vital source of protein and micronutrients, and improves the quality of protein in largely vegetable and starch-based diets by providing essential amino acids. FAO (2006) estimates that fish accounts for approximately 20 percent of animal protein consumption. In some coastal and island countries (including Bangladesh, Indonesia, Senegal, and Sri Lanka), fish provides over 50 percent of animal protein and reaches 62 percent in Gambia and 63% in Sierra Leone and Ghana. It is a particularly important component of the diets of the poor, as it is affordable animal protein. Fish are also rich in iron, zinc, magnesium, phosphorous, calcium, vitamin A and vitamin C, and marine fish is a good source of iodine. Many of these vital nutrients are found only in small amounts, if at all, in staple foods such as maize, rice and cassava which make up the bulk of people's diets in developing countries.

Fish are an indispensable source of these nutrients for many people, and small low-value fish which are, largely, consumed by the rural poor, provide more minerals than the same quantity of meat or large fish, as they are consumed completely, with the bones intact. Fish also contain fatty acids, which are essential for the development of the brain and body, and are particularly crucial for the diets of babies, children, and pregnant and lactating women (WorldFish Center 2005a). Consumption of omega-3 fatty acids during consumption of omega-3 fatty acids and integrated aquaculture-agriculture (IAA) systems have been shown to increase the productivity of agricultural activities on farms that have ponds. IAA ponds also contribute to the resilience of small farms, enabling them to maintain some degree of food security during droughts (Brummett 2008). The data problems identified in the first section also contribute to poor recognition of the contributions

of fisheries to development. Since data on artisanal, subsistence and inland production are scanty, fish-based livelihoods and consumption patterns in developing countries tend to be fairly sketchy. In this regard, there is an under-representation of the contribution of fisheries to development. Thus, the perceived contribution of fish to foreign exchange earnings and food security is often lower than their actual contribution, further reducing the chances that fisheries and aquaculture are factored into development policy. Even when consumed in small quantities, fish comprises a nutritionally important part of many people's diets in developing countries. They are a vital source of protein and micronutrients, and improves the quality of protein in largely vegetable and starch-based diets by providing essential amino acids. FAO (2006) has estimated that fish accounts for approximately 20 percent of animal protein consumption in LIFDCs.

In some coastal and island countries (including Bangladesh, Indonesia, Senegal, and Sri Lanka), fish reduces the risk of low birth weight, which is a key factor in both maternal and child mortality. These amino acids are also critical for the neurological development of infants. These ingredients are found almost exclusively in fish, making the consumption of fish during lactation and pregnancy especially important (FAO, 2006). The nutritional benefits of fish consumption are also particularly important for people living with HIV/AIDS. Proper nutrition is essential for the effectiveness of anti-retroviral drugs, and fish contains combinations of nutrients which reduce susceptibility to secondary diseases.

Inland fish provide a number of important benefits to human health and well-being, including pest control, biomedical research and a connection with the outdoors. Larvivorous fish, such as western mosquito fish (*Gambusia affinis*) and Arabian killifish (*Aphanius dispar*), are frequently used for the control of disease-carrying mosquitoes (e.g., malaria, Dengue fever, yellow fever). Larvivorous fish can be used in areas such as rice fields, where use of chemical insecticides is unsafe or where mosquitoes are pesticide resistant (Hemingway and Ranson, 2000). There could be unwanted consequences of their use (e.g., declines of other aquatic invertebrates, amphibians, and other fish species) (Pyke, 2008).

Inland fish species are used extensively as biomedical research models, in particular Medaka (*Oryzias latipes*) and zebrafish (*Danio rerio*). Zebrafish are arguably the second most-used medical and pharmaceutical model behind mice (Lieschke & Currie 2007). They are particularly useful for human disease research because they obviate some ethical and practical issues associated with using higher vertebrates (Lieschke & Currie 2007). Zebrafish have served as a model for

ecotoxicology (Frayse et al. 2006), cancer genetics, drug discovery, regenerative medicine, and tissue repair, where they have potential to address some aspects of organ dysfunction, injury, and trauma (Goessling & North 2014).

Inland fish also contribute to human well-being through the connection that they forge between humans and nature. For example, recreational angling has a variety of psychosocial benefits including relaxation, stress relief, and reduction in negative emotions (Floyd et al. 2006). Fishing, especially in urban areas, also can contribute to reductions in substance abuse among youth (i.e., “hooked on fishing, not on drugs” programmes that introduce youth to fishing as an alternative to destructive activities) and help to address the concept of nature deficit disorder (Louv 2008) where adults and children have become disconnected with the natural world. Although these benefits are difficult to quantify, they contribute to the health and well-being in urban areas.

2.7.6 Socio-cultural value, knowledge transfers and capacity building

Fishing is the major economic activity for people in coastal and inland riverside communities in Nigeria. In many cultures, inland fish are sacred and contribute to community identities (Weeratunge et al. 2014). The cultural value is enshrined in the transmission of knowledge of fishery from one generation to another. Cultural services provided by inland fish include spiritual services (e.g., sacred, religious), inspirational (e.g. art, folklore), and aesthetic (Tengberg et al. 2012). To many, these services are priceless and cannot be valued in market terms (Harris et al. 1989). In developed and developing countries, inland fisheries provide a sense of community identity and occupational attachment (Weeratunge et al. 2014). In particular, traditional ecological knowledge (TEK), knowledge formed from the experiences and observations acquired over time from direct human contact with a specific environment has facilitated the harvest of inland fish for subsistence and has helped maintain traditions, values, and cultures (Berkes 2012).

The strong links between inland fish and human culture manifest in fishing festivals that are conducted on annually or biennially in various coastal communities. These periods serve as occasions for the cultural integration and display of recent development in of the fabrication of fishing gears. Examples of popular fishing festivals include Onanawei Lake fishing festival of Ikibiri, Adegbe fishing festival of Amassoma, Ifi Lake fishing festival of Ikibiri (Ekubo& Abowei., 2015). These ceremonies make fishing a cultural icon with community importance that extends beyond food value. The sense of identity for fishing communities has been described as having

fishing “in the blood” (Smith et al 2006), which fosters environmental stewardship. The role of fish as cultural icons promotes conservation as flagship species where conservation efforts for iconic fish (e.g., Mekong giant catfish (*Pangasianodon gigas*)) blends into the broader ecosystem-level improvements (Simberloff 1998).

Fishing enhances valued recreational activities worldwide (Cooke & Cowx 2004). Inland fish species also contribute to advancements in disease control and medical research that benefits human health and well-being (e.g., larvivorous fish and medical research model organisms). Additionally, management of inland fisheries provides opportunities for knowledge transfer and capacity building across political jurisdictions (UNU-INWEH 2011). Involvement in fishing helps in knowledge transfer within cultures. Knowledge transfer and capacity building cuts across cultures and political jurisdictions. The value of inland fisheries has led to conflict between jurisdictions over access, control, and harvest in modern times (Salayo et al. 2006). However, as the world becomes increasingly connected, opportunities for jurisdictions to cooperate are expanding and inland fisheries provide a number of examples of how shared management and transfer of knowledge of scientific practices enables more sustainable practices. Knowledge transfer and cooperation can also occur between distant ecosystems experiencing common challenges (Liu et al. 2013).

Scientists and managers from the African and Laurentian Great Lakes have been transferring knowledge and sharing management successes over the past several decades (UNU-INWEH 2011). Furthermore, organizations such as FAO and many international development agencies seek to transfer knowledge of aquaculture “best practices” that reduce the possible negative effects of aquaculture (e.g., contaminants in fish tissue, poor water quality, impacts on wild fish) to developing countries (Hasan & New 2013). Although the nature of inland fisheries provides the potential for conflict across jurisdictions, they have increasingly fostered cooperation and knowledge transfer as people recognize that long-term sustainability of inland fisheries can benefit all.

Additionally, because of the low environmental impact of many inland capture fisheries and aquaculture operations, they are recognized as relevant to the “green food” movement. Biodiversity confers benefits to aquaculture as well. Genetic diversity within species provides the building blocks for selective breeding and stock improvement, and enables the creation of transgenic fishes, such as genetically modified Atlantic salmon (*Salmo salar*) that grow more

quickly and require less food than non-modified fish (Gjedrem 2000). Technological advances, such as transgenic fishes, require a portfolio of genes that exist in the wild, placing value on biodiversity for the future of inland aquaculture. In addition, technology can be used to safeguard biodiversity from escaped aquaculture fish (e.g., sterile triploids).

Another salient aspect of knowledge transfer is that aquatic ecosystems serve as good indicators of ecosystem change. Fish respond directly to environmental stressors such as toxic and thermal pollution, flow regime change, and climate change (Dudgeon et al. 2006). Fish also respond indirectly to stressors that affect their environment. For example, a massive die-off of fish is a major indicator of ecological change. Inland fish are used as warnings for current and impending impacts on human well-being from environmental change. Dudgeon et al., (2006) suggests that beyond overfishing, aquatic ecosystems are faced with both direct and indirect anthropogenic influences that may have undesirable consequences. Inland fishes respond to many aquatic and terrestrial environmental changes throughout their watersheds, making them valuable bio indicators of ecosystem health. The Index of Biotic Integrity (IBI) is a commonly used in-situ assessment tool for freshwaters based in part on the local fish assemblages, particularly the presence or absence of species intolerant to habitat perturbations (Karr 1981). Due to their representative susceptibility to many chemicals and key role in aquatic ecosystems, inland fish species are used as laboratory models to assess water quality and environmental toxicology in the chemical and pesticide approval processes (Barbour et al. 1999).

2.8 Sources of agricultural information

Having adequate and well-presented information improves the efficiency of rural development, policies, projects and programmes. Agricultural information is a basic component of rural development programmes. Oladele (2011) observes that lack of agricultural information is a key factor that has greatly limited agricultural advancement in developing countries. Thus, agricultural information interacts with, and influences, agricultural activities in a variety of ways. This implies that agricultural information informs decision-making regarding land, labour, livestock, capital and management. Interestingly, agricultural information is not static but, instead, needs replenishment through research and development. This is why Opara (2008) reports that agricultural activities can be improved by relevant, reliable and useful information and knowledge.

Aina (1995), Mooko & Aina (2006) report in their research findings that agricultural information is an essential recipe for successful farming. Nigerian farmers can increase productivity by using

these same recipes. However, information per se cannot increase productivity unless farmers are provided with the right type of information and at the right time, using the right channels and with all other necessary components in place. These other additions include telecommunication facilities, good roads, education, good agricultural policies. There are other externalities that have to be in place so that information can make an impact, such as money, favorable socio-political stability, good governance, etc. (Radhankrishna, 2007). Invwieri (2007) opined that, rural people (farmers) who are illiterate require access to appropriate information to make decisions and participate fully in the national development processes, including agriculture.

Any system producing information intended for transmission is an information source. Information sources are distinguished by the form of representation: textual (books, journals, manuscripts), graphic (graphs, diagrams, plans, charts), and audio visual (sound recordings, motion pictures, slides). The characteristics of a good information source are relevance, timelessness, accuracy, accessibility; cost effectiveness, reliability, usability, exhaustiveness and aggregation level (Feather & Sturges, 2004, Osikabor et al., 2011). Oladele (1999) stresses that the efficiency of technologies generated and disseminated depend on effective communication, which is the key process of information dissemination. Therefore, the message from the client should be passed back to the source or researchers for the communication process to be complete.

Despite the attempts at technological innovation transfer, the wide gap between the levels of production which research contends is attainable and that which farmers achieve, suggests a missing link (Oladele, 1999). What is more, weak linkages between the farmer, extension workers, and researchers mean that the farmers are not included in the planning of the innovation such that they do not know where to get information, despite the fact that they are the end users. Agricultural information disseminated by different information sources needs to be determined. It is imperative therefore to identify the sources of agricultural information utilized by farmers.

Opara (2008) investigated the overall sources of agricultural information available to farmers in Imo State (Nigeria), as well as the farmers' preferred sources. The study reveals that 88.1% of the farmers' source of agricultural information was through extension agents. Similarly, Ozowa (2008) shows that among all the existing channels of communication, Nigerian farmers ranked extension workers the highest in providing credible information and advice. The investigation was carried out on small farmers in Imo state, Nigeria. Mokotjo & Kalusopa (2010) in their survey found out that print sources dominate sources of information to farmers in Lesotho. Their study reveals that, though most of the farmers have acquired primary education, the agricultural information delivered

to them is written in local languages. This enables them to utilize the information effectively. It also demonstrates the high literacy level in Lesotho. However, Lwoga et al., (2011) significantly differ from Mokotjo & Kalusopa (2010). For them, print materials have low usage due to their unavailability and illiteracy levels of most of the farmers in Tanzania. The mass media also provides support for the growing involvement of farmers and their organizations in disseminating agricultural information. The rapid development of information technologies has profoundly changed the media landscape in African countries.

Information and communication technology (ICT) as a source of information, is a term that combines computer and telecommunications technology in handling, acquiring, processing, storing and disseminating information (Chauhan, 2009; Malhan, 2007). Information and communication technology is an all-inclusive term that embraces all those technologies that are employed in collecting, storing, organizing and communicating information in various forms (Chisita, 2010). It can become a key enabler of the agricultural-food sector by making dynamic and real time global level exchange of data as stated by Rao (2007). Effective deployment of ICT can lead to increase in agricultural competitiveness through cuts in production and transaction costs, raising production efficiencies and farm incomes, conserving natural resources, and by providing more information, choice and value to stakeholders. In using ICT successfully to support farmers and rural communities, the first step is to empower farming communities in defining their own needs (Ballantyne, 2009). With wider access to and use of ICT, the potential of opening up as well as sharing information is enhanced to assist farmers, researchers, extension workers and policy makers. It narrows the information gap that exists between the farmers and the researchers because there is space for effective feedback (Ballantyne, 2009).

In the same view, Renwick (2010), points out that most of the small island nations are above the 100% and some are over 200% mobile phone penetration mark. This implies that many people had more than one cell phone and over 100% of the farmers used cell phones to receive agricultural information. This indicates that ICT is a very useful tool in the dissemination of agricultural information to the farmers, especially in rural areas where cell phones have been embraced by both literate and illiterate farmers. Therefore, ICT has become the most important tool in processing and disseminating agricultural information. Bolarin & Ayanlade (2010) confirm and maintain that mobile phones and computer systems are the most used and widely owned tools today by extension workers and their organizations in the North Central Zone of Nigeria. This is because, about 75%

of the respondents surveyed by Bolarin and Ayanlade (2010) perceived themselves as frequent users of multimedia and other ICT tools.

Other sources of information for farmers that are equally important, but less recognized are the traditional sources. The traditional system disseminates information emanating from colleagues, during weddings, naming ceremonies, burials, agricultural shows and festivals and in some cases through town criers (Aina, 1995). Demiryurek et al., (2008) argues that dairy farmers in Turkey use four categories of traditional sources of information relayed from family members (Aina, 1995). Similarly, Opara (2008) reported that agricultural information in its broadest sense includes indigenous agricultural knowledge (IAK) transmitted orally from person to person. This is a very common practice in Nigeria and hugely relied on by old farmers as well as the illiterate others who favour oral dissemination of information. Oral tradition is an important method of disseminating agricultural information in many African cultures. This is because it recognizes existing traditional and indigenous channels of information dissemination.

Also, Lwoga et al., (2011) in their study on access and use of agricultural information and knowledge in Tanzania reported that the major sources of information for farmers are predominantly local (neighbors', friends and family), which implies that their major sources of information are traditional. To emphasize the importance of traditional information in Africa, Aina (1995) pointed out that one of the sources of information of farmers in Nigeria is traditional. That is information is obtained not from official sources directly but through colleagues or family members. Aina (1995) holds the view that, though the majority of the farmers in Africa are illiterate, it is possible to supply them with necessary information through the information gatekeepers popularly known in North Western Nigeria as SARKIN NOMA (information gate keeper), who is a literate farmer among the farming community with a wealth of experience and vast land. The role of a SARKIN NOMA is to offer advice and information on a regular basis to other farmers for improvement. The contention by Ogboma (2010) buttresses the various studies cited, where in a study conducted on access to agricultural information by fish farmers in the Niger Delta Region of Nigeria, Ogboma observed that 63% of the respondents indicates that, their source of information is through traditional, as well as personal experience.

Having adequate and well -presented information will improve the efficiency of rural development, policies, projects and programmes. Agricultural information provision should be the

basic component of rural development programmes. Oladele (2011) observed that lack of agricultural information is a key factor that has greatly limited agricultural advancement in developing countries. Thus, agricultural information interacts with, and influences, agricultural activities in a variety of ways. This tends to imply that agricultural information can help inform decision-making regarding land, labour, livestock, capital and management. Interestingly, agricultural information is not static but, instead, needs replenishment through research and development.

As Ogboma says (2010) farmers receive farm information from a wide range of fields, including their personal experience, extenders, workshops, workshops/seminars, friends/neighbors, agriculture ministries, magazines, newspapers, community leaders, television, libraries, internet, NGOs and local authorities. Similarly, Mtega & Benard (2013) reported on some sources of information used to access farmers ' agriculture information, including journals, newspapers, newsletters, community leaders and farmers ' groups. Kakade (2013) also reported that farmers use the information they need from farmers, agricultural protestors, TV, the radio, neighborhood journals, university scientists and farm magazines as their sources of information.

Yadav et al., (2011) indicated that the following sources of information, which include television, radio, newspaper and magazines, and channels of agricultural information should also be given proper attention in the dissemination of information. In affirmation Osikabor et al., (2011); Lwoga et al., (2011) also mentioned sources of agricultural information as including extension agents, radio, television, posters and meetings. Serah (2014) and Dulle et al., (2014) stated that the main sources used by farmers were extension agents, friends, radio and libraries.

Similarly, Boz& Ozcatalbas (2010) affirmed that family members, neighbor farmers, extension services, input providers and mass media were key sources of information for farmers. Therefore, in view of the fact that each farmer prefers certain information sources or channels over others, it is important to do a thorough study before opting for an information source or channel to address the information needs of fish farmers in the coastal region.

2.9 Agricultural information needs of artisanal fish farmers

Artisanal fishing has been part of human life since the beginning of the human race and the need for information is probably almost as old as artisanal fishing itself. Therefore, no one can categorically claim to know all the information needs of fishermen, especially in an independent sub-sector like artisanal fishery that is confronted with new and complex problems every day.

However, the information needs of artisanal fishermen revolve around their social economic needs. They need modern techniques to enhance fish productivity. This enables them to determine stable and fixed prices of fish products without being exploited by the middlemen. Artisanal fishermen need to determine levels of water pollution, the dangers of indiscriminate fishing, and extension education. They need information on where and how to obtain loan to improve on their fishing tools and terms of payment. Equally, artisanal fishermen need to acquire modern tools and utilize them effectively. This information need extends to post-harvest handling, and forming of cooperative organisations for the effective dissemination of information.

In addition, Annune & Ogbe (2000) maintain that, fish farmers need information on such areas like post-harvest loss of fish, marketing and distribution, illegal fishing methods and improved fishing tools. They further advance that, they make use of small mesh net of various sizes that catch under sized fishes that are not utilized but thrown away. This does not help in enhancing fish production, since the undersized fishes are not left behind for future harvest. It is evidently clear that, artisanal fish farmers make use of illegal fishing methods like chemicals, use of poison, explosives and plant extracts to catch fish and other aquatic organisms. These prevent high production rate as they pollute the water and kill fish indiscriminately. Udoh et al., (2011) also opines that, artisanal fish farmers apply inappropriate fishing methods like chemo fishing for mass killing of fish in a bit to yield much harvest.

Furthermore, Otolo (2009) reveals that, artisanal fishery information needs are fish processing and marketing, fish storage and preservation, modern fishing equipment, loan and credit facilities. In this connection, Akpabio & Ekamen (2008) argue that, the provision of marketing information is of utmost importance in the fishery industry, especially with regard to the prevailing problems of post-harvest losses which affect about 50% of the estimated daily harvest. Annune (1993) stipulates that, in the season of abundance, artisanal fishermen are faced with the challenges of preservation, therefore sell at giveaway prices or substantial part of the catch amount to losses. Unhygienic ways of handling and the use of traditional smoking techniques often expose fish to burning and insect infestation that lead to low income to artisanal fishermen. In addition, Njoku (2004) confirms that, where and how to obtain credit facilities remain one of the major needs of Artisanal fishermen. He further maintains that, fishermen need information on such areas like on how to get modern fishing technology, processing, storage and preservation. This shows that, these fishermen have insufficient knowledge about modern ways of fishing. Clark, Munro & Sumaila (2005) report that,

non-availability of a credit scheme for small scale capture fisheries militates against its capital-intensive expansion. The artisanal fishermen lack information on how and where to obtain credit facilities to enable them purchase more advance technological equipment for fishing.

In addition, Otoló (2009) argues that, market changes and credit facilities are some of the basic needs of artisanal fishermen. Other needs like how to control the environmental deterioration, water pollution and good health, are also very important needs of artisanal fishermen bearing in mind the remoteness of their fishing communities. According to Nazca (2010) small scale artisanal fisheries in developing countries are often constricted by complex interactions of unfair fishing rights, conflicting policies and weak political representation, inappropriate management, lack of scientific information, absence of infrastructural system and usually a non-transparent retail system. Information plays a significant role in enlightening people, improving their standard of living, participating in decision making processes and making informed decision. It further advances that, constitution of South African bill of rights chapter two fully acknowledges the right of people to have access to information.

The promotion of access to Information Act was also passed to ensure that nobody is denied of the right enshrined in the constitution. Weir (1987) advocates that, traditional fishermen often compete with their industrial counterparts over limited common resources in the exclusive economic zone and lose against technologies that are more efficient. Typically, trawlers enter areas used by artisanal fishermen, destroying spawning and feeding areas, and damaging their floats, nets, and trap. The by catch from inshore shrimp trawlers is often discarded, removing the resources from small-scale efforts and decreasing the availability of protein. Artisanal fishermen need information about their right in the course of carrying out their operation. In addition, Gnanadoss & Aderounmu (2001) enumerate the information needs of artisanal fish farmers as modern fishing inputs that is how to improve on fishing crafts, gear and methods, how to develop their feeder roads or canoes from the nearest road head and, improve service facilities at the village sites and, how to have effective fishermen organization and trained man power. Obviously, fishermen are interested in acquiring more information about the above mentioned area of needs increase productivity. Adeleye (1992) states that, the high costs of fishing inputs such as net floats, twines, ropes, lead Weight and out board engines are on the increase beyond the reach of most artisanal fishermen. The unavailability of the needed information on where to procure these inputs at a reduced price may have forced artisanal fishermen to adopt obnoxious fishing practices that

are detrimental to the conservation of fishery resources within the vicinity. Therefore, they need to be informed on the danger of using these bad fishing tools. Tire (2006) points out that; price information is also of utmost importance to fish farmers.

Fish farmers need information on where they can access and compare prices offered by the various markets. This will avail them the opportunity to opt for the highest prices, do away with middlemen and package their products in line with the market demands. Middlemen who purchase their products at ridiculously low prices often exploit artisanal fishermen. They justify their actions by assuring regular patronage and loans to replace fishing gears. Timely, relevant and accurate information is essential in solving these problems. Also, Weir (1987) states that, market access is impeded by lack of credit, capital, transportation. It further stated that, lack of organization by small scale fishermen preclude them from influencing the market, therefore, depend on middle men for their production and marketing. They need to be informed on the importance of organizing themselves to take control of their market without facing exploitation from middle men. Garfort et al., (2003) articulate that, extension workers must identify how internal markets and production system can be supported and stimulated with ultimate aim of ensuring that, farmers gain access to information that would help them in their livelihood activities. Also, Ahmed, Eyo & Usman (2004) assert that, artisanal fishermen need information on how to organize and become members of fishermen cooperatives and benefits derived from these societies.

