

PROGRAMME FOR INTEGRATED DEVELOPMENT OF  
ARTISANAL FISHERIES IN WEST AFRICA

**IDAF PROGRAMME**

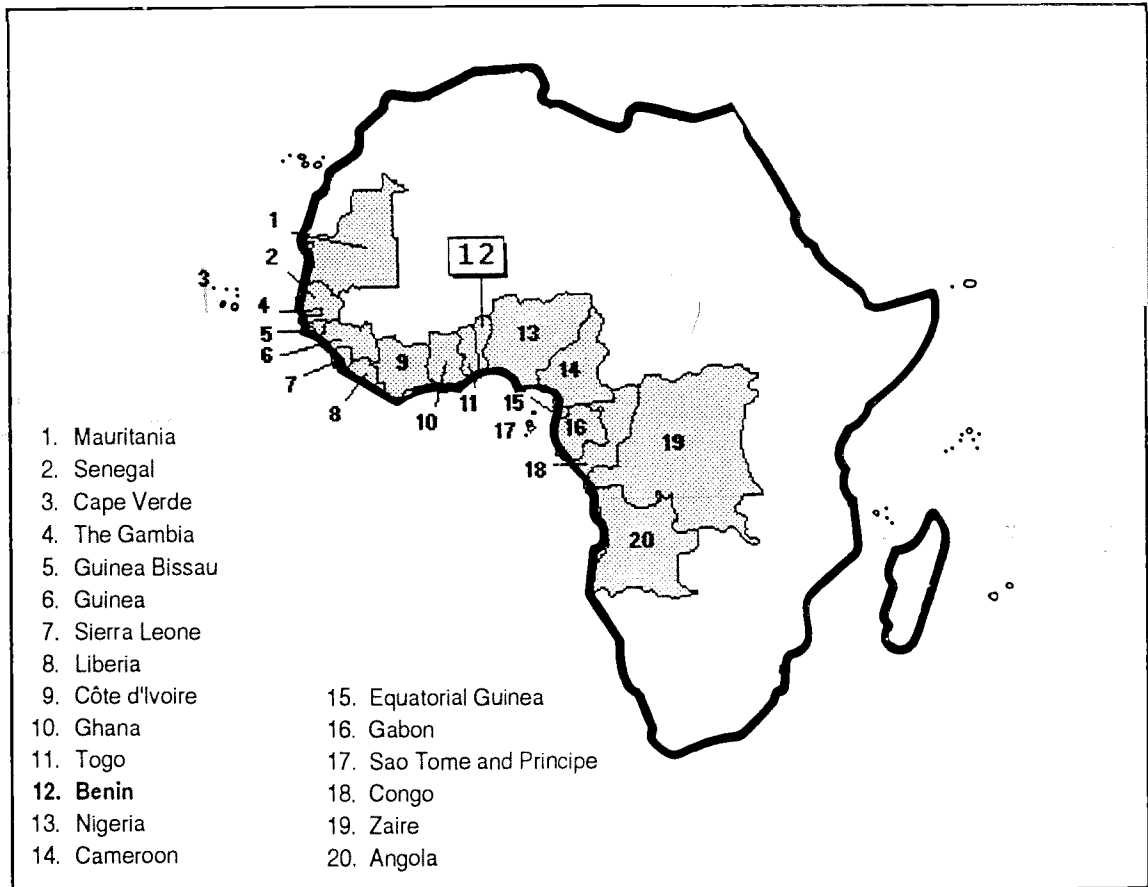
Technical Report N° 116

October 1997

**DATA COMPENDIUM ON ACCIDENTS AT SEA  
FOR SIX CENTRAL AFRICAN COUNTRIES**

Cameroon, Gabon, Congo, Sao-Tomé & Principe,  
Democratic Republic of Congo, Angola

1989 - 1996



**DANIDA**

DEPARTMENT OF INTERNATIONAL DEVELOPMENT COOPERATION OF DENMARK



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS



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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Cotonou, October 1997

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# THE VISION FOR IDAF PHASE III

## INTRODUCTION

Development strategy during the 1960 and 1970s was based on the philosophy that developing countries lacked improved technology and capital for speeding up their development. Industrialization was promoted in order to capitalize on the abundant fish resources. However, the anticipated expansion of the economy did not happen and the development approach shifted towards an integrated rural strategy where emphasis is put on the community as a whole to upgrade incomes and the quality of life through technical assistance and the active participation of fisherfolk and the community.

In this context, emphasis was initially placed on the Community Fishery Centre (CFC) concept as a means of promoting artisanal fishery development. But it became apparent that the presence of a complex of facilities and services tailored to meet local needs was no guarantee that the structures/facilities would be used or that development would occur. The active participation of fisherfolk and the mobilisation of local and community resources was imperative in order to assure sustainability of initiatives undertaken by development projects and/or the community.

So far and in general terms, the IDAF Programme has worked under the context of abundant or seemingly adequate fishery resources with moderate population pressure. The scenario is however changing (and very fast for that matter) and we would soon face the triple constraints of reduced or depleting fish stocks, degrading environment and increasing population pressure. Like in other sectors, it must be anticipated that just to survive, parts of the population surplus in the fishing communities will enter the artisanal fisheries, which will increase the competition for the resources among the small scale fisherfolk in addition to the prevailing competition between the artisanal and industrial fisheries, with their attendant effect on the environment.

