# Documentation of Indigenous Fishing Knowledge: A Qualitative Study of the Ilaje Fishing Settlement in Epe, Lagos, Nigeria

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## Abstract
*Indigenous knowledge (IK) is the unique knowledge system confined to a particular people who are related either by language or tribe in their natural environment. This knowledge system has remained a social capital and veritable asset that helps to sustain a society and its environment in various parts of the globe. Previous studies on indigenous knowledge systems have concentrated on its application to food preparation and preservation, healthcare and birth control, agriculture and pastoralism. This particular study was carried out to investigate the use of IK in fishing by the Ilaje Community of Epe, Lagos Nigeria. Exploratory research design was adopted. Population comprised 1,500 community members. Qualitative data was collected using in-depth interviews conducted among 19 purposively selected members of two focus groups in the community. Data were analysed using content and thematic analyses. Findings revealed that every indigenous Ilaje has vast traditional knowledge in artisanal fishing. Also, that Ilajes isplay extensive mastery of the use of two traditional fishing techniques which are ''Filogba'' and ''Arere''. Results further showed that the two traditional fishing methods are highly productive and cost effective. The study recommended the preservation of Ilaje indigenous knowledge in fishing and its projection, documentation and communication for global accessibility and utilisation*.

***Keywords:*** *Documentation of indigenous knowledge, Ilaje community, Indigenous knowledge, Fishing techniques, Nigeria.*

## Introduction
Indigenous knowledge is the systematic body of knowledge acquired by local people through accumulation of experiences, informal experience and intimate understanding of the environment in a given culture. Researchers have identified IK as Traditional Knowledge (TK) domiciled in rural communities, Traditional Environmental Knowledge (TEK) of rural people, Indigenous people knowledge (IPK) and even folk knowledge (Nnadozie, 2013). It is a form of traditional wisdom and home-grown innovation generally refer to knowledge systems embedded in the sociocultural traditions of local communities (Sullivan, 2016). Ojomah and Onoyeyan (2015) described IK as encompassing the day-to-day life of rural people such as land tenure systems, health, agricultural practices, cultural ceremonies, fishing traditions, food preservation, accumulated human experience, lifestyle, ethno-science, climatology, medicine, history, linguistics, politics, arts, economics and natural resource management. This knowledge system is usually peculiar to the group in their natural environment. Fundamentally, one feature of this knowledge system is that it often exists among people who are either related by language, race or tribe. The importance attached to indigenous knowledge is the only plausible reason for its survival and retention over succeeding centuries.

Indigenous Knowledge (IK) is a form of traditional wisdom and home-grown innovation generally refer to knowledge systems embedded in the sociocultural traditions of local communities (Sullivan, 2016). This knowledge system is usually peculiar to the group in their natural environment. Fundamentally, one feature of this knowledge system is that it often exists among people who are either related by language, race or tribe. According to Grey (2014) IK is based on social, physical and spiritual understandings which have informed the people's survival and contributed to their sense of being in the world. Indigenous knowledge (IK) has become an accepted term which includes the expressions, practices, beliefs, understandings, insights, and

experiences of indigenous groups generated over centuries of profound interactions with a particular territory.

Indigenous Knowledge, traditional wisdom and home-grown innovation generally refer to knowledge systems embedded in the sociocultural traditions of local communities (Sullivan, 2016). This knowledge system is usually peculiar to the group in their natural environment. Fundamentally, one feature of this knowledge system is that it often exists among people who are either related by language, race or tribe. However, Ellen and Harris (1996) in Senanayake (2006) provided comprehensive features of this kind of knowledge system which include the fact that Indigenous knowledge is; local and rooted in a particular place and set of experiences, and generated by people living in those places, and that that transferring the knowledge to other places may pose the risk of dislocating it; Indigenous knowledge is orally transmitted, or passed down through imitation and demonstration such that the consequence of writing it down could alter some of its fundamental properties. This assertion is corroborated by the study of Lazarus (2019) which reported that rural people in Africa has a rich body of indigenous knowledge which for many decades has been handed down by word of mouth from generation to generation and that such indigenous knowledge has traditionally played a vital role in the area of agriculture, animal and human health, natural resource management, education and other economic and social activities. However, documenting or writing could help to make it portable and continuous, but it is capable of reinforcing dislocation through the product of practical engagement in everyday life, and is constantly reinforced by experience and trial and error. This experience is mainly the product of many generations of intelligent reasoning, and since its failure has immediate consequences for the lives of its practitioners, its success is very often a good fitness, having been tested in the rigorous laboratory survival. Consequently, the foregoing support a further general observation, that IK empirical rather than theoretical knowledge. To some extent, its oral nature hinders the kind of organisation necessary for the development of true theoretical knowledge.

