



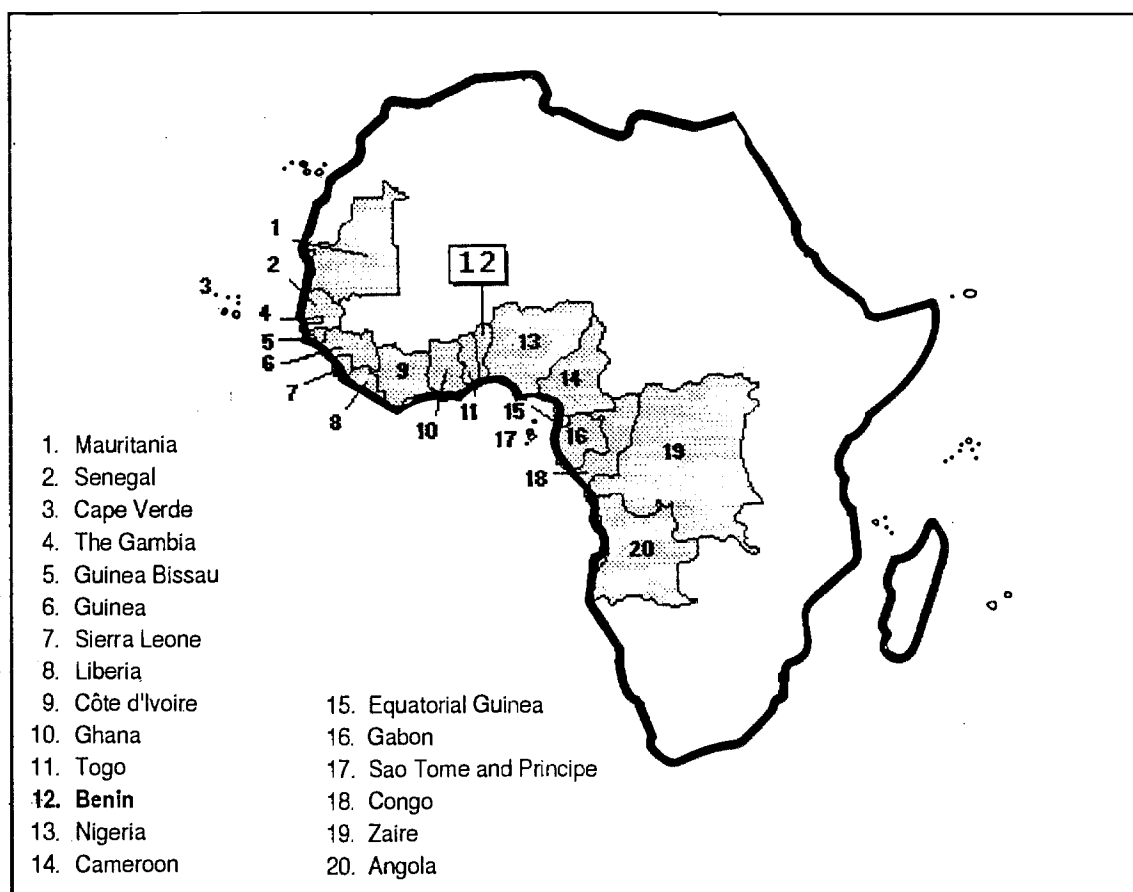
PROGRAMME FOR INTEGRATED DEVELOPMENT
ARTISANAL FISHERIES IN WEST AFRICA

IDAF PROGRAMME

Technical Report N° 98

February 1997

**Lessons Learned from Training
Artisanal Fishermen in West Africa**



DANIDA

DEPARTMENT OF INTERNATIONAL DEVELOPMENT COOPERATION OF DENMARK



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Technical Report N° 98

February 1997

**Lessons Learned from Training
Artisanal Fishermen in West Africa**

edited

by

J. Gallene
IDAF, Fishing Technologist

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For bibliographic purposes this document
should be cited as follows:

J. Gallene (ed.); Lessons Learned from Training Artisanal Fishermen in West Africa. Programme
1997 for the Integrated Development of Artisanal Fisheries in West Africa, Cotonou,
Benin. 92p., IDAF/WP/98

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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.

TABLE OF CONTENTS

| | Page |
|---|-------------|
| ABSTRACT | ii |
| 1. Lessons Learned from Training Artisanal Fishermen in West Africa by Jean Gallene | 1 |
| 2. <u>Benin Experiences</u> in Training Young Fishermen by Agbélélé Honoré and Tanimomo Pascal | 8 |
| 3. Training Nationals to be Fishermen: The <u>Gambian</u> Experience by Alhaji Jallow | 22 |
| 4. Report of Experiences in Training National Fishermen in Côte d'Ivoire by Mamadou Doumbia | 29 |
| 5. Training Young Fishermen in Mauritania by Hatti Maurice | 38 |
| 6. Experience in Training Fishermen in Nigeria: A Case Study by Adebiyi O.F. and C.E. Isebor | 49 |
| 7. Experiences in Training Fishermen and Fish Farmers in Sierra Leone by Mohamed Fouad Sheriff | 62 |
| 8. Togolese Experiences in Training Fishermen by Acakpo-Addra Yaovi S. | 75 |

ABSTRACT

Some countries in the region covered by the IDAF Programme have shown interest in training young artisanal fishermen and have consequently asked for the subject to be discussed during the tenth Liaison Officer's Meeting held in Togo from 9 to 10 December 1996.

Several years ago, the governments of some West African countries decided to take action in attracting the youth into artisanal fishing, especially by training them in fishing technology. The Programme decided to review the past and on-going experiences. To do so, a certain number of people, having worked within these training programmes, were asked to document their experiences. These case studies concerned Benin, The Gambia, Côte d'Ivoire, Mauritania, Nigeria, Sierra-Leone and Togo.

It is noted that these programmes aim first of all to increase production, improve the quality of the product, to reinforce safety at sea, and/or reduce dependence vis-a-vis on fish imports and foreign fishermen.

Whatever the duration of the training, the final results have often been limited. This is due to several factors, among which we can note the limited funds available when the project implementation is purely national. In some projects with external assistance, the training is often too short for the project to be able to get a sustainable impact. However, the Fisheries administrations generally lack financial means to ensure the continuity of the training through their own extension services. Furthermore, these services often exist only by name, since in several countries of the sub-region, the Administrations do not have fishing technologists.

Some countries realized that the short training time is an error, and have remedied this problem by an increase in the time allocated for the practical training. Others simply limited or stopped the training for various reasons, such as defection of the trainees or the trainers themselves. Other countries affected by socio-economic and financial crisis cannot ensure alone, without external assistance, the sustainability of the training.

Finally, there are some countries where the lack of maritime tradition makes the task of the trainers difficult, due to the lack of motivation of the trainees.

The constraints and errors to be avoided are:

- bad selection of trainee fishermen;
- government's difficulty in settling the youth in rural areas;
- lack of follow-up and supervision of the newly trained and installed fishermen;
- acute lack of input;
- inadequate involvement of young fishermen in the choice of fishing equipment;
- lack of the right to take decisions by the young vis-a-vis the seniors;
- impossible or difficult access to credit;
- poor presence of native fishermen in some countries;
- indiscipline of newly recruited trainees;
- national administrations' contacts with fishermen often limited with regard to tax deduction, repression, etc, and indifference in case of conflict.

The Liaison Officers learned lessons from these training programmes, notably on the selection of trainers and beneficiaries. They realized the importance of the monitoring of the newly trained fishermen as a criteria favouring the success of these programmes.

They also noted the importance of a credit system for the newly trained fishermen, to help them in obtaining proper equipment at the end of the training, and suggested that the credit aspect be taken into account within the training components.

It has been noted that in several countries of the sub-region, the main marines resources are fully or over-exploited. In these conditions, the Liaison Officers suggested that an appropriate training be conducted on the FAO's Code of Conduct for Responsible Fishing.

Finally, they expressed their satisfaction with the positive experiences in Senegal and in The Gambia in training young people originating from non fishing environments.

The reports presented in this document will undoubtedly offer useful indications to the responsible authorities on the measures to be taken to make the fishermen training sustainable, and finally to get a better orientation of this kind of training.

Lessons Learned from the Training of Artisanal Fishermen in West Africa

by

Jean Gallene
Fishing Technologist, IDAF

INTRODUCTION

Authorities from different countries in the region have shown interest in training young artisanal fishermen and have consequently asked for advice from IDAF. Training in fishing technology has, however, been given these past years in various countries through projects and/or state or parastatal bodies such as:

- integrated fisheries development projects;
- maritime training colleges/schools;
- bilateral or multilateral financial organizations;
- non governmental organizations.

Conscious of the experience thus acquired in many countries in the region, the Programme asked 7 national experts to report on training activities these past years in their respective countries. Case studies included Mauritania, Togo, Sierra Leone, Benin, The Gambia, Nigeria and Cote d'Ivoire (table 1). This document is an attempt at briefly synthesizing these various reports and drawing some lessons from them.

1. TRAINING

1.1 Objectives

The objective of the training is almost always to contribute towards increasing fish production as well as improving fish quality at landing. The training also aims sometimes at improving safety at sea by providing better designed therefore more stable boats to fishermen.

The final objective is to make countries less dependent on fish importation and/or foreign artisanal fishermen to satisfy the increasing yearly-based protein demand. This results in improving the fishermen's standard of living as well as creating employment opportunities.

Increase in production, quantitatively and qualitatively, can be sought globally for all marine resources when they are less exploited (e.g. the Gambia), or for a group of particular species in order to diversify production (e.g. Togo, Benin).

To achieve these objectives, case studies show that authorities responsible for fisheries seek to train, most times in relatively short periods, a maximum of people either from the maritime world or not. The training of trainers is mentioned only once in the seven documents. This is the case of Cote d'Ivoire where fishing counsellors/instructors were trained to train farmer fishermen on the outskirts of Lake Kossou.

1.2 Trainers' profile

Trainers come from international organisations, NGOs, sometimes also from Research Institutes. They undertake the training of fishermen in collaboration with technicians from the Fisheries Department and/or organisations with consultants in integrated rural development. In some countries such as the Gambia, the government ensures continuity in training through technicians from the Fisheries Department by rotation in the villages.