This scenario calls for a continuation of the integrated participatory strategy which remains relevant to the development of artisanal fisheries in West Africa. However, the emphasis needs to be placed on the elements and mechanisms that favour the sustainability of initiatives: responsible fishing, the empowerment processes that ensure the devolution of major resource management and development decisions to the local community, the strengthening of national human and institutional capacities at all levels for a sustainable and equitable fisheries resources management and development, as well as in the follow-up and consolidation of past achievements.

## DEVELOPMENT OBJECTIVE

Thus the development objective of the Programme in the present phase III which started on 1 July 1994 is to ensure twenty coastal West African countries a sustainable development and management of their artisanal fisheries for maximum social and economic benefit of their fishing communities in terms of employment, proteins and earnings. This will be done through an integrated and participatory approach in which emphasis will be laid on equity, gender issues, the transfer of technology for development, environment protection, as well as the strengthening of human and institutional capacities.

**The immediate objectives are:**

1. To identify, assess and disseminate strategies and mechanisms for sustainable management and development of the artisanal fisheries in fishing communities;
2. To improve the competence of national Fisheries Departments staff in development and management planning of artisanal fisheries;
3. To enhance regional technical competence in the fisheries disciplines, particularly in fishing and fish technology;
4. To improve information and experience exchange related to artisanal fisheries within the region;
5. To promote regional and sub-regional collaboration for the development and management of artisanal fisheries.

**In this context, IDAF will among other things tackle the following major aspects in its work :**

- assisting in the elaboration and implementation of a clear and coherent national development policy for the artisanal fishery sector;
- providing advice on management and allocation of resources between artisanal and industrial fishing fleets, both national and foreign;
- involving users in the design and management of on shore infrastructures;
- monitoring the sector's evolution by the setting up of an economic indicator system for the sector adapted to the financial and human availabilities;
- improving fishing technologies in accordance with the available resources;
- increasing the final product's value by improvement in processing and marketing;
- promoting community development in accordance with the lessons learned from Phase I and II and oriented towards the sustainability of actions undertaken;
- reinforce the Programme's information/communication system.

It is anticipated that by the end of the third phase of the Project, the region will have a nucleus of field oriented experts capable to respond to the challenges of the artisanal fisheries sector and to spur development in their individual countries in keeping with the aspirations and needs of fisherfolk

## SUMMARY

Safety at sea, as the artisanal fisheries sector in general, has been neglected for decades, and policies were favouring industrial fisheries. Nevertheless, Governments are now adopting a more realistic approach, more in tune with development, and more in agreement with the fishermen's needs. As a result, southern IDAF countries from Cameroon up to Angola attach a particular importance to data collection on safety at sea matters.

However, in most of these countries, very few activities were realized for studying and considering the magnitude of the problems related to safety at sea.

Therefore, the Department of Fisheries of the six countries mentioned above, in cooperation with IDAF, engaged themselves in a methodic data collection on safety at sea and related accidents that occurred during fishing and transport activities from 1989 to 1996.

Each year, artisanal fishermen pay a heavy price for these accidents at sea. Disasters repeated themselves, starting from simple capsizing without any serious consequences to collision between small and big boats and final wrecking. It is also worth mentioning the acts of piracy leading to theft of material, accompanied by aggression of crews and passengers, followed by death.

Causes of accidents are many, the wind and the waves appear to be the most important. These result in a lot of death and injury. One should not forget the value of the material loss, which for this survey is estimated at 151,068 US Dollars or 87,619,440 Fcfa (exchange rate of 580 Fcfa for 1 US \$ in May 1997).

The results published in the present analysis demonstrate not only the high incidence of accidents mainly due to sea working conditions, but also the significance of human and material losses.

The data analysed shows that the number of accidents seems lower than in West Africa. As a result, 152 accidents were declared by the fishermen to the investigators during the field work. During those accidents, 202 people died and 112 were injured.

This survey is not exhaustive, because it was observed that people remain better remember death than injuries on board. It is also believed that with time, the declarations obtained from these accidents sometime occur more than four years ago, and there is a lack of precision.

Among the main factors that contributed to the accidents in the artisanal fisheries sector in the sub-region are : waves 75 cases; wind 47 cases; engine failure, 19 cases; overloading of the boats, 18 cases; negligence, 12 cases; panic, 22 cases; disorientation, 3 cases; fog, 2 cases.

Among the boats surveyed, those with lengths of between 3 and 9 metres are the most concerned, followed by canoes of 9 to 12 metres, with 54 units being victim of accident.

Data analysis revealed that for the 104 canoes covered in this survey, 60 units were motorized, or more than 58 % are occasionally using paddles and/or sail as auxiliary means of propulsion.

Nevertheless, in general speaking, where the engine is the main means of propulsion, it is common to see small canoes going fishing without emergency sail and without any paddle on board. The phenomenon is unfortunately noted on all the West African coast from Mauritania up to Angola.

A long term field sensitization work on safety at sea must be considered for the region.

A programme for training of trainers in safety at sea matters within the Fisheries administrations or institutions of the countries concerned is now a priority.