This shows clearly that; some artisanal fishermen are not members or do not belong to any fishermen cooperative society due to lack of knowledge about its existence. Food and Agricultural Organization (FAO 1990) comments that, artisanal fishermen need information on how to have access to production means such as boats, engines, fishing gears, fish processing and marketing facilities. It emphasizes that, almost all these are in the hands of intermediaries, who are obstacles in their fight against poverty. Tietze, Lash, Thompson & Rihan (2005) opine that the use of poor quality fishing materials limits the catch levels. The use of more advanced tools increases fish production and it is only achievable through current information. Furthermore, Weir (1987) has it that, overexploitation of marine resources, fish stocks depletion by pollution from urban areas, affect small fishermen who have only limited mobility. Also, growing environmental deterioration and its damaging effects on fishermen and their communities can cause indiscriminate destruction of mangroves and other types of vegetation and aquatic pollution. Artisanal fishermen need information on how to upgrade their environment that serves as a source of income and protein to

the rural communities (FAO 1990). Though, typical fishermen are often blamed for overfishing, they are ignorant about the dangers of carrying out excessive fishing practices as they affect the ecosystem which will result into low productivity.

The traditional dugout canoes, proa, and catamaran used for fishing and marine transportation require high-quality hardwood but, with deforestation of many tropical coastal areas, these strong workable, long-lived woods are increasingly scarce. More so, Weir (1987) asserts that, many artisanal fishermen have adopted out boat motors and sail technology has fallen into disuse. That is, out boat gasoline motors are expensive, difficult to repair and not fuel-efficient; therefore, their cost can seriously restrict fishing operations. Also, in West Africa, lack of foreign exchange to purchase spare parts, replace motors and purchase fuel has led to a decrease in the percentage of motorized small-scale fishing boats. With all these information needs for Artisanal fishery sector, significant improvement can only be achieved through well-designed and improved information dissemination to boost fish production.

Information dissemination is the spread of authentic news to artisanal fishermen in their areas of need for proper decision-making and societal well-being. Information is thus used for the improvement of artisanal fishery through effective information dissemination. This dissemination is equally an agent of transformation. Information dissemination means methods one uses to communicate knowledge, or making facts known to others. Dissemination means spreading significant details and information (Wiki. answers 2010). In addition, Adepoju (2001) emphasizes that, information dissemination involves passing information or references to people about available current materials, which may be of interest, and value to them. It also involves finding out about clients' interest and keeping these interest profiles up to date. In addition, Robinson (2000) states that disseminating information is the process of making news or theories widely circulated with the aim of sowing widely. Information is essential in increasing production rate by artisanal fishermen if the methods of disseminating is effective.

2.10 Information accessibility

Information accessibility refers to the ability of a person or group of persons to get information required on a subject within a given period in a manner that will lead to the information being understood. Webster & Collins (2005) noted that information accessibility could be affected by lack of an effective mechanism for information gathering, cost of access, educational level and

health of the information user and language barriers. Accessibility to information is enhanced if the required information is packaged in a form that is obtainable to the user in terms of cost, language and source of the information. Various factors, including social, economic and environmental, affect access to information. The fact that artisanal fisher folk live in areas with poor or bad terrains, lacking basic infrastructure like roads, electricity and telephone, limits their access to information. Also most artisanal fisher folk are illiterate and cannot make use of electronic or print media to access needed information. New Partnership for Africa's Development (NEPAD, 2005) observed that overall information on inland fisheries is lacking at national and international levels in Africa. Some of the programs include those of Operation Feed the Nation, Directorate for Food, Road and Rural Infrastructure, and United Nations Development Programmes on artisanal fisheries. Despite such attempts, the sector has remained underdeveloped as artisanal fisher folk are still living in abject poverty and deprivation and fish production is on the decline yearly. An important factor identified as contributing to this scenario is lack of adequate information on modern fisheries practices among artisanal fisher folk. Samson (2006) observed that outside the World Bank-assisted Agricultural Development Programs, there are no organized extension services for fisheries in Nigeria.

The study conducted by Okwu et al., (2011) on the information needs and accessibility of artisanal fisher folk in Benue State, Nigeria, revealed that age, education and household size had significant effect on fisher folk access to needed fisheries information. Osikabor et al., (2011) also asserted that social participation, farm size, and the use of hired labour had a significant effect on access to information while religious participation, average income and social participation also had significant effect on information worth assessment.

Farmers, including artisanal fish farmers in Africa lack access to modern fishing technology and market information (Matovelo, 2008). Low accessibility to agricultural information leads to low adoption of improved fishing technologies, which invariably affects artisanal fish farmers' productivity (Ozowa, 2005). However, the effectiveness of technologies generated and disseminated depends on successful information sources, which are the key processes of information dissemination (Oladele, 2006). In addition, artisanal fish farmers' sources of information essentially shape the kind of decision they make (Agbamu, 2006).

2.11 Theoretical framework

The theoretical foundation for this research is drawn from both biological and library and information science (LIS). Relevant theories discussed include:

- i. Information foraging theory.
- ii. Information integration theory.
- iii. Dual process theory.

2.11.1 Information foraging theory

Pirolli and Card (1995) first proposed the information foraging theory. Information foraging utilizes the ideas from optimal foraging theory, which enables one to understand how human users search for information. The theory assumes that when searching for information, humans use "built-in" foraging mechanisms to find information similar to how animals find food.

This explains the behaviour of users in obtaining good results (Card, et al 2001; Lambros, 2005). Information foraging theory provides a number of methods that can effectively compensate for deficiency in traditional information retrieval and access to information theory. It helps to explain the ability to adapt to the environment, which presents ever-increasing challenges in which the organisms can select the optimal foraging strategy. Information foraging involves the users' need to spend time, money and effort to obtain the required information to achieve an optimal balance. In the process of finding and disseminating information, people need to adjust their information according to the environment in which foraging strategy is to be applied so to maximize the information gains.

The implication of this theory is similar to the information searching behaviour of farmers in solving their daily production challenges. Farmers need new information on production technologies and networking for development. These pieces of information are scattered in various access points, which may not be readily accessible. Information clues play a very important role in directing the user to ask questions in the information foraging process. Answering these questions enables one to accumulate clues, which helps the user to have a holistic understanding of the target in order to evaluate the information content. The main purpose of the information foraging theory is to analyse the network of information clues foraging behaviour. The analysis of information clues in Information Foraging Theory is based on the following four theories: (Card, et al 2001; Lambros, 2005)

- 1) The lens model" (Brunswik 1956), which posits that the human race is to evaluate or judge certain events through certain clues. The study of human application of these clues, as well

as clues to the proportion of the foraging strategy, enables us to do a valid assessment and judgment.

- 2) The classification of adaptive theory (Anderson 1991), which describes how the organization has been observed to predict the contents of the properties not observed.
- 3) Memory Adaptability Theory (Anderson, 1990), which describes how to retrieve the information they need from the existing information in the background.
- 4) The Random Utility Model (McFadden 1978) which is a classic choice theory which describes the probability with which each alternative is chosen.

The main purpose of user behaviour is to show how different systems improve the efficiency of the user to choose between information clues.

This theory supports the research in providing a link between the artisanal farmers and several information sources available. The artisanal fish farmers are made to reason and choose among various types of information and information sources the best that provide solution to their needs.

2.11.2 Information worth (integration) theory

Information integration theory explains information worth involving access and use. Information worth is also called value of information. Information integration theory was developed, and extensively tested through a variety of experiments, by Anderson (1981a, 1981b, 1991). It describes and models how a person integrates information from a number of sources in order to make an overall judgment. The theory proposes three functions: it explores how attitudes are formed and changed through the combining of new information with existing cognitions; it considers the ideas in a persuasive message to be pieces of information; and views each relevant piece of information to have two qualities: value and weight. The value of a bit of information is its evaluation (favourable or unfavourable) and the weight is the importance of the perceived information. The value of information (VoI) is a decision analytic method for quantifying the potential benefit of additional information in the face of uncertainty (Keisler et al., 2013). Stvilia et al., (2008) defines value of information, as the amount a decision maker would be willing to pay for information prior to making a decision.

The VoI is sometimes distinguished as value of perfect information. It is also called value of clairvoyance (VoC), and value of imperfect information. These are the conditions that exist in agricultural information system as the operations of production are under uncertainties due to the

vagaries of nature. The farmer constantly needs valid information to make informed production decisions. The concepts of value and weight are similar to attitudes. Attitudes are beliefs, weight and values (evaluation). It is reasonable to also say that the higher the weight and value of a piece of information, the more influence the idea has on our attitudes. Thus, conceptually, this is a useful theory of attitude change.

The theory proposes three functions:

The *valuation function* $V(S)$ is an empirically derived mapping of stimuli to an interval scale. It is unique up to an interval transformation ($y = ax + b$).

The *integration function* $r = I \{s_1, s_2, s_n\}$ is an algebraic function combining the subjective values of the information. "Cognitive algebra" refers to the class of functions used to model the integration process. They may be adding, averaging, weighted averaging, multiplying, etc.

The *response production function* $R = M(r)$ is the process by which the internal impression is translated into an overt response.

The theory postulates that when we learn new information, we usually do not abandon our existing attitudes (accepting the new information completely) or ignore those new ideas. Rather, we integrate, mix, or combine the new information into our existing attitudes to come up with a new attitude. Our new attitude is not exactly the same as either our existing attitudes or the new information, but each influences it to some extent.

The relevance of this theory is in the adoption behaviour of farmers who, many times, would not want to let go their previously learnt behaviour. Attitudinal change is necessary for development. Anderson (1990) expressed that Information Integration Theory offers several options for those who want to create or encourage attitude change. Attitude consists of favourable and unfavourable information and that each piece of information has both weight and value. Primarily, farmers' attitudes are shaped by the information that is salient, or that which they remember. This means that if they knew about a piece of information but forgot it, we may be able to persuade them by reminding them of the idea, which enables them to recall the idea quickly. Ordinarily, we would not have to convince them that we are right about a piece of information, because it is something they once accepted. It can often be easier to remind them of an idea than to persuade them to accept a new idea. Of course, you have to remind them of something that supports the new attitude you

want them to accept. There is also some risk that if they have not forgotten this idea, they will find your message repetitive and boring (Keisler et al., 2013).

With these factors in mind, Information Integration Theory states that there are six basic options for changing a person's attitude:

- i. Increase the favourability (value) of a piece of existing information that supports the desired attitude.
- ii. Increase the weight of a piece of existing information that supports the desired attitude.
- iii. Decrease the favourability (value) of a piece of existing information that opposes the desired attitude.
- iv. Decrease the weight of a piece of existing information that opposes the desired attitude.
- v. Offer a new piece of favourable information.
- vi. Remind the audience about a forgotten piece of favourable information.

This theory relates to the research through the value the artisanal fish farmers place on the information and the sources that artisans choose among several sources available. It is the worth placed on the information source that enables the farmer choose it.

2.11.3 Dual-process theory (credibility theory)

The theory of dual process (Chaiken, 1980; Petty & Cacioppo 1986; Chaiken, & Trope, 1999) is essentially concerned with the evaluation of the source of information (messenger) or the content of the information (message evaluation). The theorists focus on the notion that information-processing outcomes (e.g., credibility judgments) are the result of an interaction between two qualitatively different processes (Chaiken & Trope, 1999). As Chaiken & Trope (1999) have pointed out, in double processing models, there are two common differences between a fast and associative method of information processing based on low efficiency heuristic approaches (elaborate probability model (ELM), Petty & Cacioppo, 1986).

The ELM describes an individual's attitudinal changes as they evaluate information sources, and shows how these changes lead to the individual focusing on either (1) peripheral cues, or (2) the content itself. The ELM considers the evaluation of design features and message features (e.g., reputation), which Wathen & Burkell (2002) categorised as low-effort processes since they are dependent on relatively immediate perceptions of quality rather than on a process of high-effort systematic reasoning.

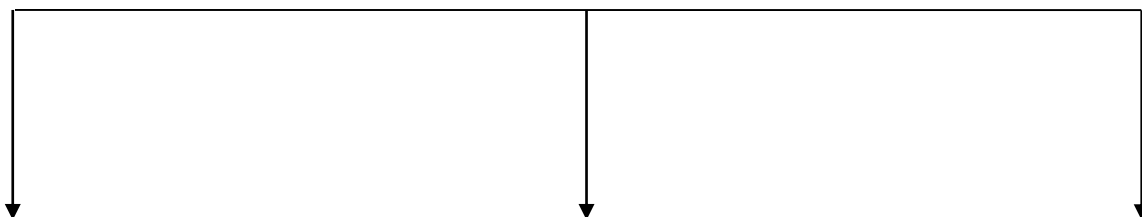
The ELM describes how an individual's motivation and ability leads to a focus on either (1) low-effort heuristic processing, or (2) high-effort systematic processing. In both cases, low effort heuristics processing reflects an evaluation of the messenger (e.g., reputation, design), while high effort heuristics processing reflects an evaluation of the content of the message. Chaiken (1980) posits that content evaluation requires a focused effort to understand the information communicated by an information source, and as such requires a comparatively large amount of effort to arrive at a judgment of credibility

One important example of the applicability of dual-process theories to agricultural information credibility judgments is the effect that involvement (investment or motivation) has on these judgments. Casual and directed information-seeking episodes can lead to a difference for importance ascribed to, e.g., design evaluation and content of the message. In Aumer-Ryan's (2008) position, a single process theory that examines the effects of poor interface design on credibility judgments may directly conclude that poor design leads to a decrease in perceived credibility. Where analysis takes into account highly motivated and invested users who are willing to overlook bad presentation in order to find applicable information credibility judgment may be high as they have some level of expertise (Chaiken 1980).

The three theories relate to this study as artisanal fish farmers make choices based on the value and the credibility of the choice. Artisanal fish farmers make the choice, value the choice and ascertain the credibility of the choice, which are the cardinal points of the theories.

2.12 Conceptual framework

Information



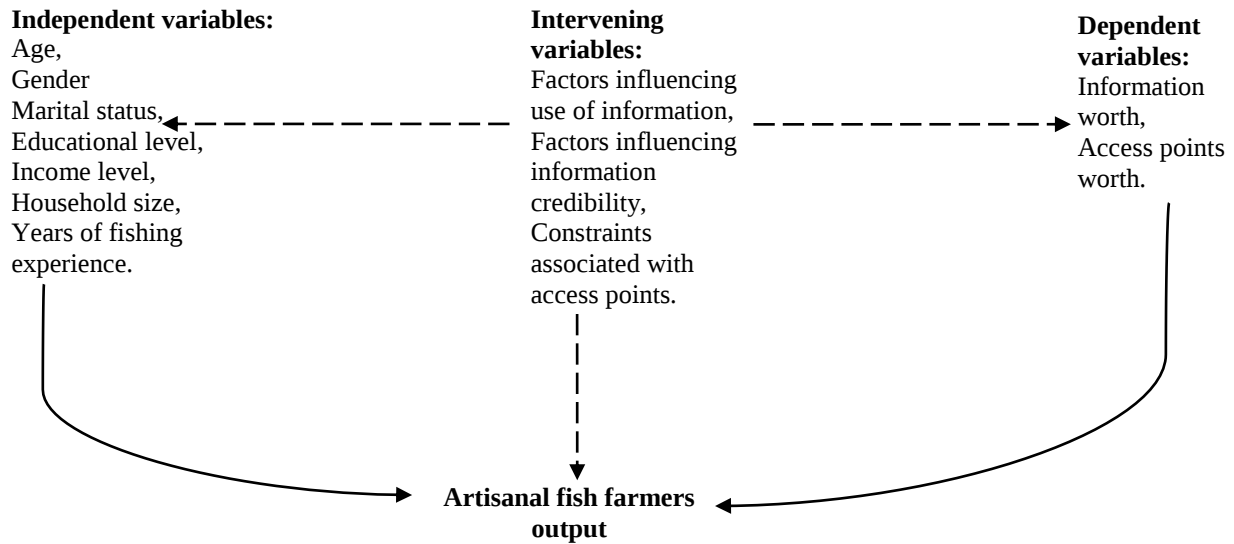


Figure 1. Conceptual framework showing the relationship between the independent and dependent variables.

According to these three theories, a synthesized diagram was conceived. The framework is divided into three basic segments, which are classified as independent, dependent and intervening variables.

The independent variables are the artisanal fish farmers' personal characteristics such as age, gender, marital status, educational level, household size and years of fishing experience. These personal characteristics are capable of influencing the worthiness of the information and the worthiness of the information access points. The worthiness and otherwise of the information and its access points is brought about by the personal characteristics of artisanal fish farmers which will determine their output.

The dependent variables in this study are information worthiness and information access points. This explains the positive or negative disposition that artisanal fish farmers have in terms of their perception of the effect it will have on their output. Their perception on whether information worthiness and access points worthiness will protect and promote the interest of the business, enhance high level of credibility, accountability and ethical conduct, promote competent and efficient information dissemination, enhance regular knowledge upgrade, regulate the professional conduct of artisans and enhance service productivity.

There are intervening variables that have an indirect influence on the dissemination of information and its access points that will bring about increased productivity by the artisanal fish farmers. These include factors influencing the use of information access points, factors affecting the credibility of information sources and constraints associated with access points, information worthiness and credibility of information sources, other factors that have a role to play in the information delivery system and the prevailing government policies and programmes that have impact on the artisanal fish farmers. All these intervening variables relate with each other and are present in the interface that exists between the dependent and independent variables.

2.13 Chapter summary.

The review began with the introduction of the chapter outlining the sections discussed.

It provided information on recent trends and findings relating to the topic under consideration and indicates the best approach for the study. The chapter reviewed both national and international literature on artisanal fish farmers' agricultural information. The literature is presented in different sections for better understanding of artisanal fish farmers and their sources of information. The literature was discussed under the following headings: demographic characteristics of artisans, agricultural information, characteristics of good information, access points and worth of information, and constraints faced by fish farmers in accessing information, importance of artisanal fishery sector. The chapter ultimately examined sources of agricultural information, agricultural information needs of artisanal fish farmers and information accessibility. The chapter concludes by reviewing related theories and the conceptual framework used for the study.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the procedure and, specifically, the methodological approaches used in gathering and analysing data. It covers the study area, research design, population of the study, sampling procedure and sample size, data collection, validity and reliability of instrument, data analysis and ethical considerations.

3.2 Study area

The study was conducted in coastal areas of Nigeria (Bayelsa, Rivers and Akwa Ibom states). Which are in the Niger Delta of Nigeria in West Africa. These areas are in the Niger Delta located on the Niger River directly on the Bight of Biafra side of the Gulf of Guinea on the Atlantic Ocean. It is a very densely populated region sometimes called the Oil Rivers because it was once a major producer of palm oil. The area was the British Oil Rivers Protectorate from 1885 until 1893, when it was expanded to become the Niger Coast Protectorate. The delta is an oil-rich region, and has been the centre of international controversy over pollution, and human rights violations.

The three states cover a landmass of about 18,050 km², of which more than 60% is land. They are located approximately between Longitude 5°00 and 6°.45' East and Latitude 5°00 and 6°.30' north. Imo, and south by Cross Rivers States bound the area in the north and west by Delta State, the east, and on the southern flank is the Bight of Benin which covers about 160 kilometres of the state's coastline. The states have a wide coastal belt inter-lace with rivulets and streams, which form part of the Niger Delta (Michael, 2013).

The area around this coastline is broken up by series of estuaries that form the Niger Delta swamp in the middle where the lower Niger River system drains the waters of Niger and Benue rivers into the Atlantic Ocean (Ekubo & Abowei, 2011).

The area is a rich mangrove swamp in the southern part of Nigeria covering over 20,000km² within wetlands of 70,000km² formed primarily by sediment deposition. It is the largest mangrove swamp and wetland in Africa, maintaining the third largest drainage basin in the continent, and is the third largest wetland in the world after Holland and Mississippi (Ogboma, 2010). The region has a population of around 20 million people comprising 40 different ethnic groups. It is a home to extraordinary biodiversity and its mangrove swamp is of immense importance to the people of the

region and vital for their sustenance as it provides these communities with different ecosystem goods, such as sea foods, fisheries, fuel, wood, agricultural products and ecological services like fertile alluvial plains and coral reefs.



Figure 2: Map of Nigeria showing study area (Bayelsa, Rivers and Akwa Ibom States)

3.3 Research design

The study used the descriptive survey design to provide quantitative description of the opinions of the participants (Creswell 2017). The reason is that they are inexpensive, useful in describing the characteristics of a large population. The method was quantitative. It enhances the description of artisanal fish farmers . This method utilised a set of predetermined questions to collect data from the sample of the study population. The data gathered were quantitative in line with the specific research objectives of the study. Quantitative research methods are reliable and objective because they enable respondents to express themselves in a directive manner. The quantitative results clarify the implications of communication strategies and adoption of these by the artisanal fishermen in the designated study area.

3.4 Population of the study

The population of the study was all full-time artisanal fish farmers in the selected coastal states of Nigeria. The numbers of registered artisanal fish farmers per state were 315 in Bayelsa, 304 in Rivers and 201 in Akwa Ibom, totaling 820 (Agricultural Development Projects (ADPs), 2013).

3.5 Sampling procedure and sample size

A multi-stage purposive sampling technique was adopted as follows: In Stages 1 and 2, three states and four local government areas were selected due to their riverine nature. In order to extract a sample, a random sampling technique was employed at the third stage, using online Rao soft calculator to reach 477 respondents out of 820 artisanal fish farmers as shown in Table 3.1.

A sample is the portion of a population selected for analysis (Hagopian et al, 2013)

Table 3. 1: Composition of the sampling size.

States	No of LGA	Population	Sample size
Bayelsa	4	315	174
Rivers	4	304	170
Akwa Ibom	4	201	133
Total	12	820	477

Source: Various state ADPs, 2013.

3.6 Validity and reliability of instrument

Validity is an indication of whether the instrument for data collection measures what it is supposed to appraise. To ensure that the questionnaire used for the study was valid, the researcher gave copies of the draft questionnaire to three experts in the researcher's field of study for face validation. They checked the contents of the questionnaire and their corrections, comments and inputs were reflected in the final instrument.

Reliability refers to the consistency of measurement within a study (Gaddi et al., 2010). It signifies the issue of consistency of measures, which is the ability of a measurement instrument to measure the same thing each time it is used (Singh et al., 2011). In order to obtain consistency in the instrument used, a test re-test was done on respondents that were not part of the research population

in Delta State. The two test results correlated and no systematic difference in scores between the two sets was obtained with a higher correlation co-efficient.

3.7 Data collection

The researcher trained and used research assistants who lived in fishing settlements for the purposes of administering and interpreting the question items contained in the questionnaire for ease of administration.

3.8 Data analysis

Descriptive and inferential statistical analysis was employed to identify the central meanings derived from the data. Using the analysis, calculations of the measures of central tendency as well as frequencies in percentages were computed to understand the data more accurately. The Statistical Package for Social Sciences (SPSS) was used to process quantitative data gathered from the structured questionnaire. The inferential statistics used is multiple regression analysis to compare relationships between two variables. The SPSS was used to analyse the data obtained, and addressed the following study objectives:

1. Identify the factors that influence the use of information access points by artisanal fish farmers in the study area.
2. Identify the factors that determine the credibility of information sources used by artisanal fish farmers in the study area.
3. Ascertain the constraints associated with information worth assessment, access points and credibility of information sources used by artisanal fish farmers in the study area.

The Multiple Regression model was used to analyse hypotheses (1) and (2).

1. There is no significant relationship between socio-economic characteristics of artisanal fish farmers and information worth assessment in the study area.
2. There is no significant relationship between socio-economic characteristics of artisanal fish farmers and information access points in the study area.

The two hypotheses were stated in the null form.

These require analysis of two or more independent variables on the dependent variables. The model was as follows:

Multiple regression model

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \varepsilon$$

where,

y_1 = Information worth,

y_2 = access point worth,

β_0 = constant term,

x_1 = Age (in years),

x_2 = Gender (1 = male, 2 = female),

x_3 = Marital status (1 = married, 2 = otherwise),

x_4 = Household size (number of persons),

x_5 = Average annual income (in Naira),

x_6 = Educational level,

x_7 = Years of fishing experience,

ε = error term,

x_2 , x_3 and x_6 are the dummy (also known as indicator or qualitative) variables,

y , x_1 , x_4 , x_5 , x_7 , x_8 and x_9 are the quantitative variables.

3.8 Ethical considerations

The researcher observed the highest possible codes of conduct throughout the study. A deliberate effort was made to eliminate prejudices, bias and sentiments that prevent objectivity and neutrality. The following ethical protocols were observed in this study:

The research proposal was approved and a certificate issued by the Faculty.

The ethical approval was obtained with the number: NWU 00327-18-A9.