Furthermore, repetition is an essential characteristic of tradition, even when new knowledge is added as it helps in retention and reinforces ideas, and could be considered as ‘a fluid and transforming agent with no real end when applied to knowledge with its central concept enshrined in negotiation. According to Grey (2014) IK is constantly changing, being produced as well as reproduced, discovered as well as lost; though it is often represented as being somewhat static. Indigenous knowledge is characteristically shared to a much greater degree than other forms of knowledge. Therefore, it is sometimes called ‘’people’s sciences based on social, physical and spiritual understandings which have informed the people’s survival and contributed to their sense of being in the world. Therefore, IK has become an accepted term which includes the expressions, practices, beliefs, understandings, insights, and experiences of indigenous groups generated over centuries of profound interactions with a particular territory. However, its distribution is still segmentary and socially clustered and usually asymmetrically distributed within a population, by gender and age and preserved through distribution in the memories of different individuals.

Although indigenous knowledge may be focused on particular individuals and may achieve a degree of coherence in rituals and other symbolic constructs, its distribution is always fragmentary because it does not exist in its totality in any one place or individual but is devolved in the practices and interactions in which people themselves engage. Despite claims for the existence of culture-wide abstract classifications of knowledge based on non-functional criteria, its organisation is essentially functional. Indigenous knowledge is characteristically situated within broader cultural traditions; hence, separating the technical from the non-technical, the rational from the non-rational is problematic.

In Nigeria, like every other part of the globe, rural communities are variously endowed with indigenous knowledge that empowers them to carry out certain activities for social and economic

survival and at the same time, preserve the environment for posterity. According to the FAO (2009) in Aluko (2018), indigenous modes of traditional farming, pastoralism and forestry are based on long-established knowledge practices that are held to ensure ongoing agricultural diversity and the preservation of valuable landscape and seascape features, livelihoods, and food security. According to Inter-Agency Support Group (IASG, 2014), indigenous knowledge is the innovations and practices of rural communities around the world. In addition, it is developed from experience gained over the centuries and adapted to the local culture and environment which covers original expressions of local knowledge as well as the complex process of access, interpretation, synthesis and repackaging of local and global knowledge. It also encapsulates several centuries of adaptive evolution. By so doing, the vagaries of climate, availability of land and water and the basic needs of people and their animals for food, shelter and health have been amalgamated in a system which has allowed society to exist and develop.

One of the major areas of application of IK in Africa is in Fishing and making of traps for fishing. From the making of traps to the actual fishing is an embodiment of indigenous knowledge, it is through IK that the fishermen know that it is not the earthworm used as bait that attracts fish, but the chemicals which the earthworm secrets from its body (World Bank, 2004). Determining where to place the trap also has a lot to do with the fishermen's knowledge of the water chemistry and habitat that suits particular type of fish. According to UNESCO (2012), the pragmatic nature and utilitarian of indigenous knowledge causes everyday demand of life which are influenced also by non-indigenous elements such as indigenous response to innovation. For instance, farmers in rural communities rely on their native intelligence to determine the suitability of land for particular crops. That is why indigenous knowledge is seen as the basis for local level decision-making in agriculture.

Ilaje community is important and popular segment of the larger Epe town of Lagos, Nigeria. The history of Epe community as the ''Fishbasket of Lagos State would not be complete without these highly knowledgeable artisanal men and women constituting Ilaje in the community. Fishing expertise is not only seen as nature's endowment among the Ilajes, but as a cultural heritage that must be jealously guarded and preserved for posterity. Thus, the Ilaje traditional fishing knowledge system had evolved overtime and developed outside formal education. Today, the community's fishing skills are considered as refined body of knowledge which other neighbouring fishing communities sought for.