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## **1. INTRODUCTION**

To benefit from more information on the causes of accidents in the artisanal fisheries sector, and the consequences at sub-regional level, a survey has been carried out for accidents that occurred between 1989 and 1996. The main causes and contributing factors to these accidents for the coast of six countries :

Cameroon, Gabon, Sao-Tomé & Principe, Congo, Democratic Republic of Congo, and Angola were recorded in the data collection.

The investigations were carried out by the Departments of Fisheries and qualified Organizations in the respective countries. The IDAF Programme offered technical assistance in preparing the Data sheets and their subsequent analysis.

This has resulted in a data base which could be used by competent authorities, scientists, consultants and all those dealing with the destiny of the operators in the marine artisanal sector.

## **2. GENERAL CONTEXT**

Because of the depletion of the marine resources in coastal areas, the fishermen of several developing countries have to diversify their activities by extending their navigation range, and therefore sail further offshore. They are now travelling to a considerable distance from their fishing base, even if they sometimes follow the coastline, to search for more productive fishing grounds. Their canoes are also overloaded by more and more voluminous fishing gears.

This enable them to catch the same quantity of fish that was obtainable in coastal areas decades ago.

These operations (including the canoes carrying passengers and goods) are perilous and are followed by unpleasant connected effects at several levels.

The result is a heavy burden each year for the fishermen and transporters. The accidents recur because of neglect or unconsciousness of the real danger that is always present during a fishing or transport operation.

Futhermore, in the countries concerned, national legislations are often too elementary for safety at sea matters related to small fishing canoes.

### **3. OBJECTIVES**

Taking into consideration the information collected in the countries mentioned above, the objectives of this paper are as follows :

- i - To clarify the general conditions in which the accidents happen;
- ii - To supply information on the main causes of the accidents and identify the contributing factors.
- iii - To provide data on the losses derived from these accidents,(number of injured, deaths, cost of the material lost, etc).
- iv - To make available an inventory of safety equipment available on board at the moment of the accident -
- v - To make appropriate recommendations which could help in the orientation of a future sub -regional project for artisanal safety at sea .

### **4. METHODOLOGY**

This document presents the results of a survey on accidents that occurred along the West African coast, from Cameroon to Angola, between 1989 and 1996. It takes into account the record of 152 cases of accidents declared by the fishermen to the investigators during this field work. It is hoped that this preliminary work may open the way for other similar research in the near future.

#### **Field work**

The field work was carried out by Officers of the Departments of Fisheries and other relevant services concerned with safety at sea.

#### **Access to information**

The information was collected through meeting the fishermen at villages and landing sites. Chiefs of the villages and/or boat owners were also interviewed. Chiefs of Stations of the Departments of Fisheries also participated to a complement information as and when necessary. It was noted that the precision of the information collected decreased for accidents that occurred several years ago.

## **The questionnaire**

The field work of the survey was carried out by means of standard questionnaire, which was first elaborated by DIPA-GANT (former IDAF antenna office based in Conakry) for the survey in Guinea.

The actual version has been reviewed and corrected during the workshop on safety at sea held in Banjul from 26 to 28 September 1994, where all the participants contributed to the elaboration.

The same questionnaire is now utilized for similar surveys in the six IDAF associated countries in the southern zone mentioned in page 1.

To facilitate the task of field officers, the questionnaire was prepared into four versions : English, French, Portuguese and Spanish.

It is now distributed to all IDAF countries, for the nationals to be able to carry out the survey by themselves. As a result, they may treat the work as a sustainable activity within each Department of Fisheries and other responsible organizations concerned with safety at sea.

## **Data analysis**

The data collected was sent to IDAF for analysis. The softwares used for analysis and table preparation were Statgraphics and Excel 5.

## **Preparation of a software for data collected, in dBase III**

To permit IDAF member countries to stock and analyse the results of the surveys by themselves, as well as update the information annually, a software in dBase III (P.C. compatible) has been prepared at IDAF H.Q. in four languages ; English, French, Portuguese and Spanish. Since 1996, it has been distributed to all IDAF countries.

## 5. CONTRIBUTING FACTORS

**Table 1 :** Contributing factors to accidents in the artisanal fisheries sector in the sub-region

	Angola	%	R.D.C	%	Congo	%	Gabon	%	Cameroon	%	Sao Tomé & Príncipe	%
Engine failure	7	10.2	1	6.6	0	0	3	6.8	3	25	5	10.2
Leaks	0	0	0	0	0	0	0	0	0	0	1	2.04
Overload	8	12	1	6.6	2	6.6	0	0	1	8.33	6	12.2
Storm	14	20.6	0	0	11	37	8	18	2	17	12	25
Waves	36	53	4	27	14	47	7	1.6	1	8.33	13	27
Wind	14	20.6	0		11	37	8	18.1	2	17	12	24.4
Fog	0	0	0	0	0	0	0	0	0	0	2	4.08
Lack of fuel	0	0	0	0	0	0	0	0	0	0	0	0
Disorientation	0	0	0	0	0	0	1	2.2	1	8.33	1	2.04
Panic	1	1.5	1	6.6	0	0	1	2.2	2	17	0	0
Fight	0	0	0	0	0	0	1	18	2	17	0	0
Negligence	1	1.5	2	13.2	0	0	8	0	0	0	1	2.04
Discord	0	0	0	0	0	0	0	0	0	0	0	0
Anchor line	0	0	0	0	1	3.3	0	0	0	0	0	0
Others/unspecified	0	0	6	40	0	0	14	32	0	0	6	12.2
Total	68		15		30		44		12		49	

The information in table 1 as well as in figure 1, sums up contributing factors to the different cases of the accidents. It is revealed that :

The wind was responsible for 47 cases of accidents recorded in a six year period for the six countries concerned.