Other ethical practices observed were:

Anonymity and confidentiality: Respondents' personal identities were not requested for in the questionnaire. Information elicited from the respondents were not diverged and no attempt made to link the findings to an individual source of data.

Voluntary participation: Respondents were asked whether they were willing or not to participate in the study.

Informed consent: The objectives of the research were stated clearly for the respondents and who were requested to raise any questions they had before indicating willingness to participate.

Beneficence and non-maleficence: The researcher, throughout the study, ensured the welfare of the respondents. The study was not in any way engaged in anything that was harmful or injurious to the health and interest of the respondents.

3.9 Chapter summary

This chapter discussed the research procedure and specifically the methodological approaches used in gathering and analyzing data. It covered the study area, research design, population of the study, sampling procedure and sample size, data collection, validity and reliability of instrument, data analysis and ethical considerations.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Introduction

In this chapter, results and discussions on the findings are presented under the following headings: socio-economic characteristics of artisanal fish farmers, information needs, factors that influence the use of information. The chapter also deals with the information worth assessment, worth assessment of access points, credibility of information sources, constraints associated with information, relationship between socio-economic characteristics of artisanal fish farmers and information worth assessment, and relationship between socio-economic characteristics of artisanal fish farmers and information access points.

4.2 Socio-economic characteristics

Table 4.1: Socio economic characteristics of Artisanal Fish Farmers

SEX		Frequency	Percentage
Male		353	79.90
Female		89	20.10
	Total	442	100
	AGE		
	20-30 years	32	7.20
	31-40 years	187	42.30
	41-50 years	190	43.00
	51 and above	33	7.50
	Total	442	100
	INCOME		
	N1-10,000	99	22.40
	11,000-50,000	243	55.00
	51,000-100,000`	71	16.10
	101000 and above	29	6.60
	Total	442	100
	Household size.		
	children /dependents		
	1-2	157	31.00
	3-4	205	46.40
	5- 6	71	16.10
	7 and above	29	6.60
	Total	442	100
	Wives		
	1-2	423	95.70
	3-4	19	4.30
	Total	442	100
	Marital Status		
	Married	355	80.30
	Single	87	19.70
	Total	442	100
	Years of Fishing Experience		
	1-5 years	218	49.30
	6-10 years	195	44.10
	11-15 years	6	1.40
	16 and above	23	5.20
	Total	442	100
	Educational Level		
	No formal education	50	11.30

Primary school	168	38.00
Secondary school	195	44.10
Higher education	29	6.60
Total	442	100

Table 4:1 indicates that the majority of artisanal fish farmers were male (79.90%). About 43% of artisanal fish farmers fell within the age bracket of 41 – 50 years followed by that of 31 – 40 years (42.3%) and 20-30years (7.2%). This shows that artisanal fish farmers are predominantly young people. Very few old people (51 and above) are engaged in artisanal fish farming (7. 50%). The involvement of few young boys and girls in artisanal fishing could be attributed to their inability to pursue higher education. The implication of the findings is that fish farmers in the study area are predominantly male, young and energetic people.

The respondents were mostly married (80.30%), with 46.6% having 3 – 4 children, and 95.7% having 1-2 wives. Few people (23 or 5.2%) have been engaged in fish farming for the past 15 years or more. However, new entrants with 1 – 5 years of fishing experience have come into fishing occupation, most probably because of increased economic benefits in the fishing sector.

The majority (88%) of artisanal fish farmers had one or other form of education. Those with primary education were 168 (38%) while 195 (44.10%) had secondary education, and 29 (6.60) had higher education. However, 50 (11.30%) had no formal education.

Furthermore, the research finding revealed that the majority 243 (55%) of artisanal fish farmers earn monthly income between ₦11,000 – ₦50,000, while 22.40% earn ₦1 – ₦10,000, 16% earn between ₦51,000 – ₦100,000 and 6.60% earn between ₦101, 000 and above.

The findings of this study reveal that males and females are involved in artisanal fishing, although males dominate. This agrees with the findings of Ijatuyi (2016) that fishing is not exclusively male occupation even though males are the most dominant group. The low proportion of females could be attributed to the tedious nature and high risk associated with the art of fishing. Also, the findings of this study show that the majority of artisanal fish farmers were of middle age, energetic, economically active, and more inclined to fishing and, above all, could withstand stress in fishing operations. This concurs with the observation by Annune (2012) that most people engaged in fish catching were still active and physically fit to paddle the canoes. In addition, the findings reveal that the artisanal fisheries sector has different areas of specialisation ranging from fishing, fish

processing, storage, preservation and marketing. The work of Onemolease & Oriakhi (2011) agrees with the finding that majority (90.2 %) of the respondents were males, while the remaining 9.8 % were females. The dominance of male in artisanal fishery sub-sector has been reported by Akpoko (2003). The risk associated with such offshore fishing activities may be responsible for the low female participation in the activity. It is also evident from Table 4.1 that 38.0% of the respondents had primary education, while 44.1% had secondary education with 6.6% having higher educational qualification. The remaining 11.1 % had no formal education. This implies that artisanal fisher folks have low educational background. The low educational status of the respondents may influence their acceptance of improved fishing practices. The positive influence of education on farmers' acceptance of improved farm practices has been established by several studies (Onemolease et al, 2000; Tshiunza, Lemchi and Uloma, 2001).

Most male artisanal fish farmers are involved in the art of fishing than their counterparts engaged in other occupations. Female artisans who are mostly wives of fishermen, their children and other dependents specialised in fish processing, storage, preservation and marketing of the products. This agrees with Annune (2012) that fishing has always been the primary occupation of most fishing communities while fish processing, storage and preservation are left in the hands of low proportion of fisher folks. Udoh & Philip (2011) confirmed that women were increasingly involved in fisheries activities but primarily as traders and fish processors who are involved in salting, smoking and drying for preservation and marketing.

Furthermore, the study reveals that artisanal fish farmers operate mainly on family unit and majority of them have large family sizes. This is because, with large household size, labour is cheap and readily available, though, increase in household size may increase consumption rate and consequently reduce fish product for sale. This is in line with Annune (2012) that, artisanal fish farmers operate mainly in family units.

This study also reveals that artisanal fish farmers with long fishing experience were able to excel in their fishing occupation due to wealth of skills acquired and the approaches taken in fish production. This finding is in consonance with Annune (2012) who stated that more experienced fish farmers were better equipped with techniques in fishing than less experienced fish farmers. Artisanal fish farmers with such experience just by looking at the water body can detect the areas where fish converge for successful operation. Experienced artisanal fish farmers can identify the

presence of fish in a particular position by examining the water around that place. In addition, the results show that some artisanal fish farmers had educational qualifications. With this educational background, even artisanal fish farmers with primary education can understand and write the rudiments of English or write in local language. Therefore, they could be trained by fisheries information agents on how to access information. Anyanwu, Mkpado & Ohaka (2009) while the findings of the study advance that, fishing is exclusively male occupation as shown however, the youth participated least actively in fish production. They further assert that artisanal fish farmers in Onitsha North Local Government have one level of education or another, with maximum household of 4-6 children and specialized in fishing.

4.3 Information needs

Table 4.2 Information needs of artisanal fish farmers

In which of the following areas do you need information?	Frequency	Percentage
New method of catching fish	442	100.00
Effect of obnoxious (bad) fishing practices	440	99.50

Middle men exploitation	439	99.30
Access to modern fishing facilities	413	93.00
Where to obtain loan/credit facilities	264	59.70
Fish processing and storage	241	54.50
Membership of fisheries cooperative	232	52.50
Observation of close fishing season	232	52.50
How to market fish	221	50.0
Where to acquire fishing tools at cheaper rate.	219	49.50
Effect of weather on fishing activities	168	38.20
Conflict resolution	135	30.50
Effect of water pollution	56	12.70

(Field Survey 2017)

Multiple responses recorded.

Table 4.2 shows the information needs of artisanal fish farmers. It is clear that artisanal fish farmers need information in nearly all the areas as presented. All the respondents (100%) indicated that they need information on new methods of catching fish and, 99.50% on the effect of obnoxious (bad) practices. Furthermore, 99.3% of the respondents need information on middlemen exploitation, 93.0% on access to modern fishing facilities. 59.70% on where to obtain loan/credit facilities and 54.50% of the respondents required information on fish processing and storage. Some 52.5% of the respondents needed information on membership of fisheries co-operative and on observation of close fishing season and 50% of the respondents needed information on how to market their fish, while 49.50% needed information on acquire fishing tools at cheaper rate, 38.20% on effect of weather on fishing activities, 30.50% on conflict resolution and 12.70% on effect of water pollution on fishing.

Majority 61.8% submitted that they do not need information on effect of weather on fishing activities whereas 38.2% asserted that need such information. Furthermore, 87.3% indicated that information on effect of water pollution was not necessary as opposed to 12.7% that needed the information. It is therefore evident that artisanal fish farmers require information on all areas at different levels.

This study reveals that artisanal fish farmers in the study area have significant information needs such as, new methods of catching fish, obnoxious fishing practices, modern methods of catching fish, modern fishing facilities, fish processing and storage. Others include preservation and fish marketing, middlemen exploitations, where to purchase tools at cheap rate, organization of cooperatives, where to obtain loan, conflict resolution, effects of weather on fishing activities and the effects of water pollution.

However, the most pressing information needs of artisanal fish farmers are new methods of catching fish, effects of obnoxious fishing practices, middlemen exploitation and access to modern fishing facilities. Artisanal fish farmers make use of obnoxious fishing practices such as chemicals, explosives and poisons from empty shells of locus beans for mass killing of fish in a bid to get much harvest (Muallil et al., 2013). These traditional methods of fishing were passed on from generation to generation as advanced by the community heads and fishing coordinators. These traditional techniques of fishing catches fish indiscriminately without reserving the juveniles (or fingerlies) for future harvest.

The study established that artisanal fishermen lack knowledge about the consequences of using these methods as it destroys organisms that fish feed on, fish nursery, fish eggs and kill fish indiscriminately, thereby not giving room for continuity. The overall effect of these impediments results into low production rate. Therefore, artisanal fish farmers need information on more advanced or acceptable ways of fishing that will ensure increase in production. Similarly, Udoh et al (2011) also opined that artisanal fishermen apply inappropriate fishing methods like chemo fishing for mass killing of fish in a bid to yield much harvest. This is in line with Annune (2012) that artisanal fishermen make use of small mesh nets of various sizes which catch undersized fishes that are not utilized but thrown away. This may affect production rate and, consequently, reduce fish supply. Also, government fishing regulation stipulates that only nets of 3inch mesh sizes are to be used for trawling fish (Annune 2012).

In every occupation there is bound to be conflict. The artisanal fisheries subsector is one such contested area where fishermen struggle to control certain areas of fishing that they believed harbored a large amount fish. In agreement with this, Muallil et al. (2013) advanced the causes of conflicts among artisanal fishermen as damaging nets, use of undersize nets, and fishing in non-trawling zone. Conflicts in artisanal fishing industry affect their production rate as it creates fear of operating freely in certain areas. This fear curtails fishing in the night (Annune 2012). In addition, artisanal fishermen in the coastal states lack general understanding of rules, regulation and norms governing the exploitation of common resources. This generates significant conflict amongst the artisanal fishermen. That is why, artisanal fishermen need information on how to resolve conflict amongst themselves. Furthermore, artisanal fishermen need information on fish processing, storage, preservation and fish marketing.

Artisanal fishermen relied heavily on the indigenous knowledge of processing, storage and preservation of fish. This is because they have limited knowledge of hygienic processing, storing and preservation of fish. The results of this poor knowledge was evident in the harvest getting infested by insects and maggots that reduced the quality of the fish supply. Also, lack of proper preservation of fish attracts low income for artisanal fishermen. Therefore, artisanal fishermen need information to ensure adequate fish preservation and consequently guarantee the supply. This agrees with Otolo (2009) that artisanal fishery information needs include fish processing, storage and preservation.

Artisanal fishermen need information on where to market their products. In line with this, Annune (2012) advanced the provision of marketing information as being of utmost importance in the fishery industry, especially with regard to the prevailing problems of post-harvest losses which affect about 50% of the estimated daily harvest. Otolo (2009) states that, market changes and credit facilities are some of the basic information needs of fishermen. This implies that, middlemen for lack of current price information constantly confront fishermen with the problem of exploitation. Sometimes, lack of markets for fish products will lead to wastage and panic selling which discourage production and widens the gap between demand and supply. That is why they need information on this area. This study also revealed that artisanal fish farmers need information on effects of water pollution. While water is essential for fish production, it suffers pollution caused by fishing communities. Artisanal fish farmers are ignorant about the danger of polluting water

bodies which can impede the developmental stages as well as restrict the growth of fish. This calls for awareness creation to artisanal fish farmers.

Traditionally, artisanal fish farmers acquired fishing tools locally made from local producers within the fishing communities and local markets. These only last for a little time at very high price, therefore, they need information on where they can purchase fishing tools at cheap rate. This is confirmed by Annune (2012) who observes that operators make use of canoes made of planks or wood, which do not last much longer. Ironically, the same rudimentary canoes attract a high purchase price. Artisanal fishermen have insufficient knowledge about modern ways of fishing which leads to reduction in fish supply while the demand is on the increase. This inferences suggests that there is need for dissemination of information to artisanal fishermen. Otolo (2009) confirms that fishermen need information on how to get modern fishing technology. Artisanal fishermen obtain fishing tools through middlemen who either supply or provide on credit for them.

Unfortunately, they pay back at exorbitant prices in cash or kind by means of catches made from fishing operations. This confirms the observation made by Annune (2012) that middlemen often exploit artisanal fishermen. It is crucial to state that the fishermen do not see the activities of middlemen as exploitation. Artisanal fishermen need information on how to organize fisheries cooperative societies. They are ignorant about the importance of forming viable fisheries cooperative societies that will help in disbanding activities of the middlemen as well as attract loans from government, non-governmental organizations and banks. In agreement with this, Otolo (2009) observes that artisanal fishermen need information on how to organize and become members of fishermen cooperatives so that they immediately reap the benefits from these societies. Artisanal fishermen need to be informed on where to have access to loans for the purchase of modern fishing tools that will boost their production rate in the state. In view of this, Annune (2012) confirms that, where and how to obtain credit facilities remain one of the major needs of Artisanal fishermen.

4.4 Factors that influence the use of information

Table4.3: Factors that influence the use of information access points by artisanal fish farmers.

Question	Strongly agree	Agree	Disagree	Strongly disagree	Mean	Remark
Do you agree that the following influence the use of information access by fish farmer?						
Regular availability of information sources	219(49.50)	203(45.90)	10(2.30)	10(2.30)	3.4276	Agree
Currency of Information sources	215(48.60)	122(27.60)	48(10.90)	57(12.90)	3.1199	Agree
Timing of information	295(66.70)	64(19)	35(7.90)	28(6.30)	3.4615	Agree
accessibility of Information sources	290(65.60)	91(20.60)	32(7.20)	29(6.60)	3.4525	Agree
Comprehension of the information source	57(12.90)	361(81.70)	13(2.90)	11(2.50)	3.0498	Agree
Access to credit	218(49.30)	57(12.90)	77(17.40)	90(20.40)	2.9118	Agree
Cost of acquiring the information	376(85.10)	66(14.90)	-	-	3.8507	Agree
Information source worth	290(65.60)	95(21.50)	2(5)	55(12.40)	3.4027	Agree
Format of information presentation)	216(48.90%)	109(24.70)	77(17.40)	40(9)	3.1335	Agree
Poor knowledge of sharing culture	282(63.80)	115(26)	22(5.00)	23(5.20)	3.4842	Agree
Poor infrastructure	158(35.70)	255(57.70)	10(2.30)	19(4.30)	3.2489	Agree
Lack of Reading culture	218(49.30)	201(45.50)	10(2.30)	13(2.9)	3.4118	Agree
Lack of information Services	225(50.90)	45(10.20)	76(17.20)	96(21.70)	2.9027	Agree

Lack of Awareness of Information Services	218(49.30)	74(16.70)	35(7.90)	115(26)	2.8937	Agree
Inadequate number of Extension Agent	1(2%)	410(92.80)	20(4.50)	11(2.50)	2.9072	Agree

(Field survey 2017)

Table 4.3 shows the factors that influence the use of information access points by artisanal fish farmers. The findings show that 95.40% of the respondents agreed that regular availability of information sources influences use of information access points by artisanal fish farmers. That is, if information is regularly available, fish farmers are likely to utilize it. Also, 76.2% of the respondents agreed that currency of information sources affects the use of information access points by artisanal fish farmers. Artisanal fish farmers, (85.7%) agreed that timing of information influences the use of information access points of artisanal fish farmers while 86.2% agreed that accessibility of information sources affects the use of information access points and 94.6% agreed that comprehension of the information source is a factor that influences the use of information access points by farmers. The implication is that information access points should be simple enough for artisanal fish farmers' easy understanding and possible use. Lack of understanding of the information source is likely to affect the use of information access points negatively.

The findings in Table 4:3 further revealed that 62.2% of the respondents agreed that access to credit influenced the use of information access points by artisanal fish farmers. This is noteworthy, given that artisanal fish farmers are generally poor and would need access to credit in order to enhance their productivity. The cost of acquiring information also influence the use of information access points as indicated by all (100%) of the respondents. Furthermore, 87.1% of the respondents agreed that information source worth influences the use of information access points, implying that a worthy information source was likely to yield positive results. According to 73.6% of the respondents, information presentation influences the use of information access points by artisanal fish farmers, while 63.80% mentioned lack of poor knowledge sharing culture as a factor. The findings also reveal that 50.90% of the respondents agreed that lack of information services, lack of awareness of information services (68%) and lack of extension agents (98.80%) influence the use of information access point. These findings agree with earlier studies by Ogola (2013) and

Annune (2012) who reported different challenges preventing farmers from accessing information to include bad roads, lack of electricity, high rate of illiteracy, poor radio signal, lack of fund, language barrier and shortage of extension workers. The overall mean or grand mean score of 3.2439 indicates that all the factors listed in the Table 4.3 influence the use of information access points as indicated in their responses.

4.5 Worth of information

Table 4.4 Timeliness of Information type

Information type	Timeliness				Mean	Remark
	Vt	Mt	Lt	Nt		
Use of different types of fishing gears		69(15.6)	121(27.4)	252(57.0)	1.5860	Less time
Water trend or movement	218(49.3)	5(1.1)	-	219(49.5)	2.5023	Timely
Weather trend	-	334(75.6)	105(23.8)	3(.7)	2.7489	Timely
New methods of catching fish	218(49.3)	4(.9)	120(27.1)	100(22.6)	2.7692	Timely
Type of materials for boat making	218(49.3)	123(27.8)	72(16.3)	29(6.6)	3.1991	Timely
Use of motorized fishing		88(19.9)	111(25.1)	243(55.0)	1.6483	Less Timely
Brackish or fresh water fishing	135(30.5)	83(18.8)	4(.9)	220(49.8)	2.3009	Less Timely
Access to modern fishing facilities		47(10.6)	72(16.3)	323(73.1)	1.3756	Less Timely
Use of Non-motorized fishing(use of paddle)	218(49.3)	5(1.1)		219(49.5)	2.5023	Timely
Methods of fishing	218(49.3)	203(45.9)	19(4.3)	2(.5)	3.4412	Timely
Use of safety materials	135(30.5)	171(38.7)	103(23.3)	33(7.5)	2.9231	Timely
Effects of use of explosives(dynamite)	222(50.2)	1(.2)	47(10.6)	172(38.9)	2.6176	Timely
Use of different mesh size of nets	254(57.5)	163(36.9)	22(5.0)	3(.7)	3.5113	Timely
Information on how to maintain fishing gears.	217(49.1)	5(1.1)	120(27.1)	100(22.6)	2.7670	Timely
Effect of bad fishing practices& water pollution	270(61.1)	76(17.2)	94(21.3)	2(.5)	3.3891	Timely
Modern techniques in boat &engine(outboard) maintenance	435(98.4)	4(.9)	1(.2)	2(.5)	3.9728	Timely
Dangers of rough sea (waves) fishing	268(60.6)	81(18.3)	93(21.0)		3.3959	Timely
Processing and storage	190(43.0)	28(6.3)	1(.2)	223(50.5)	2.4186	Less Timely
Effects of deforestation	137(31.0)	87(19.7)	1(.2)	217(49.1)	2.5258	Timely

How to obtain loan (where, when and requirements).	69(15.6)	120(27.1)	253(57.2)	1.5837	Less Timely	
Available government grants and provision of other incentives.	2(.5)	2(.5)	438(99.1)	1.0226	Less Timely	
Organization of fishing cooperatives.	218(49.3)	5(1.1)	219(49.5)	2.5023	Timely	
Negative activities of middlemen or exploitation.	265(60.0)	174(39.4)	1(.20)	2(.5)	3.5882	Timely
Where to acquire cheap fishing tools.	9(2.0)	230(52.0)	129(29.2)	74(16.7)	2.5937	Timely

Key: Vt = Very timely, Mt = Moderately timely, Lt = Less timely, Nt = Not timely.
(Field survey 2017)

The findings on the timeliness of information are summarized in Table 4.4. and indicate that, 50.4% of the respondents indicated that water trend/movement was timely while 75.6% indicated that weather trend as timely, 50.2% indicated new methods of catching fish as timely and 77.1% were of the view that information on the type of material for boat making was timely. Other types of information that were considered as timely were; information on modern techniques of boat making (99.3%). methods of fishing (95.2%), use of different sizes of net (94.4%). Effects of bad fishing practice and water pollution (78.35%), non-motorized fishing (use of paddle) (50.4%), use of safety materials (69.2%), information on the effects of the use of explosive (dynamite) was timely (50.4%) and information on how to maintain fishing gear (50.2%).

In addition, the respondents accepted that information on dangers of rough sea (waves) fishing, (54.6%), information on where to acquire cheap fishing tools and effects of deforestation (50.7%) and information on organization of fishing cooperatives (50.4%) were timely.

However, the following aspects of information were considered by respondents to be less timely; information types included use of different types of fishing gears (84.4%), how to obtain loan (84.3%), use of motorized fishing (80.1%), brackish or fresh water fishing (50.7%) and access to modern fishing facilities (89.4%). Others were; processing and storage (50.7%), use of different types of fishing gears (84.4%), how to obtain loan (84.3%), use of motorized fishing (80.1%), brackish or fresh water fishing (50.7%), access to modern fishing facilities (89.4%), and processing and storage (50.7%).

The timeliness of the information is critical to the success of the fishing business as it conforms to the findings of Osikabor et al., (2011) and Dulle et al., (2014) who stated that timeliness was an attribute of good information.

Osikabor et al., (2011) and Dulle et al., (2014) indicated that: relevance, timeliness, precision, efficiency, reliability, usability, completeness of data and the level of consolidation are the qualities of good information

The grand mean of 2.6036 reflects the findings that 15 out of 24 information items reflected timeliness, while seven reflected untimeliness.