National trainers are recruited either among staff from Fisheries Departments and Technical Colleges (the case of Nigeria) or among leading fishermen with solid experience of the zone and fishing techniques (e.g. the Gambia). Sometimes also they are recruited from young unemployed graduates often from the work place (e.g. Cote d'Ivoire). The time given for the training of trainers is generally very short and it has been observed with time that the training received does not always conform to reality - hence the massive desertion (e.g. Cote d'Ivoire).

Above all, the trainer must be willing to live the fisherman's or farmer fisherman's life in his surrounding and transmit his knowledge through work and example. In Cote d'Ivoire, for example, candidates with Primary school Year 6 certificate or 3rd year of secondary schooling are recruited among youths aged 21 at least. They must speak the local language, have a capacity for logical reasoning, be able to resolve real problems, possess learning aptitudes and be motivated.

1.3 Selection criteria and profile of trainee fishermen

Selection criteria for acceptance as trainee fishermen, mechanics or carpenters vary according to each country's structures and customs.

However, some common features can be found in all the countries, one of which seems to be that the age must be between 20 and 45 years even though older people sometimes participate. Some countries require that the trainees know how to swim. Another advantage is that the trainee should come from the fishing community. This is probably due to the negative experiences of those youth who are totally foreign to the surrounding.

One of the conditions for recruitment is that the trainee fisherman or mechanic must always be a national of the country. This can be explained by the very nature of the training which is to train national fishermen when artisanal fisheries is dominated by migrant foreign fishermen. However, in Benin for example, selection criteria did not consider the fishermen's nationality. They were based on an average age of 20 for the selection of the young fishermen who must be actively engaged at the time of recruitment.

1.4 Type of training

Generally, topics treated during training on land are fisheries and legislation, swimming and first-aid practice, canoeing, basic mechanics and maintenance, identification and knowledge of fish, mounding and mending nets, mounding other gear such as lines, long lines, and various traps, sensitization on fisheries studies, and basic fishing craft management. Course duration on land varies according to countries, from some weeks to 1 month in Cote d'Ivoire.

On the whole, training at sea consists of learning basic navigation and sea safety rules. Practical work involves and retrieving fishing gear, fish preservation on board, sometimes use of an emergency sail. The duration varies from some hours to weeks in Nigeria for example.

The number of courses and students per course varies greatly from one country to another (table 2).

1.5 Financing the training

Some countries, mainly those assisted by Japan, only benefitted from assistance in equipment (Benin, Gambia). In this case, demonstration costs were generally taken care of by the government. Nevertheless, in Togo, a Japanese assistance project included an operating budget of 1,720,000 CFAF. The remaining training costs estimated at 5,000,000 CFAF came from revenue generated by the trawler offered for the same project.

Some countries receive "mixed" assistance consisting of demonstration/training materials and an operating budget for the duration of the training. The operating budget guarantees payment of subsistence allowance to each trainee for the course duration (e.g. Sierra Leone). This allowance covers accommodation and food. Very often, these are projects financed and/or implemented by United Nations agencies (UNDP, FAO, etc.).

2. ACCOMPANYING MEASURES

2.1 Remuneration of trainers and fishermen

Study cases reveal that there are as many remuneration methods as there are training programmes and countries concerned (table 3).

In Togo, for example, a monthly allowance of 10,000 CFAF was granted to each trainee and 30,000 CFAF to trainers. Feeding was ensured in the afternoon as well as basic medical coverage during the course. In the case of the United Nations training projects, remuneration varies according to the importance of the amount allocated to the project. As a general rule, subsistence allowance is given to each trainee for accommodation and food.

Concerning the trainers, remuneration is based on a contract. It varies according to the qualification of the person recruited and the rules in force in the various administrations. If it is an NGO project, trainees receive a variable allowance according to the NGO's capabilities and sector of activity.

Attempts at remunerating trainees and/or trainers on the basis of catches at sea do not seem to be accepted (e.g. the Gambia, Cote d'Ivoire). This is due to the fact that artisanal fishermen generally do not like to wait for many weeks before being remunerated.

2.2 Access to credit for equipment

Few countries have structures that allow artisanal fishermen to benefit from credit to acquire a complete fishing craft (canoe, engine and fishing gear). In Cote d'Ivoire, for example, the National Agricultural Development Bank which was dealing with artisanal fisheries has been dissolved.

In Togo, a pre-cooperative type grouping received a fishing craft as subsidy/credit at the end of a course.

On Lake Kossou in Cote d'Ivoire, trainees received for their training, various equipment (canoes, nets, etc.). At the end, the equipment was assigned to the group made up of trainee fishermen from the lake to allow for collective use while waiting to have sufficient fund for new fishing equipment.

In the Gambia, in the context of the training assistance project financed by Japan, the Credit Unit of the Fisheries Department allocated on credit, a complete fishing equipment without necessarily requiring endorsement, groups made up of a minimum of 3 newly trained fishermen. Unfortunately, recovery problems reduce the Credit Unit's working capital. The total use of these funds does not make it possible therefore, for the last fishermen trained to benefit from the same conditions for the acquisition of a fishing craft.

2.3 Follow-up and refresher course

The general observation from these studies is, unfortunately, lack of follow-up at the end of the project. Even though good performances have been recorded sometimes by these training projects, results obtained have not always been commensurate with expectations with regard to the follow-up of accomplishments and their sustainability.

3. RESULTS

Whatever the duration, training results have often been limited due to various factors, one of which is the limited funds available when it involves a purely national implementation project, as in Nigeria. In some externally assisted projects, the training aspect was too short for demonstrations to have any sustainable impact. Moreover, fisheries administrations generally lack financial resources to ensure continuity in training through their own extension service. These services often only exist in name since in many countries of the region, the administration does not have fishing technologists.

In improving wood and fibre-glass naval construction and inboard motorization, the results are often mitigated (e.g. Nigeria). Motivation has not always been sustained by the authorities. With neither follow-up nor refresher course, impact remains globally limited.

Some countries realised that the short training period is an error and have solved the problem by increasing the time for practical training (e.g. the Gambia). Others simply limited or stopped training for various reasons such as desertion of fishermen or trainers as in Cote d'Ivoire where the training of fishermen on the dam lakes did not yield the expected results because of lack of motivation from local fishermen. Still many other countries, affected by socio-political and financial crises, cannot ensure alone and without external assistance, decent training that will ensure sustainability for the training received. Finally, there are some countries where maritime tradition renders the trainers' task difficult because of lack of motivation from the trainees.

The constraints and errors to be avoided are:

- bad selection of trainee fishermen;
- government's difficulty in settling the youth in rural areas;
- lack of follow-up and supervision of the newly trained and installed fishermen;
- acute lack of input;
- inadequate involvement of young fishermen in the choice of fishing equipment;
- lack of the right to take decisions by the young vis-a-vis the seniors;
- impossible or difficult access to credit;
- poor presence of native fishermen in some countries;
- indiscipline of newly trained trainee;
- national administrations' contacts with fishermen often limited with regard to tax deduction, repression, etc. and indifference in case of conflict.

Table 1: Characteristics of marine artisanal fisheries

| | Mauritania | Gambia | Cote d'Ivoire | Togo | Benin | Nigeria | Sierra Leone |
|---------------------------------------|------------|---------|---------------|-----------|-----------------------|-----------------------|--------------|
| Fishing potential (tons) | 635 000 | 152 400 | 62 500 | 12 800 | 13 400 | 120 000 | 190 000. |
| Artisanal fisheries production (tons) | 15 300 | 19 900 | 30 000 | 7 100 | 6 400 | 76 300 | 46 800 |
| Migrant fishermen | 25% | 73% | n.a | 65% | 55% | poor | n.a. |
| Extension service | yes | yes | yes | yes | yes | no | n.a. |
| Technologist | yes | yes | yes | no | yes | n.a. | yes |
| Training infrastructure | Nouadhibou | Bakau | Adiaké | 1 trawler | 2 workshops + 3 boats | many training centres | yes |

Table 2. Characteristics of training in fishing technology

| | Mauritania | Gambia | Côte d'Ivoire | Togo | Benin | Nigeria | Sierra Leone |
|----------------------------------|---|--|---|---|---|--|---|
| External assistance | UNDP-IDAF-FAO-CFD-FADES-ADB-GTZ | Japan-FAO-Italy | FAO-FIDA-FAC-FEM | Japan-FAO IDAF | FAO-IDAF-GTZ | Japan; FAO-FIDA-UNDP-ECOWAS | FAO-AFCOD-GTZ |
| Number of trainees per training: | 500 per CFD in 1989 + 150 per FAO-FIDA from 1994 - 96 | 100 in 2 courses, 1984-94 1994-96 | 2000 on the lakes. courses of 6 to 9 months - 1971-79, 1981-90 | 19 out of 15 days, 1989 and 35 out of 8 months 1989-90 | 522 in 13 courses from 1963 to 1992 | FAO/UNDP, 15 in 1986, 21 in 1990, 20 in 1993, 14 in 1994. Maritime Fisheries Technological College, 3500 from 1969-76, Federal Fisheries School, 2500 from 1970-95 | AFCOD, fish techno. 18P. in 1992. Outboard engine repair, 6P in 1991. Project Bo/Pujehun 10P. 1989-1991 |
| Number of training | 3 | 2 | 3 | 2 | 13 | n.a. | 7 |
| Training on land | General education, techno. fisheries, navigation, management, construction of wooden and fibreglass artisanal fishing craft | General education, techno. fisheries, navigation | Seamanship, fishing techno., hygiene, ichthyology, processing after catch, etc. | Basic tech. echo-sounder use, canoe preparation for fishing, seamanship | Seamanship, fishing techno., navigation bases, safety at sea, boat and gear maintenance | Seamanship, mooring, mechanics, echo-sounder, net assembling, palangers, coastal navigation, first aid, etc. | Seamanship, fish technology, mechanics, management and basic investment |
| Training at sea | Seamanship, navigation, safety | Fisheries, navigation, safety | Fisheries and navigation on lake | Fisheries and navigation and handling | Fisheries, navigation, echo-sounder, safety | Fisheries, navigation, handling | Coastal navigation, handling of nets and other gear |
| Boat(s) used | Yaws and canoes | Senegalese fibreglass canoes | trainers' small canoes | Ghanaian canoes and trawler | Ghanaian canoes and fibreglass boats | local canoes and search boats | local fishing boats |