Application of indigenous knowledge cut cross all aspect of people's life such as agriculture, medicine, banking and fishing, thus, IK encompasses the sophisticated arrays of information, understandings, and interpretations that guide human societies around the globe in their innumerable interactions with the natural milieu: in agriculture, and animal husbandry, hunting, fishing and gathering, struggles against disease and injury; naming and explanation of natural phenomena; and strategies to cope with fluctuating environments (Nakashima, Prott and Bridgewater (2000). Sophisticated knowledge of the natural world is not confined to science as human beings across the globe have developed rich sets of experiences and explanations relating to how to make sustainable living and boost economic power from the natural and environment endowments of the nature around them.

In Nigeria, various indigenous tribes and races have developed local knowledge and ethno-science to reap from the abundance of the Mother Nature. One of such local knowledge is the skill in fishing. Fishing is not new in Nigeria. According to Ayoola and Kuton (2009), fish farming started in Nigeria around 1944 and it was geared towards increasing protein supply in local villages. There are lots of fishing water bodies in Nigeria which include; Argungu fishing water, Sokoto, River Niger & River Benue, Lake Chad & Oguta lake, Igbokoda Ilaje-Ese Odo, and Lagos lagoons Epe

fishing waters, among others. Fishing is also carried out in fresh water bodies like rivers, streams, lakes and ponds (Olaniyan, 2015), across Nigeria.

The 'Epe town' in Lagos State is synonymous with 'fish' hence, to every Lagosian, whenever a person says he wants to visit Epe, the next person will spontaneously ask him to bring fish while coming back. The above scenario is corroborated by the views of Mckenna (2009), when he stated that modern Epe is a collecting point for the export of fish and firewood to Lagos. He further stated that Epe is best known for its construction of the motorised, shallow-draft barges that navigate the coastal lagoons, and fishing is the major occupation. The Ilaje fishing community in Epe is very popular with fishing as occupation since her migration over 100 years ago to the present location called 'Erepoto' in Epe ancient town. According to a Wikipedia article, the Ilajes are a distinct migratory coastal linguistic group of Yoruba people, spread along the coastal belts of Ondo, Ogun, Lagos and Delta States. It is in the light of the foregoing that this study investigated the use of IK system by the small Ilaje fishing settlement in Epe, Lagos, Nigeria and how the larger society is impacted.

## Research methodology

### Study area

Ilaje Community (popularly referred to as 'fishing village') is in Epe Local Government Area of Lagos, Nigeria. It is a sub-community situated within the Erepoto axis, along the north side of the Lekki Lagoon, Epe. Geographically, Epe is a riverine town on the eastern shores of Lagos, an area characterised by vast lagoons, creeks and fishing settlements. It shared boundary with Ogun State, and about 10km to Ijebu-Ode town. Oral tradition, with respect to the origins of Epe town revolves around two legendary founders of Huraka and Alara, the former, a hunter, and the later, an Ile-Ife prince (Jimoh and Oloruntola, 2016). The 2006 Census puts the population of Epe town at 181,734. The study area, Ilaje community, operates as a communist entity with only one church (The Holy Apostles Church) in the community surrounded by about a hundred (100) houses of varying standards. The church which serves as the community worship centre, is headed by a Reverend Apostle who doubles as the socio-political and spiritual leader of the community. According to the community leader, the progenitors of the fishing community were Pa Joel and Pa Amos Mashawe Abimbola who migrated from the ancient Ilaje community in the present day Ilaje Local Government Area of Ondo State over a hundred years ago. The community celebrated her centenary anniversary in November 2019, marking the 105 years of sojourn to Epe, Lagos.

The fishing community has the largest workshop and number of craftsmen who build and repair damaged canoes and various fishing gear (popularly referred to as "the general hospital) and traditional fish smoking oven among other fishing settlements in Epe. One major road into this community extends from the Plywood Junction Bus Stop, Adjacent to the popular Lagos-road, roundabout, Epe. The community also enjoys a free access route through the water to the Aiyetoro Market and the very popular fish market, also known as Oluwo Market which is the biggest freshwater fish market in Lagos. This strategic location makes it easy for the community to sell her fish without delays. This fishing community in Epe was chosen for this study based on her uniqueness among other fishing settlements in Epe, Lagos as the only community with the largest population of local fishermen and women with appreciable use of indigenous knowledge.