4.5 Adequacy of information types

Table 4.5. Adequacy

Information type	Adequacy Va	Ma	La	Na	Mean	Remark
Use of different types of fishing gears	-	-	126(28.5)	316(71.5)	1.2851	Less Adequate
Water trend or movement	218(49.3)	4(.9)	220(49.8)		2.5000	Adequate
Weather trend	83(18.8)	198(44.8)	123(27.8)	38(8.6)	2.7376	Adequate
New methods of catching fish	137(31.0)	87(19.7)	7(1.6)	211(47.7)	2.5394	Adequate
Type of material for boat making	218((49.3)	187(42.3)	37(8.4)		3.4095	Adequate
Use of motorized fishing	45(10.2)	304(68.8)	10(2.3)	83(18.8)	2.7036	Adequate
Brackish or fresh water fishing	218(49.3)	4(.9)	63(14.3)	157(35.5)	2.6403	Adequate
Access to modern fishing facilities	196(44.3)	105(23.8)	141(31.9)		3.1244	Adequate
Use of Non-motorized fishing(use of paddle)	216(48.9)	4(.9)		222(50.2)	2.3842	Less Adequate
Methods of fishing	83(18.8)	204(46.2)	132(29.9)	23(5.2)	2.7851	Adequate
Use of safety materials	221(50.0)	65(14.7)	54(12.2)	102(23.1)	2.9163	Adequate
Effects of use of explosives(dynamite)	375(84.8)	31(7.0)	36(8.1)		3.6855	Adequate
Use of different mesh size of nets	256(57.9)	166(37.6)	18(4.1)	2(.5)	3.5294	Adequate
Information on how to maintain fishing gears.	87(19.7)	326(73.8)	29(6.6)		3.5312	Adequate
Effect of bad fishing practices& water pollution	218(49.3)	4(.9)	220(49.8)		2.5000	Adequate
Modern techniques in boat & engine(outboard) maintenance	62(14.0)	58(13.1)	288(65.2)	34(7.7)	2.3348	Less Adequate
Dangers of rough sea (waves) fishing	135(30.5)	87(19.7)	1(.2)	219(49.5)	2.5000	Adequate

Processing and storage	48(10.9)	142(32.1)	252(57.0)		1.538	Less
Effects of deforestation			4(.9)	438(99.1)	5	Adequate
How to obtain loan (where, when and requirements).			11(2.5)	431(97.5)	0	Less
Available government grants and provision of other incentives.		139(31.4)	85(19.2)	218(49.3)	1.024	Adequate
Organization of fishing cooperatives.	135(30.5)	9(2.0)	195(44.1)	103(23.3)	2.398	Less
Negative activities of middlemen or exploitation.	135(30.5)	83(18.8)	53(12.0)	171(38.7)	2	Adequate
Where to acquire cheap fishing tools.	147(33.3)	118(26.7)	75(17.0)	102(23.1)	2.411	Less
Grand mean					8	Adequate
					4	
					2.48863	

Key: Va = Very adequate, Ma= Moderately adequate, La = Less adequate, Na = Not adequate.
(Field survey 2017)

Table 4.5. shows the opinions of artisanal fish farmers regarding adequacy of information types. The findings show that use of different types of information on the following aspects was less adequate; use of different types of fishing gear (100%), effects of deforestation (100%), information on how to obtain loan (100%); modern techniques of boat and engine maintenance (72.9%), information on available government grants and provision of other incentives (68%), organization of fishing cooperatives (67.4%), information on processing and storage (57.6%), information on negative activities of middlemen or exploitation (50.7%) and use of non-motorized fishing (use of paddle) (50.2%). These constituted nine of the 24 aspects.

However, opinions indicated that 15 of the 24 information types were judged adequate. These, information on use of different mesh sizes (95.5%), information on effects of the use of explosives (91.8%), information on how to maintain fishing gears (93.5%), and type of material for boat making (91.6%), information on use of motorized fishing (79%). Others are; access to modern fishing facilities (68.1%), information on methods of fishing (65%), information on use of safety materials (64.7%), information on weather trend (63.6%), dangers of rough sea fishing, where to acquire cheap fishing tools (60%), and new methods of catching fish (50.7%). The respondents also indicated that other information types that were adequate were; information on water trend or

movement (50.25), information on brackish or fresh water (50.2%), and information on effects of bad fishing practice and water pollution (50.2%). These findings corroborates those of Osikabor et al., (2011) and Dulle et al., (2014) that revealed the characteristics of good Information to include; adequacy among others. The grand mean of 2.48863 indicates that the information items are slightly adequate on the average.

4.6 Relevance of information types

Table 4.6 Relevance of information types

Information type	Relevance					Remark
	Vr	Mr	Lr	Nr	Mean	
Use of different types of fishing gears	12(2.7)	162(36.7)	109(24.7)	159(36.0)	2.0611	Less Relevant
Water trend or movement	218(49.3)		1(.2)	223(50.5)	2.3819	Less Relevant
Weather trend	218(49.3)	91(20.6)	130(29.4)	3(.7)	3.1855	Relevant
New methods of catching fish	140(31.7)	170(38.5)	30(6.8)	102(23.1)	2.7873	Relevant
Type of material for boat making	413(93.4)	29(6.6)			3.9344	Relevant
Use of motorized fishing	329(74.4)	29(6.6)	1(.2)	83(18.8)	3.3665	Relevant
Brackish or fresh water fishing	218(49.3)	125(28.3)	97(21.9)	2(.5)	3.2647	Relevant
Access to modern fishing facilities	174(39.4)	131(29.6)	1(.2)	136(30.8)	2.7760	Relevant
Use of Non-motorized fishing (use of paddle)	218(49.3)		1(.2)	223(50.5)	2.4119	Less Relevant
Methods of fishing	219(49.5)	91(20.6)	100(22.6)	32(7.2)	3.1244	Relevant
Use of safety materials	411(93.0)	1(.2)	1(.2)	29(6.6)	3.7964	Relevant
Effects of use of explosives (dynamite)	218(49.3)	124(28.1)	70(15.8)	30(6.8)	3.1991	Relevant
Use of different mesh size of nets	218(49.3)	195(44.1)	29(6.6)		3.4276	Relevant
Information on how to maintain fishing gears.	225(50.9)	189(42.8)	28(6.3)		3.4457	Relevant
Effect of bad fishing practices& water pollution	225(50.9)	217(49.1)			3.5090	Relevant
Modern techniques in boat & engine (outboard) maintenance	217(49.1)	201(45.5)	23(5.2)	1(.2)	3.4344	Relevant
Dangers of rough sea (waves) fishing	265(60.0)	173(39.1)		4(.9)	3.5814	Relevant
Processing and storage		201(45.5)	23(5.2)	218(49.3)	1.9615	Less Relevant
Effects of deforestation	222(50.2)	1(.2)	219(49.5)		2.5113	Relevant
How to obtain loan (where, when and requirements).	222(50.2)	191(43.2)	29(6.6)		3.4367	Relevant
Available government grants and provision of other incentives.	341(77.1)	101(22.9)			3.7715	Relevant

Organization of fishing cooperatives.	337(76.2)	105(23.8)			3.7624	Relevant
Negative activities of middlemen or exploitation.	354(80.1)	4(.9)	84(19.0)		3.4208	Relevant
Where to acquire cheap fishing tools.	265(60.0)	146(33.0)	29(6.6)	2(.5)	3.5249	Relevant

Key: Vr = Very relevant, Mr = Moderately relevant, Lr = Less relevant, Nr = Not relevant
(Field survey 2017)

The findings in 4.6 reflects respondents' opinion on relevance of information types and show that only 4 out of the 24 information types were considered to be not relevant to the artisanal fish farmers in the coastal states. The rest were considered as relevant.

The information types considered as relevant were; information on type of material for boat making (100%), effects of bad fishing practices and water pollution (100%), available government grants and provision of other incentives (100%) and, organization of fishing cooperatives (100%). Others were; dangers in rough sea (waves) fishing (99.1%), modern techniques in boat and engine maintenance (94.6%), information on how to maintain fishing gears (93.7%), use of different mesh sizes of nets (93.4%), how to obtain loan, where, when and conditions, (93.4%), use of safety materials (93.2%), where to acquire cheap fishing tools (93%), use of motorized fishing (81%), negative activities of middlemen (81%), effects of use of explosives (77.4%), information on brackish or fresh water fishing (77.6%), new methods of catching fish (70.2%), methods of fishing (70.1%), information on access to modern fishing facilities (69%), and weather trend (69%).

The information types considered to be irrelevant were; information on the use of different types of fishing gears (60.7%), information on processing and storage (54.5%), water trend or movement (50.7%), information on the use of non-motorized fishing (use of paddle) (50.7%) and effects of deforestation (50.4%). This submission is in accordance with the findings of Annune (2012) who researched on the information needs of artisanal fish farmers and reported on the importance of information needs to artisanal fish farmers. The work revealed that conflict resolution and effect of obnoxious practices ranking first with 71.3% with many other information needs with varying level of importance.

Table 4.6 shows clearly the importance that artisanal fish farmers attach to information types. The availability of the information types will increase the level of their fish production. The overall

mean of 3.1686 confirms the relevance of the information types to the artisanal fish farmers and the direct impact the information types will have on their yield or production.

According to Ijatuyi (2016), information is characterized into three categories, namely technical, commercial and socio-cultural, stating that such information must be accurate, timely, relevant and current. If it does not apply to the problem, it is not important. Information involves the communication and reception of intelligence or knowledge.

4.7 The worth assessment of access points

Table 4.7 Motivation ability

Access points	Motivation ability				Mean	Remark
	HM	AM	LM	VIM		
Farmers groups	180(40.7)	150(33.9)	84(19)	28(6.3)	3.0905	Motivated
Television	5(1.1)	214(48.4)	223(50.5)		2.0023	Less Motivated
Posters	217(49.1)	1(.2)	194(43.9)	30(6.8)	2.3163	Less Motivated
Neighbor farmers	144(32.6)	268(60.6)	2(.5)	28(6.3)	3.1946	Motivated
Farmers meetings	-	195(44.1)	3(.7)	244(55.2)	1.8891	Less Motivated
Journals	135(30.5)	1(.2)	-	306(69.2)	1.9208	Less Motivated
Community leaders	216(49.3)	4(.9)	-	220(49.8)	2.5000	Motivated
Co operatives	218(49.3)	194(43.9)	27(6.1)	3(.7)	3.4186	Motivated
Cell phones	224(50.7)	118(26.7)	100(22.6)		3.2805	Motivated
Extension agents	135(30.5)	273(61.8)	6(1.4)	28(6.3)	3.1652	Motivated
Other farmers		48(10.9)	78(17.6)	316(71.5)	1.3937	Less Motivated
Town criers	6(1.4)	129(29.2)	84(19.0)	223(50.5)	1.8145	Less Motivated
Leaflets	135(30.5)		128(29.0)	179(40.5)	2.2059	Less Motivated
Video	135(30.5)	-	106(24.0)	201(45.5)	2.1561	Less Motivated
Books		4(.9)	23(5.2)	415(93.9)	1.0701	Less Motivated
Church meetings	218(49.3)	4(.9)	1(.2)	219(49.5)	2.5000.	Motivated
Input dealers	135(30.5)	185(42.1)	121(27.4)	-	3.0317	Motivated
Output buyers	218(49.3)	53(12.0)	141(31.9)	30(6.8)	3.0385	Motivated
Credit agencies	135(30.5)	272(61.5)	32(7.2)	3(.7)	3.2195	Motivated

Friends	136(30.8)	131(29.6)	76(17.2)	99(22.4)	2.6878	Motivated
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Key: HM = High motivation, AM = Average motivation, LM = Low motivation VIM = Very low Imotivation

(Field survey 2017)

The findings on motivation ability of access points used by artisanal fish farmers are presented in Table 4.7. They show that the following access points had motivation mobility: Co-operatives (M =3.42), Cell phones (M=3.28), Credit agencies (M=3.22), Neighbour farmers (M = 3.19), Extension agents (M=3.17), Farmers’ groups (M = 3.09), Output buyers (M=3.04), Input dealers (M=3.03), Friends (M=2.69), Community leaders (M=2.50), and Church meetings (M=2.50). These access points are mainly external sources to artisanal fish farmers and presuppose the importance of group dynamics in social change process. The overall mean of 2.52 indicates that the majority of the access points were considered as motivating. The finding corroborates the works of Ogboma (2010) and, Annune (2012) who identified them as information sources. However, the findings of Osikabor et al., (2011) revealed radio as the highest motivating source contrary to the findings of this study, which indicated co-operative society as the leading source of motivation. This is in line with the argument of Merrill-Sands & Kaimowitz (1990) who noted that small agricultural systems can make greater use of personal relationships in information sharing and rely on personal relationships rather than on more formal linkage mechanisms. Radio was rated as the most persistent (68.5%), compared to (62.6%) for interpersonal communication.

However, the following access points were considered not to be motivating: Posters (M=2.32), Leaflets (M=2.21), Video (M=2.16), Television (M=2.00), Journals (M=1.92), Town criers (M=1.81), Other farmers (M=1.34) and Books (M=1.07).

4.8 Regularity of access point

Table 4.8. Regularity of access point

Access points	Regularity				Mean	Remark
	Vr	Mr	Lr	Nr		
Farmer groups	218(49.3)	192(43.4)	11(2.5)	21(4.8)	3.3733	Regular
Television	-	137(31.0)	86(19.5)	219(49.5)	1.8145	Less Regular
Posters	134(30.3)	2(.5)	189(42.8)	117(26.5)	2.3462	Less Regular
Neighbor farmers	269(60.9)	142(32.1)	29(6.6)	2(.5)	3.5339	Regular
Farmer meetings	218(49.3)	193(43.7)	10(2.3)	21(4.8)	3.3756	Regular
Journals	1(.2)	2(.5)	439(99.3)	-	1.0158	Less Regular
Community leaders	4(.9)	134(30.3)	84(19.0)	220(49.8)	1.0158	Less Regular
Co operatives	218(49.3)	194(43.9)		30(6.8)	3.3575	Regular
Cell phones	218(49.3)	191(43.2)	29(6.6)	4(.9)	3.4095	Regular
Extension agents	137(31.0)	87(19.7)	124(28.1)	94(21.3)	2.6041	Regular
Other farmers	323(73.1)	3(.7)	26(5.9)	90(20.4)	3.2647	Regular
Town criers	1(.2)	-	91(20.6)	350(79.2)	1.2127	Less Regular
Leaflets	137(31.0)		39(8.8)	266(60.2)	2.0181	Less Regular
Video	-	-	1(.2)	441(99.8)	1.0023	Less Regular
Books	-		1(.2)	441(99.8)	1.0023	Less Regular
Church meetings	83(18.80)	13(2.9)	5(1.1)	341(77.1)	1.6335	Less Regular
Input dealers	135(30.5)	90(20.4)	114(25.8)	103(23.3)	2.5814	Regular
Output buyers	135(30.5)	84(19.0)	1(.2)	222(50.2)	2.2986	Less Regular
Credit agencies	145(32.8)	91(20.6)	4(.9)	202(45.7)	2.4050	Less Regular
Friends	387(87.6)	23(5.2)	1(.2)	31(7.0)	3.7330	Regular

Key: Vr = Very regular, Mr = Moderately regular, Lr = Less regular, Nr = Not regular

(Field survey 2017)

Table 4.8 reveals that respondents indicated that the following access points were not regular: television (M=1.81), posters (M=2.35), journals (M=1.02), community leaders (M=1.82), town criers (M=1.21), leaflets (M=2.02), video (M=1.00), books (M=1.00), church meetings (M=1.63), output buyers (M=2.30). The importance of this access point's regularity cannot be over-emphasized as it translates into improved and increased productivity.

However, respondents considered the following access points as regular: farmers' groups (M=3.37), neighbour farmers (M=3.53), farmers' meetings (M=3.38), co-operatives (M=3.36), cell phones (M=3.41), extension agents (M=2.60), other farmers (M=3.27), input dealers (M=2.58), credit agencies (M=2.50), friends (M=3.73). The overall mean of 2.4 is indicative of the fact that the access points are regular enough to bring about improved performance on the part of the fish farmers. The works of Osikabor et al., (2012) and, Dulle et al., (2014) confirm the importance of regularity of information source as found in this study.

The first four (farmers group, neighbour farmers, farmers meeting and co-operatives) are group activities or structures that create opportunity for farmers to learn from each other. These kinds of

group activities and structures make farmers learn fast and trust the process as peer group meetings encourage and build trust as they know themselves very well compared to outsiders or strange information sources disseminating such information to them. This finding differs from that of Osikabor et al., (2012), who stated that when all the performance indices are pooled together, interpersonal communication might have been more useful than others in providing access to agricultural information.

4.9 The relevance of access point

Table 4.9 Relevance of access point

Access points	Relevance		Lr	Nr	Mean	Remark
	Vr	R				

Farmers groups	245(55.4)	108(24.4)	61(13.8)	28(6.3)	3.2896	Relevant
Television	218(49.3)	123(27.8)	97(21.9)	4(.9)	3.2557	Relevant
Posters	256(57.9)	155(35.1)	4(.9)	27(6.1)	3.4480	Relevant
Neighbor farmers	306(69.7)	99(22.4)	31(7.0)	4(.9)	3.6086	Relevant
Farmers meetings	135(30.5)	126(28.5)	63(14.3)	118(26.7)	2.6290	Relevant
Journals	211(47.7)	35(7.9)	-	196(44.3)	2.5905	Relevant
Community leaders	181(41.0)	77(17.4)	-	184(41.6)	2.5769	Relevant
Co operatives	238(53.8)	111(25.1)	67(15.2)	26(5.9)	3.2692	Relevant
Cell phones	265(60.0)	148(33.5)	1(.2)	28(6.3)	3.4706	Relevant
Extension agents	218(49.3)	131(29.6)	65(14.7)	28(6.3)	3.2195	Relevant
Other farmers	218(49.3)	187(42.3)	31(7.0)	6(1.4)	3.3959	Relevant
Town criers	229(51.8)	20(4.5)	-	193(43.7)	2.6448	Relevant
Leaflets	199(45.0)	47(10.6)	26(5.9)	170(38.5)	2.6222	Relevant
Video	155(35.1)	1(.2)	1(.2)	285(64.5)	2.0588	Less Relevant
Books	83(18.8)	1(.2)	48(10.9)	310(70.1)	1.6765	Less Relevant
Church meetings	2(.5)	255(57.7)	7(1.6)	178(40.3)	2.1833	Less Relevant
Input dealers	83(18.8)	74(16.7)	127(28.7)	158(35.7)	2.1855	Less Relevant
Output buyers	218(49.3)	90(20.4)	105(23.8)	29(6.6)	3.1244	Relevant
Credit agencies	135(30.5)	193(43.7)	83(18.8)	31(7.0)	2.9774	Relevant
Friends	218(49.3)	193(43.7)		31(7.0)	3.3077	Relevant

Key: Vr = Very relevant, R = Relevant, Lr = Less relevant, Nr = Not relevant.

(Field survey 2017)

The relevance of access points used by artisanal fishers is presented in Table 4.9. The access points considered to be relevant were; farmer groups (M=3.29), television (M=3.26), posters (M=3.45), neighbour farmers (M=3.61), farmer meetings (M=2.63), journals (M=2.59). Community leaders (M=2.58), co-operatives (M=3.27), cell phones (M=3.47), extension agents (M=3.22), other farmers (M=3.40), town criers (M=2.64), leaflets (M=2.62), output buyers (M=3.12), credit

agencies (M=2.98) and Friends (M=3.31). Others considered to be irrelevant were; input dealers, church meetings, video, and books and, the mean score was less than 2.5.

Artisanal fish farmers use the various sources to get information because they are relevant to them. The work of Wilson (2006) who advocates that information needs are influenced by information methods available to the users confirms the findings of this study. He further maintains that, the quality of sources of information available to the users is also important because relevant methods are most likely to beget useful information.

In essence, information methods are efficient if they provide relevant, useful, specific and accurate information that solves the information needs of artisanal fish farmers. Traditionally, methods such as town criers, community meetings, market places and colleagues disseminate information while radio, telephone and television among others are very good methods of disseminating information to artisanal fish farmers. The level of literacy, availability and access to these access points influences the popular use of the methods. Annune (2012) maintains that, agricultural information gets to artisanal fish farmers through channels such as relations, friends, neighbors, government officials, commercial and credit banks. It further notes that, rural dwellers, such as village heads and local government officials are used to disseminate information due to their personal interaction with artisanal fish farmers.

From observation and discussions during the research, some respondents maintained that, extension workers use agricultural development programs to disseminate information to them. This implies that, some fishing communities in the coastal states of Nigeria have contact with extension services. The work of Otolu (2006) stipulates that rural communities interact in farmers' group meetings with friends, personal contact, town criers, extension workers and newspapers that serve as methods of information dissemination and is, therefore, in line with the findings of this study.

Fishing communities, make use of local lamps for lighting. In addition, the use of other local and remote methods of communication is prevalent in most rural communities, Utor and Utor (2004) asserts that methods of information dissemination to rural communities are radio/television programmes that are translated in local languages. Majority of the fish farmers are illiterate and semi-literate. Therefore, for effective communication to take place, it must be in languages that they can understand. Utor and Utor (2004) stated that rural communities obtain their information from traditional rulers, political opinion/leaders and television broadcasts. Print medium is not

relevant to artisanal fish farmers in most coastal communities and, therefore, it is not a good method of passing information to rural dwellers. Sawyerr (2008) affirms that communication in rural areas is done mostly by word of mouth, traditional ceremonies, town criers, village meetings and recently the use of cell phones which are more motivating.

Information that leads to improved decision making is relevant. If it does not apply to one's problem, it is not relevant. Important aspects of the concept are the value of information and the place it occupies in decision-making (Osikabor et al., 2012).

4.10 Persistence of access point

Table 4.10. Persistence of access point

Access points	Persistence in years		Less persistent	Not persistent	Mean	Remark
	Very persistent	Moderately Persistent				
Farmer groups	329(74.4)	7(1.6)	19(4.3)	87(19.7)	3.3077	Persistent
Television	220(49.8)	-	-	222(50.2)	2.4032	Less Persistent
Posters	328(74.2)	84(19.0)	24(5.4)	6(1.4)	3.6606	Persistent
Neighbour farmers	-	83(18.8)	125(28.3)	234(52.9)	1.6584	Less Persistent
Farmer meetings	136(30.8)	-	124(28.1)	182(41.2)	2.2036	Less Persistent
Journals	135(30.5)	83(18.8)	2(.5)	222(50.2)	2.2964	Less Persistent
Community leaders	220(49.8)	103(23.3)	89(20.1)	30(6.8)	3.1606	Persistent
Co operatives	192(43.4)	84(19.0)	26(5.9)	140(31.7)	2.7421	Persistent
Cell phones	218(49.3)	125(28.3)	5(1.1)	94(21.3)	3.0566	Persistent
Extension agents	219(49.5)	129(29.2)	66(14.9)	28(6.3)	3.2195	Persistent
Other farmers	156(35.3)	254(57.5)	25(5.7)	7(1.6)	3.2647	Persistent
Town criers	220(49.8)	1(.2)	-	221(50.0)	2.4177	Less Persistent
Leaflets	327(74.0)	2(.5)	24(5.4)	89(20.1)	3.2828	Persistent
Video	83(18.8)	359(81.2)	-	-	3.5633	Persistent
Books	183(41.4)	83(18.8)	176(39.8)	-	2.6176	Persistent
Church meetings	83(18.8)	-	-	359(81.2)	1.5633	Less Persistent
Input dealers	218(49.3)	2(.5)	103(23.3)	119(26.9)	2.4217	Less Persistent
Output buyers	83(18.8)	192(43.4)	2(.5)	165(37.3)	2.4367	Less Persistent
Credit agencies	222(50.2)	-	191(43.2)	29(6.6)	2.9389	Persistent
Friends	328(74.2)	82(18.6)	-	32(7.2)	3.5973	Persistent

(Field survey 2017)

The findings on persistence of access points are presented in Table 4.10. They reveal that 100% of the respondents indicated that video was most persistent, which is contrary to the findings of Osikabor (2012) who established radio as the most persistent source of information. This was because artisanal fish farmers were more interested in watching video programs where agricultural information is disseminated to them. Such video programs were produced in their local languages for easy understanding. According to the findings, 93.2% of the respondents indicated that posters were persistent in information dissemination while 92.8% considered friends and other farmers to be persistent in information dissemination as access points. Other access points that were considered to be persistent were; extension agents (78.7%) and this is in line with the findings of Annune (2012) that extension agents were persistent access points.

According to the findings, the following information access points were also persistent: cell phone (77.6%), farmer's groups (76.0%), leaflets (74.5%), community leaders (73.1%), co-operatives (62.4%), input dealers (62.2%), church meetings (60.2%), and credit agencies (50.2%). The persistence of these access points influences positively the performance of the artisanal fish farmers. The persistence of these access points improves the knowledge base of the fish farmers and, consequently, increasing their productivity.

