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Occupational and Health Hazards in Nigerian Coastal Artisanal Fisheries

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ABSTRACT

There are more occupational and health hazards in the Fishing Industry than in other occupational categories in the world. In Nigerian Industrial Fisheries, safety measures are regulated while little attention is given to safety standards in the artisanal fisheries. In West Africa, the coastal artisanal canoe fatality rates have been given in 1991-1994 to be 300 to 1,000 per 100,000 fishermen. Thus, the fatality rate in Nigerian artisanal fisheries, (coastal states) has been estimated to be 999 to 3,329 per 100,000 fishermen. The high rate is due to piracy, boundary disputes between fishing communities, unemployment, societal low value for human life and human labour. The paper discussed the various types of accidents associated with artisanal coastal fisheries and gave recommendations. Fishermen have rights to safe working conditions in their working environment just as workers in offices and factories on land.

Key words: Occupational, accidents, health hazards, coastal artisanal fisheries

INTRODUCTION

Fishing is one of the world's oldest occupations and has more health hazards than other occupational categories in the world. For example in the United State of America, the fatality rate among fisher folks is 15-30 times the national average, in Italy it is more than 21 times the national average and in Australia, it is 143 per 100,000, compared with the average of 8.1 per 1,000,000 (FAO, 2000). These countries are more developed than countries in the West African region where the fatality rates are higher. In these advanced countries safety and rescue services for fisher folks are well established especially for industrial vessels. In Nigeria industrial fisheries sector, the fishing vessel safety has already been developed to a certain extent. Over 90% of the trawlers in this sector are imported from developed countries such as United State of America (USA), United Kingdom, Norway and Germany where safety measures at sea have had a long history. In Nigeria, one of the methods used involved the teaching of vessel safety in Nautical Colleges. Others include certification of vessels as well as crew members and use of insurance.

In the artisanal coastal fisheries in developing countries such as in Nigeria, a little attempt has been made to introduce artisanal fishing vessel safety measures (FDF, 1994). Existing regulations and legislations are often compromised or neglected. Yet serious occupational and health hazards occur frequently in both the coastal and brackish waters with small crafts/canoes which are used for fishing and transportation (Kingdom and Kwen, 2009; Udolisa, 1983). The fisher folks use

canoes to market their fish products in near or far away urban markets (Mbawuiké and Ajado, 2005; Udolisa *et al.*, 1994). For example, small crafts bring dried crayfish from Igbokoda (Ondo State) as well as dried fish and fish products from Delta State through water ways to Lagos State using Adeniji Adele (Lagos) and Epe improvised Jetties for off-loading their products. Also, fisher folks use canoe to seek for medical treatment in neighbouring villages where those facilities exist (Akinyemi *et al.*, 2004; Udolisa *et al.*, 1994). Accidents involving artisanal coastal fisher folks are not often recorded or reported to the authorities. Reports are only made when the accidents occur in or around urban centres. Under reporting of fatalities and injuries, is one of the problems of this fishery sub-sector. Few collected data on types of accidents and causes are not detailed enough. This makes it difficult to produce comparable data and statistics used in identifying and addressing key issues. Yet the fatality rate in coastal canoe fishery in the West African region is very high. The fatality rates of various countries in the region have been given in 1991-1994 to be 300-1,000 per 100,000 fisher folks (FAO, 2000). In Guinea, the fatality rate is 500 per 100,000 fisher folks while in the Nigeria artisanal fisheries (coastal states), the fatality rate has been estimated to be between 999 and 3,329 per 100,000 fisher folk's piracy, boundary disputes between fishing communities, high youth unemployment, societal low value for human life and human labour.

MATERIALS AND METHODS

These studies were carried out through the use of structural research schedules, direct interview and collection of primary data from the artisanal coastal fishermen in Nigeria (Olaoye *et al.*, 2012). The coastal states administered the instruments to were, artisanal fisher folks from Lagos, Ondo, Rivers, Akwa Ibon and Cross River states.

RESULTS AND DISCUSSION

Types of accidents in the coastal artisanal fisheries were body injury to fisher folks: cuts and burns: These injuries are simple and mostly non-fatal. When they occur, they do not lead to prolonged loss of work. Those fishing hazards are accepted in this fishery while most land-based occupations would not accept them.

The injuries include knife and net (monofilament nettings) cuts of the fingers and legs. These simple cuts may degenerate into septic wounds as simple medical kits are not carried to sea. The fisher folks also suffer minor burns when exposed to naked flames from lamps and cooking stoves they carry on their fishing trips.

Other injuries include fish bites (very common) from fish with sharp teeth such as sharks and fish spine cuts from such fishes as the cat fishes and sting rays. Simple safety measures such as being careful and carrying simple first aid equipment are required here.