Table 3 Follow-up and accompanying measures

| | Mauritania | Gambia | Côte d'Ivoire | Togo | Benin | Nigeria | Sierra Leone |
|--------------------------|---|---|--|--|--|---------|---|
| Remuneration of students | In shares | monthly allowance on net sales | revenu of catches (personal contribution for credit to BNDA) | 10,000 CFAF/month per trainee fisherman; in shares | In shares | n.a. | subsistence allowance |
| Incentives to trainers | n.a. | monthly allowance on net sales | n.a. | 30,000 CFAF/month per trainer | civil servant's salary + per diem per night spent at sea | n.a. | n.a. |
| Access to credit | No, 1 share of net revenue paid in to an account as initial contribution of best students | Yes, Credit Unit of Fisheries Departments for groups of 3 fishermen minimum | Limited access to BNDA | Yes for 1 group of fishermen | Yes, official structure installed | n.a. | Credit/loan system installed by project for equipment and pond construction |
| Re-imburement | n.a. | difficult | very difficult | n.a. | n.a. | n.a. | n.a. |

* n.a. = information not available.

Benin Experiences in Training of Young Fishermen

by

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1. INTRODUCTION : Rationale for the Training Programmes

With a coast line extending over 125 Kms, the surface area of the Beninois continental shelf hovers around 3100 Km². Given its narrowness and that of Republic of Togo bordering it on the West, the available resources are used by both countries with an estimated 19 000 tonnes for Bénin (Report on surveys with the R/V DV Fridtjof Nansen - Institute of Marine Research, Bergen january 1983).

The types of fish available are quite dispersed with a predominating number of pelagic fish (Sardine, Mackerel, Anchovy). The major demersal types are dorades, tilapias, soles and groupers.

The investigation that were carried out bring out the fact that the bulk of the resources is available in the coastal fishing grounds which is the fishing zone used by some 731 units of artisanal fishermen with or without engine propelled pirogues. These units which regroup almost 3.237 fishermen distributed over 82 villages along the coast produce on average 90 % of the catch at sea but in this respect, a lot of room for improvement still remains.

Seine, gillnets and hard lines are usually the fishing gears that are used on ghanean monoxyle pirogues.

Industrial fishing on the other hand, is characterized by a fishing fleet of trawlers (fish and prawns) dominated by foreigners who use a very scanty number of Beninois.

In these circumstances it appears very clearly that the development of fishing can only be envisaged in the artisanal sector. This is all the more justified by the succession of various forms of technical assistance which went on in this field, where the sustainability of experiences remain the major concern of aid donors, whatever the approaches one adopts.

The unstainability of the methods is not as one might be tempted to think only linked to the availability of financial means but also and above all, to the technical and professional capabilities of those who are in charge of importing them. Among these people the fishermen indeed come first.

The beninois artisan fishermen are professionals who have a routine knowledge of their job. They are intelligent but their educational level is low and their technical knowledge does not allow them to meet the new challenges of fishing that training alone can help them harness. This

training when imparted to the youngsters yields good results that can facilitate sustainability. that is why in Benin the various programs for seamanship, diversification of fishing techniques and mechanisation were designed and implemented through the training of young artisan fishermen.

2. DESCRIPTIVE REVIEW OF THE TRAINING PROGRAMS

If the initiation of Beninois fishermen to new techniques dates back to 1960, it is with the model project for the development of integrated artisanal fishing FAO/SCP RAF/192/DEN though, those real training programs covering all the fields of the profession were implemented. The training of young fishermen in Benin encompassed several fields.

It was organised as an on-the-job training program or as regular training courses.

2.1 Seamanship and Mending

If it is true that the majority of fishermen perfectly practice some knots which they learnt through routine, their knowledge remains however quite limited. Quite often, they don't always know how to adapt their knowledge to specific situations.

Seamanship for instance still remains the core of all fishing technologies. It is therefore indispensable that before any innovation, all fishermen interested in the various steps of the programs for diversification of fishing methods should harness it first.

The training was conducted in 1985 and extended over three months. It was carried out on the field in the five villages that were targeted by the Model project. Although the adults showed eagerness to learn, much more for fun than for broadening their knowledge, it was only the youth between 18 to 30 who were really monitored and trained. Some of them were educated but majority was not. the training was organised around the practice of the most common fishing knots:

- * Connecting twisted twine with monotwine
- * Knots on hooks
- * Splicing on cable and ropes
- * Fishermen knot
- * Bow line and double bow line knots
- * Running bow line knot
- * Sheepshank knot etc.

As far as mending is concerned some of the fishermen who participated in the training have now a good mastery of that technique. But for the majority of them we had to insist on notion related to different types of nets, the size of the threads and the quality, the orientation of nets and mending. Some notions on b and t cuts, increasing and reducing the size of nets were taught as a preliminary.

2.2 Compass-Aided Navigation

Traditionally, the Beninois fishermen venture on sea very close to their village, using some land bearing like the sun, the moon and the stars to find their way and they usually don't venture too far from the land.

Their training in hand lines and gillnetting on coral reefs requires that they venture to fishing grounds 10 to 20 nautical miles from the coast.

The need to use bearings other than land marks became imperative. A limited number of fishermen followed this course, those who did had a certain level of education.

The training touched on the principle of compass usage, the location of the four cardinal points, compass course, opposite course, retrieving one's way on the sea, the direction of land.

The first phase of the training program took place on land, and continued at sea, during hand lining practice, and gillnetting on rocky bottoms.

2.3 Fishing Techniques

2.3.1 Echo Sounder and Hand Lining on Rocky Bottoms

The first experiences in hand lining in Bénin date back to 1963 when 188 local fishermen underwent a training given by Senegalese professional Hand liners, following an agreement signed between the two countries on November 1962. At that time, the social taboos and the absence of engine, forced beninois fishermen to restrict themselves into a radius of 3 nautical miles to practice their trade.

By tradition, the Beninois fishermen fish exclusively with purse seine, gillnet on silt and sand bottoms.

These fishing techniques are seasonal and occupy them only for a few months in the year. It therefore justified the need to find a complementary activity which could cut their time of idleness. That is how the idea of diversifying the fishing methods came about.

Equipped with their training in seamanship, the fishermen learnt to set their own lines during the first stage of their training and the plumb bob was utilized to detect sea bottoms. Thus with the utilisation of the echosounder they realized the advantages that this fishing aid constitutes.

Easy detection of different types of bottoms, drastic cutting of fishing time.

Keeping records of the images of the marine bottoms, possibility to relocate a specific fishing area.

Easy maintenance.

Better yield.

Given the unavailability of ice in the villages where the first phase of the training took place, the training team was obliged to operate on daily trips of a few hours at sea. Already at that time some situations one could least expect came up.

The catches in terms of species (red tilapia, dorade, grouper) were unknown in the community.

The price they were offered for the fish were those applying for pelagic species.

According to the opinion of those who tasted the fish the sardine were the most tasteful.

At this stage it appeared that the fishermen could not grasp the benefits that the adoption of the new techniques of fishing could bring them.

With the arrival of the project boat, a cygnus marine named FAO 112 everything was set to help the fishermen continue their training from Cotonou. In the capital, the fish was sold at its real price 600 CFA F per Kg, and one can have all the infrastructures of goods and services one can need. That's why with the constant availability of ice and fuel and the good price paid for the fish, the fishermen gradually accepted to go on trips of two to three days, in order to increase their gains. By rotation, the different teams from the five villages selected for the training stayed in Cotonou to put into practice their knowledge, and get used to the requirements of this technique.

2.3.2 Multimono gillnetting on Rocky Bottoms with the Help of Compass and Echosounder

Along the Bénin coastline, almost 10 nautical miles from the shore, there is a coral reef which had never been tapped until then and which was abundant with choice fish like red tilapia, dorade and groupers. The idea of fishing on these grounds with multimono gillnets was designed to meet the following preoccupations:

- * Handling as practised so far by the team under training was being practised in relatively remote fishing grounds out at sea, 10 to 20 nautical miles away; besides the necessity to extend the duration of the trips in order to reduce costs had become obvious for the fishermen themselves. It was then possible to seize the opportunity to set gillnets and have a combined fishing with hand lining. This with the same costs on a trip, production will increase.
- * At that time it was only twisted twine nets which were available on the Bénin market. Elsewhere the nets with multimono filament had already made a whole difference with their superior fishing capabilities and the project wanted to introduce them to the Beninois fishermen.

The nets were then set in the evening and retrieved in the early hours of the morning and the rest of the time was used for hand lining at break and at lunch time.

In order to be efficient, the practice of this technique in the conditions obtained in the Benin fishing grounds should be enhanced by a perfect mastery of the compass and echosounder especially for a fisherman who doesn't know this environment.

Within a short time the young men who were trained on how to use these instruments became very artful in detecting the favourable bottoms and setting nets across the coral reef.

But retrieving nets of 2 000 m long set at a depth of 52 metres is not easy and can only be carried out by sturdy men. this exercise more often than not, wears the boys out, and considerably reduces the time devoted to hand lining.

Tearing of nets is sometimes very serious, and requires the assistance of several menders and additional cost.

Unfortunately, the newly introduced nets are only available at the level of the project which cannot afford to market them.

With the arrival of the Sakana boat and its transfer to the fishing section of the model project in 1990, the training at compass use and echosounder continued together with the sourcing of new fisheries near Togolese and Nigerian borders.

Experimenting the emergency sail type called "lateen sail" and training of the boat crew were made possible with the assistance of the DIPA Program.

2.3.3 Long Line Fish and Sharks

The long line is not so much of an innovation in the fishing habits in Bénin, the relatively low cost of this tackle compared to the net and its simplicity led the training team to start the training of a group of 8 fishermen on board the FAO 112 and a Ghanaian pirogue.