The waves caused 75 accidents, that surpassed the number for all the other causes.

Negligence provoked 12 cases in accidents on the same period.

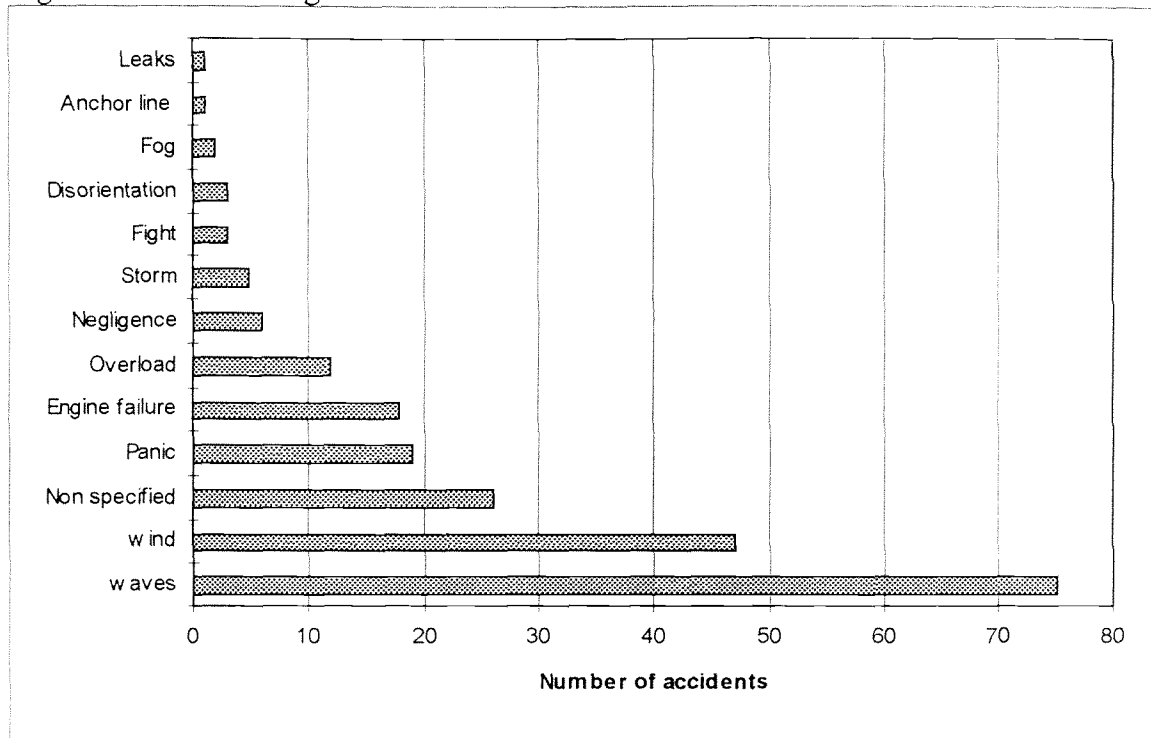
Disorientation (3 cases) and fog (2 cases) also caused a large part of the accidents.

Engine failure (18 cases) is an important factor which must be taken into consideration in the future.

The Panic provoked 22 accidents .

The accidents caused by overloading were noted in 18 cases.

**Figure 1 : Contributing factors**



## 6. RESULTS

### 6.1. Characteristics of the canoes.

Table 2 gives the length range of the boats observed to have been involved in more accidents. It is noted that 85 canoes were involved in an accident.

Among the boats recorded in this survey, those with lengths of between 3 and 9 metres paid the heaviest price to the sea with 52 units involved in an accident. This represents 61 % of the total recorded.

Beside this, the canoes with lengths of between 9 and 12 meters is recorded for 22 cases of accidents or 26 % of the total.

Finally, canoes with length of more than 22 metres accounted for 2 cases.

On the whole, 88 % are fishing canoes and only 12 % of these units were used for transportation.

**Table 2 :** Size of the enquired canoes according to the activity and boat size

Fishing -Transport Length & %	Congo		Cameroon		Gabon		Sao Tomé & P.	
	F	T	F	T	F	T	F	T
3 - 9 meters	15	0	7	2	9	0	19	2
%	100	0	58.3	28.5	32.1	0	100	50
9 - 12 m	0	0	4	1	15	0	0	2
%	0	0	33.3	14.25	53.6	0	0	50
12 - 15 m	0	0	0	0	2	0	0	0
%	0	0	0	0	7.1	0	0	0
15 - 18 m	0	0	0	0	0	0	0	0
%	0	0	0	0	0	0	0	0
18 - 22 m	0	0	0	0	0	0	0	0
%	0	0	0	0	0	0	0	0
> 22 m	0	0	0	2	0	0	0	0
%	0	0	0	0	0	0	0	0
Non specified	0	0	1	2	2	0	0	0
%	0	0	8.33	28.5	7.1	0	0	0
Total / type	15		12	7	28		19	4

## 6.2. Mode of propulsion of the affected boats.

Considering the data given the table 3, it is observed that a little more than 59 % of the boats are motorized, occasionally using paddles and/or sail as auxiliary means of propulsion.