### Data collection procedure

An exploratory research design was adopted for the study, using qualitative methodology of direct interactions through focus group discussions, interviews and participants' observation to gather information. This method was adopted due to the locations, participants' literacy level and time constraints. Population of the study comprised 1,520 community members. A purposive sampling technique was used to select two focus groups for the study. The 8-member Council of Elders and

the Community Fishers' Union made up of 418 members, out of which 11 were selected to participate in the discussion. The selection was done to enable the research team get detailed and reliable information on the study area and the historical background of the indigenous knowledge localised to the community. The research team also visited the popular Oluwo Fish Market, Epe. The interview with the Council of Elders was conducted in English, but that of the representatives of the Fishers' Union (11 persons) was conducted in Yoruba language at fishing sites and later transcribed.

**Research instrument**

An in-depth semi-structured interview was used to obtain necessary data and information from the participants. This is to enable the respondents tell their own story on their own terms. To facilitate orderly interaction, an Interview guide was developed by the research team in order to maintain focus, consistency and direction during the interview. The interview questions were structured thus:

**Community background:** Participants were asked to talk about the historical evolution and location of their community.

**Nature and use of indigenous knowledge and techniques**: Participants were asked to describe the nature and techniques involved in the use of indigenous knowledge among Ilaje community in Epe, Lagos, Nigeria.

**Benefits derivable form indigenous fishing knowledge:** Respondents were asked to describe how the lager society is impacted by her indigenous knowledge system.

**Interpretation of results**

**Background information of respondents**

Table 1 presents the number of the Ilaje Community Council of Elders who participated in the interview session (interviewees) for the study. To ensure confidentiality, their real names were represented with alphabets 'A, B, C, D, E, F, G, H' while Table 2 shows the demographic information of the community. History has it that the progenitor of the present Ilaje Community, Epe, Late Pa Mashawe Joel Abimbola, migrated from the ancient Ilaje coastal kingdom of Ondo and settled in Epe in 1913. The community is made up of a total population of 1,520 persons, with 418 registered fishermen and women. The community comprised of 148 Households, with 139 men as Heads of household and 9 women as Heads of household. There are 80 completed and occupied houses within the community, one (1) Primary school, one (1) Christian worship centre and two (2) spots where boats/canoes are moored. Interviewees also confirmed that fishing is a 'natural endowment' to every indigene of Ilaje. Hence, it is the most popular occupation and trade among the community members.

**Table 1: Ilaje Community Council of Elders**

| S/N | Names | Status |
|---|---|---|
| 1 | A | Community Leader |
| 2 | B | Council Secretary |
| 3 | C | Council Member |
| 4 | D | Council Member |
| 5 | E | Council Member |
| 6 | F | Counselor ward A2 |
| 7 | G | Council Member |
| 8 | H | Council Member |

**Table 2: Demographic characteristics of Respondents**

| S/N | Variables | Frequency |
|---|---|---|
| 1 | Population of community | 1,500 |
| 2 | Total households | 148 |
| 3 | Heads of household (men) | 139 |
| 4 | Heads of household (women) | 9 |
| 5 | Houses/buildings in the community | 80 |
| 6 | Registered fishermen & women | 418 |
| 7 | Educational institution (Primary school) | 1 |
| 8 | Worship Centre (The Holy Apostles Church) | 1 |
| 9 | Moorings (spots canoes and boats are tied up) | 2 |

(*Source: Fieldwork, 2019*)

**Nature and use of indigenous fishing knowledge by the Ilaje people of Epe, Lagos State**

The study revealed that fishing *'know-how'* is a 'natural endowment' to all the Ilajes of Epe, Lagos State, Nigeria, and fishing was seen as a common occupation among indigenous members of Ilaje, Epe. Participants (interviewees) expressly confirmed that fishing skills were handed down to present generation through oral tradition, mentoring and demonstrations by their fore fathers. Explaining further, the elders noted that they inherited fishing as a traditional occupation, including several techniques of fishing; be it in coastal or fresh water.