4.11 Credibility of information sources

TABLE 4.11. Credibility of information sources

Information source	Very high	High	Low	Very low	Mean	Remark
Farmers group	203(45.9)	131(29.6)	84(19.0)	24(5.4)	3.1606	Credible
Extension agents	134(30.3)	1(.2)	-	307(69.5)	1.9140	Not Credible
Community Leaders	135(30.5)	-	83(18.8)	224(50.7)	2.1041	Not Credible
Radio	135(30.5)	-	83(18.8)	224(50.7)	2.1041	Not Credible
Television	135(30.5)	83(18.8)	47(10.6)	177(40.0)	2.3982	Not Credible
Other farmers	-	-	264(59.7)	178(40.3)	1.5973	Not Credible
Journals	1(.2)	-	264(59.7)	177(40.0)	1.6041	Not Credible
Posters	141(31.9)	-	-	301(68.1)	1.9570	Not Credible
Cell phones	142(32.1)	83(18.8)	-	217(49.1)	2.3394	Credible
Farmer meetings	83(18.8)	7(1.6)	184(41.6)	168(38.0)	2.0113	Not Credible
Co operatives	-	173(39.1)	240(54.3)	29(6.6)	2.3258	Not Credible
Leaflets	-	7(1.6)	-	435(98.4)	1.0317	Not Credible
Town criers	141(31.9)	1(.2)	-	300(67.9)	1.9615	Not Credible
Laptops	142(32.1)	-	83(18.8)	217(49.1)	2.1516	Not Credible
Books	-	218(49.3)	7(1.6)	217(49.1)	2.0023	Not Credible
Input dealers	-	-	73(16.5)	369(83.5)	1.1652	Not Credible
Video		85(19.2)	357(80.8)	-	1.3846	Not Credible
Output buyers	83(18.8)	161(36.4)	47(10.6)	151(34.2)	2.3982	Credible
Credit agencies	47(10.6)	247(55.9)	24(5.4)	124(28.1)	2.4110	Credible
Friends	-	1(.2)	94(21.3)	347(78.5)	1.2172	Not Credible
Bulletin	83(18.8)	20(4.50)	-	3399(76.7)	1.6538	Not Credible

(Field survey 2017)

Credibility of information sources is a major characteristic of information. In order to find out how the farmers rate the information sources in respect of the credibility of the message as compared to other sources, the respondents were requested to indicate their possible sources of information.

Findings on credibility of information sources are presented in Table 4.11. Farmers groups, cell phones, output buyers and credit agencies are the only credible sources according respondents. The findings reveal that 75% of the respondents indicated that farmers' groups are credible sources of information. This may be, likely due to the trust the artisanal fish farmers repose in their fellow farmers. The findings also reveal credit agencies (66.5%), output buyers (55.2%) and cell phones (50.9%) as other credible sources of information.

The study revealed that farmers' groups, credit agencies, output buyers and cell phones were the most credible sources of information. The findings of Ijatuyi (2016) relate these as fellow professionals were found to top the most reliable source of information in his study on the credibility of information sources. This implies that the respondents perceived professional colleagues and newspapers as the most credible sources of information. Though farmers used other information sources, some farmers perceived these as not credible. The findings of Kakade (2013) on the credibility of radio programmes in agricultural information dissemination contradict those of this study, which favours demonstrators, radio and neighbour as top credible sources of information.

Annune (2012) finds a contrasting conclusion in that there are two methods of disseminating information in the artisanal fisheries sector. Traditionally, information is disseminated through colleagues, personal experiences, traditional meetings, town criers, market places and, village meetings. The methods that are readily available to the artisanal fish farmer may sometimes be distorted from the original version and therefore lose their importance. Otolu (2009) disagrees that, sources of information to the Isoko riverine area of Delta State are heavy reliance on town criers, community meetings, friends, relations, church meetings, village meeting, convention and personal experiences. Radio and television are other modern methods of information dissemination to artisanal fish farmers. Few artisanal fish farmers can afford the cost of radio but most of the times lack funds to purchase batteries to load their radio for information (Otolu, 2009).

Ogola (2010) agrees with the findings that majority of farmers use fellow farmers as a channel of acquiring agricultural information as reported in his study. Fellow farmers get information from many sources including their own experiences. Going to another farmer's farm and seeing what they have done, getting to know their challenges and how they have been able to overcome was said to be more fulfilling. They also have lead farmers whose farms are used for demonstration purposes and training especially by NGOs when they have new projects. These farms are normally opened to other farmers who want to learn as local farmers are very skeptical and will not believe anything one says without seeing (Ogola, 2010).

This is why USAID (KAVES) together with other NGOs in the region use "farmer-to-farmer" extension method to support farmers and introduce new ideas where a lead farmer's farm is used as a training ground. Through this, most farmers feel that they benefit more because they get to experience the process first-hand. This confirms what Ogola (2010) stated that audience's reaction

to media messages depends on their interpersonal exchanges within a social environment. Personal contacts amongst farmers yield fruit more than other mass media, as farmers are able to share their experiences and get feedback. This together, with farm visits, would give farmers tangible evidence of each other's successes and failures. In this tactic, there would be farmer-to-farmer approach where farmers perceived to lead are often called model, master, or lead farmers are chosen according to their agricultural expertise (Franzel, 2015).

The grand mean of 1.97 is a clear indication that most of the access points are not credible. This suggests a need for concerted efforts in providing and creating awareness for the artisanal fish farmers to appreciate more access points to be credible in order to broaden their perception of these information sources as to improve on their level of production.

4.12 Constraints associated with information

Table 4.12 Perceived constraints associated with information worth assessment, access points and information credibility

Perceived constraints	VS	MS	SS	LS	Mean	Remark
No Accurate information from information sources	312(70.60)	107(24.20)	21(4.80)	2(.5))	3.6493	Severe
Long distance to received information	115(26)	166(37..60)	132(29.90)	29(6.60)	2.8303	Severe
Wrong timing of information dissemination.		83(18.8)	179(40.5)	180(40.7)	1.7805	Less Severe
Poor road network to receive information.	135(30.5)	83(18.8)	51(11.5)	173(39.1)	2.4072	Less Severe
Delay information feedback from extension agents carrying information.	144(32.6)	97(21.9)	168(38.0)	33(7.5)	2.7964	Severe
Poor government policies on incentives to artisans.	132(29.9)	151(34.2)	130(29.4)	29(6.6)	2.8733	Severe
Language barrier between artisans and information sources.	196(44.3)	87(19.7)	130(29.4)	29(6.6)	3.0181	Severe
Cost of acquiring access points.	214(48.4)	87(19.7)	111(25.1)	30(6.8)	3.0973	Severe
Technical languages of information by experts.	218(49.3)	83(18.8)	111(25.1)	30(6.8)	3.1063	Severe
Unreliable nature of electricity for use such as television, cell phones and laptops.	400(90.5)	9(2.0)	4(.9)	29(6.6)	3.7647	Severe
Limited information access points.	139(31.4)	129(29.2)	145(32.8)	29(6.6)	2.8552	Severe
Shortage of funds as grants and loans to artisans to acquire certain access points.	144(32.60)	120(27.10)	149(33.70)	29(6.60)	2.8575	Severe
Lack of libraries of access points in the fishing settlements.	218(49.3)	127(28.70)	76(17.80)	21(4.80)	3.2262	Severe
Illiteracy of artisanal fish farmers.	214(48,4)	131(29.60)	76(17.20)	21(4.80)	3.2172	Severe
Shortage of extension workers as access	214(48.4)	87(19.7)	113(25.60)	28(6.30)	3.1018	Severe

points for information.							
Distortion due to interpretation by interpreters to artisans	218(49.3)	83(18.80)	113(25.60)	28(6.30)	3.1109	Severe	
Epileptic cell phone mobile network situation where available.	352(79.60)	59(13.30)	27(6.10)	4(.90)	3.7172	Severe	

Key: VS = Very severe, MS = Moderately severe, SS = Somewhat severe, LS = Less severe.

(Field survey 2017)

Table 4.12 shows the constraints associated with information dissemination to artisanal fish farmers. The following are constraints indicated by the artisanal fish farmers as severe with a mean of 2.5 and above, unreliable nature of electricity for use (M=3.8); no accurate information from information sources (M=3.6); epileptic cell phone mobile network situation (M=3.7); lack of libraries of access points in the fishing settlements (M=3.2). Illiteracy of artisanal fish farmers (M=3.2); shortage of extension workers as access points for information (M=3.1); distortion due to interpretation by interpreters to artisans in rural areas (M=3.1) and technical languages of information by experts (M=3.1). Other constraints are; cost of acquiring access points (M=3.1); language barrier between artisans and information sources (M=3.0), shortage of funds as grants (M=2.9); limited information access points (M=2.9); poor government policies (M=2.9); long distance to source of information (M=2.8); delay information feedback from extension agents (M=2.8).

The dissemination of information to artisanal fish farmers in the study area was faced with constraints such as long distance to receive information, no accurate information from sources, wrong timing of information, poor road network, language barrier, delay information feedback, poor government policies, shortage of funds, lack of public libraries, poor power supply, illiteracy and lack of extension personnel among others.

This has severe effect on the dissemination of information that resulted into low production rate. In agreement with this, Njoku (2003) asserts that, there is acute shortage of information and extension officers in the field of information dissemination. Annune (2012) asserts that the paucity of agricultural extension officers could explain the lack of visit to most artisanal fishermen. This also explains the restricted linkage between public libraries and extension workers in the study

area, since there were only a few agents disseminating information to artisanal fish farmers in the study area. It also reveals that; public libraries/extension workers are not motivated. Lack of rural electrification also hinders effective dissemination of information as some audio-visual resources that could have lasting impact on the artisanal fishermen were rendered useless.

Other constraints are lack of awareness, poverty, and absence of fisheries programme on television. Otolu (2009), reveals that lack of awareness, high cost of mobile services, lack of television, lack of electricity, and lack of mobile phones, abject poverty, lack of access roads are complex challenges in disseminating information to rural dwellers confirming the findings of this study.

The work of Dulle et al., (2014) revealed that persisting constraints facing small-scale farmers in accessing information included shortage of funds, delay in information feedback to the fish farmers and irrelevant information. These results confirm the findings of this study.

In supporting the findings of this study Obidike (2011), on Rural Farmers' Problems Accessing Agricultural Information: A Case Study of Nsukka Local Government Area of Enugu State, Nigeria shows that Nsukka farmers experience a myriad of constraints in their quest to access agricultural information for better crop and livestock production. Such constraints include lack of access roads in their communities, poor public relation of extension workers, poor radio and television signals and, non-availability of electricity/constant power interruptions in most Nsukka villages. Ogboma (2010) in line with the findings of this study maintained that lack of access to agricultural information is one constraint affecting information dissemination, while Jalil & Jalil (2016) also in support, revealed the constraints of accessing information as lack of access to timely and accurate information. These may greatly inhibit fish production rate in Nigeria and the coastal states in particular.

Ugah (2007) identified two levels of cost that militate against access to information. He stated that information providers are faced with declining budgets and increasing demands from users, and libraries are finding it difficult to acquire both primary and secondary publications to meet such demands. Economic recession globally has drastically increased the cost of publications. Printing and publishing businesses have become extremely capital-intensive.

Some information is not available in rural areas, and obtaining it is an expensive logistical problem, while some information is abroad and expensive to access. Many users cannot afford to travel

from one place to another to obtain information. They cannot afford photocopying services. Financial incapacity has caused some information seekers to resort to mutilation and theft, which have legal implications. Lwoga (2009), in line with the findings of this study, stated that technical language used during information delivery also limits coastal people from using information, and Ifukor (2013), supporting the findings, revealed that communication channel, illiteracy and use of local language are barriers to information access and use.

Annune (2012), and Dulle et al., (2014), posited that persisting constraints facing small-scale fish farmers in accessing agricultural information in Nigeria were attributed to shortage of funds to manage farming process, Language barrier, lack of libraries, shortage of extension workers, poor government control and policies, delay in information feedback to the fish farmers and irrelevant information and illiteracy, which were also confirmed by Lucky and Achebe (2012). They emphasized low level of education among farmers, which affected their understanding of information. However, these constraints can be alleviated by providing strategies that will enhance information dissemination.

4.13 Influence of socioeconomic characteristics of artisanal fish farmers on information worth assessment

Table4.13. Influence of socio-economic characteristics of artisanal fish farmers on information worth assessment

Variables	B	SE	T
Constant	234.309	1.437	163.028
Sex	-85.028	19.720	-4.312
Age	6.576	7.706	.853
Income	-9.722	5.697	-1.706
Children	-38.336	5.197	-7.376
Wives	53.747	7.837	-6.858
Marital Status	10.568	19.712	.536
Experience	-150.851	5.069	-29.761
Educational level	2.074	7.298	.284

*Significant at 10%, ** Significant at 5%. $R^2 = 0.957$ n= 442, F-ratio= 1204.669.

(Field Survey 2017)

Table 4.13 shows the findings of regression analysis carried out to determine the relationship between the socio-economic characteristics of the respondents and their information worth assessment. Information worth assessment was the dependent variable, while the socio-economic variables sex, age, income, children, wives, marital status, experience and education were the independent variables.

Different functional forms were tried and the form that gave the best result was used for interpretation. The selection was based on the value of the R-square, number of significant variables and confirmation to the a priori expectations. The semi-log form best explains the relationship; the R-square value indicates that about 95% of the variability in information worth assessment among the respondents was determined by socio-economic characteristics.

Four out of the eight socio-economic variables were statistically significant. The coefficient for sex of respondent's correlated negatively and significantly with information worth assessment at the 5% significant level. The negative correlation suggests that male respondents have less

information worth assessment even though fish farming is a male dominated business. The implication is that a male dominated business with less information worth will affect the level of fish production

The coefficients for income was negative and significant at 5%. This implies that, as the incomes of the respondent's increase their information worth assessment tends to decrease. Also, the coefficient for children and experience were significant but negative, less experience with high information worth assessment and more experience with less information assessment. However, there was a positive significant difference between the number of wives and information worth assessment. This implies that the information worth assessment of the respondent tends to increase with increase in the number of wives. Based on the regression analysis, the null hypothesis which states that there is no significant difference between the socio-economic characteristics of the respondents and their information worth assessment is rejected. In other words, there is significant difference between the socio-economic characteristics of respondents and their information worthiness.

The number of children also correlated negatively with information worth assessment and the correlation was significant at 5% level. The negative correlation implies that those with less children have more information worth assessment than those with more. The implication is that the number of children does not mean more information worth assessment and that the fewer children you have the better the information that can be acquired.

Experience correlated negatively with information worth assessment, suggesting that respondents with less years of experience have higher information worth assessment, meaning that those with less experience have more information worth assessment. Number of wives also correlated positively to information worth assessment suggesting fishermen with more wives have higher information worth assessment than those with few wives.

Education correlated positively with information worth assessment suggesting that respondents with high educational background have higher information worth assessment. However, for a successful and sustainable adoption of technologies, farmers need to be adequately trained by the extension worker on a regular and continuous basis.

Artisanal fish farmers 'always use' information on the techniques in fishing business. Similarly, they "always use" information on sectioning technique of marketing their produce. In the case of fishing techniques, they may also use information on selecting suitable and setting of fishing trap

and produce. This notable use of production information by artisanal fish farmers may be linked to the efforts of several national agricultural institutions as well as extension educational delivery services (Ucheagu, 1985).

Based on the regression analysis, the null hypotheses which states that there is no significant relationship between the socio-economic characteristics of the respondents and their information worth assessment is rejected.

4.14 Relationship between socio-economic characteristics of artisanal fish farmers and information access points

Table 4.14. Relationship between socio-economic characteristics of artisanal fish farmers and information access points

Variables	B	SE	T
Constant	279.577	1.018	274.514
Sex	-42.389	13.974	-3.033
Age	-2.481	5.461	-.454
Income	-6.474	4.037	-1.604
Children	-84.394	3.683	-22.916
Wives	15.767	5.553	2.839
Marital Status	1.607	13.968	.115
Experience	-193.464	3.592	-53.86
Educational level	4.110	5.172	.795

** Significant at 5%, R=0.988, n=442, F-ratio= 4418.108

(Field Survey 2017)

Table 4.14 shows a regression analysis carried out to determine the relationship between the socio-economic characteristics of the respondents and their information access points. Information access points were the dependent variable, while the socio-economic variables (sex, age, income, children, wives, marital status, experience and educational level) were the independent variables.

The selection was based on the value of the R-square, number of significant variables and conformation to the a priori expectations. The semi-log form was found to best explain the relationship; the R-square value indicates that about 95% of the variability in information access points' assessment among the respondents was determined by the socio-economic characteristics.

The coefficient for sex of respondents correlated negatively and significantly with information access points at the 5% significant level. The negative correlation suggests that the male respondents have less information access points than their female counterparts. This finding is contrary to the earlier position that artisanal fish farming in the study area is a male dominated activity. However, the findings revealed that female respondents have more information access point than their male counterparts.

Number of children also correlated negatively with information access points. The correlation was significant at 5% level. The negative correlation implies that those with less children have more information access points than those with more children. The implication is that the fewer children you have the better the information access points.

Experience correlated negatively with information access points, suggesting that respondents with less experience have higher information access points. Education correlated negatively with information access points, suggesting that respondents with poor educational background have higher information access points. Number of wives also correlated negatively with information access points, suggesting that respondents with few wives have more information access points than those with more. Dulle and Ngalapa (2014) and Ogboma (2010) revealed that less experienced and less educated farmers access less information from fewer sources than educated and well-experienced farmers do. The implication of this finding is that the more education people get, the more they leave artisanal fishing. This concurs with the findings of Osikabor et al (2011) on the characteristics of cassava farmers, which indicated that cassava farmers are middle educated people. The few highly educated artisanal fish farmers do the business to mark time.

For successful and sustainable adoption of technologies, the farmers need to be adequately trained by the extension worker on regular and continuous basis. This is necessary to save farmers from being misguided, improve his livelihood and income.

Based on the regression analysis, the null hypotheses which states that there is no significant relationship between the socio-economic characteristics of the respondents and their information access points is rejected.

4.15 Chapter summary

The chapter was divided into eight sections. The first section dealt with the socio-economic characteristics of artisanal fish farmers. The findings on socio-economic characteristics (age, gender, marital status, household size, income level, educational level and years of fishing experience) were presented in Table 4.1 and discussed.

The second section presented findings on the information needs of artisanal fish farmers (Table 4.2). The remaining sections presented and discussed findings using descriptive statistics and regression statistics. The regression analysis determined the relationship between the socio-economic characteristics of respondents and their information worth assessment. The regression analysis was also used to determine the relationship between the socio-economic characteristics and their access points worth assessment.

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Artisanal fish farmer's contribution to the fishing industry and its productivity is determined by information at their disposal; hence, several issues relating to information sources and their credibility were investigated.

To answer these research questions, the following objectives were raised in this study; determine the influence of socio-economic characteristics of artisanal fish farmers on information worth assessment, and the relationship between socio-economic characteristics of artisanal fish farmers and information access points. The study also sought to identify the factors that influence the use of information access points by artisanal fish farmers, identify the factors that determine the credibility of information sources used by artisanal fish farmers and ascertain the constraints associated with information worth assessment, access points and credibility of information sources used by artisanal fish farmers in the study area. The study focused on three states out of the seven coastal states of Nigeria based on their peculiarity.

Meetings were held with the various agricultural development projects staff with the aim of getting and identifying the strength of artisanal fish farmers in the three states and choosing the local government areas that are more riverine in nature. At the end of this process, 820 artisanal fish farmers constituted the population with a simple random sampling done to select 477 artisanal fish farmers as respondents who participated in the study.

Primary data were collected using questionnaire, the responses from the field were coded, and analyzed using Excel and SPSS and descriptive statistics was used for interpretation. The results were divided into socio-economic and functional analysis. A number of socio-economic characteristics were regressed with information worth assessment and information access points of the artisanal fish farmers.

5.2 Summary of findings

Socioeconomic characteristics of artisanal fish farmers revealed that artisanal fishery is a male dominated occupation, with an age range of 41 - 50years. The respondents were mostly married. Majority (88%) of the artisanal fish farmers had one form of education or the other. The low income earned by an individual can have negative influence on the access and the use of

information. However, majority of the respondents earned an income range of ₦11,000 - ₦50,000. The household size of 3 – 4 was dominant in the study area represented by 46% of the respondents. The average years of fishing experience among the respondents was 1 – 5 represented by 49%.

On the information needs of artisanal fish farmers, the respondents indicated need for information on; new methods of catching fish (100%), access to modern fishing facilities (93.0%), and where to obtain loan/credit facilities (59.7%). They also indicated need for information on; the effect of obnoxious (bad) practices (99.5%), middlemen exploitation (99.3%), membership of fisheries cooperatives (52.5%), and fish processing and storage (54.5%). However, they indicated marginal need for information on; conflict resolution (30.50%), effect of water pollution on fishing (38.2%), effect of weather on fishing activities 38.2%) and where to acquire fishing tools at cheaper rate (49.5%).

With regard to the factors that influence the use of information access points by artisanal fish farmers, the respondents agreed that all the factors listed influence their use of information access points. However, access to regular availability of information sources (3.43), currency of information sources (3.12), and accessibility of information sources (3.45) influence the use of information access points. Sources timeliness, cost of acquiring information, information sources worthiness, format of information presentation and poor knowledge sharing culture were found to influence the use of information access points.

The study established that worthy information must be timely, adequate and relevant, and the access points must be capable to motivate, regular, relevant and persistent. Artisanal farmer's information is highly motivated by farmer's groups, television, neighbour farmers, co-operatives, use of cell phones, extension agents, church meetings, input dealers, output buyers, credit agencies and friends. Artisanal fish farmers use the above sources to get information which is relevant to them.

Respondents make use of information, which is technical, commercial, socio-cultural, and such information must be accurate, timely, relevant and current. If it does not apply to their problem, it is not important. Information involves the communication and reception of intelligence or knowledge.

Challenges associated with information dissemination to artisanal fish farmers are; long distance to source of information, lack of accurate information from information sources, and language barrier between artisans and information sources. Cost of acquiring access points; technical

languages of information by experts, unreliable nature of electricity for use of television, cell phones and laptops and lack of libraries of access points in the fishing settlements were found to be complicating factors. Illiteracy of artisanal fish farmers, shortage of extension workers as access points for information, distortion due to interpretation by interpreters to artisans in rural areas, epileptic cell phone mobile network situation among, others, were reported to be major constraints associated with information access points.

Information providers in the study area face declining budgets and increasing demands from users; libraries are finding it difficult to acquire both primary and secondary publications to meet such demands.

Some information sources are not located in rural areas, and obtaining information becomes an expensive logistical problem, while some is available abroad and expensive to reach. Financial incapacity has caused some information seekers to resort to mutilation and theft. Technical language used during information delivery also limits coastal people from using the information.

In the regression analysis done to determine the difference between the socio-economic characteristics of artisanal fish farmers and their information worth assessment, different functional forms were tried and the one that gave the best result was used for interpretation. The semi-log form was found to best explain the relationship. Four out of the eight socio-economic variables were statistically significant. Based on the regression analysis, the null hypothesis which states that there is no significant difference between the socio-economic characteristics of the respondents and their information worth assessment was rejected.

In the same vein, in the relationship between socio-economic characteristics of respondents and their information access points, the semi-log was found to also best explain the relationship. Five out of the eight socio-economic variables were statistically significant. Based on the regression analysis, the null hypothesis which states that there is no significant difference between the socio-economic characteristics of the respondents and their information access points was rejected, which implies that there is significant difference between the socio-economic characteristics of respondents and their information access points worthiness.

5.3 Conclusions

The study established that artisanal fish farming in the coastal areas of Nigeria is a male dominated business. Therefore, emphasis should be placed on the male to bring about increase fish production.

Young people are in the artisanal fishing business with an income range of ₦11,000 to ₦50,000. Information providers should concentrate more on the young ones more than any other group as it will enhance food security. The study also revealed that the items raised in the information needs of the respondents are critical for the success of the artisanal fish farmers. Government and other information providers should improve on the information needs of the artisanal fish farmers and this could result in increased productivity.

The findings also confirm that respondents agreed that all the factors such as comprehension of information sources, access to credit, regular availability of information sources and, currency of information sources have a definitive place in their daily functioning as fishermen. Others are timing of information, cost of acquiring the information and inadequate number of extension agents. These factors if adequately addressed could improve the fishing business, bring about food sufficiency, and better the livelihood of the artisanal fish farmers. The study also showed that, for information to be meaningful and bring about the required result it must be timely, relevant and adequate. Therefore, information providers should address the information requirements identified in this study.

The study further clarified that, for an information access point to make an impact the information access points must possess the attributes of, motivation ability, regularity, relevance and persistence. Therefore, all information access points should be able to motivate and be regular, relevant and be persistent so that production is enhanced.