At the moment of the survey, less than 15 % of these boats were using paddles as a propulsion means. Sail and paddles were used together by less than 2 % of the units covered in the data collection.

(However, in some countries like Sao-Tomé & Principe, because of the irregular availability of fuel, fishermen occasionally use mixed propulsion means (sail and engine).

Nevertheless, generally speaking even when the engine is used as the main propulsion system, it is common to see small canoes going to sea without emergency sail and sometimes even without any paddle on board.

However, even when we know the importance of having on board at least a pair of paddle, (most of all on board small fishing units and transport canoes), it is astonishing to observe users unconsciousness being of their own security, considering the dramatic consequences which may occur in case of engine failure.

A long term work is to be considered for sensitization campaigns for safety at sea.



NOTE : With respect to the propulsion means, the results obtained are meant to compare only the rate of motorization with other means of propulsion of the units recorded. Therefore, the figures didn't reflect the real level of motorization of a particular fleet in a given country, nor of the seven countries concerned by this paper.

**Table 3 :** Mode of propulsion of the affected boats

	Congo	%	Cameroon	%	Gabon	%	Sao -Tomé	%	Total
Paddles	10	62.5	2	10.5	0	0.0	3	7.3	15
Sail	0	0.0	0	0.0	0	0.0	5	12.2	5
Sail + Paddles	0	0.0	1	5.3	0	0.0	1	2.4	2
Motor	5	31.3	14	73.7	26	92.9	15	36.6	60
Motor + sail	0	0.0	0	0.0	0	0.0		0.0	0
Motor + paddle	0	0.0	0	0.0	0	0.0	1	2.4	1
Inboard Motor	0	0.0	0	0.0	0	0.0	1	2.4	1
Motor + paddles+ sail		0.0	0	0.0	0	0.0		0.0	0
Non specified	1	6.3	2	10.5	2	7.1	15	36.6	20
Total	16	100.0	19	100.0	28	100.0	41	100.0	104

NOTE : data is only available for the mentioned countries.

### 6.3. Engine power.

The outboard engines are the major means of propulsion applied by artisanal units.

The survey revealed that the power of these engines varies between 5 to 40 horse power in general. Six engines of 80 H.P. and two of 150 H.P. were recorded, but they are exceptions.

The 25 and 40 H.P out-board motors are the most used representing more than 38 % of the engines recorded in this study.

They are followed by the 15 H.P out board motors which represent a little more than 18 % of the total.

Finally, the engines of 8 H.P. reflect slightly more than 6 % of the total.

24 engines were classified in the data collected as non-identified engines representing 28% of the total.

**Table 4 :** Engine power of the affected boats

	Congo	%	Cameroon	%	Gabon	%	Sao Tomé	%	Total
5 hp.	0	0.0	0	0.0	0	0.0	0	0.0	0
6.5 hp.	1	6.7	0	0.0	0	0.0	1	4.3	2
8 hp.	0	0.0	1	5.3	0	0.0	4	17.4	5
10 hp.	0	0.0	0	0.0	0	0.0	2	8.7	2
14 hp.	0	0.0	0	0.0	0	0.0	0	0.0	0
15 hp.	1	6.7	2	10.5	0	0.0	8	34.8	11
25 hp.	3	20.0	2	10.5	10	35.7	1	4.3	16
27 hp.	0	0.0	0	0.0	0	0.0	0	0.0	0
30 hp.	0	0.0	0	0.0	1	3.6	0	0.0	1
40 hp.	0	0.0	2	10.5	14	50.0	0	0.0	16
80 hp.	0	0.0	5	26.3	1	3.6	0	0.0	6
150 hp.	0	0.0	2	10.5	0	0.0	0	0.0	2
Non specified	10	66.7	5	26.3	2	7.1	7	30.4	24
Total	15	100	19	100	28	100	23	100	85

**Life duration :**

It is believed that lifespan varies from one country to another. According to the degree of use and maintenance, one engine can run (globally speaking from two to six years)..

The survey couldn't determine precisely the influence of the age of the engines. However, it is believed that the limited availability of spares parts in some countries, the fall of engines at sea, the limited maintenance, often by lack of training of the users accelerate the deterioration. The whole parameters mentioned here can influence greatly the durability of the mode of propulsion.

#### 6.4. Luminosity and accidents

Looking at table 5, we note that the accidents occurred with different conditions of luminosity. This enables one to observe the position of the boat at the moment of the event.

The information collected during this exercise revealed that a large part of the accidents occurred while the boat was fishing in darkness.