*** Long line for fish**

It is sometimes practiced by some rare fishermen very close to the coast for fishing sea brims. During the practical training the tackle was set near coral reefs. This exercise had to be stopped though given the poor result and the breakdown of the major and standby engines.

Nevertheless, the fishermen had the time to learn how to fix this tackle and get used to the fishing operations.

*** Long line for sharks**

This type of fishing is widely practised by Ghanaians. They use for this purpose nets or snoods fixed on the float of shark nets. The first actions of the Model Project GCP/RAF/192/DEN date back to July-September 1987 where a derivation long line of 18 hooks was utilised with an average yield of 33 % (6 pieces for 18 hooks). The number of hooks was later on increased to 60. At that time when there was no buyer of dried fins, sharks were sold whole to wholesalers who would fix the price for it. These attempts were called off since the proceeds did not meet the running costs.

Later on in 1990 the sharp demand for dried sharks' fins and the existence of a market for shark meat which is usually smoked encouraged the project to start the training of 4 young fishermen to take on this type of fishing. The training program ran over three months. The average yield of 4 % proved to be insufficient to sustain an operation which was supposed to be self financed.

2.3.4 Hatches

In view of diversifying the fishing tackles and in order to give to the farmers the tools for a rational tapping of the available resources, hatches of rectangular and cylindrical forms were built with twisted iron bar of 12 mm in Diameter.

From June to July 1987 a team of four fishermen set the hatches at night on the coral reef and retrieved them the next morning. Throughout the training period, the catches were solely composed with murenas which abounded in the fishery and which fed on the rare fish which got trapped. Some cuttlefish were also caught. The exercise was then discontinued on the conclusion that this type of fishing could not be recommended in the conditions which prevailed in Bénin fisheries.

2.3.5 Trawl

One of the major innovations the technical assistance to the development of fishing introduced into Bénin, was the motor propelled monoxyle pirogues by the DIPA program, under the model project.

The largest part of the resources which is mostly available within the coastal fisheries unfortunately attracts the industrial units which make good gains there. Alongside the struggle the government is waging against these big predators, the development of trawling with a pirogue could help increase artisanal production and encourage private investors.

Capitalising on the benefits of Diesel propulsion (strength and endurance) some sessions of practical training were conducted in February 1987 with a group of 8 fishermen. They participated to the following activities.

- Building of panels
- Assembling the different components of a trawl
- Trips at sea during which they were coached on trawling.

In spite of the good results that were achieved, the trips at sea were interrupted as a result of the southerly winds which impelled regular trips. Engine failures which create a heavy dependency on Europe for spare parts was dramatic and put an end to the exercise.

Shortly afterwards, in 1990 the training continued on board the polyvalent Sakana boat which was part of the Japanese gift to Bénin. It was stopped after a month, given the fact that the proceeds from the sales could not cover the cost of the trips.

2.3.6 The Mechanization

The purse seine is widely used in artisanal fishing in Bénin. This technique just like all those which had been introduced as part of the training program could not be used without a motor. Most qualified mechanics are based in the capital where motorisation is highest in the country and there, spare parts are largely accessible.

At the level of the villages, the constant breakdowns and maintenance are left to the approximative skills of the fitter mechanics who are in fact more fishermen than mechanics, and they also usually operate by trial and error. In such situations the training of young fishermen to acquire some mechanical skills and be able to maintain comfortably their motors became necessary.

All this and the availability of spare parts became a major concern for the fishermen themselves. The training which 26 young fishermen enjoyed from 1984 to 1986 was essentially practical in content and centered on:

- Assembling and dismantling the magnetic flywheel
- Carburetor
- Spark plugs
- Water jump
- Propeller
- Piston, connecting rod, etc...

With the introduction of three Diesel propelled pirogues in 1996 and the use till 1988 some training sessions were organised for those who initially benefitted from the first course that was offered. Unfortunately, this second part did not raise any enthusiasm on their side and the interest waned.

2.3.7 Construction of Isolated Boxes in Monoxyle Boats

With the introduction of fishing in remote rocky bottoms 10 to 20 nautical miles away from the coast, it has been proved that this type of fishing could be profitable only if the duration of the trips were extended to three nights at sea. The need to bring to the shore fresh fish of good quality required adequate means of conservation.

On the spot, the Ghanaian involved in hand lining use wooden boxes which they wedged in the middle of their boats to conserve their catches. Unfortunately, the way those boxes are designed increased a drop in cold temperature because of the way they close and also because of the exposure to the sun. Another drawback was the inconvenience it causes because of its location inside the pirogue and the reduction of working space it entails.

The objective pursued with the installation of isolated boxes in the boats was simply to improve the conservation system on board these artisanal fishing units. In the context of these objectives and on the backdrop of what was achieved through the project activities, this innovation was to meet very precise criteria:

- Not to modify dramatically the traditional structure of pirogues.
- Not to disturb the fishermen in their traditional fishing operations.
- Not to disturb the practice of the new fishing techniques introduced by the project.

Given all these considerations, the half-decked part of the "WATCHA" pirogue (Pirogue with purse seine) was converted into two isolated ice boxes, which were joined at the bottom of the boat. Three watertight bulkheads in marine plywood, 30 mm thick which were later replaced by iroko planks, 27 mm thick were hewed and wedged in the bottom of the pirogue on a depth of 3 to 5 cm.

A high pressure PVC pipe of 70 mm in diameter goes through the partitions and facilitates the evacuation of water from the front to the rear of the pirogue. To consolidate the deck in plywood of 78 mm, some reinforcements in mahogany were placed like iron bars. To facilitate the off-loading of the fish the hatchways were placed in the middle of the deck. Some polystyrene board of 6 mm thick, isolate the partition / deck / hatchway.

To finish several layers of painting, the last one with sand were sprayed on the deck to strengthen the plywood and make it skid-free.

In spite the fact that these improvements do not modify at all the shape and the structure of the pirogue it had been necessary to demonstrate to the fishermen using the purse seine, that their pirogue had remained the same "WATCHA" they've known.

Three carpenter - fishermen were trained to build the boxes.

The monitoring of the pirogue with built-in isolated boxes revealed some problems of leakage between the boxes and a tendency for the bottom to rot at the level where it had been dugged to insert the partition.

2.3.8 Safety of Artisan Fishermen at Sea and Emergency Sail

Fishing at sea in Bénin is dominated by artisan fishermen who work mostly in conditions which they don't fully assess. Each year some fatal accidents at sea are noted ; the causes more often than not, are banal and are due to natural factors or to the poor performance of crews.

In the absence of a law covering artisanal fishing, some actions were conducted in order to reduce somewhat the accidents at sea. In 1989 emphasis was put on sensitization, information and awareness of fishermen and shipowners and some research on emergency equipments adaptable to artisanal fishing conditions. The actions which were undertaken could be summarized as follows:

- Sensitization through rural radio programs.
- Placards reminding the fishermen the material and equipment they should carry before any trip at sea.
- Experimenting of life-vest made out of kapok tucked and sewn in oil-cloth.
- With the assistance of DIPA, researches are still continuing with floating synthetic material of the 20 mm cut into life-vest.

Emergency sail "Lateen sail" type.

The boats offered to Bénin government by Japan do not have an auxillary propulsion system. In order to increase safety measures at sea for the crews the department of fisheries requested DIPA to study a type of emergency sail adapted to the size of the boat that was being used. That's how the opportunity to train a crew of 10 people to man it, was seized; the engine of the boat was in good condition with the help of the fitter mechanic, the sail which was loaded on the boat was not used. Made out of rice / wheat empty bags it eventually rot under the effect of heat and had not been replaced.

III. CRITICAL ANALYSIS OF THE TRAINING PROGRAMS

Although some good performances were achieved, the results obtained did not always meet expectations, as far as the follow-up and sustainability of the achievement were concerned, this shortcoming could be attributed to the complexity of the artisan environment and its often unpredictable nature. Certain aspects of the implementation process of the training programs are delicate and could constitute serious sources of difficulties. Among these aspects one can mention.

3.1 The Identification of Training Needs

The training programs were designed based on investigations which were supposed to identify the real needs of the fishermen. The needs put forward by the fishermen rarely concentrated on the need to bridge a gap or improve skills ever when from the technician point of view training appears to be a must in the development process.

The training teams therefore were often obliged to anticipate the training needs of the fishermen without ever being able to convince the future trainees in advance. When the need for training is not expressed by the fishermen themselves this kind of dampen their enthusiasm and leads them to think sometime that the instructor needs to dispense a training more than they need to receive it. In such a situation which is rare we have to confess it, the presence of trainees is much more justified by some immediate interest more than by a desire to learn.

3.2 Organisation and Progress of Training Sessions

Fishermen are generally attached to their environment where they live in harmony peace and stability. To move them from their traditional environment for training purposes, creates a certain upheaval in their midst and the need to return to their families leads to frequent absences or they simply drop out of the program.

In general, the technician team in charge of executing the programs of training is based very far from the villages. Their presence among the fishermen, takes at least a few hours during which they try to impart their knowledge. Contrary to habits in town, the fishermen do not have the notion of time, planning and the respect for commitments. The respect for a program established in advance does not exist and at each visit the instructor always looks like a foreigner. It is when he arrives in the village that people remember that there is a training program they are involved in. It is just as if one has to always start and obviously, this leads to massive waste of time.

Anyway the habits of the fishermen and the respect for tradition no matter how the instructor looks at them, always remain a priority in relation to the training sessions. In order to be correctly implemented, the training program should be organized in a location different from where traditions, customs and daily fishing activities prevail.

Finally it is the fishermen who, they might not know it, impose their timetable to the training team.

3.3 The Constraints

3.3.1 Administrative and Financial Constraints

The officers in charge of implementing the training programs are forced to tow the financial and administrative limits that the duration of the project and their budget impose on them. When for some financial reasons the material and / or the equipment of a fisherman is used for the training this creates a kind of dependency which could prejudice the normal process of the training programs.