Two special traditional fishing techniques were identified as being indigenous to the community and participants explained the extent to which each is put to use. The two traditional techniques are called ***Filogba*** and ***Arere***.

*R*espondents submitted that, Filogba is a unique traditional fishing technique designed to catch fresh waters fish species such as: *Ijaga, Akokoniko, Igangan, Lele, Epiya, Oweere, Eshun, Yoryor, Obokun and Aro within freshwater bodies such as Lakes, Lagoons and rivers*. While the Arere traditional fishing technique is used to catch such fish species as: *Tilapia, Ofon, Agbadagiri, Lakoro, Salapore, Sugbon, Osan, and Ashoo in seas, ocean and freshwater bodies.*

Moreover, the interview with the community's Fishers Union reveals how the two fishing techniques work and how they are set up at fishing sites. Filogba, which the fishers regarded as a magic wand, because it catches more fish than any conventional method, is designed to work with the alternating wave current movements of the lagoon known as ''*Isha-ati-Iyo''*. These movements alternate every eight (8) hours with the alternating gap period of about 45-60mins. Therefore, when it is set around 9:00pm, the fisherman must be there by 5:00am to harvest the catch. If he failed to meet up with the time, he might lose all the caught fish by the time the lagoon water current alternates with the Filogba fishing trap. According to the fishermen, Filogba is a stationary fishing trap which does not move or drift along with the ''*Isha ati Iyo''*. It is held in place with two big anchors on the water floor. After a direct observation of the filogba technique set up at the fishing site, research group identified the implements used in setting it up which include; Two big anchors, a locally tailored net *(Iyahanma*) of about 10 metres long with an inner chamber called ''*Inuapo*'' which is the point of no return for any fish that gets into it, Strong rope with length according to size of trap; a floater (preferably an empty 25 litres water gallon) and two long heavy sticks of about 15ft.

*Filogba* technique requires two persons to set up or retrieve (harvest). To sep up this trap, the two sides of the mouth of *Iyahanma* (the bag-like shaped net) are tied against the two long sticks *(igi egba*) which enables its mouth to open wide and stand erect. The ropes from the sticks are then tied to the two anchors to stabilise and secure it in place. The floater draws the upper line of the *Iyahanma's* mouth keeping it in suspense for wider opening while the inner parts of both the

*Iyahanma* and the *Inuapo* are blown open by the moving water current for a seamless fish catch. However, for easy location and identification of the Filogba trap in the water from the water surface, the floater is used as a landmark. However, for a bumper harvest, this method of fishing is applied in the months of April, May, June, July and September each year. Below is the graphic illustration of the *Filogba* magic technique:

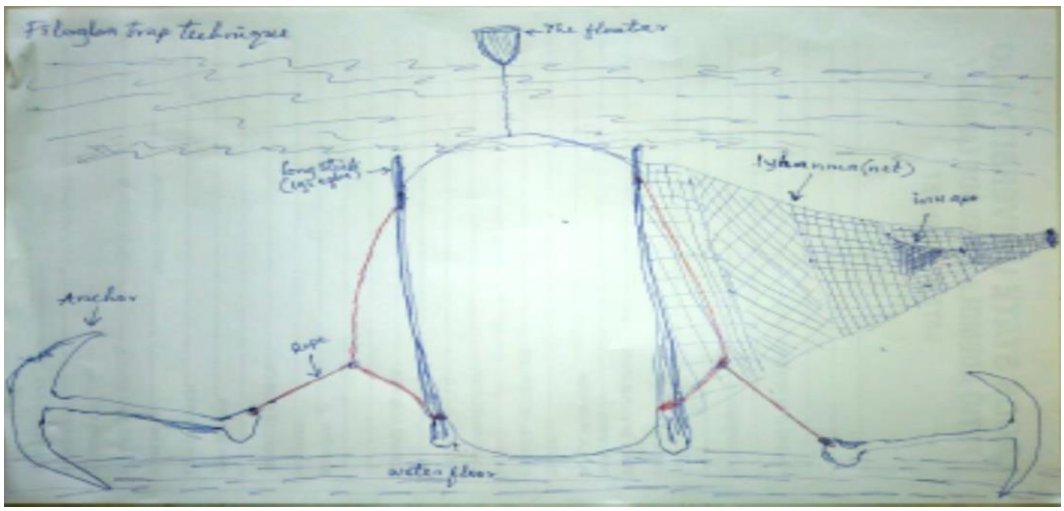



**Figure 1:** *Filogba* magic technique:
**(**Source: Fieldwork, 2019)

Unlike the *Filogba* method, participants submitted that, the *Arere* technique is a moving trap that uses a straight net of any size depending on the species and sizes of fish the fishermen targets. The respondents mentioned that, *Arere* is a fishing technique fashioned to catch the fishes that move at the upper level of the water, while the *filogba* is a bottom fishing technique aimed at catching fishes that live and move at the bottom or water floor. The implements for the *Arere* fishing technique include; The trawl (net), Floats**,** *Oje* (lead metal) sinker, Rope, Two dried long light-weight bamboo sticks and One lamp (kerosene lamp or a torch light). According to the respondents, this traditional fishing technique is used after the rainy season within October, November, December, January, February and March. The fish species commonly harvested during this season include; *Tilapia, Ofon, Agbadagiri, Lakoro, Salapore, Sugbon, Osan and Ashoo.*

To set up this fishing trap, the two sticks are tied to the two extremes of the net with a rope. The floaters are fixed along the top edge of the net, while the Oje (metal led) are fixed along the base line of the net to keep it stretched in the water. The lamp or the torch light is tied on the float as an indicator or locator sign which enable the fishermen identify the location of his net. According to the respondents, 'this is so because the Arere traditional method usually drift freely in the water and easily change location. The catch with this technique is mainly harvested in the night or very early in the morning.
Below is a graphical picture of the Arere fishing technique:

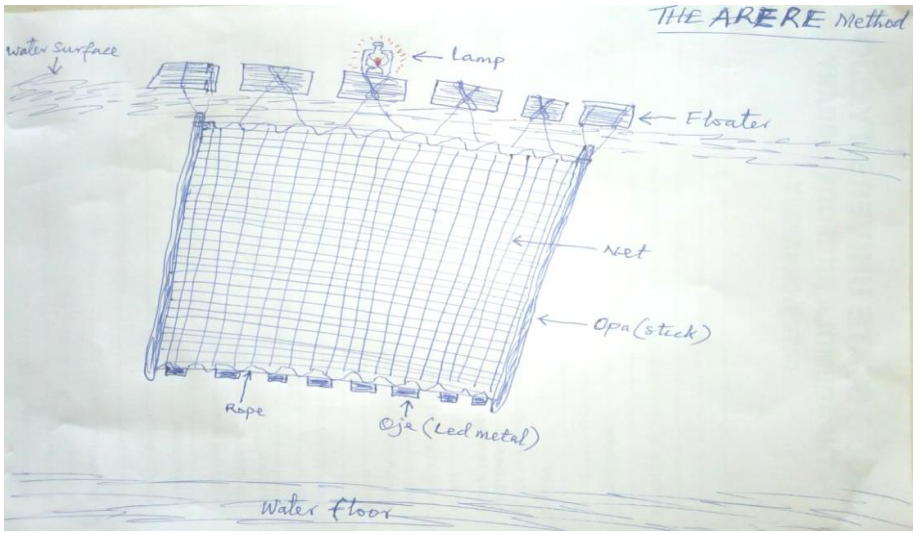
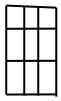


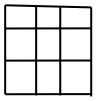

**Figure 2: *Arere* Fishing Technique**
**(Source:** Fieldwork, 2019)

The *Arere* traditional fishing technique uses variety of net sizes. The fishing nets are made from fibres woven in a grid-like structure and usually in mesh form by knotting a relatively thin thread. To determine the sizes of the net mesh, Ileja fishers use their fingers as a gauge. They said their fore fathers handed down the measurement standard to them. Below are the five net mesh measurements standard used Ilaje.