**Table 5 :** Accidents according to luminosity and movement of the boat

Luminosity factors	Congo			Cameroon			Gabon			Sao Tomé & P.		
	L	D	N	L	D	N	L	D	N	L	D	N
At the pier	0	0	0	0	0	1	1	1	2	0	0	0
Running	1	1	0	0	2	2	5	7	0	10	1	2
Fishing	1	1	4	0	4	1	5	7	0	6	0	3
Anchored	0	3	3	0	0	0	0	0	9	1	0	0
Non specified	0	0	1	0	0	4	0	0	2	0	0	0
Total	2	5	8	0	6	8	11	15	13	17	1	5

Legend : L = Light. D = Day. N = Night.

For the R.D.Congo and Angola, Data are insufficient at IDAF level.

As regards luminosity factors, it is observed that 21 cases of accidents occurred in period of day light, that is 26 % of the total accidents analysed.

For accidents in period of darkness, 26 cases were noted representing 29 % of the accidents in question.

Finally, the accidents caused in period of surrounding « light » (moon light or just before sunrise or at sunset), when the visibility decreases drastically, were 19 cases, or 21 % of the total.

Considering the same problems according to the position of the boat at the moment of the accident, (moored, alongside the pier, running, fishing etc), it can be noted that 32 cases of accidents occurred while the boat was fishing, or in 36 % of the cases.

Following this, are accidents while the boat is running, 31 cases or 34 % of total. Then, cases with the canoe anchored 16 accidents or 18 %. Then 5 cases were recorded while the boat was at the pier or 6 % of the cases. Finally 7 accidents were recorded with the position of the canoe non specified.

It seems therefore that the luminosity factor, although playing an important role in the accidents; cannot be explained by itself via the extent of the phenomena.

While the boat is fishing « at night », we note 8 cases of accidents, and when the boat is fishing « by day light » 12 cases of accidents were noted. A complementary survey will be needed to ascertain the existing lacune for this particular subject.

One should keep in mind that the lack of visibility and means to enable the crew to signal their presence, are relatively important factors that underline the importance of having on board a top mast light visible on the whole horizon or a radar reflector, which will permit to identify the presence of a canoe, even if it is a small one.

### 6.5. Sea conditions and accidents.

Table 6 shows that whatever the area or the position of the boat, the sea condition greatly influence the accidents. We observe effectively that when the sea is choppy and has large waves, 57 % of the accidents happen against 27 % when the sea is calm and smooth. Finally, 16 % of the accidents were recorded as non specified.

It is convenient to recall that when the sea is rough, an important number of boats do not go out to fish. This, however, doesn't limit the number of accidents for the period, and that also confirms the lack of stability and fragility of the canoes used in most of the cases.

**Table 6 :** Accidents according to sea conditions and position of the boat

Sea conditions	Congo			Cameroon				Gabon				Sao Tomé		
	calm	choppy	large waves	calm	choppy	large waves	n. s.	calm	choppy	large waves	n. s.	calm	choppy	large waves
At the pier	0	0	0	0	0	0	0	1	0	0	2	0	0	0
Running	0	0	2	0	2	1	2	1	4	2		3	7	3
Fishing	0	3	3	2	1	1	2	12	4	0	0	3	5	1
Anchored	0	3	3	0	0	0	0	0	0	0	0	0	1	0
Non specified	0	1	0	0	0	0	5	0	0	0	2	0	0	0
Total	0	7	8	2	3	2	9	14	8	2	4	6	13	4

Number of cases of accidents by calm sea : 22

By choppy sea: 31. By large waves: 16. Non specified: 13.

Total recorded: 82.

## 6.6. Meteorological conditions and accidents.

A total of 55 accidents occurred because of the wind, the fog and the rain, as presented clearly in table 7 and table 1 :

- The wind drastically influenced the number of accidents with 44 cases recorded or 80 % of the total.
- The fog is also responsible for 4 cases of accidents, or 7 %.
- While raining, 7 accidents occurred, or 13 % of the total.

27 cases of accidents occurred while the boat is running, and 19 cases while the boat is fishing, mainly because of the wind.

**Table 7 :** Accidents according to meteorological conditions and position of the canoe

Position of the boat	Congo			Cameroon			Gabon			Sao Tomé et P.			Total as per the position
	wind	fog	rain	wind	fog	rain	wind	fog	rain	wind	fog	rain	
A the pier	0	0	0	0	0	1	0	0	0	0	0	0	1
Running	2	0	0	1	1	1	6	0	1	10	3	2	27
Fishing	6	0	0	2	0	0	4	0	0	6	0	1	19
Anchored	5	0	1	0	0	0	0	0	0	1	0	0	7
Non specified	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	14	0	1	3	1	2	10	0	1	17	3	3	

NOTE : For the above countries, accidents due to the wind : 44, the fog: 4, the rain: 7.

## 6.7. Damages

From table 8, according to available and non-exhaustive data, 86 cases of accidents were declared over a period of eight years for the seven countries concerned. These accidents caused the death of 202 persons. The number of injured was 95.

## 7. COST OF MATERIAL DAMAGES

Due to the fact that the information collected did not permit a detailed analysis of the cost elements, table 8 gives an idea of the importance of the costs by country.

The amount of the losses recorded represent 151,068 U.S.dollars or 87,619,440 FCFA.

These figures clearly show that the financial loss suffered each year by the operators in the artisanal sector merit particular attention.