The administrative provisions applying within the organisations which the fishermen could not understand nor accept do not harmonize at all with the realities on the field. How can you make a fisherman or a resource person which has offered his skills and knowledge that you are not allowed to let him ride with you in a car that is put at your disposal for the needs of the training program. Some cases have been identified when the trainee out of frustration just dropped out of the program. On the other hand fishermen yet do not know how to use the favours that you grant them for good human relations and they tend to abuse them.

3.3.2 Traditions, Customs and Organisation of the Environment

Respect for tradition is something which matters very much for fishermen and consequently the trainers themselves have to take it into account to a certain extent. There are instances where this constraint negatively impacts the implementation plan of the training programs.

The owner of a pirogue for whom the fishermen are working, has a strong influence on them as well as on their families. In this case, it is his opinion which prevails against that of the trainee who is much more eager to insure his place among the crew on the unit that supplies his daily bread, than increasing his knowledge or bridging a gap. The need to train the fishermen will therefore depend on the conviction of the owner of the boat who happens to be in most cases the head of the family. The instructor should therefore be tactful and diplomatic, to bring him to accept and encourage the training of his team in a field that he himself is not conversant with.

3.3.3 Complex of Superiority

The fact that a fisherman is generally born of a father and a grand father fishermen and he had always practised this activity all his existence develops in him technological superiority complex in relation to any other individual who does not belong to his environment. He has always lived in isolation and he has the feeling that he has nothing to learn from anybody whoever that person might be. Furthermore, right or wrongly, he does not trust anybody and wants to have concrete results before he could convince himself of the choice to make.

Thus, in order to convince him, the trainer should first abundantly prove that he belongs to the fishing world by demonstrating his professional skills. Fishing being an unpredictable activity, if by misfortune the first attempts do not prove satisfactory, the trainer heavily risks to lose a credibility he had not even got time to establish yet.

3.3.4 Follow-up

Most training programs were implemented. Unfortunately in certain situations, the training and the follow up lasted only throughout the training period or at best during the period the projects were implemented. Just like in most countries, the experiences of Bénin in training were focalized on the youth for good reasons. But these young men have only the strength of their arms and their know-how without any financial possibility to acquire the material and equipment they need to put into good use what they learnt. The most edifying example is that of some fishermen after their training in hand lining and gillnetting on rocky bottoms with an echosounder and compass. They were very stimulated by what they learnt but they could not put it into practice for the simple fact that they do not have the power to make decisions. The shipowner who blessed

the implementation of the program did not bother to adopt it and this prevented any follow-up. To adopt it would mean to conform to the conditions which are favourable to its implementation which require that he should establish in town with his family to monitor his unit, and this, neither the project nor any local authority would encourage.

In this precise case, the diversification of fishing techniques in Bénin has become an innovation which is at variance with the development level of the community. Consequently at the village level, there could not be any follow up nor any sustainability.

With the newly trained young men, the skills they acquired remain available in the villages but they could be superseded by a further step into development.

As for the other techniques (hatch trawl long line for shark and fish) for which the time of training for the fisherman has been reduced for various reasons, the conditions for technico economic yield could not be established for lack of complete and reliable statistical data. This gap will soon be bridged by the department of fisheries program of activity.

The training in hovercraft mechanic enjoyed a better follow up with the establishment at the village level of a central store for procurement of spare parts and a mechanical workshop by the department of fisheries which is continuing to make the safety of fishermen at sea a major preoccupation.

IV SUGGESTIONS AND RECOMMENDATIONS

In the light of Bénin experiences in the training of young fishermen a few recommendations could be made to increase the efficiency of future actions:

- * Adapt the training to the real needs of fishermen and the development level of the community. This would facilitate follow up and an eventual sustainability.
- * To integrate the fishing environment. The instructor will better win the confidence and trust of the fishermen by living in their own environment. Thus, he will no longer be considered as a foreigner or as a newcomer, each time he enters the village.
- * The training program should not be systematic and classical with an administrative time-table. It should be conducted without the fisherman noticing it himself, without that vertical approach between teacher and trainee. This will take care of susceptibilities.
- * The training program will be more efficient if it were conducted as an exchange of knowledge and a supply of technologies. It could be carried out by integrating it to the normal activities of the fisherman. This will guard against upheavals.
- * Separate the experiment from training per se. The risk of losing one's credibility after a false start is high especially if before that the instructor had not shown any proof of his skills.

- * During the practical which follows the training session, give responsibilities to the fishermen. In this way responsibilities will be shared at the result level.
- * Avoid any dependency on the fisherman especially as what relates to his equipments and materials.
- * To the extent that it is possible, implement the training program in the framework a of community development program which takes into account all the problems that are linked to the life of the fishermen. Fishing is just a part of their life which should not be approached in isolation.
- * Never make promises you are not sure of keeping.
- * To the extent that it is possible, bring the fisherman to make the first step and whip up his interest by proving that the new method is efficient. Fishermen are very opportunistic and will imitate what you are doing without ever being one of your trainee. The training program could well take place without any class being organised. All feelings of superiority and inferiority are thereby completely overcome.
- * Ensure and guarantee the follow up of the actions undertaken and the methods imparted. In case the possibilities should exist, give fishermen material and equipments they need under a loan scheme to allow them put into practice what they had acquired.

ANNEX 1: List of trainers

1. LEGURUN Jean-François Technologiste des Pêches
C/O F.A.O
2. TANIMOMO Pascal Technologiste des Pêches
Direction des Pêches - BENIN
3. AGBELELE Honoré Technologiste des Pêches
Direction des Pêches - BENIN
4. QUENUM Lambert Technologiste des Pêches
41 Rue le Touquet, FRANCE
5. DOSSOU Etienne Pêcheur Professionnel
B.P: 1960 Cotonou- BENIN
6. KOUKO Cocouvi Ligneur Professionnel ghanéen
B.P: 1960 Cotonou - BENIN
7. TOGBOSSI Xavier Maître Mécanicien
Direction des Pêches - BENIN
8. AZO Justin Maître Menuisier
B.P: 1960 Cotonou - BENIN
9. GIANI Emilio Technologiste des Pêches
C/O F.A.O
10. COACKLEY A.D.R Architecte Naval
C/O F.A.O
11. HOLLER P.T. Technologiste des Pêches
C/O F.A.O
12. PATENAUDE Marc Maître Mécanicien
C/O OCSD Cotonou
13. SHEVES G.T C.T.P Projet Modèle
C/O F.A.O
- 14 GALLENE Jean Technologiste des Pêches
C/O F.A.O DIPA Cotonou

ANNEXE 2 LIST OF FISHERMEN TRAINED

| SECTION | FISHERMEN TRAINED | PERIOD |
|------------------------|--------------------------|---------------|
| * Hand lining | 188 | 1963-1964 |
| * Seamanship mending | 64 | 1984-1986 |
| * Navigation | - | " " |
| * Compass | 15 | " " |
| * Echosounder | 15 | " " |
| * Hand lining | 82 | 1984-1986 |
| * Gillnetting | 82 | " " |
| * Long lines for fish | 6 | July 1988 |
| * Long line for sharks | 10 | 1990 |
| * Hatches | 6 | 1988 |
| * Trawl | 11 | 1987 |
| * Mechanisation | 30 | 1984-1986 |
| * Sail | 10 | 1992 |

Training Nationals to be Fishermen: The Gambian Experience

by

Alhaji Jallow
Socio-economist, IDAF

Introduction

The potential of the fisheries sector as a major contributor to the Gambian economy was realised immediately after independence in 1965. By 1967 a Fisheries Division was created in the then Ministry of Agriculture and Natural Resources. This Division offered basic extension and credit services to artisanal fisheries operators. Its meagre effort attracted a need for a more concerted public sector involvement in the management and development of the fishing industry. The Government reacted by enacting a Fisheries Act in 1977. This Act established a technical Department of Fisheries and strengthened it with regulations and clear objectives; one of which is to increase employment opportunities in the sector.

The industry continued to grow through public and private sector efforts. The growth, however, was due largely to the contribution of foreign fishermen who constituted 60 per cent of the total number of fishermen in the country in the 1982 and 1984 frame surveys. The 40 per cent Gambian involvement became unacceptable to the Department as a long term sustainable production base, considering the fragile state of foreigners who can return to their respective countries at any time that their economic and/or immigrant status is threatened.

Realising the slow pace of the natural Gambian involvement the Government chose the direct intervention policy option. This required the training of Gambians to become fishermen and effectively compete the foreigners who they can also replace if the need arises. The Department of Fisheries took up the challenge to train Gambian youth in fishing in April 1984. The initiative was facilitated by the arrival in 1982 of a large quantity of fishing material from the Japanese Government as a Grant-in-Aid. A local masterfisherman started the training at the coastal fishing village of Tanji with inputs from the aid materials.

At the request of the Gambia Government, the Japanese Government directly contributed a Fishing Gear Technologist and technical assistance materials to the programme in 1986. A Fishing Gear Unit was established the same year and has since been supervised by the Japanese Expert; who is assisted by a Gambian counterpart. This Unit is responsible for the training programme. The coastal villages of Bakau, Brufut, Batokunku, Sanyang, and Kartong have now been included in the programme.

Gambian youths have been trained now for eleven years. But this paper reviews the ten years of operation to identify the problems and weaknesses in order to suggest possible changes and inputs that can improve the programme into the second decade that has just begun. The structure, income and allowance system, problems, and recommended changes have been covered herein.