This study also established that several information sources were not credible. The few credible sources were farmer groups, output buyers, credit agencies and cell phones. Information providers should therefore concentrate on the credible sources of information only in information dissemination. Several constraints emerged in the study as associated with information worth assessment, access points and credibility. These constraints have affected fish production greatly. Government and other organizations should intervene to reduce the impact of these constraints in order to increase fish production.

The study, therefore, lays the foundation on which solutions to the constraints artisanal fish farmers (respondents) faced in the study area could be developed to ensure fish sufficiency in the study area and increase income and the standard of living of the artisans. These findings, if well managed by the various stakeholders could make significant contributions to food security, employment generation and multiplier effect on the economy of the study area.

The regression analyses show that the models used in the study are appropriate in the analyses of the socio-economic characteristics of the respondents and their information worth assessment and the information access points of the artisanal fish farmers. The two hypotheses, which were stated in the null form, were rejected since there was relationship between the two variables.

5.4 Proposed model for further studies on food security in the study area.

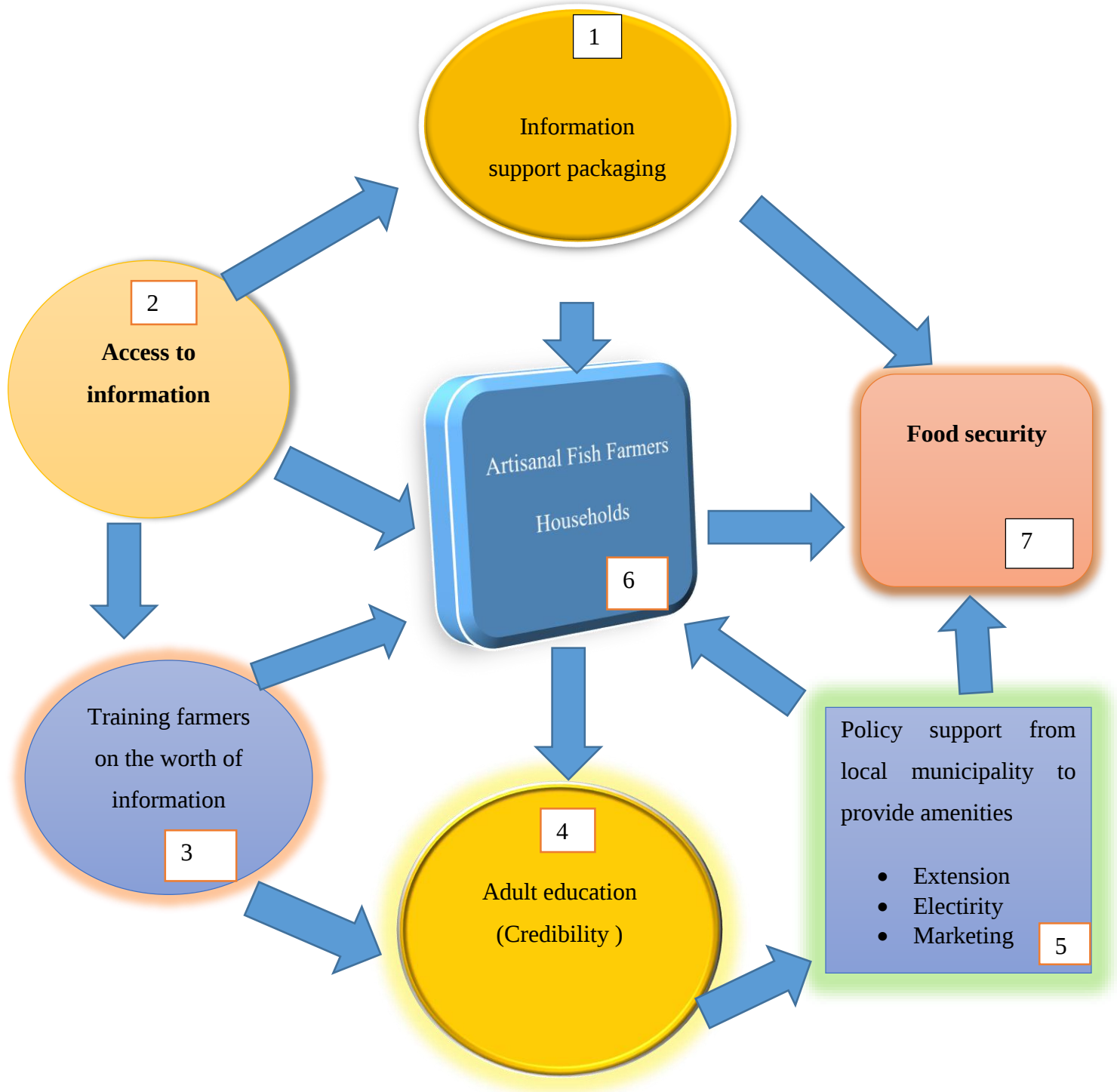


Figure 5.1 Model to support artisanal fish farmers in the study area.

This framework can be used for the artisanal fish farmers in other coastal areas. The model should have 6 inputs with one output. The inputs are (1) information support (2) Access to information

through repackaging. (3) Training on information worth. (4) Adult education by Extension (credibility) (5) Policy makers marketing, provision of amenities like electricity and (6) Fish farmers at the centre. (7) is food security as output; all the six stakeholders are there to support this outcome.

Suggestions for further research

1. Assessment of the impact of the artisanal fish sector on the livelihood of the artisans and the economy of the coastal states of Nigeria.
2. The impact of information sources and type on artisanal fish farmer's level of production in the coastal states of Nigeria.

5.5 Recommendation

The following recommendations are derived from findings of the study.

1. Adult literacy classes should be organized to educate illiterate artisanal fish farmers with low formal educational background for more effective information dissemination. Artisanal fish farmers with higher educational qualification should be used as nomadic teachers in the fishing communities to train those with no education to ensure effective dissemination. This will enhance fish production greatly.
2. Artisanal fish farmers require information on various areas of need and, as such, it should be provided for them to improve and increase their level of productivity. Information on several areas of need when provided will enhance their performance.
3. Several factors are identified to reduce the level of production of artisanal fish farmers. Information providers should take adequate steps in tackling such setbacks if this sector has to make any significant impact.
4. Information providers should take into consideration the worthiness of the information disseminated to artisanal fish farmers. For such information to be worthy, it must be timely, adequate and relevant. The access points carrying the information should be able to motivate, relevant, regular and persistent. This will improve and increase artisanal fish farmers' productivity.
5. For any information to create the desired positive impact the information source must be credible; therefore, information providers should make use of credible sources of information access points in disseminating information to the artisanal fish farmers.

6. Regular assessment of information needs of artisanal fish farmers should be taken as a matter of routine by the extension workers. This will help in supplying relevant and current information to them. Other intervention agencies providing information on different information needs of the artisanal fish farmers should complement government efforts in providing valuable information in order to increase their level of production. Regularity of practical information is very important to boost production, thus, a reliable and regular alternative to information on artisanal fishery should be developed, as the respondents suggested that television, posters and journals are not regular sources of information.
7. The government should support the provision of basic amenities like rural electrification, information communication technology (ICT) infrastructures and improve the rural transportation system so that modern agricultural information facilities can be made available and used in the study area. Enough funds should be provided for the purchase of audio-visual resources and current fisheries materials; information materials should be translated into local language to enable artisanal fish farmers to access relevant information that will help in boosting their production rate.
8. Several challenges were revealed in the findings as constituting set back to the artisanal fish farmers in the fishing business. Stakeholders in the business should take adequate steps to address the challenges to encourage the artisanal fish farmers and bring about increase production.
9. Information providers should use credible sources of information such as output buyers, farmers' groups, credit agencies and cell phones, as identified in this study, to increase food security.

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APPENDIX 1

QUESTIONNAIRE

ANALYSIS OF WORTH ASSESSMENT, ACCESS POINTS AND CREDIBILITY OF INFORMATION SOURCES USED BY ARTISANAL FISH FARMERS IN SELECTED COASTAL STATES OF NIGERIA.

**Department of Agric. Economics
and Extension, Faculty of Agric, Sc
& Tech, North West University,
Mafikeng campus South Africa.**

24th October 2017.

Dear respondent,

I am a postgraduate student of the above institution, currently undertaking a research on the Analysis of Worth Assessment, Access points and Credibility of information Sources used by Artisanal Fish Farmers in Selected Coastal States of Nigeria. You are kindly requested to provide answers to these questions as truthful as you can, for the purpose of this research. Any answer provided for these questions will be treated with utmost confidentiality.

Thanks for your co-operation.

Gbarabe Roland

27303322

SECTION A

1. Socio economic characteristics of Artisanal Fishermen.

Tick as applied to you.

S/N	Demographic characteristics of artisanal fishermen	
1.	SEX:	
	Male	(_ _)
	Female	(_ _)
2.	AGE:	
	20-30 years	(_ _)
	31-40 years	(_ _)
	41-50 years	(_ _)
	51 and above	(_ _)
3.	INCOME LEVEL IN NAIRA:	
	00-10,000	(_ _)
	10,000-50,000	
	50,000-100,000`	(_ _)
	100,000 and above	(_ _)
4.	HOUSE HOLDDSIZE:	

children /dependents;

1-2 (_ _)

3-4 (_ _)

5- 6 (_ _)

6 and above (_ _)

Wives;

1-2 (_ _)

2-4 (_ _)

5. MARITAL STATUS:

6 YEARS OF FISHING EXPERIENCE

Single

1-5 years (_ _)

6-10 years (_ _)

11-15 years (_ _)

15 and above (_ _)

7. EDUCATIONAL LEVEL

No education (_ _)

Primary school (_ _)

Secondary school (_ _)

DIPLOMA (_ _)

NCE (_ _)

Degree and above (_ _)

Married

(_ _)

(_ _)

SECTION B

Table 2. Information needs of artisanal fishermen. (Please, Tick Yes or No response).

S/No	In which of the following areas do you need information?	Yes	No
1	New method of catching fish		
2	Access to Modern fishing facilities		
3	Effect of obnoxious (bad) Fishing practices		
4	Membership of fisheries cooperative		
5	Fish process and storage		
6	How to market their fish		
7	Where to obtain loan/credit facilities		
8	Conflicts resolution		
9	Effect of water pollution		
10	Effect of weather on fishing activities		
11	Middle men exploitation		
12	Observation of close fishing season		
13	Where to acquire fishing tools at cheaper rate.		

SECTION C

Table 3: What factors influence the use of information access points by fish farmers?

(Please, tick where appropriate)

S/No.	Question	Strongly agree	Agree	Disagree	Strongly disagree
	Do you agree that the following influence the use of information access by fish farmer?				
1	Regular availability of information sources				
2	Currency of Information sources				
3	Timing of information				
4	accessibility of Information sources				
5	Comprehension of the information source				
6	Access to credit				
7	Cost of acquiring the information				
8	Information source worth				
9	Format of information presentation				
10	Poor knowledge of sharing culture				
11	Poor infrastructure				
12	Lack of Reading culture				
13	Lack of information Services				
14	Lack of Awareness of Information Services				
16	Inadequate number of Extension Agent				

SECTION D

Table 4: WORTHINESS OF THE INFORMATION. Indicate as appropriate the worthiness of the following information using Timeliness, Adequacy and Relevance.

S/No	Information type	Timeliness				Adequacy				Relevance			
		Vt	Mt	Lt	Nt	Va	Ma	La	Na	Vr	Mr	Lr	Nr
1	Use of different types of fishing gears												
2	Water trend or movement												
3	Weather trend												
4	New methods of catching fish												
5	Type of material for boat making												
6	Use of motorized fishing												
7	Brackish or fresh water fishing												
8	Access to modern fishing facilities												
9	Use of Non-motorized fishing(use of paddle)												

10	Methods of fishing												
11	Use of safety materials												
12	Effects of use of explosives(dynamite)												
13	Use of different mesh size of nets												
14	Information on how to maintain fishing gears.												
15	Effect of bad fishing practices& water pollution												
16	Modern techniques in boat &engine(outboard) maintenance												
17	Dangers of rough sea (waves) fishing												
18	Processing and storage												
19	Effects of deforestation												

20	How to obtain loan (where, when and requirements).												
21	Available government grants and provision of other incentives.												
22	Organization of fishing cooperatives.												
23	Negative activities of middlemen or exploitation.												
24	Where to acquire cheap fishing tools.												

Key: Vt, = Very timely, Mt = Moderately timely, Lt = Less timely, Nt=Not timely, Va = Very adequate, Moderately adequate, La = Less adequate, Na = Not adequate, Vr = Very relevant, Mr = Moderately relevant, Lr = Less relevant, Nr = Note relevant

SECTION E

Table 5: THE WORTH ASSESSMENT OF ACCESS POINTS. Indicate as appropriate the worth assessment of the access points using following Motivation ability, Regularity, relevance and Persistence.

S/No	Access points	Motivation ability				Regularity				Relevance				Persistence in years			
		HM	AM	LM	VI M	Vr	R	Ir	Nr	Vr	R	Lr	Nr	VP	MP	LP	NP
1	Farmers groups																
2	Television																
3	Posters																
4	Neighbor farmers																
5	Farmers meetings																
6	Journals																

7	Community leaders																
8	Co operatives																
9	Cell phones																
10	Extension agents																
11	Other farmers																
12	Town criers																
13	Leaflets																
14	Video																
15	Books																
16	Church meetings																
17	Input dealers																

18	Output buyers																
19	Credit agencies																
20	Credit Agencies																
21	Friends																
22	Others (specify) i ii																

Key: HM = High motivation, AM = Average motivation, LM = Low motivation VIM =Very Low mmotivation, Vr = Very regular, Mr = moderately regular, Lr = Less regular, Nr = Not regular, Vr = Very relevant, R = Relevant, Lr = Less relevant, Nr = Not relevant, Vp=Very persistent, Mp=Moderately persistent, Lp=Less persistent, Np=Not persistent.

SECTION F

Table 6: CREDIBILITY OF INFORMATION SOURCES. (Please, tick credibility of the information source as very high, high, low and very low).

S/No	Information source	Very high	High	Low	Very low
1	Farmers group				
2	Ext agents				
3	Com. Leaders				
4	Radio				
5	Television				
6	Other farmers				
7	Journals				
8	Posters				
9	Cell phones				
10	Farmers meetings				
11	Co operatives				
12	Leaflets				
13	Town criers				
14	Laptops				
15	Books				
16	Input dealers				

17	Video				
18	Output buyers				
19	Credit agencies				
20	Friends				
21	Bulletin				
22	Others (Specify) i)libraries ii)Newspapers				

SECTION G

Table 7: PERCEIVED CONSTRAINTS ASSOCIATED WITH INFORMATION WORTH ASSESSMENT, ACCESS POINTS AND INFORMATION CREDIBILITY. Tick the most appropriate option: very severe, moderately severe, somewhat severe and less severe.

S/No	Perceived constraints	VS	MS	SS	LS
1	Long Distance to source of information				
2	No accurate information from information sources.				
3	Wrong timing of information dissemination.				

4	Poor road network to receive information.				
5	Delay information feedback from extension agents carrying information.				
6	Poor government policies on incentives to artisans.				
7	Language barrier between artisans and information sources.				
8	Cost of acquiring access points.				
9	Technical languages of information by experts.				
10	Unreliable nature of electricity for use such as television, cell phones and laptops.				
11	Limited information access points.				
12	Shortage of funds as grants and loans to artisans to acquire certain access points.				
13	Lack of libraries of access points in the fishing settlements.				
14	Illiteracy of artisanal fish farmers.				

15	Shortage of extension workers as access points for information.				
16	Distortion due to interpretation by interpreters to artisans in rural areas.				
17	Epileptic cell phone mobile network situation where available.				

APPENDIX 2

Descriptive

Descriptive Statistics			
	N	Mean	Std. Deviation
SEX	442	1.2014	.40147
AGE	442	2.5068	.73845
INCOME	442	2.0679	.80244
CHILDREN	442	1.9819	.85695
WIVES	442	1.0430	.20306
MSTAT	442	1.1968	.39806
EXPERNCE	442	1.6244	.75841
EDUCTN	442	2.4593	.77922
VAR00009	442	1.0000	.00000
VAR00010	442	1.0656	.24788
VAR00011	442	1.0045	.06719
VAR00012	442	1.4751	.49995
VAR00013	442	1.4548	.49851
VAR00014	442	1.5000	.50057
VAR00015	442	1.4027	.49100
VAR00016	442	1.8733	.33301
VAR00017	442	1.6176	.48651
VAR00018	442	1.0068	.08220
VAR00019	442	1.4751	.49995
VAR00020	442	1.5045	.50055
VAR00021	442	2.4796	1.50156
VAR00022	442	3.4276	.65324
VAR00023	442	3.1199	1.04832

VAR00024	442	3.4615	.88813
VAR00025	442	3.4525	.88769
VAR00026	442	3.0498	.50598
VAR00027	442	2.9118	1.21551
VAR00028	442	3.8507	.35681
VAR00029	442	3.4027	.99923
VAR00030	442	3.1335	1.00467
VAR00031	442	3.4842	.81426
VAR00032	442	3.2489	.70087
VAR00033	442	3.4118	.68190
VAR00034	442	2.9027	1.24250
VAR00035	442	2.8937	1.26706
VAR00036	442	2.9072	.37252
VAR00037	442	1.5860	.74571
VAR00038	442	2.5023	1.49413
VAR00039	442	2.7489	.44955
VAR00040	442	2.7692	1.27283
VAR00041	442	3.1991	.93857
VAR00042	442	1.6493	.79203
VAR00043	442	2.3009	1.34938
VAR00044	442	1.3756	.66948
VAR00045	442	2.5023	1.49413
VAR00046	442	3.4412	.60040
VAR00047	442	2.9231	.91273
VAR00048	442	2.6176	1.42251
VAR00049	442	3.5113	.62532
VAR00050	442	2.7670	1.27152
VAR00051	442	3.3891	.83172
VAR00052	442	3.9729	.24128
VAR00053	442	3.3959	.81331
VAR00054	442	2.4186	1.45497
VAR00055	442	2.3258	1.35114
VAR00056	442	1.5837	.74597
VAR00057	442	1.0226	.24175
VAR00058	442	2.5023	1.49413
VAR00059	442	3.5882	.52394
VAR00060	442	2.3937	.78463
VAR00061	442	1.2851	.45196
VAR00062	442	2.4977	1.49565
VAR00063	442	2.7376	.86183
VAR00064	442	2.3394	1.34273
VAR00065	442	3.4095	.64044
VAR00066	442	2.7036	.88854
VAR00067	442	2.6403	1.38979
VAR00068	442	2.1244	.86525

VAR00069	442	2.4842	1.49556
VAR00070	442	2.7851	.80613
VAR00071	442	2.9163	1.24166
VAR00072	442	3.6855	.84016
VAR00073	442	3.5294	.59878
VAR00074	442	2.1312	.49576
VAR00075	442	2.4977	1.49565
VAR00076	442	2.3348	.81154
VAR00077	442	2.3122	1.34932
VAR00078	442	1.5385	.68321
VAR00079	442	1.0090	.09481
VAR00080	442	1.0249	.15596
VAR00081	442	1.8213	.88176
VAR00082	442	2.3982	1.14871
VAR00083	442	2.4118	1.27692
VAR00084	442	2.7014	1.15723
VAR00085	442	2.0611	.91269
VAR00086	442	2.4819	1.50008
VAR00087	442	3.1855	.88421
VAR00088	442	2.7873	1.12487
VAR00089	442	3.9344	.24788
VAR00090	442	3.3665	1.16897
VAR00091	442	3.2647	.81376
VAR00092	442	2.7760	1.25702
VAR00093	442	2.4819	1.50008
VAR00094	442	3.1244	.99904
VAR00095	442	3.7964	.74941
VAR00096	442	3.1991	.94098
VAR00097	442	3.4276	.61387
VAR00098	442	3.4457	.61204
VAR00099	442	3.5090	.50048
VAR00100	442	3.4344	.60346
VAR00101	442	3.5814	.54620
VAR00102	442	1.9615	.97398
VAR00103	442	2.5113	1.50015
VAR00104	442	3.4367	.61487
VAR00105	442	3.7715	.42035
VAR00106	442	3.7624	.42607
VAR00107	442	3.4208	1.17777
VAR00108	442	3.5249	.63928
VAR00109	442	3.0905	.91891
VAR00110	442	2.0023	1.01798
VAR00111	442	2.9163	1.09410
VAR00112	442	3.1946	.73966
VAR00113	442	1.8891	.99154

VAR00114	442	1.9208	1.38360
VAR00115	442	2.4977	1.49565
VAR00116	442	3.4186	.63811
VAR00117	442	3.2805	.80982
VAR00118	442	3.1652	.73916
VAR00119	442	1.3937	.67596
VAR00120	442	1.8145	.90450
VAR00121	442	2.2059	1.26012
VAR00122	442	2.1561	1.28680
VAR00123	442	1.0701	.28897
VAR00124	442	2.5000	1.49413
VAR00125	442	3.0317	.76124
VAR00126	442	3.0385	1.04148
VAR00127	442	3.2195	.59802
VAR00128	442	2.6878	1.13181
VAR00129	442	3.3733	.75504
VAR00130	442	1.8145	.87907
VAR00131	442	2.3462	1.16840
VAR00132	442	3.5339	.63886
VAR00133	442	3.3756	.75241
VAR00134	442	1.0158	.19570
VAR00135	442	1.8235	.89877
VAR00136	442	3.3575	.79898
VAR00137	442	3.4095	.65445
VAR00138	442	2.6041	1.13461
VAR00139	442	3.2647	1.23995
VAR00140	442	1.2127	.42594
VAR00141	442	2.0181	1.35848
VAR00142	442	1.0023	.04757
VAR00143	442	1.0023	.04757
VAR00144	442	1.6335	1.19202
VAR00145	442	2.5814	1.15034
VAR00146	442	2.2986	1.35240
VAR00147	442	2.4050	1.34730
VAR00148	442	3.7330	.78895
VAR00149	442	3.2896	.92940
VAR00150	442	3.2557	.82768
VAR00151	442	3.4480	.79583
VAR00152	442	3.6086	.65860
VAR00153	442	2.6290	1.17528
VAR00154	442	2.5905	1.44505
VAR00155	442	2.5769	1.37839
VAR00156	442	3.2692	.92455
VAR00157	442	3.4706	.79699
VAR00158	442	3.2195	.92055

VAR00159	442	3.3959	.67966
VAR00160	442	2.6448	1.46403
VAR00161	442	2.6222	1.38169
VAR00162	442	2.0588	1.43212
VAR00163	442	1.6765	1.16325
VAR00164	442	2.1833	.98303
VAR00165	442	2.1855	1.11553
VAR00166	442	3.1244	.98992
VAR00167	442	2.9774	.88034
VAR00168	442	3.3529	.80664
VAR00169	442	3.3077	1.21793
VAR00170	442	2.4932	1.50168
VAR00171	442	3.6606	.64435
VAR00172	442	1.6584	.77579
VAR00173	442	2.2036	1.26677
VAR00174	442	2.2964	1.35206
VAR00175	442	3.1606	.97310
VAR00176	442	2.7421	1.30288
VAR00177	442	3.0566	1.16407
VAR00178	442	3.2195	.92301
VAR00179	442	3.2647	.63537
VAR00180	442	2.4977	1.50019
VAR00181	442	3.2828	1.23410
VAR00182	442	1.5633	1.17294
VAR00183	442	2.6176	1.36558
VAR00184	442	1.5633	1.17294
VAR00185	442	2.7217	1.31516
VAR00186	442	2.4367	1.17101
VAR00187	442	2.9389	1.09353
VAR00188	442	3.5973	.82247
VAR00189	442	3.1606	.91794
VAR00190	442	1.9140	1.38073
VAR00191	442	2.1041	1.31209
VAR00192	442	2.1041	1.31209
VAR00193	442	2.3982	1.28652
VAR00194	442	1.5973	.49100
VAR00195	442	1.6041	.50331
VAR00196	442	1.9570	1.39986
VAR00197	442	2.3394	1.36118
VAR00198	442	2.0113	1.07216
VAR00199	442	2.3258	.59302
VAR00200	442	1.0317	.24997
VAR00201	442	1.9615	1.39999
VAR00202	442	2.1516	1.32552
VAR00203	442	2.0023	.99317