**Table 8 :** Loss of human life and cost of the material lost

	Congo	Cameroon	Gabon	Sao Tomé	
	1989-1995	1990 - 1996	1993 -1995	1992 - 1994	
Number of accidents declared :	16	19	28	23	86
Number of injured :	4	66	7	18	95
Number of death :	3	173	1	25	202
Costs of the damages					
Total in US \$ :	19,292	49,768	77,573	4,435	151,068
In F.C.F.A : 87.619.440					

(1US\$ = 580 FCFA, May 1997)

## 8. MAIN CAUSES OF THE ACCIDENTS

If the circumstances are identified, we can determine what the main causes of these accidents are as shown in table 9.

**Table 9 :** Main causes of the accidents in the artisanal sector of the sub-region

	Congo	%	Cameroon	%	Gabon	%	Sao-Tomé	%	Total
Capsizing	15	88.2	4	20.0	8	25.8	0	0.0	27
Grounding	0	0.0	3	15.0	0	0.0	3	11.1	6
Collision	0	0.0	3	15.0	1	3.2	0	0.0	4
Dragging of fishing gears by tawlers	0	0.0	8	40.0	9	29.0	2	7.4	19
Entanglment of gears at the bottom	0	0.0	1	5.0	3	9.7	0	0.0	4
Fire on board	0	0.0	0	0.0	0	0.0	0	0.0	0
Fire (canoe on the beach)	0	0.0	0	0.0	0	0.0	3	11.1	3
Explosion	0	0.0	0	0.0	0	0.0	6	22.2	6
Falling in /out of the canoe	2	11.8	0	0.0	0	0.0	3	11.1	5
Injuries	4	0.0	66	0.0	7	0.0	18	0.0	95
Piracy	0	0.0	1	5.0	6	19.4	7	25.9	14
Others	0	0.0	0	0.0	4	12.9	3	11.1	7
Total	17	100.0	20	100.0	31	100.0	27	100.0	95

NOTE: Data is available at IDAF level only for the countries mentioned above.

Boat capsizing is an important cause of accident. As a result, the survey recorded 27 cases of capsizing distributed in seven countries for a period of eight years. (or an average of almost 6 capsizing per country per year).

A complementary survey will enable oneto identify more cases of capsizing whose declaration never reached the Authorities.

19 cases of 'dragging of nets' were recorded as valid for a period of eight years by the present mission for the seven countries concerned by this survey.

Grounding due to unfavourable meteorological conditions, and/or lack of attention or lack of knowledge of the area was recorded in 6 cases.

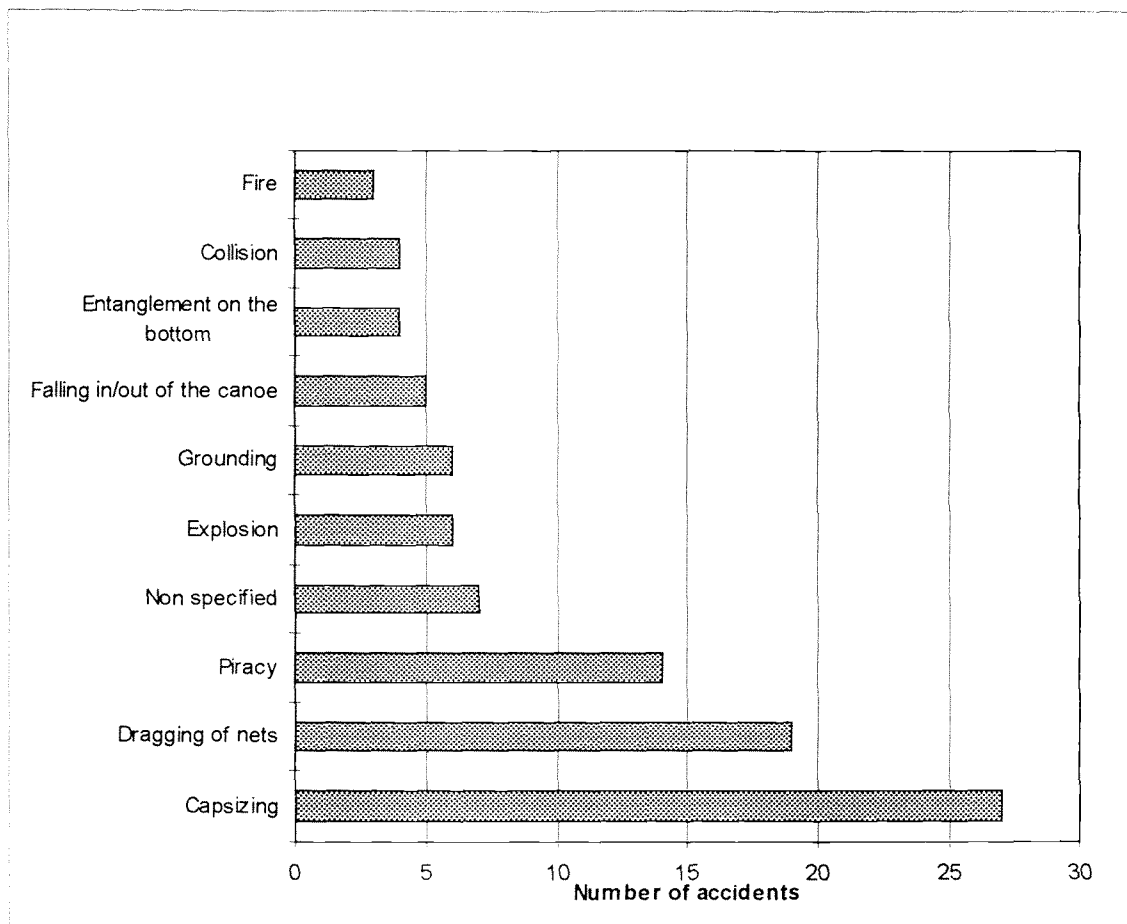
Entanglement of fishing gears sometimes causing the capsizing of the boat or loss of fishing material was recorded in 4 cases.