1. Training Structure

The programme trains Gambian youths in fishing technology, fish capture, gear repair and maintenance, boat and outboard engine handling, and other fishing related techniques. Under the supervision of the Fishing Gear Unit the trainees are trained directly by selected instructors, who receive technical support from the expatriate Fishing Gear Technologist and the local masterfisherman.

i) Trainees

The trainees are usually selected from the coastal village in which the training programme is based. They are grouped into fishing units of at least 3 trainees depending on the fishing method being applied. Due to the very high demand from the coastal, and recently urban, youth the selection does involve interview sessions to screen the applicants. The present and past profile of the trainees is given in Table 1 and 2 below;

Table 1 Training Programme 1994 - 1996

| Training Site | Canoe Type | No. of Trainees | Fishing Method | Engine Type |
|----------------------|-------------------|------------------------|-----------------------|------------------------|
| Bakau | 13 M FRP | 8 | Encircling Net | Yanmar 27 HP |
| Brufut | 9 M Planked | 4 | Bottom Gill Net | Yamaha 15 HP |
| Tanji | 12.8 M FRP | 8 | Encircling Net | Yanmar 27 HP |
| Tanji | 7 M FRP | 4 | Longline | Yanmar 27 HP |
| Tanji | 7 M FRP | 4 | Drift Gill Net | Yamaha 23 HP (Inboard) |
| Batokunku | 9 M Planked | 4 | Bottom Gill Net | Yamaha 8 HP |
| Sanyang | 9 M Planked | 4 | Bottom Gill Net | Yamaha 15 HP |
| Kartong | 9 M Planked | 4 | Bottom Gill Net | Yamaha 15 HP |

Source : Fishing Gear Technology Unit, Fisheries Department

Table 2: Training Programme 1984 - 1994

| Training Site | Fishing Method | Training Period | Number Trained | Number Certified |
|----------------------|-----------------------|------------------------|-----------------------|-------------------------|
| Tanji | Bottom Gill Net | 1984 - 85 | 4 | 3 |
| Tanji | Longline/B.G. Net | 1985 - 87 | 4 | 3 |
| Tanji | Bottom Gill Net | 1987 - 88 | 4 | 2 |
| Tanji | Encircling Net | 1987 - 89 | 8 | 6 |
| Tanji | Encircling Net | 1989 - 91 | 8 | 6 |
| Tanji | Bottom Gill Net | 1989 - 91 | 4 | 3 |
| Brufut | Bottom Gill Net | 1991 - 93 | 4 | 4 |
| Sanyang | Bottom Gill Net | 1991 - 93 | 4 | 4 |
| Kartong | Bottom Gill Net | 1991 - 93 | 4 | 4 |
| Tanji | Bottom Gill Net | 1992 - 94 | 4 | 3 |
| Tanji | Encircling Net | 1992 - 94 | 8 | 6 |
| Tanji | Bottom Gill Net | 1992 - 94 | 4 | 4 |
| TOTAL | | | 60 | 48 |

Source : Fishing Gear Technology Unit, Fisheries Department

Up to June 1994, 60 trainees passed through the programme and 48 of them were certified by the instructors and the masterfisherman as fishermen. The certified groups received fishing material loans from the Department's Credit Unit.

ii) Structure and Duration

All the instructors in charge of the respective units are Gambian fishermen selected for their knowledge of the local fishing grounds and long fishing experience. They are selected from the village of operation. Recently though the more skilled ones have been moved around to assist the poorly performing instructors. The programme presently has 8 instructors (3 at Tanji and 1 in each of the other five sites).

Once selected each group of trainees is issued a set of nets, twines, ropes, lead, and floats to mount their own fishing net, under the close supervision of the instructors. Replacement units usually have to mend the nets inherited from the preceding group. The fishing operations begin after the mounting or mending. The duration was initially nine months, but the instructors recommended a change to two years because of the high failure rate. Their justification being that the objective of the training is to produce a large number of trained fishermen and not a few elite

fishermen. At the end of the training the trainees are examined practically on what they have done in the period covered. Those who pass the exam are recommended by the Fishing Gear Technology Unit for credit from the Credit Unit. The loan is issued without a down payment. The guarantor requirement had not been strong until recently when proposals were floated on their being guaranteed by their fishing base Centre Management Committee. If accepted it might improve the present poor repayment rate of the loans.

iii) Equipment Used

The programme started in 1984 with two Fibre Reinforced Plastic (FRP) boats which were in a Japanese government grant-in-aid package received by the Department on behalf of the Gambia government in 1982. By mid 1994 there were four FRP and four planked dugout canoes (see Table 1). The planked dugout canoes are locally constructed and their cost ranges from 7000 Gambian Dalasis (about 740 US Dollars) to 15,000 Dalasis (1580 US Dollars). The FRP boats are grants and they have a subsidised price of 15,000 Dalasis for the 7 M and 30,000 (3160 US Dollars) for the 12.8 M boats.

The Yanmar 27 HP engines and the Yamaha 23 HP inboard engines in Table 1 are also grants. The subsidised price for the Yanmar is 20,000 Dalasis (2105 US Dollars). The other engines mentioned were bought locally at the market price.

Other subsidised equipment supplied for the programme are nets (bottom gill and encircling), floats, ropes, leads, twine, inflated buoy, rain coats, and life jackets. These are either provided through the programme's technical assistance component or through a grant. That makes the equipment supply rather fragile. Once there is a source of supply the money deposited for the replacement of material is spent on activities which, though related to the programme, could have been ignored. In such a situation, a sudden stop in aid can strangle the whole training programme.

iv) Income and Allowances

A Fisheries Field Assistant is attached to each training unit and he records the catch by species and weight. He also records and keeps the revenue received from the sale. The income is collected once a week and a government receipt issued to the Assistant. The collected sum from all the sites is paid into a deposit account (the training programme account) at the government treasury. All purchases and payments are done through the government's financial regulations.

At the end of each month the allowance of the trainees and instructors is drawn from the account. The programme retains 50 % of the total sum collected for repair and maintenance of equipment and the allowance of the trainees and instructors is paid from the other 50 %. Each instructor receives 30 % of the 50 % share (15 %) and the trainees receive 70 % (35 %). The allowances are paid through a voucher signed by each recipient. These vouchers are always available to the government auditors.

This allowance system that is directly linked to what the units produce is a good incentive for the instructors and trainees. They usually work very hard to earn more at the end of the month. But the uncertainty in fishing has been very frustrating to them. This condition has created some problems for the instructors who not only had to fulfil their family pecuniary obligations but also to console the usually anxious youngsters in the units. These nature related shortfalls prompted a proposal for direct government payment of allowances to provide a reliable monthly

income for the instructors and trainees. The proposal was never accepted because it will breed complacency in the units and the government budget cannot accommodate it, at least for the post-structural adjustment period.

2. Constraints

The programme has been bogged by several factors. These range from operational factors like fuel cost, old engines, drift netters, and state of materials to the attitude and discipline of the trainees.

(i) Trainee Selection

The grouping of youngsters from different backgrounds in an artisanal fishing unit that requires sacrifice, tolerance, and teamwork has been difficult within the programme. The trainees who had some sea-going experience with the local fishermen before their selection performed very well and even helped in changing the attitude of their colleagues. For the others the instructors had problems with some individuals. Some of the trainees were too selfish to work in a team. Others found it difficult to put up with working under very arduous conditions with strict supervision, especially when they have to do certain things without the instructors. Eventually some groups broke up under strain, and that affected the flow of certain units.

(ii) Indiscipline

The absence of pre-training induction schedule has given the trainees conflicting ideas of the training. The group most conspicuous is the trainees recruited from the urban area and the bigger coastal towns. Some of them find it very difficult to maintain subservience to their instructors. They approach the programme as a formal apprenticeship rather than the rigid traditional training applied in fishing. Indiscipline has been the cause of some expulsions in the programme. The expulsions affected the size of some groups which could not benefit from the end of programme loan facility because the minimum group size of three could not be fulfilled. That has prolonged the training of some and created some incompatibility with the new recruits. Commendable effort has been put in improving discipline in the units by the instructors and the supervisors within the Fishing Gear Technology Unit.

(iii) Monitoring and Supervision

The Fishing Gear Technologist and his counterpart, and sometimes the masterfisherman, visit the units once a week. During these trips they also collect the sales and check on some accounting transactions. Obviously the money aspect distracts them from the technical problems within the units. So they need more than once a week to adequately discuss with the instructors and the trainees issues that can be very essential in the smooth running of the programme.

The programme organises no seminars that can help in group discussion of the respective unit problems. The seminars can also be a forum for sensitizing the trainees on their responsibilities and the expectations of the Department.

The post-training monitoring has also been weak. The impact of the training on the artisanal subsector has been measured in numbers trained and numbers qualified only rather than combining it with the assessment of the production of the trained fishermen. The assessment will

be a continuation of the catch recording that is done during the training and will provide the authorities with a yardstick with which to measure the contribution of the training programme to the artisanal fish protein supply; an essential component of the government policy on fisheries.

(iv) Material Handling

The assurance of a replacement by government of material destroyed or lost at sea has been a dent in the diligence of the trainees in the handling of the supplied materials. Errors are allowed in training but the number of material lost in the programme points to some aspect of carelessness.

This situation has been exacerbated by the frequent destruction of the programme's nets by the night drift net operators. The drift net problem has now become a concern for the whole coastal fishing community. So the programme will have to adapt to this state until a solution can be found collectively. Otherwise the Department will have to unilaterally ban the fishing method and address the consequent socio-economic implications for a part of the community.

(v) Fuel Cost

The operational expense of the units was reduced by a generous duty-free fuel facility that the programme benefitted from up to June 1994 when government terminated it. This termination has increased the costs and reduced the net revenue of the units. This is transmitted to the income of the trainees and instructors, as well as the revenue that is paid into the training account. In spite of the revenue implication it has a positive part to it in the units being operated on a real market price basis. Its sustainability at the established share percentages needs monitoring.

(vi) Outboard Engines

Some of the programme's outboard engines have served six years. Their age has now reduced their consumption efficiency and reliability. The expensive fuel and the increasing distance to fishing grounds requires more efficient engines. The frequent breakdown increases costs and reduces revenue. That is the least of conditions the programme can accommodate.

(vii) Loans

The loan component of the programme is very generous. The trained and certified fishermen receive, as a group, full fishing equipment loan without a downpayment, and in most cases without a guarantor. The recovery of these loans, some of which are more than 70,000 Dalasis (about 7500 US Dollars), has become a problem for the Credit Unit. Loans guaranteed by Centre Management Committees have been relatively well serviced because of the Centre pressure on the beneficiaries to safeguard the credibility of the centre concerned. The poor recovery is weakening the Credit Unit's capital and that is bad news for the trainees whose material stock accumulated from the grants is almost exhausted. That means that their loans will eventually come directly from the resources of the Credit Unit. If the loan facility is terminated or paralyzed a very important incentive will be cut out from the Fishermen Training Programme. The reaction of potential recruits to such a condition can only be assumed to be negative since they all want a fulfilling occupation at the end of the training.