Fire injuries: These are due to fire outbreaks in fishing canoes caused by leakage of petrol fuel from outboard engines used by many coastal artisanal fisher folks for fishing (Propper, 1992). The flames are very volatile and explosive. Measures to be taken include checking of petrol lines for leakages as many times as possible. Some riverine transportation crafts carry inboard diesel engines and electrical wirings which are potential sources of fire (Propper, 1992; Hoefnafels and Bouvman, 1989). The electric wirings in these crafts often lack fuses. Therefore safe installation of electric systems in small craft while taking into account that it has to be provided at as low cost as possible, is very essential (Hoefnafels and Bouvman, 1989).

Foundering: This is a condition in which the canoes are swamped by advancing waves at sea or while going through the surf as in the case of beach landing operations in surf beaten coasts such as in Lagos, Ondo, Delta, Ogun, Rivers, Bayelsa, Cross River and Akwa Ibon States. The safety measures involve the use of buckets or small containers to bail out water. There is also the need to build sea going canoes with woods of positive buoyancy.

Safety recommendations: Owners, operators and vessels commands the FBMCI (2006) recommends the following to owners, operators and masters of fishing vessels:

- When changing the fishing gear and performing other conversion works on the vessels, the consequences for the stability must be considered and in the event of uncertainties experts should be called in to calculate the stability documents. Conversion works and changes are to be reported to the See-BG
- It must be possible to establish watertight integrity and seaworthy condition, observing the valid freeboard regulations and accident prevention regulations. Crews must check the seaworthy watertight condition prior to leaving port and during the voyage too
- In the case of conversion of anchor facilities and other technical facilities, the common regulations should be observed
- Ring life-buoys are to be equipped with life-buoy night lights and lines in accordance with the accident prevention regulations and be stored ready to grab. The ring life-buoys must be lettered with the name of the vessel and port of registry in accordance with the Accident Prevention Regulations Sea. The survival suits, life jackets and radar transponders' should also be lettered in order to facilitate the search when items of equipment are found. Distress and life-saving appliances should be stored ready for use and at hand
- Vessels that must be equipped with a distress radio beacon (EPIRB) should be equipped beyond the regulations with an EPIRB that in addition to the emergency frequency and homing signal additionally transmits the current GPS position

Splitting of canoes over sand bars: Sand bars are sub-merged mounds of sediments lying across estuaries found in most of the coastal states and across estuaries found in most of the coastal states. The location of these sand bars in Nigeria has been given by Pugh (1954), NEDECO (1954), Allen (1964) and Udolisa and Solarin (1980). Some artisanal coastal wooden canoes on crossing these sand bars are split into two. Occasionally, holes are made in the canoes due to sudden bumps on the sand bars. These accidents can be prevented by the dredging of all river mouths. This is not possible since it is cost wise prohibitive. Safety measures include using wood that can withstand the impact of canoes on sand bars in the constitution of the coastal fishing canoes. Also use of simple tools such as mastic and hammer are desirable in the temporary repairs of holes in canoes at sea.

Collision: Collision between two artisanal coastal canoes rarely occurs. However, when the outboard engine drivers get drunk at the jetties before departure, accidents do occur. Other types of collision involve.

Between a merchant vessel and a coastal fishing canoe: The International Rules for the Prevention of collision at sea, requires Merchant Navy Vessels to give the right of the way to fishing canoes but collisions do occur due to the following:

- In autopilot, the captain of the Merchant Navy vessel may find it difficult to maneuver through a fleet of fishing canoes
- At night, fishing canoes carry oil lamps or sound buoys which are difficult to see or hear from a big merchant navy vessel (Udolisa and Solarin, 1985). Some do not carry anything at all and so may be regarded as smugglers
- There is also a large “blind area” ahead of the large Merchant Navy vessels where coastal artisanal canoes are not easily seen

Between fishing trawlers and coastal artisanal canoes: Fishing trawlers are statutorily restricted from fishing in areas within five nautical miles from the shores. Those coastal areas are reserved for coastal artisanal fisher folks. The fishing/shrimping trawlers collide with coastal fishing canoes in these areas, causing serious damages to both the canoes and fisher folks.

The use of sound buoys at night by fisher folks should be discouraged. This recommendation has already been given by Udolisa and Solarin (1980). Also, incidents involving merchant navy vessels/fishing trawler and canoes should be reported officially by the artisanal fishermen.

Equipment breakdown or disablement: Most canoes operating deep at sea, are powdered by the out-board engines. It is often a very serious problem, when the outboard engines breakdown while the fisher folks are far from the shores. The breakdowns are caused by the following:

- High costs of in-puts
- Use of fake and inferior parts for repairs of the outboard engines
- Poor maintenance
- Use of poor mixed ratio of fuel and oil
- Liability of the fisher folks to carry enough fuel
- High cost of fuel in the riverine areas
- Inability to carry simple repair tools and parts such as plugs, pins etc

The safety measures include carrying simple tools and equipment, sails, paddles and extra mixed fuel. There should be a regular and proper maintenance of engines.