VAR00204	442	1.1652	.37174
VAR00205	442	1.3846	.78912
VAR00206	442	2.3982	1.14079
VAR00207	442	2.4910	1.01291
VAR00208	442	1.2172	.41826
VAR00209	442	1.6538	1.20283
VAR00210	442	3.6493	.59217
VAR00211	442	2.8303	.89122
VAR00212	442	1.7805	.74034
VAR00213	442	2.4072	1.28014
VAR00214	442	2.7964	.98247
VAR00215	442	2.8733	.91709
VAR00216	442	3.0181	1.00097
VAR00217	442	3.0973	.99979
VAR00218	442	3.1063	1.00340
VAR00219	442	3.7647	.77009
VAR00220	442	2.8552	.94128
VAR00221	442	2.8575	.95241
VAR00222	442	3.2262	.89769
VAR00223	442	3.2172	.89487
VAR00224	442	3.1018	.99251
VAR00225	442	3.1109	.99610
VAR00226	442	3.7172	.61657
Valid N (listwise)	442		

OBJECTIVE 1

Frequency Table

SEX

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	353	79.9	79.9	79.9
Valid Female	89	20.1	20.1	100.0
Total	442	100.0	100.0	

AGE

	Frequency	Percent	Valid Percent	Cumulative Percent
20-30yrs	32	7.2	7.2	7.2
31-40yrs	187	42.3	42.3	49.5
Valid 41-50yrs	190	43.0	43.0	92.5
51yrs & above	33	7.5	7.5	100.0
Total	442	100.0	100.0	

INCOME

	Frequency	Percent	Valid Percent	Cumulative Percent
N1-N10,000	99	22.4	22.4	22.4
N11,000-N50,000	243	55.0	55.0	77.4
Valid N51,000-N100,000	71	16.1	16.1	93.4
N101,000 & above	29	6.6	6.6	100.0
Total	442	100.0	100.0	

CHILDREN

	Frequency	Percent	Valid Percent	Cumulative Percent
1-2chdrn	137	31.0	31.0	31.0
3-4chdrn	205	46.4	46.4	77.4
Valid 5-6chdrn	71	16.1	16.1	93.4
6 & above	29	6.6	6.6	100.0
Total	442	100.0	100.0	

WIVES

	Frequency	Percent	Valid Percent	Cumulative Percent
1-2wives	423	95.7	95.7	95.7
Valid 3-4wives	19	4.3	4.3	100.0
Total	442	100.0	100.0	

MSTAT

	Frequency	Percent	Valid Percent	Cumulative Percent
married	355	80.3	80.3	80.3
Valid single	87	19.7	19.7	100.0
Total	442	100.0	100.0	

EXPERNCE

	Frequency	Percent	Valid Percent	Cumulative Percent
1-5yrs	218	49.3	49.3	49.3
6-10yrs	195	44.1	44.1	93.4
Valid 11-15yrs	6	1.4	1.4	94.8
16yrs & above	23	5.2	5.2	100.0
Total	442	100.0	100.0	

EDUCTN

	Frequency	Percent	Valid Percent	Cumulative Percent
no educ	50	11.3	11.3	11.3
primary	168	38.0	38.0	49.3
Valid secondary	195	44.1	44.1	93.4
higher	29	6.6	6.6	100.0
Total	442	100.0	100.0	

VAR00009

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	442	100.0	100.0	100.0

VAR00010

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	413	93.4	93.4	93.4
Valid 2.00	29	6.6	6.6	100.0
Total	442	100.0	100.0	

VAR00011

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	440	99.5	99.5	99.5
Valid 2.00	2	.5	.5	100.0
Total	442	100.0	100.0	

VAR00012

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	232	52.5	52.5	52.5
Valid 2.00	210	47.5	47.5	100.0
Total	442	100.0	100.0	

VAR00013

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	241	54.5	54.5	54.5
Valid 2.00	201	45.5	45.5	100.0
Total	442	100.0	100.0	

VAR00014

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	221	50.0	50.0	50.0
Valid 2.00	221	50.0	50.0	100.0
Total	442	100.0	100.0	

VAR00015

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	264	59.7	59.7	59.7
Valid 2.00	178	40.3	40.3	100.0
Total	442	100.0	100.0	

VAR00016

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	135	30.5	30.5	30.5
Valid 2.00	307	69.5	69.5	100.0
Total	442	100.0	100.0	

VAR00017

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	56	12.7	12.7	12.7
Valid 2.00	386	87.3	87.3	100.0
Total	442	100.0	100.0	

VAR00018

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	169	38.2	38.2	38.2
Valid 2.00	273	61.8	61.8	100.0
Total	442	100.0	100.0	

VAR00019

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	439	99.3	99.3	99.3
Valid 2.00	3	.7	.7	100.0
Total	442	100.0	100.0	

VAR00020

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	232	52.5	52.5	52.5
Valid 2.00	210	47.5	47.5	100.0
Total	442	100.0	100.0	

VAR00021

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	219	49.5	49.5	49.5
Valid 2.00	223	50.5	50.5	100.0
Total	442	100.0	100.0	

VAR00022

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	224	50.7	50.7	50.7
Valid 4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00023

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	10	2.3	2.3	2.3
2.00	10	2.3	2.3	4.5
Valid 3.00	203	45.9	45.9	50.5
4.00	219	49.5	49.5	100.0
Total	442	100.0	100.0	

VAR00024

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	57	12.9	12.9	12.9
2.00	48	10.9	10.9	23.8
Valid 3.00	122	27.6	27.6	51.4
4.00	215	48.6	48.6	100.0
Total	442	100.0	100.0	

VAR00025

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	28	6.3	6.3	6.3
2.00	35	7.9	7.9	14.3
Valid 3.00	84	19.0	19.0	33.3
4.00	295	66.7	66.7	100.0
Total	442	100.0	100.0	

VAR00026

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	29	6.6	6.6	6.6
2.00	32	7.2	7.2	13.8
Valid 3.00	91	20.6	20.6	34.4
4.00	290	65.6	65.6	100.0
Total	442	100.0	100.0	

VAR00027

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	11	2.5	2.5	2.5
2.00	13	2.9	2.9	5.4
Valid 3.00	361	81.7	81.7	87.1
4.00	57	12.9	12.9	100.0
Total	442	100.0	100.0	

VAR00028

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	90	20.4	20.4	20.4
2.00	77	17.4	17.4	37.8
Valid 3.00	57	12.9	12.9	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00029

	Frequency	Percent	Valid Percent	Cumulative Percent
3.00	66	14.9	14.9	14.9
Valid 4.00	376	85.1	85.1	100.0
Total	442	100.0	100.0	

VAR00030

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	55	12.4	12.4	12.4
2.00	2	.5	.5	12.9
Valid 3.00	95	21.5	21.5	34.4
4.00	290	65.6	65.6	100.0
Total	442	100.0	100.0	

VAR00031

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	40	9.0	9.0	9.0
2.00	77	17.4	17.4	26.5
Valid 3.00	109	24.7	24.7	51.1
4.00	216	48.9	48.9	100.0
Total	442	100.0	100.0	

VAR00032

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	23	5.2	5.2	5.2
2.00	22	5.0	5.0	10.2
Valid 3.00	115	26.0	26.0	36.2
4.00	282	63.8	63.8	100.0
Total	442	100.0	100.0	

VAR00033

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	19	4.3	4.3	4.3
2.00	10	2.3	2.3	6.6
Valid 3.00	255	57.7	57.7	64.3
4.00	158	35.7	35.7	100.0
Total	442	100.0	100.0	

VAR00034

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	13	2.9	2.9	2.9
2.00	10	2.3	2.3	5.2
Valid 3.00	201	45.5	45.5	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00035

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	96	21.7	21.7	21.7
2.00	76	17.2	17.2	38.9
Valid 3.00	45	10.2	10.2	49.1
4.00	225	50.9	50.9	100.0
Total	442	100.0	100.0	

VAR00036

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	115	26.0	26.0	26.0
2.00	35	7.9	7.9	33.9
Valid 3.00	74	16.7	16.7	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00037

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	11	2.5	2.5	2.5
2.00	20	4.5	4.5	7.0
Valid 3.00	410	92.8	92.8	99.8
4.00	1	.2	.2	100.0
Total	442	100.0	100.0	

VAR00038

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	252	57.0	57.0	57.0
Valid 2.00	121	27.4	27.4	84.4
3.00	69	15.6	15.6	100.0
Total	442	100.0	100.0	

VAR00039

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	219	49.5	49.5	49.5
Valid 3.00	5	1.1	1.1	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00040

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	3	.7	.7	.7
Valid 2.00	105	23.8	23.8	24.4
3.00	334	75.6	75.6	100.0
Total	442	100.0	100.0	

VAR00041

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	100	22.6	22.6	22.6
2.00	120	27.1	27.1	49.8
Valid 3.00	4	.9	.9	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00042

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	29	6.6	6.6	6.6
2.00	72	16.3	16.3	22.9
Valid 3.00	123	27.8	27.8	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00043

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	243	55.0	55.0	55.0
Valid 2.00	111	25.1	25.1	80.1
3.00	88	19.9	19.9	100.0
Total	442	100.0	100.0	

VAR00044

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	220	49.8	49.8	49.8
2.00	4	.9	.9	50.7
Valid 3.00	83	18.8	18.8	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00045

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	323	73.1	73.1	73.1
Valid 2.00	72	16.3	16.3	89.4
3.00	47	10.6	10.6	100.0
Total	442	100.0	100.0	

VAR00046

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	219	49.5	49.5	49.5
Valid 3.00	5	1.1	1.1	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00047

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	2	.5	.5	.5
2.00	19	4.3	4.3	4.8
Valid 3.00	203	45.9	45.9	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00048

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	33	7.5	7.5	7.5
2.00	103	23.3	23.3	30.8
Valid 3.00	171	38.7	38.7	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00049

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	172	38.9	38.9	38.9
2.00	47	10.6	10.6	49.5
Valid 3.00	1	.2	.2	49.8
4.00	222	50.2	50.2	100.0
Total	442	100.0	100.0	

VAR00050

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	3	.7	.7	.7
2.00	22	5.0	5.0	5.7
Valid 3.00	163	36.9	36.9	42.5
4.00	254	57.5	57.5	100.0
Total	442	100.0	100.0	

VAR00051

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	100	22.6	22.6	22.6
2.00	120	27.1	27.1	49.8
Valid 3.00	5	1.1	1.1	50.9
4.00	217	49.1	49.1	100.0
Total	442	100.0	100.0	

VAR00052

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	2	.5	.5	.5
2.00	94	21.3	21.3	21.7
Valid 3.00	76	17.2	17.2	38.9
4.00	270	61.1	61.1	100.0
Total	442	100.0	100.0	

VAR00053

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	2	.5	.5	.5
2.00	1	.2	.2	.7
Valid 3.00	4	.9	.9	1.6
4.00	435	98.4	98.4	100.0
Total	442	100.0	100.0	

VAR00054

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	93	21.0	21.0	21.0
Valid 3.00	81	18.3	18.3	39.4
4.00	268	60.6	60.6	100.0
Total	442	100.0	100.0	

VAR00055

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	223	50.5	50.5	50.5
2.00	1	.2	.2	50.7
Valid 3.00	28	6.3	6.3	57.0
4.00	190	43.0	43.0	100.0
Total	442	100.0	100.0	

VAR00056

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	217	49.1	49.1	49.1
2.00	1	.2	.2	49.3
Valid 3.00	87	19.7	19.7	69.0
4.00	137	31.0	31.0	100.0
Total	442	100.0	100.0	

VAR00057

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	253	57.2	57.2	57.2
Valid 2.00	120	27.1	27.1	84.4
3.00	69	15.6	15.6	100.0
Total	442	100.0	100.0	

VAR00058

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	438	99.1	99.1	99.1
Valid 3.00	2	.5	.5	99.5
4.00	2	.5	.5	100.0
Total	442	100.0	100.0	

VAR00059

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	219	49.5	49.5	49.5
Valid 3.00	5	1.1	1.1	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00060

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	2	.5	.5	.5
2.00	1	.2	.2	.7
Valid 3.00	174	39.4	39.4	40.0
4.00	265	60.0	60.0	100.0
Total	442	100.0	100.0	

VAR00061

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	74	16.7	16.7	16.7
2.00	129	29.2	29.2	45.9
Valid 3.00	230	52.0	52.0	98.0
4.00	9	2.0	2.0	100.0
Total	442	100.0	100.0	

VAR00062

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	316	71.5	71.5	71.5
Valid 2.00	126	28.5	28.5	100.0
Total	442	100.0	100.0	

VAR00063

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	220	49.8	49.8	49.8
Valid 3.00	4	.9	.9	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00064

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	38	8.6	8.6	8.6
2.00	123	27.8	27.8	36.4
Valid 3.00	198	44.8	44.8	81.2
4.00	83	18.8	18.8	100.0
Total	442	100.0	100.0	

VAR00065

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	211	47.7	47.7	47.7
2.00	7	1.6	1.6	49.3
Valid 3.00	87	19.7	19.7	69.0
4.00	137	31.0	31.0	100.0
Total	442	100.0	100.0	

VAR00066

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	37	8.4	8.4	8.4
Valid 3.00	187	42.3	42.3	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00067

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	83	18.8	18.8	18.8
2.00	10	2.3	2.3	21.0
Valid 3.00	304	68.8	68.8	89.8
4.00	45	10.2	10.2	100.0
Total	442	100.0	100.0	

VAR00068

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	157	35.5	35.5	35.5
2.00	63	14.3	14.3	49.8
Valid 3.00	4	.9	.9	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00069

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	141	31.9	31.9	31.9
Valid 2.00	105	23.8	23.8	55.7
3.00	196	44.3	44.3	100.0
Total	442	100.0	100.0	

VAR00070

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	222	50.2	50.2	50.2
3.00	4	.9	.9	51.1
4.00	216	48.9	48.9	100.0
Total	442	100.0	100.0	

VAR00071

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	23	5.2	5.2	5.2
2.00	132	29.9	29.9	35.1
3.00	204	46.2	46.2	81.2
4.00	83	18.8	18.8	100.0
Total	442	100.0	100.0	

VAR00072

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	102	23.1	23.1	23.1
2.00	54	12.2	12.2	35.3
3.00	65	14.7	14.7	50.0
4.00	221	50.0	50.0	100.0
Total	442	100.0	100.0	

VAR00073

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	36	8.1	8.1	8.1
3.00	31	7.0	7.0	15.2
4.00	375	84.8	84.8	100.0
Total	442	100.0	100.0	

VAR00074

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	2	.5	.5	.5
2.00	18	4.1	4.1	4.5
3.00	166	37.6	37.6	42.1
4.00	256	57.9	57.9	100.0
Total	442	100.0	100.0	

VAR00075

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	29	6.6	6.6	6.6
2.00	326	73.8	73.8	80.3
3.00	87	19.7	19.7	100.0
Total	442	100.0	100.0	

VAR00076

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	220	49.8	49.8	49.8
3.00	4	.9	.9	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00077

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	34	7.7	7.7	7.7
2.00	288	65.2	65.2	72.9
3.00	58	13.1	13.1	86.0
4.00	62	14.0	14.0	100.0
Total	442	100.0	100.0	

VAR00078

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	219	49.5	49.5	49.5
2.00	1	.2	.2	49.8
3.00	87	19.7	19.7	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00079

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	252	57.0	57.0	57.0
2.00	142	32.1	32.1	89.1
3.00	48	10.9	10.9	100.0
Total	442	100.0	100.0	

VAR00080

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	438	99.1	99.1	99.1
Valid 2.00	4	.9	.9	100.0
Total	442	100.0	100.0	

VAR00081

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	431	97.5	97.5	97.5
Valid 2.00	11	2.5	2.5	100.0
Total	442	100.0	100.0	

VAR00082

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	218	49.3	49.3	49.3
Valid 2.00	85	19.2	19.2	68.6
3.00	139	31.4	31.4	100.0
Total	442	100.0	100.0	

VAR00083

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	103	23.3	23.3	23.3
2.00	195	44.1	44.1	67.4
Valid 3.00	9	2.0	2.0	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00084

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	171	38.7	38.7	38.7
2.00	53	12.0	12.0	50.7
Valid 3.00	83	18.8	18.8	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00085

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	102	23.1	23.1	23.1
2.00	75	17.0	17.0	40.0
Valid 3.00	118	26.7	26.7	66.7
4.00	147	33.3	33.3	100.0
Total	442	100.0	100.0	

VAR00086

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	159	36.0	36.0	36.0
2.00	109	24.7	24.7	60.6
Valid 3.00	162	36.7	36.7	97.3
4.00	12	2.7	2.7	100.0
Total	442	100.0	100.0	

VAR00087

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	223	50.5	50.5	50.5
Valid 2.00	1	.2	.2	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00088

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	3	.7	.7	.7
2.00	130	29.4	29.4	30.1
Valid 3.00	91	20.6	20.6	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00089

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	102	23.1	23.1	23.1
2.00	30	6.8	6.8	29.9
Valid 3.00	170	38.5	38.5	68.3
4.00	140	31.7	31.7	100.0
Total	442	100.0	100.0	

VAR00090

	Frequency	Percent	Valid Percent	Cumulative Percent
3.00	29	6.6	6.6	6.6
Valid 4.00	413	93.4	93.4	100.0
Total	442	100.0	100.0	

VAR00091

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	83	18.8	18.8	18.8
2.00	1	.2	.2	19.0
Valid 3.00	29	6.6	6.6	25.6
4.00	329	74.4	74.4	100.0
Total	442	100.0	100.0	

VAR00092

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	2	.5	.5	.5
2.00	97	21.9	21.9	22.4
Valid 3.00	125	28.3	28.3	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00093

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	136	30.8	30.8	30.8
2.00	1	.2	.2	31.0
Valid 3.00	131	29.6	29.6	60.6
4.00	174	39.4	39.4	100.0
Total	442	100.0	100.0	

VAR00094

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	223	50.5	50.5	50.5
2.00	1	.2	.2	50.7
Valid 4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00095

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	32	7.2	7.2	7.2
2.00	100	22.6	22.6	29.9
Valid 3.00	91	20.6	20.6	50.5
4.00	219	49.5	49.5	100.0
Total	442	100.0	100.0	

VAR00096

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	29	6.6	6.6	6.6
2.00	1	.2	.2	6.8
Valid 3.00	1	.2	.2	7.0
4.00	411	93.0	93.0	100.0
Total	442	100.0	100.0	

VAR00097

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	30	6.8	6.8	6.8
2.00	70	15.8	15.8	22.6
Valid 3.00	124	28.1	28.1	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00098

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	29	6.6	6.6	6.6
Valid 3.00	195	44.1	44.1	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00099

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	28	6.3	6.3	6.3
Valid 3.00	189	42.8	42.8	49.1
4.00	225	50.9	50.9	100.0
Total	442	100.0	100.0	

VAR00100

	Frequency	Percent	Valid Percent	Cumulative Percent
3.00	217	49.1	49.1	49.1
Valid 4.00	225	50.9	50.9	100.0
Total	442	100.0	100.0	

VAR00101

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	1	.2	.2	.2
2.00	23	5.2	5.2	5.4
Valid 3.00	201	45.5	45.5	50.9
4.00	217	49.1	49.1	100.0
Total	442	100.0	100.0	

VAR00102

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	4	.9	.9	.9
Valid 3.00	173	39.1	39.1	40.0
4.00	265	60.0	60.0	100.0
Total	442	100.0	100.0	

VAR00103

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	218	49.3	49.3	49.3
Valid 2.00	23	5.2	5.2	54.5
3.00	201	45.5	45.5	100.0
Total	442	100.0	100.0	

VAR00104

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	219	49.5	49.5	49.5
Valid 3.00	1	.2	.2	49.8
4.00	222	50.2	50.2	100.0
Total	442	100.0	100.0	

VAR00105

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 2.00	29	6.6	6.6	6.6
3.00	191	43.2	43.2	49.8
4.00	222	50.2	50.2	100.0
Total	442	100.0	100.0	

VAR00106

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 3.00	101	22.9	22.9	22.9
4.00	341	77.1	77.1	100.0
Total	442	100.0	100.0	

VAR00107

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 3.00	105	23.8	23.8	23.8
4.00	337	76.2	76.2	100.0
Total	442	100.0	100.0	

VAR00108

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	84	19.0	19.0	19.0
3.00	4	.9	.9	19.9
4.00	354	80.1	80.1	100.0
Total	442	100.0	100.0	

VAR00109

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	2	.5	.5	.5
2.00	29	6.6	6.6	7.0
3.00	146	33.0	33.0	40.0
4.00	265	60.0	60.0	100.0
Total	442	100.0	100.0	

VAR00110

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	28	6.3	6.3	6.3
2.00	84	19.0	19.0	25.3
Valid 3.00	150	33.9	33.9	59.3
4.00	180	40.7	40.7	100.0
Total	442	100.0	100.0	

VAR00111

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	223	50.5	50.5	50.5
Valid 3.00	214	48.4	48.4	98.9
4.00	5	1.1	1.1	100.0
Total	442	100.0	100.0	

VAR00112

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	30	6.8	6.8	6.8
2.00	194	43.9	43.9	50.7
Valid 3.00	1	.2	.2	50.9
4.00	217	49.1	49.1	100.0
Total	442	100.0	100.0	

VAR00113

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	28	6.3	6.3	6.3
2.00	2	.5	.5	6.8
Valid 3.00	268	60.6	60.6	67.4
4.00	144	32.6	32.6	100.0
Total	442	100.0	100.0	

VAR00114

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	244	55.2	55.2	55.2
2.00	3	.7	.7	55.9
Valid 3.00	195	44.1	44.1	100.0
Total	442	100.0	100.0	

VAR00115

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	306	69.2	69.2	69.2
3.00	1	.2	.2	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00116

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	220	49.8	49.8	49.8
3.00	4	.9	.9	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00117

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	3	.7	.7	.7
2.00	27	6.1	6.1	6.8
3.00	194	43.9	43.9	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00118

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 2.00	100	22.6	22.6	22.6
3.00	118	26.7	26.7	49.3
4.00	224	50.7	50.7	100.0
Total	442	100.0	100.0	

VAR00119

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	28	6.3	6.3	6.3
2.00	6	1.4	1.4	7.7
3.00	273	61.8	61.8	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00120

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	316	71.5	71.5	71.5
2.00	78	17.6	17.6	89.1
3.00	48	10.9	10.9	100.0
Total	442	100.0	100.0	

VAR00121

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	223	50.5	50.5	50.5
2.00	84	19.0	19.0	69.5
3.00	129	29.2	29.2	98.6
4.00	6	1.4	1.4	100.0
Total	442	100.0	100.0	

VAR00122

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	179	40.5	40.5	40.5
2.00	128	29.0	29.0	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00123

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	201	45.5	45.5	45.5
2.00	106	24.0	24.0	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00124

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	415	93.9	93.9	93.9
2.00	23	5.2	5.2	99.1
3.00	4	.9	.9	100.0
Total	442	100.0	100.0	

VAR00125

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	219	49.5	49.5	49.5
2.00	1	.2	.2	49.8
Valid 3.00	4	.9	.9	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00126

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00	121	27.4	27.4	27.4
Valid 3.00	186	42.1	42.1	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00127

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	30	6.8	6.8	6.8
2.00	141	31.9	31.9	38.7
Valid 3.00	53	12.0	12.0	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00128

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	3	.7	.7	.7
2.00	32	7.2	7.2	7.9
Valid 3.00	272	61.5	61.5	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00129

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	99	22.4	22.4	22.4
2.00	76	17.2	17.2	39.6
Valid 3.00	131	29.6	29.6	69.2
4.00	136	30.8	30.8	100.0
Total	442	100.0	100.0	

VAR00130

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	21	4.8	4.8	4.8
2.00	11	2.5	2.5	7.2
Valid 3.00	192	43.4	43.4	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00131

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	219	49.5	49.5	49.5
2.00	86	19.5	19.5	69.0
Valid 3.00	137	31.0	31.0	100.0
Total	442	100.0	100.0	

VAR00132

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	117	26.5	26.5	26.5
2.00	189	42.8	42.8	69.2
Valid 3.00	2	.5	.5	69.7
4.00	134	30.3	30.3	100.0
Total	442	100.0	100.0	