(viii) Business Skills

The youngsters are expected to be successful economic operators, but they lack business skills. The programme offers no training on business skills. Hence they lack a very important element of their operation. This condition equally affects the trained fishermen who enter their profession with heavy loans and no skills to provide for loan repayment and other operational needs.

3. Conclusion and Recommendations

The involvement of foreigners in The Gambia's artisanal fisheries subsector is still significant. The inherent uncertainty of this condition continues to threaten the economically very important subsector. In spite of the concern on the effect of the increase in the number of fishermen on the limited resource, there is need to train nationals to become fishermen and not only compete with foreigners but also be available to sustain the industry if and when the foreigners decide to leave the country.

The Department's fishermen training programme has been quite positive in involving Gambians in fishing. But it needs an adjustment to be better managed, more useful to the trainees, and more sustainable to government. The adjustment can be done through the following recommendations:

- the trainees should, as much as possible, be selected from the same village or district to reduce the incompatibility among the unit members
- once selected, their responsibility and the expectations of the Department should be clearly explained, if not written out, to them in a pre-training induction programme
- a probationary period with very rigid conditions should be introduced in the programme to reduce the excitement of the youngsters and increase discipline among them
- if the number of sites cannot be reduced to about three, the Fishing Gear Technology Unit should increase the trips to the sites per week to effectively monitor the operations and adequately discuss problems in situ
- post-training monitoring should be introduced to provide relevant information that will show the level of contribution of the trained fishermen to the overall subsector production
- a penalty system should be introduced for the destruction or loss of fishing material through carelessness
- no fuel subsidy should be requested for the programme in order to maintain the real market price operation that will better prepare the trainees for their independent operations
- all the old outboard engines should be replaced as soon as possible
- the loans issued to the trained fishermen should be guaranteed by the respective Centre Management Committees to strengthen the monitoring and increase the pressure on the beneficiaries to pay regularly. Business skills training should also be introduced in the programme.

Report of Experiences in the Training of National Fishermen in Côte d'Ivoire

by

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INTRODUCTION

The Government of Côte d'Ivoire, concerned about installing the youth in the rural area, has, since 1960, initiated many training and installation projects for the youth in various sectors.

In the fishing sector, the obvious disinterest of Ivoirians greatly enhanced the arrival and occupation of different water bodies by foreign fishermen from neighbouring countries: Ghanaians and Senegalese at sea, Beninese, Togolese and Malians in the lagoons, on the lakes, streams and rivers.

The poor involvement of Ivoirians in fishing therefore justified, a priori, the interest to initiate also training and installation projects in the sector in conformity with the policy strongly recommended by the Government.

The first training and installation experiences of young Ivoirians in fisheries date back to 1970 with the start of heavy development work including, for example, the construction of hydro-electric dams especially at Kossou on River BANDAMA and later at BUYO on River SASSANDRA.

The construction of these dams and their utilisation led to the displacement of many people whose land had been affected by overflowing waters from the lakes.

Lake Kossou (area 800km²) in particular, cut off about 75,000 people from land, mainly farmers who had been re-installed near the water body.

Considering the lake's considerable fishing potentials, the Government hoped to reconvert, where possible, a good part of these displaced and disaster victims to fishing.

The Government had a double objective:

- improve living conditions of the disaster victims by obtaining new revenues through fisheries;
- install these nationals as quickly as possible on the water plane before it would be taken over by foreign professional fishermen.

Two State companies, specially created at the time by the Government to, on one hand, construct hydro-electric dams, and on the other, organise and conduct development programmes

in the regions were charged with the reconversion of the disaster victims. These were: A.V.B. (Authority for the Development of the Bandama Valley, for Lake Kossou) and ARSO (Authority for the Development of the South-West Region, for Lake Buyo).

The training project on Lake Kossou covered the period from 1971 to 1979 and that of Lake Buyo from 1981 to 1990.

FAO provided technical assistance to AVB for its activities (UNDP/FAO Project No. IVC-526) whilst ARSO received financial assistance from the Central Economic Cooperation Fund (today the French Development Fund).

The intervention policy adopted by the two projects was centred around the following:

- training of instructors or fishing advisers;
- recruitment and training of trainee fishermen;
- equipment and follow-up of fishermen;
- installation of trained fishermen in villages created around the lake.

Despite efforts made to achieve these various training programmes, the report was not commensurate with expected results because, in the final analysis, very few young trained Ivoirians remained in fisheries.

The present paper try to present the status of the past experiments, particularly in the lake Kossou as well as the status of a new experiment of training of young fishermen recently carried out on the same lake.

I. EXPERIENCE IN THE TRAINING OF IVOIRIAN FISHERMEN ON LAKE KOSSOU

1. Training of fishing-advisers

To satisfy the Government's wish, AVB went ahead to train fishing-advisers i.e. instructors likely to live the fisherman's life in the latter's community and transmit his teaching through work and example.

They were recruited from among the 21 year olds at least with CM2 (final year of the primary school) or third year of secondary school levels.

Pre-selection criteria were as follows:

- taste for life in the open field
- knowledge of water, knowing how to swim,
- sociability, easy contact, openness,
- adequate knowledge of arithmetic and French,
- speaking and understanding of Baoule (the local language of the lake's residents).

Other orientation tests were imposed on the candidates especially:

- ability to reason logically,
- ability to solve real problems,
- manual dexterity,
- attention and observation capacity,
- learning capacity,
- motivation,
- realism, adaptation to the concrete.

The fishing-advisers training should allow them to transmit to the farmer-fisherman basic principles in:

- assembling and maintenance of fishing gear(net and line),
- navigation and fishing on Lake Kossou,
- processing of fish products,
- marketing.

The teaching programme which lasted 6 to 9 months included the following:

- Ichthyology
 - * generalities on fish biology,
 - * practical work on identification of species.
- Fishing gear technology
 - * different types of fishing gear,
 - * different types of equipment,
 - * manufacture, assembling and repair of nets, longlines, of canoes and paddles
- Fish products technology
 - * construction of smoking-houses,
 - * fish processing,
 - * salting, smoking, drying,
 - * monitoring of smoking intensity
 - * storage of smoked fish,
 - * fish icing.
- Fishing techniques
 - * net casting,
 - * verification and lifting of nets,
 - * line, trap casting,
 - * bait.

- Navigation
 - * canoe handling and maintenance,
 - * navigation and safety rules.
- Swimming
 - * different types of swimming,
 - * rescue and resuscitation.
- Hygiene
 - * main water-related illnesses,
 - * causes, symptoms, treatment and precautions to be taken.
- Economy
 - * credit notions, fish marketing.
- Animation
 - * animation notions in a fishing activity centre.

The teaching programme carried out in school was rounded up with practical courses (experimental fishing) and visits of various equipment and fishing infrastructures on the field.

At the end of their training, the fishing advisers were sent to different lake villages created to serve the farmers-fishermen training centres.

2. Training of fishermen

Recruitment of trainees fishermen did not undergo the same selection rigours as those imposed on fishing-advisers. This was because a maximum number of Ivoirian fishermen had to be trained to occupy the water body (objective: 1,000 to 2,000 fishermen).

Candidates attracted by the fishing-advisers' sensitization campaigns were quickly recruited; the real motivation and availability of these candidates were hardly considered.

The candidates were recruited, in any case, from among the people in disaster areas and submitted to a 1 to 2 month training.

In the course of their training, the candidates were initiated into carving techniques, assembling, repairs, casting and lifting of nets as well as in elementary fish processing and preservation techniques.

3. Equipping the trainee fishermen

Candidates received equipment (canoes, nets) for their training on credit payable from proceeds from fishing.

Equipping trainee fishermen in training aimed at mainly permitting them to:

- be trained with their own equipment,
- know their own working capabilities before moving, if they so wish, to more important equipment.

On Lake Buyo, the trainee fishermen were trained with equipment made available to the fishing-advisers.

Products fished during the training were sold on the students' account and retained as personal contribution to acquiring equipment on credit from BNDA (the National Agricultural Development Bank) to install the students after their training.

In some cases, the students remained in training until they were able to obtain the total amount needed to purchase their own installation equipment. The training was long (3 months) and tedious for the fishermen thereby leading to drop-outs before the end of the training.

4. Assessment of the training on Lake Kossou

Resources made available to facilitate the installation of Ivoirians in fishing on Lake Kossou yielded results far below those expected by the Government. Of the 2,000 fishermen trained, hardly 200 of them are left on the two lakes.

The reasons for the failure are mainly:

- poor choice of trainee fishermen whose level of motivation and aptitude were not adequately taken into account during recruitment;
- lack of follow-up and supervision of the trained and installed fishermen. Most of the trained fishermen had to abandon the village-camps designed and created for their installation around the lakes. These camps were later taken over by foreign fishermen;
- inadequate involvement of young fishermen in the acquisition of fishing equipment. For most of these fishermen from the disaster areas, the equipment was rather seen as gifts from the State as compensation for losses due to the opening of the dam. They therefore did not give much attention to the maintenance of the equipment and moreover, the poor management of their affairs hindered the reimbursement of the loans obtained from BNDA;
- finally, the lack of follow-up from the instructors who ended up involving themselves in fisheries (faced with the massive drop-out of the trained fishermen) before abandoning everything themselves.

The failure of the experiment on Lake Kossou lies therefore, in an inappropriate approach to the adopted training policy which did not take into account the target population's motivation and pre-disposition to this new fishing activity.

In fact, it was thought that it was enough to give complete equipment to the youth against their wishes (nets, canoes and other small materials) to make them remain in the fishing profession.

Experience has shown that these youths did not feel obliged to reimburse the equipment credits which some of them directed to other uses, if they did not simply rent it out to other foreign fishermen who came to later came to be installed on the lake.