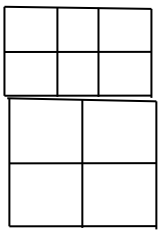
*Ika kan (one finger)*



*Ika meji (two fingers)*

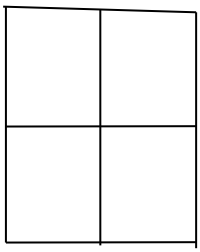


c. *Ika Meta (three fingers)*



d *Ika Merin (four fingers*

e. *Ika Marun (five fingers)*



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**Economic benefits of the indigenous fishing knowledge systems to Lagos, Nigeria**
Participants emphasised that fishing activities carried out using the Ilaje indigenous knowledge systems is not only less expensive but yields more results, in terms of quantity of fish caught per fishing cycle. This was corroborated during an interview session with the fish traders at the popular Oluwo Freshwater Fish Market, Epe, where the respondents confirmed that they usually get the largest supply of *Ijaga, Igangan, Lele, Akokoniko, yoryor, Epiya, Owere, Aro and Obokun* fishes from the Ilaje fishing community, Epe. This, therefore, is an eloquent testimony that applying indigenous knowledge in fishing by the community is both viable and commercially profitable and economical. The implication here is that standard of living is enhanced among the Ilaje community members in Epe.

Again, during interview with the Council of Elders, many of them testified to have seen a minimum of two children through higher institutions of learning from the proceeds made from fishing. Furthermore, a close observation of the community revealed several sophisticated, decent and modern houses built and owned by the community members. This shows that the community members have relatively fair purchasing powers to afford the basic needs of life.

The use of Ilaje indigenous knowledge of fishing promotes sustainable aquatic ecology. This was deduced from the statements of the community elders' council during interview, when the community leader stated that use of chemicals in fishing is prohibited among Ilaje fishers. According to him: ''*the community regards use of chemicals in fishing as a destructive practice that is capable of not only destroying the aquatic life and environment but harmful to human life*'' *It can therefore be deduced from the information gathered from the community leaders that the* use of indigenous knowledge system by the Ilaje people is not only saving the lives of the members of their community but also saving humanity and directly contributing to the achievement of the sustainable development goals (SDGs) globally.

Findings from the study revealed that lack of employment is not a problem within the Ilaje community of Epe, Lagos as every person is gainfully engaged in one aspect of fishing activity or another. The young and the adult men and some women have fishing gears while every household was found to have at least one canoe, or a motorised boat for fishing. Some women who could not go fishing are vigorously engaged in fishing trade. This finding is in consonance with that of Mkenda and Aikaeli (2019) who studied the various ways that indigenous knowledge in handicraft making among rural women in Tanzania became a viable option for income and employment generation This situation contributed in making the community largely crime free and peaceful always. As one of the elders responded during the interview session when they were asked how they manage to secure the various speed boat engines that are seen kept care-freely around the community. In his words: *''anytime something gets lost in this community, then it means that bad strangers entered here, because all our young boys are busy making money on the lagoon after school''*

**Supply of healthy source of protein to Lagosians and neighbouring states such as Ogun and Oyo states.**

Fish is filled with omega-3 fatty acids and vitamins such as D and B2 and rich in calcium and phosphorus as well as other source of minerals such as iron, zinc, iodine and potassium. Through the Ilaje traditional and homegrown innovations in fishing, the supply of this all-important source of healthy protein has never been in short supply in Lagos, Nigeria. The Ilaje indigenous knowledge system is in essence, contributing immensely to the food security and economy of the State. Little wonder, Epe Fish Market is the biggest freshwater and seafood market in Lagos State.

**Conclusion and recommendations**

This study has revealed how important and useful traditional knowledge could be in community's survival and sustainability as well as how a homegrown innovation can become a dependable alternative to sophisticated western technology. Indigenous knowledge systems have sustainable ways of using natural resources. Ilaje traditional knowledge in fishing is a pointer to the fact that sophisticated knowledge of the natural world is not confined to science. As a people, Ilaje has demonstrated mastery in fishing and developed rare sets of experiences and explanations in the art of fishing for sustainable human survival. This is indeed an eye opener to the efficacy of traditional knowledge in providing solution to human problems.

As body of knowledge that has developed outside the formal education system, there is no doubt that Ilaje indigenous knowledge in fishing constitutes an important information base that needs to be preserved jealously and made known to the world through collection, documentation and communication for posterity because there is a dangerous risk that most indigenous knowledge are being lost, along with their beneficial methods of living sustainably not only environmentally, but economically and socially.

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