Fall in or out of the canoe was recorded as a cause of accidents in 5 cases.

We will note that : (the injuries, 95 cases ; and the fire while the canoe is still on the beach, 3 cases) underline the lack of attention of the fishermen for the basic safety precaution to be observed while filling up the fuel tank. (Fishermen smoke close to leaking tank, and provoke an explosion, without having of course any extinguisher on board or nearby).

Piracy (agression with weapon at sea) was also cited in 14 cases. The main target being the theft of the out-board motors. This phenomena should be kept in mind, specially along the Cameroonian coast in the areas comprised between the Equatorial Guinea and Nigeria border.

**Figure 2 : Main causes of the accidents**



## 9. COMMENTS ON THE SAFETY EQUIPMENTS ON BOARD

Considering the length and volume of the boat, and the very limited free space on board (whatever dugout or planked canoes), it is believed that many of the canoes did not have safety equipment on board.

In fact, very often the free available space on small canoes is so reduced that in them is given first priority.

Data collected are in most cases insufficient, and that makes it difficult to draw any sound conclusion on either the basic safety material present on board, the utilization of such a material on whether it was functioning well or not.



However, for information, the detail of the material which according to the declarations was present on board at the moment of the accidents is presented in table 10.

**Table 10** : Material on board canoes involved in accidents.

	R.D. Congo		Congo		Gabon		Cameroun		S. Tomé & P.	
	N° de cas	%	N° de cas	%	N° de cas	%	N° de cas	%	N° de cas	%
Etaient-ils à bord ?										
Life jackets	8	13.3	1	1.2	18	7.03	2	6.45		
Paddles/oars	10	16.6	13	15.6	25	9.76	4	12.9	9	81.8
Bamboo	1	1.66			16	6.25			2	11.2
Scoop			10	12	24	9.37				
Sail	1	1.66	1	1.2	4	1.56				
Tool box	3	5	7	8.43	24	9.37				
Emergency engine	1	1.66			1	0.04	8	25.8		
Emergency fuel	6	10	5	6.02	23	8.98				
Ring buoy					3	1.17				
Navigation lights	1	1.66	1	1.2	6	2.34				
Radar réflector										
Marker buoy for F. gears			3	3.61	9	3.51				
Flare up lights	1	1.66			2	0.78				
Hand torch			8	9.63	21	8.2	14	45.2		
Compass					2	0.78				
Radio marine transceiver										
First aid kit										
Drinking water	7	11.6	12	14.5	19	7.42				
Food provision	5	8.33	8	9.63	13	5.07	1	3.22		
Extinguisher	1	1.66			2	0.78	1	3.22		
Caulking material					5	1.95				
Knives	12	20	13	15.6	21	8.2	1	3.22		
Others/non identified	3	5			5	1.95				

NOTE : Data available at IDAF level only for the countries mentionnd above.

## 10. CONCLUSIONS

The availability or unavailability at local level of some materials and the limited distribution of some products related to safety at sea for artisanal operators explain in part the present situation.

It is evident that the general economic condition of the operators didn't allow them to equip their canoes with the most elementary safety material.

Other important factors are the ignorance of the users, and their lack of appropriate information about safety at sea.

These factors should be taken into consideration by competent services in limiting the accidents at sea, and sometimes ashore. Preventing the accidents will improve the conditions of the operators in ensuring greater safety in their profession at sea, in generating more income, and the continuing supply of protein to a large population.

## 11. RECOMMENDATIONS

(i) The general conditions in which most of the accidents occur demonstrate the magnitude of the problems associated with safety at sea along the West African coast and the urgency of starting a long term work on training/sensitizing the competent authorities.

(ii) Addressing the problems of safety at sea in an efficient manner would require training Fisheries Field Officers, who will be able to transfer their knowledge to the fishermen for applying minimum safety conditions on board.

A programme for training of trainers on safety at sea matters therefore appears to be a priority.

(iii) At Department of Fisheries level it will be convenient to investigate the possibilities of locally making a minimum of material for safety/security such as life jackets, ring buoys, etc.

(iv) The training and/or the participation at training courses or refresher courses of marine carpenters to improve traditional canoes should be considered.

(v) The training and organization of a group of fishermen in first aid work at village level will be appreciated by the communities concerned.

(vi) Data collection on accidents at sea should be done annually, the findings analysed and published in such a manner as to monitor the evolution of the situation and to eventually take appropriate measures.

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