Capsizing: When coastal canoes capsize, the fisher folks, the fishing gear, outboard engines and the rest are thrown overboard. This problem is caused by the following:

- Large sea animals such as sharks, whale, turtles and crocodiles in marine and brackish waters can capsize the artisanal fishing canoes
- Capsizing of canoes occur when fisher folk attempt to land very large aquatic animals including fish caught in their fishing gear such as drift nets, set gillnets and long lines. The lengths of some of these fishes such as sword fishes, sharks and blue marlene are of the same length (LOA) of the canoes
- Overloading of canoes especially the transportation types cause capsizing. The loss of 1,257 lives of the coasts of Cross River/Akwa Ibon State between 1995 and 1997 and loss of 200 people in Bomadi-Oboro River in December 20th 1989 had previously occurred. In some cases when transportation boats capsize, the driver often disappears and may not be traced again

Fisher folks depend on their canoes for survival. When the canoes are lost, some of the crew will lose their lives too. The consequence can be very bad for widows who normally will have a low social/economic standing. There is also no welfare package from the Government on which they can rely on. As there is no alternative source of income, the widows and children face serious economic or financial problems.

In positively buoyant canoes such as the Ghanaian types, capsizing is not necessarily very dangerous since the problem is solved, once the object (water) causing it, is removed by scooping. Safety measures to be taken include:

- Non over-loading and maintenance of load balancing
- Being very careful in removing the causative agent
- Carrying buckets or containers to scoop water from the capsized canoes after up-turning it
- Encourage the use of positively buoyant canoes and locally made life jackets
- To tie the outboard engine to the canoe with a rope in all fishing operations
- To attach floats (big types) to fishing gear and cargoes during transportation
- Statutory regulation to establish sufficient freeboard on all riverine transportation small crafts and canoes is very necessary

Survival at sea: When some of the accidents mentioned earlier happen, surviving at sea is the next problem especially for coastal canoes that operate 36-48 h at sea. In Nigeria, due to the weather conditions, the danger of dehydration when portable water is lacking becomes very prominent. Artisanal coastal fisher folks also do not know the appropriate distress signals to use such as the “Arm signal for distress or V signal with the letter V painted on a flag fixed by the side of the canoe. The fisher folks also use a Red flag as a distress signal. This means, “keep clear of me” in the International Code of Signals. Some fisher folks even use red flag as in normal fishing operations to signify their membership of a particular fishing co-operative.

The safety measures include the following:

- Carrying sails, paddles, extra fuel, food, water, oil lamp, touch, anchor rope, simple first aid, simple and locally made life jackets
- The use of distress signal such as “flames on vessel”. This consists of a mixture of lube oil, diesel and a small amount of petrol which can be set alight to produce, a dense black smoke that can be seen over a long distance by day. At night the mixture is done without using the lube oil and this can be seen over a long distance
- It is important to use a simple mirror or a whistle to draw attention during the day
- Dying the water surrounding the canoe at sea with another colour during the day will increase the size of the visible target
- The fishing canoes must be in a position to be identified. This involves the registration of all canoes with visible numbers written on the hull of canoes
- The fisher folks before their departure must indicate their proposed fishing grounds and expected time of return (including trip duration) to their relations or the community chief. This is to make rescue operation easier in case of an emergency
- There is a need to introduce courses covering safety awareness and training in nautical colleges/schools as well as in fisher folks co-operatives. This training should also involve the proper use or operation of outboard engines

CONCLUSIONS AND RECOMMENDATIONS

The need for safe practices is not fully appreciated by both the artisanal fisher folks and the Government. For example in the execution of ECOWAS and IFAD fisher folks' projects, the fishermen are encouraged to insure their fishing gear and outboard engines even at a very high cost. Measures were not taken to reduce the occupational health hazards in the industry. Loss of life and injuries that occur during fishing operations are threats to food (fish) security which the Federal Government is at present promoting. There are a number of areas where improvements on fishery occupational health hazards can be made. These include the provision and analysis of data that identify the cause of accidents in various coastal states. The most frequent causes of danger and canoe/craft losses must be fully investigated. An improved accident reporting system is therefore very essential and important for an improved safety in the occupation. There is also a need to train fisher folks and extension officers and formulate regulations that will be enforced through increased collaboration among fisher folks, their communities and through governments various agencies. An accepted policy is needed to protect the right of coastal artisanal fisher folks and provide safe conditions in their working environment.

Finally, various Government agencies such as Nigerian Maritime Administration and Safety Agency (NIMASA) and various fisheries authorities should extend their responsibilities to cover the safety of these coastal artisanal fishermen.

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