VAR00133

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	2	.5	.5	.5
2.00	29	6.6	6.6	7.0
Valid 3.00	142	32.1	32.1	39.1
4.00	269	60.9	60.9	100.0
Total	442	100.0	100.0	

VAR00134

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	21	4.8	4.8	4.8
2.00	10	2.3	2.3	7.0
Valid 3.00	193	43.7	43.7	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00135

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	439	99.3	99.3	99.3
3.00	2	.5	.5	99.8
4.00	1	.2	.2	100.0
Total	442	100.0	100.0	

VAR00136

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	220	49.8	49.8	49.8
2.00	84	19.0	19.0	68.8
3.00	134	30.3	30.3	99.1
4.00	4	.9	.9	100.0
Total	442	100.0	100.0	

VAR00137

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	30	6.8	6.8	6.8
3.00	194	43.9	43.9	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00138

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	4	.9	.9	.9
2.00	29	6.6	6.6	7.5
3.00	191	43.2	43.2	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00139

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	94	21.3	21.3	21.3
2.00	124	28.1	28.1	49.3
3.00	87	19.7	19.7	69.0
4.00	137	31.0	31.0	100.0
Total	442	100.0	100.0	

VAR00140

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	90	20.4	20.4	20.4
2.00	26	5.9	5.9	26.2
3.00	3	.7	.7	26.9
4.00	323	73.1	73.1	100.0
Total	442	100.0	100.0	

VAR00141

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	350	79.2	79.2	79.2
2.00	91	20.6	20.6	99.8
4.00	1	.2	.2	100.0
Total	442	100.0	100.0	

VAR00142

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	266	60.2	60.2	60.2
2.00	39	8.8	8.8	69.0
4.00	137	31.0	31.0	100.0
Total	442	100.0	100.0	

VAR00143

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	441	99.8	99.8	99.8
2.00	1	.2	.2	100.0
Total	442	100.0	100.0	

VAR00144

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	441	99.8	99.8	99.8
2.00	1	.2	.2	100.0
Total	442	100.0	100.0	

VAR00145

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	341	77.1	77.1	77.1
2.00	5	1.1	1.1	78.3
Valid 3.00	13	2.9	2.9	81.2
4.00	83	18.8	18.8	100.0
Total	442	100.0	100.0	

VAR00146

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	103	23.3	23.3	23.3
2.00	114	25.8	25.8	49.1
Valid 3.00	90	20.4	20.4	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00147

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	222	50.2	50.2	50.2
2.00	1	.2	.2	50.5
Valid 3.00	84	19.0	19.0	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00148

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	202	45.7	45.7	45.7
2.00	4	.9	.9	46.6
Valid 3.00	91	20.6	20.6	67.2
4.00	145	32.8	32.8	100.0
Total	442	100.0	100.0	

VAR00149

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	31	7.0	7.0	7.0
2.00	1	.2	.2	7.2
Valid 3.00	23	5.2	5.2	12.4
4.00	387	87.6	87.6	100.0
Total	442	100.0	100.0	

VAR00150

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	28	6.3	6.3	6.3
2.00	61	13.8	13.8	20.1
Valid 3.00	108	24.4	24.4	44.6
4.00	245	55.4	55.4	100.0
Total	442	100.0	100.0	

VAR00151

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	4	.9	.9	.9
2.00	97	21.9	21.9	22.9
Valid 3.00	123	27.8	27.8	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00152

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	27	6.1	6.1	6.1
2.00	4	.9	.9	7.0
Valid 3.00	155	35.1	35.1	42.1
4.00	256	57.9	57.9	100.0
Total	442	100.0	100.0	

VAR00153

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	4	.9	.9	.9
2.00	31	7.0	7.0	7.9
Valid 3.00	99	22.4	22.4	30.3
4.00	308	69.7	69.7	100.0
Total	442	100.0	100.0	

VAR00154

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	118	26.7	26.7	26.7
2.00	63	14.3	14.3	41.0
Valid 3.00	126	28.5	28.5	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00155

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	196	44.3	44.3	44.3
3.00	35	7.9	7.9	52.3
4.00	211	47.7	47.7	100.0
Total	442	100.0	100.0	

VAR00156

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	184	41.6	41.6	41.6
3.00	77	17.4	17.4	59.0
4.00	181	41.0	41.0	100.0
Total	442	100.0	100.0	

VAR00157

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	26	5.9	5.9	5.9
2.00	67	15.2	15.2	21.0
3.00	111	25.1	25.1	46.2
4.00	238	53.8	53.8	100.0
Total	442	100.0	100.0	

VAR00158

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	28	6.3	6.3	6.3
2.00	1	.2	.2	6.6
3.00	148	33.5	33.5	40.0
4.00	265	60.0	60.0	100.0
Total	442	100.0	100.0	

VAR00159

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	28	6.3	6.3	6.3
2.00	65	14.7	14.7	21.0
3.00	131	29.6	29.6	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00160

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	6	1.4	1.4	1.4
2.00	31	7.0	7.0	8.4
Valid 3.00	187	42.3	42.3	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00161

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	193	43.7	43.7	43.7
Valid 3.00	20	4.5	4.5	48.2
4.00	229	51.8	51.8	100.0
Total	442	100.0	100.0	

VAR00162

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	170	38.5	38.5	38.5
2.00	26	5.9	5.9	44.3
Valid 3.00	47	10.6	10.6	55.0
4.00	199	45.0	45.0	100.0
Total	442	100.0	100.0	

VAR00163

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	285	64.5	64.5	64.5
2.00	1	.2	.2	64.7
Valid 3.00	1	.2	.2	64.9
4.00	155	35.1	35.1	100.0
Total	442	100.0	100.0	

VAR00164

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	310	70.1	70.1	70.1
2.00	48	10.9	10.9	81.0
Valid 3.00	1	.2	.2	81.2
4.00	83	18.8	18.8	100.0
Total	442	100.0	100.0	

VAR00165

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	178	40.3	40.3	40.3
2.00	7	1.6	1.6	41.9
Valid 3.00	255	57.7	57.7	99.5
4.00	2	.5	.5	100.0
Total	442	100.0	100.0	

VAR00166

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	158	35.7	35.7	35.7
2.00	127	28.7	28.7	64.5
Valid 3.00	74	16.7	16.7	81.2
4.00	83	18.8	18.8	100.0
Total	442	100.0	100.0	

VAR00167

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	29	6.6	6.6	6.6
2.00	105	23.8	23.8	30.3
Valid 3.00	90	20.4	20.4	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00168

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	31	7.0	7.0	7.0
2.00	83	18.8	18.8	25.8
Valid 3.00	193	43.7	43.7	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00169

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	31	7.0	7.0	7.0
Valid 3.00	193	43.7	43.7	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00170

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	87	19.7	19.7	19.7
2.00	19	4.3	4.3	24.0
Valid 3.00	7	1.6	1.6	25.6
4.00	329	74.4	74.4	100.0
Total	442	100.0	100.0	

VAR00171

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	222	50.2	50.2	50.2
Valid 4.00	220	49.8	49.8	100.0
Total	442	100.0	100.0	

VAR00172

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	6	1.4	1.4	1.4
2.00	24	5.4	5.4	6.8
Valid 3.00	84	19.0	19.0	25.8
4.00	328	74.2	74.2	100.0
Total	442	100.0	100.0	

VAR00173

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	234	52.9	52.9	52.9
Valid 2.00	125	28.3	28.3	81.2
3.00	83	18.8	18.8	100.0
Total	442	100.0	100.0	

VAR00174

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	182	41.2	41.2	41.2
Valid 2.00	124	28.1	28.1	69.2
4.00	136	30.8	30.8	100.0
Total	442	100.0	100.0	

VAR00175

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	222	50.2	50.2	50.2
2.00	2	.5	.5	50.7
Valid 3.00	83	18.8	18.8	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00176

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	30	6.8	6.8	6.8
2.00	89	20.1	20.1	26.9
Valid 3.00	103	23.3	23.3	50.2
4.00	220	49.8	49.8	100.0
Total	442	100.0	100.0	

VAR00177

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	140	31.7	31.7	31.7
2.00	26	5.9	5.9	37.6
Valid 3.00	84	19.0	19.0	56.6
4.00	192	43.4	43.4	100.0
Total	442	100.0	100.0	

VAR00178

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	94	21.3	21.3	21.3
2.00	5	1.1	1.1	22.4
Valid 3.00	125	28.3	28.3	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00179

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	28	6.3	6.3	6.3
2.00	66	14.9	14.9	21.3
Valid 3.00	129	29.2	29.2	50.5
4.00	219	49.5	49.5	100.0
Total	442	100.0	100.0	

VAR00180

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	7	1.6	1.6	1.6
2.00	25	5.7	5.7	7.2
Valid 3.00	254	57.5	57.5	64.7
4.00	156	35.3	35.3	100.0
Total	442	100.0	100.0	

VAR00181

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	221	50.0	50.0	50.0
Valid 3.00	1	.2	.2	50.2
4.00	220	49.8	49.8	100.0
Total	442	100.0	100.0	

VAR00182

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	89	20.1	20.1	20.1
2.00	24	5.4	5.4	25.6
Valid 3.00	2	.5	.5	26.0
4.00	327	74.0	74.0	100.0
Total	442	100.0	100.0	

VAR00183

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	359	81.2	81.2	81.2
Valid 4.00	83	18.8	18.8	100.0
Total	442	100.0	100.0	

VAR00184

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	176	39.8	39.8	39.8
Valid 3.00	83	18.8	18.8	58.6
4.00	183	41.4	41.4	100.0
Total	442	100.0	100.0	

VAR00185

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	359	81.2	81.2	81.2
Valid 4.00	83	18.8	18.8	100.0
Total	442	100.0	100.0	

VAR00186

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	119	26.9	26.9	26.9
2.00	103	23.3	23.3	50.2
Valid 3.00	2	.5	.5	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00187

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	165	37.3	37.3	37.3
2.00	2	.5	.5	37.8
Valid 3.00	192	43.4	43.4	81.2
4.00	83	18.8	18.8	100.0
Total	442	100.0	100.0	

VAR00188

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	29	6.6	6.6	6.6
Valid 2.00	191	43.2	43.2	49.8
4.00	222	50.2	50.2	100.0
Total	442	100.0	100.0	

VAR00189

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	32	7.2	7.2	7.2
Valid 3.00	82	18.6	18.6	25.8
4.00	328	74.2	74.2	100.0
Total	442	100.0	100.0	

VAR00190

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	24	5.4	5.4	5.4
2.00	84	19.0	19.0	24.4
Valid 3.00	131	29.6	29.6	54.1
4.00	203	45.9	45.9	100.0
Total	442	100.0	100.0	

VAR00191

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	307	69.5	69.5	69.5
Valid 3.00	1	.2	.2	69.7
4.00	134	30.3	30.3	100.0
Total	442	100.0	100.0	

VAR00192

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	224	50.7	50.7	50.7
Valid 2.00	83	18.8	18.8	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00193

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	224	50.7	50.7	50.7
Valid 2.00	83	18.8	18.8	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00194

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	177	40.0	40.0	40.0
2.00	47	10.6	10.6	50.7
Valid 3.00	83	18.8	18.8	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

VAR00195

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	178	40.3	40.3	40.3
2.00	264	59.7	59.7	100.0
Total	442	100.0	100.0	

VAR00196

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	177	40.0	40.0	40.0
2.00	264	59.7	59.7	99.8
4.00	1	.2	.2	100.0
Total	442	100.0	100.0	

VAR00197

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	301	68.1	68.1	68.1
4.00	141	31.9	31.9	100.0
Total	442	100.0	100.0	

VAR00198

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	217	49.1	49.1	49.1
3.00	83	18.8	18.8	67.9
4.00	142	32.1	32.1	100.0
Total	442	100.0	100.0	

VAR00199

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	168	38.0	38.0	38.0
2.00	184	41.6	41.6	79.6
3.00	7	1.6	1.6	81.2
4.00	83	18.8	18.8	100.0
Total	442	100.0	100.0	

VAR00200

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	29	6.6	6.6	6.6
2.00	240	54.3	54.3	60.9
3.00	173	39.1	39.1	100.0
Total	442	100.0	100.0	

VAR00201

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	435	98.4	98.4	98.4
3.00	7	1.6	1.6	100.0
Total	442	100.0	100.0	

VAR00202

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	300	67.9	67.9	67.9
3.00	1	.2	.2	68.1
4.00	141	31.9	31.9	100.0
Total	442	100.0	100.0	

VAR00203

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	217	49.1	49.1	49.1
2.00	83	18.8	18.8	67.9
4.00	142	32.1	32.1	100.0
Total	442	100.0	100.0	

VAR00204

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	217	49.1	49.1	49.1
2.00	7	1.6	1.6	50.7
3.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

VAR00205

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	369	83.5	83.5	83.5
2.00	73	16.5	16.5	100.0
Total	442	100.0	100.0	

VAR00206

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	357	80.8	80.8	80.8
3.00	85	19.2	19.2	100.0
Total	442	100.0	100.0	

VAR00207

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	151	34.2	34.2	34.2
2.00	47	10.6	10.6	44.8
3.00	161	36.4	36.4	81.2
4.00	83	18.8	18.8	100.0
Total	442	100.0	100.0	

VAR00208

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	124	28.1	28.1	28.1
2.00	24	5.4	5.4	33.5
3.00	247	55.9	55.9	89.4
4.00	47	10.6	10.6	100.0
Total	442	100.0	100.0	

VAR00209

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	347	78.5	78.5	78.5
2.00	94	21.3	21.3	99.8
3.00	1	.2	.2	100.0
Total	442	100.0	100.0	

No accurate information sources VAR00210

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	339	76.7	76.7	76.7
3.00	20	4.5	4.5	81.2
4.00	83	18.8	18.8	100.0
Total	442	100.0	100.0	

Long distance travel VAR00211

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	2	.5	.5	.5
2.00	21	4.8	4.8	5.2
3.00	107	24.2	24.2	29.4
4.00	312	70.6	70.6	100.0
Total	442	100.0	100.0	

Wrong timing VAR00212

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	29	6.6	6.6	6.6
2.00	132	29.9	29.9	36.4
3.00	166	37.6	37.6	74.0
4.00	115	26.0	26.0	100.0
Total	442	100.0	100.0	

Poor road network VAR00213

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	180	40.7	40.7	40.7
2.00	179	40.5	40.5	81.2
3.00	83	18.8	18.8	100.0
Total	442	100.0	100.0	

Delay information VAR00214

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	173	39.1	39.1	39.1
2.00	51	11.5	11.5	50.7
3.00	83	18.8	18.8	69.5
4.00	135	30.5	30.5	100.0
Total	442	100.0	100.0	

Poor government VAR00215

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	33	7.5	7.5	7.5
2.00	168	38.0	38.0	45.5
Valid 3.00	97	21.9	21.9	67.4
4.00	144	32.6	32.6	100.0
Total	442	100.0	100.0	

Language barrier VAR00216

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	29	6.6	6.6	6.6
2.00	130	29.4	29.4	36.0
Valid 3.00	151	34.2	34.2	70.1
4.00	132	29.9	29.9	100.0
Total	442	100.0	100.0	

Cost of acquiring VAR00217

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	29	6.6	6.6	6.6
2.00	130	29.4	29.4	36.0
Valid 3.00	87	19.7	19.7	55.7
4.00	196	44.3	44.3	100.0
Total	442	100.0	100.0	

VAR00218

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	30	6.8	6.8	6.8
2.00	111	25.1	25.1	31.9
Valid 3.00	87	19.7	19.7	51.6
4.00	214	48.4	48.4	100.0
Total	442	100.0	100.0	

Technical languages VAR00219

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	30	6.8	6.8	6.8
2.00	111	25.1	25.1	31.9
Valid 3.00	83	18.8	18.8	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

Unreliable nature of electricity VAR00219

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	29	6.6	6.6	6.6
2.00	4	.9	.9	7.5
Valid 3.00	9	2.0	2.0	9.5
4.00	400	90.5	90.5	100.0
Total	442	100.0	100.0	

Limited information access points VAR00220

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	29	6.6	6.6	6.6
2.00	145	32.8	32.8	39.4
Valid 3.00	129	29.2	29.2	68.6
4.00	139	31.4	31.4	100.0
Total	442	100.0	100.0	

Shortage of funds as grants VAR00221

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	29	6.6	6.6	6.6
2.00	149	33.7	33.7	40.3
Valid 3.00	120	27.1	27.1	67.4
4.00	144	32.6	32.6	100.0
Total	442	100.0	100.0	

Lack of Libraries of access points.VAR00222

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	21	4.8	4.8	4.8
2.00	76	17.2	17.2	21.9
Valid 3.00	127	28.7	28.7	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

Illiteracy of artisanal fish farmers VAR00223

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	21	4.8	4.8	4.8
2.00	76	17.2	17.2	21.9
Valid 3.00	131	29.6	29.6	51.6
4.00	214	48.4	48.4	100.0
Total	442	100.0	100.0	

Shortage of extension workers VAR00224

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	28	6.3	6.3	6.3
2.00	113	25.6	25.6	31.9
Valid 3.00	87	19.7	19.7	51.6
4.00	214	48.4	48.4	100.0
Total	442	100.0	100.0	

Distortion due to interpretation VAR00225

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	28	6.3	6.3	6.3
2.00	113	25.6	25.6	31.9
Valid 3.00	83	18.8	18.8	50.7
4.00	218	49.3	49.3	100.0
Total	442	100.0	100.0	

Epileptic cell phone VAR00226

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	4	.9	.9	.9
2.00	27	6.1	6.1	7.0
Valid 3.00	59	13.3	13.3	20.4
4.00	352	79.6	79.6	100.0
Total	442	100.0	100.0	

EXPONENTIAL LOG**Regression****Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.971 ^a	.944	.943	.02294

a. Predictors: (Constant), EDUCTN, WIVES, MSTAT, INCME, EXP, CHILD, AGE, SEX

OBJECTIVE 1**SEMI LOG Regression****Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.978 ^a	.957	.956	8.26994

a. Predictors: (Constant), LOGEDUCTN, LOGWIVES, LOGSEX, LOGCHILD, LOGEXP, LOGINCMC, LOGAGE, LOGMSTAT

ANOVA^s

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	659116.902	8	82389.613	1204.669	.000 ^b
	Residual	29613.696	433	68.392		
	Total	688730.597	441			

a. Dependent Variable: WORTHASS

b. Predictors: (Constant), LOGEDUCTN, LOGWIVES, LOGSEX, LOGCHILD, LOGEXP, LOGINCMC, LOGAGE, LOGMSTAT

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	234.309	1.437		163.028	.000
LOGSEX	-85.028	19.720	-.260	-4.312	.000
LOGAGE	6.576	7.706	.024	.853	.394
LOGINCME	-9.722	5.697	-.043	-1.706	.089
LOGCHILD	-38.336	5.197	-.187	-7.376	.000
LOGWIVES	53.747	7.837	.083	6.858	.000
LOGMSTAT	10.568	19.712	.032	.536	.592
LOGEXP	-150.851	5.069	-.692	-29.761	.000
LOGEDUCT	2.074	7.298	.008	.284	.776

a. Dependent Variable: WORTHASS

ANOVA^s

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	3.811	8	.476	904.949	.000 ^b
Residual	.228	433	.001		
Total	4.039	441			

a. Dependent Variable: LOGWORTHASS

b. Predictors: (Constant), EDUCTN, WIVES, MSTAT, INCME, EXP, CHILD, AGE, SEX

LINEAR: SOCIOECONOMICS VS ACCEESS POINT

Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.988 ^a	.976	.976	8.23050

a. Predictors: (Constant), EDUCTN, WIVES, MSTAT, INCME, EXP, CHILD, AGE, SEX

ANOVA^s

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1199345.619	8	149918.202	2213.107	.000 ^b
Residual	29331.883	433	67.741		
Total	1228677.502	441			

a. Dependent Variable: ACCPNT

b. Predictors: (Constant), EDUCTN, WIVES, MSTAT, INCME, EXP, CHILD, AGE, SEX

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	319.394	3.621		88.199	.000
SEX	-10.693	5.957	-.081	-1.795	.073
AGE	-5.656	1.957	-.079	-2.889	.004
INCME	4.085	1.537	.062	2.657	.008
CHILD	-25.927	1.501	-.421	-17.269	.000
WIVES	44.008	3.069	.169	14.337	.000
MSTAT	5.789	5.908	.044	.980	.328
EXP	-40.015	1.733	-.575	-23.083	.000
EDUCTN	-6.427	1.919	-.095	-3.349	.001

a. Dependent Variable: ACCPNT

EXPONENTIAL LOG: SOCIOECONOMICS VS ACCEESS POINT**Regression****Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.993 ^a	.986	.985	.01422

a. Predictors: (Constant), EDUCTN, WIVES, MSTAT, INCME, EXP, CHILD, AGE, SEX

ANOVA^s

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.055	8	.757	3744.273	.000 ^b
	Residual	.088	433	.000		
	Total	6.142	441			

a. Dependent Variable: LOGACCPNT

b. Predictors: (Constant), EDUCTN, WIVES, MSTAT, INCME, EXP, CHILD, AGE, SEX

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.588	.006		413.655	.000
SEX	-.027	.010	-.090	-2.579	.010
AGE	-.006	.003	-.038	-1.810	.071
INCME	-.002	.003	-.012	-.689	.491
CHILD	-.043	.003	-.312	-16.577	.000
WIVES	.040	.005	.069	7.530	.000
MSTAT	.004	.010	.012	.355	.723
EXP	-.102	.003	-.659	-34.225	.000
EDUCTN	-5.727E-005	.003	.000	-.017	.986

a. Dependent Variable: LOGACCPTN

DOUBLE LOG: SOCIOECONOMICS VS ACCEESS POINT**Regression****Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.989 ^a	.978	.977	.01785

a. Predictors: (Constant), LOGEDUCTN, LOGWIVES, LOGSEX, LOGCHILD, LOGEXP, LOGINCM, LOGAGE, LOGMSTAT

ANOVA^s

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.004	8	.751	2356.803	.000 ^b
	Residual	.138	433	.000		
	Total	6.142	441			

a. Dependent Variable: LOGACCPTN

b. Predictors: (Constant), LOGEDUCTN, LOGWIVES, LOGSEX, LOGCHILD, LOGEXP, LOGINCM, LOGAGE, LOGMSTAT

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.446	.003		788.558	.000
LOGSEX	-.119	.043	-.122	-2.804	.005
LOGAGE	-.001	.017	-.002	-.087	.930
LOGINCME	-.029	.012	-.044	-2.381	.018
LOGCHILD	-.135	.011	-.221	-12.072	.000
LOGWIVES	-.207	.017	-.107	-12.235	.000
LOGMSTAT	-.029	.043	-.030	-.689	.491
LOGEXP	-.413	.011	-.634	-37.718	.000
LOGEDUCTN	.029	.016	.040	1.842	.066

a. Dependent Variable: LOGACCPTN

SEMI LOG: SOCIOECONOMICS VS ACCEESS POINT Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.994 ^a	.988	.988	5.86019

a. Predictors: (Constant), LOGEDUCTN, LOGWIVES, LOGSEX, LOGCHILD, LOGEXP, LOGINCME, LOGAGE, LOGMSTAT

ANOVA^s

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1213807.486	8	151725.936	4418.108	.000 ^b
	Residual	14870.016	433	34.342		
	Total	1228677.502	441			

a. Dependent Variable: ACCPNT

b. Predictors: (Constant), LOGEDUCTN, LOGWIVES, LOGSEX, LOGCHILD, LOGEXP, LOGINCME, LOGAGE, LOGMSTAT

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	279.577	1.018	274.514	.000
	LOGSEX	-42.389	13.974	-.097	.003
	LOGAGE	-2.481	5.461	-.007	.650
	LOGINCME	-6.474	4.037	-.022	.110
	LOGCHILD	-84.394	3.683	-.308	.000
	LOGWIVES	15.767	5.553	.018	.005
	LOGMSTAT	1.607	13.968	.004	.908
	LOGEXP	-193.464	3.592	-.665	.000
	LOGEDUCT	4.110	5.172	.013	.427
	N				

a. Dependent Variable: ACCPNT

APPENDIX 3

FISHING COMMUNITIES, LANDING AREAS AND FISHING GEARS