However, it is regrettable that many fishing-advisers (about fifty) trained within the context of these projects ended up abandoning their activity due to lack of support by the Gouvernement after its liquidation of the companies.

It was therefore, on the basis of the results of these first experiences in the training of fishermen that another training project for young fishermen in 3 riverine localities of the Kossou Lake was initiated in 1995, namely: Tiebissou, Beoumi and Sakassou with technical assistance from a private training agency (PARTENAIRE) and funding from a public organisation in support of vocational training (Vocational Training Development Fund "F.D.F.P. ").

II. EXPERIENCE OF THE YOUNG FISHERMEN TRAINING PILOT PROJECT IN THE BEOUMI, SAKASSOU AND TIEBISSOU COMMUNES, RIVERINES OF LAKE KOSSOU

This new experience in the training of young fishermen was initiated and executed by a private training agency (PARTENAIRE) in close collaboration with local administrative and political authorities (mayors and sous-prefets of the areas concerned).

The project had two major advantages:

- the failure of past experiences in training which required a better approach to the expected experience based on the involvement and adequate participation of the target population;
- the country's economic environment in 1995 which, contrary to the years of growth in the 1970s, no longer had the same prospects for the youth with regard to employment - hence the obvious interest of the trainee-fishermen to practice the fishing profession.

1. Selection criteria for the trainee fishermen

The selection criteria retained were mainly the following:

- be of Ivoirian nationality
- be 18 years old at least, 45 at most
- be a resident of the fishing area
- knowing how to swim
- be motivated by professional fishing
- have good morality.

Moreover, the selected fishermen must give more than 70% of their time to fishing.

A total of 135 trainee fishermen were retained and were divided, for training purposes, as follows:

- SAKASSOU: 60 in 4 groups of 15
- BEOUMI: 45 in 3 groups of 15
- TIEBISSOU: 30 in 2 groups of 15.

2. Training programme and its organisation

The designed training programme aimed at giving trainee fishermen essential notions on:

- fish product technology
- fishing gear technology
- navigation and safety rules
- fishing practices
- rules on fisheries.

Training was spread over one month and the trainers were recruited mainly from among the local fisheries technical services personnel.

Training sessions were organised on the spot, in the recruitment localities of the trainee fishermen to avoid cases of uprooting as was experienced in previous training sessions when fishermen were taken to training centres established on the fringes of water planes and sometimes far from the villages of the trainee fishermen.

Content and distribution of subjects taught.

| SUBJECTS | NO. OF HOURS | NO. OF DAYS |
|---|--------------|-------------|
| 1. Fisheries and legislation | 4 | 0.5 |
| 2. Swimming and life-saving | 24 | 12 |
| 3. Canoeing and maintenance | 8 | 1 |
| 4. Fish identification and knowledge | 12 | 1.5 |
| 5. Assembling fishing gear | 24 | 3 |
| 6. Use of fishing gear | 32 | 4 |
| 7. Sensitization to fishing statistics | 12 | 1.5 |
| 8. Fish preservation | 12 | 1.5 |
| 9. Management of a fishing activity | 24 | 3 |
| 10. Constitution and operation of a GVC | 24 | 3 |
| TOTAL | 176 | 31= 1 MONTH |

The programme indicated above aimed at giving essential skills to trainee fishermen on fisheries.

Due to budgetary constraints, the programme implementation period was reduced to one month, thereby creating problems for the candidates with regard to their understanding of some of the themes taught.

Follow-up-evaluation missions should therefore test for possible inadequacies of the trained fishermen and progressively fill them up by appropriate counsel on the field.

During the training, the trainee fishermen did not receive their own equipment. The training was given with pedagogical equipment financed by the FDFP (Professional Training Development Fund) comprising canoes, paddles and a set of nets.

These pedagogical materials were re-assigned at the end of the training to a group made up of trainee fishermen to enable them use these materials jointly for their own purposes while waiting to get their own funds to acquire new fishing materials.

Local beneficiary communities of the project were also committed to establishing infrastructures indispensable to the practice of the young fishermen's activities (landing sites, communication channels to the water body, fish market, etc.) in order to keep the motivation shown for the economic sector by the latter intact.

3. Follow-up of the trained fishermen

The follow-up of the young fishermen is ensured by technical agents from the local fishing services in close collaboration with the training agency, the programme's initiator, as well as local community leaders. It is necessary not to make the trained fishermen installed in their new profession feel suddenly abandoned.

This follow-up should however not be an obstacle to the training objective which aims at encouraging the trained fishermen to get to work immediately after their training and set themselves to making the necessary efforts that will give them the funds required to acquire their own equipment with the help of a financial banking structure which they themselves have solicited.

It should be noted, at this point, that there is no longer any specific financing structure for the agricultural sector in Cote d'Ivoire since the NADB (the National Agricultural Development Bank) had been dissolved by the Government.

The young fishermen must henceforth go to commercial banks whose financing policies, unfortunately are not at all adapted to the fishing sector.

This problem of financing the young trained fishermen's equipment could therefore in the long run be a major constraint to their remaining in the sector if no other measure is envisaged by the Government.

III. CONCLUSIONS. WHAT THEN IS THE FUTURE FOR THE TRAINING OF YOUNG IVOIRIANS IN FISHERIES?

The Ivoirians' disinterest for fisheries still remains a source of real concern to the Government and the experiences recalled above show the willingness manifested by the State in this domain.

The experiments undertaken to date in the training of Ivoirian fishermen highlight the fact that, in the absence of any motivation and adequate involvement of the candidates, and despite all kinds of gifts, no success was possible.

However, it is reassuring for the future to note that with the present, persistent economic crisis, unemployment which is on the increase in the towns and the increasing number of unemployed, Ivoirians are now conscious of the fact that fishing can be as profitable an employment as any other in the economic sector.

These willing Ivoirians who are mentally prepared to practice fisheries, can always benefit from training in the same context as the specific projects like that carried out in the Tiebissou, Sakassou and Beomi communes.

In this light, it is to be hoped that in the absence of a financing structure adapted to the fisheries sector, a special development fund for fisheries can be created to serve as support to these training programmes and installation of young Ivoirians in fisheries.

The creation of such a fund is presently the subject of a study whose conclusions are expected with a lot of hope for the future development of the fisheries sector in Côte d'Ivoire.

The Training of Young Fishermen in Mauritania

by

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INTRODUCTION

In Mauritania, the industrial fishery is privileged to the detriment of the artisanal fishery which represents only 10% of the annual catches of marine products.

In 1989, after the incidents with Senegal, considering that the massive return of repatriates may raise the unemployment rate, an association has been created for their insertion. This association aimed at providing job for the repatriates as well as income sources for them and their families.

Most of them were oriented toward the rural sector. About 500 of the most qualified have had an on-the-job training in the artisanal fishery

1st TRAINING

Repatriates were settled in the following villages: Imraguen in Blawakh, Lemseïd, Tioulit, M'Haijjrat, J'Reiff.

The on-the-job training they had through contact with Imraguen fishermen help the repatriates learn the fundamentals of the artisanal fishery.

That 3 months training enabled them to buy boats, and most of them became fishermen through practice. The training has been financed by the French Development Bank.

2nd TRAINING

Owing to the FAO, 150 repatriates (i.e 50 repatriates every three months) learned fishing through the urgent training organized at Blawakh (a village located at 55 km in the Northern part of NOUAKCHOTT) (See financing TCF FAO MAO/0051 : Program of Urgent Training in Artisanal Fishery)

At the end of the training , the trainees were given certificates of attendance and got in touch with the executive secretariat in charge of their reinsertion

3rd TRAINING

The South Artisanal Fishery Development Project and the Ministry of Fisheries and Marine Economy (Department of Artisanal Fishery) have financed for three months a further training of the repatriates from Senegal.

The total cost of the training for 50 repatriates amounts to 2,256,000 Ouguiya. The Blawakh site has been selected for the training because it is an area where the sea is calm, with possibilities of safe anchorage. It is also close to the fishing grounds, entailing lower fuel expenses. This village is accessible to the low tide and the path can be used in all seasons

The various on-the-job trainings helped hundreds of people learn the fundamentals of the artisanal fishery.

The South Artisanal Fishery Development Project will initiate in the coming months 50 novice fishermen every six months and for 3 years. The two sites here below have been selected for that purpose

1. Blawakh

At Blawakh the sea is calm so that the first phase will be carried out without any significant risk for the novice fishermen.

2. PK 28, Southern Nouakchott

The sea is often rough there, because of the surf, allowing a further training after the first three months spent on the first site. Here, the novice fishermen would get familiar with the difficulties they might face in their career. All the buildings in both sites are completed. Boats, engines as well as nets are ready. The project may start at the end of the ongoing recruitment.

GOAL OF THE PROJECT

Within the framework of the Artisanal Fishery Project, emphasis is put on the vocational training of future skippers and artisanal fishermen.

General abilities

- Information
- Processing
- Decisions
- Professional skill associated with technological knowledge

General training courses

- Study of the basic vocabulary used at sea.
- Texts reading and comprehension
- Percentage calculation
- Benefit calculation

- Boat knowledge
- Enging knowledge
- Safety Navigation
- Knowledge of the various species of fish
- Initiation to management

Practical training Courses

- Lacing
- Seamanship
- Net mending
- Servicing Engines

Models and characteristics of the Boats

- Daily maintenance and repairs (after use)
- Annual maintenance
- Boat steering.

Navigation, orientation and safety

- Boat steering rules
- The course
- Navigation lights and signals
- Discross signals
- Safety materials
- First aid in case of emergency
- Hygiene rules on board and on shore

Management

- Income sharing after deducting of the expenses
- Fishing gears Technology
- Gillnets, trammels nets, entangling nets
- Lines
- Longlines
- Knowledge of the various hook sizes.

By promotion, 50 Novice fishermen will be recruited every three months.

Recruitment committee

- Director of Artisanal Fishery
- Expert, Project manager
- Specialists of marine training

Priority criteria for candidates selection

- Motivation
- Experience
- Age and physical condition
- Aptitude for sea life
- Educational level.

The trainees of a marine origin may start operating very quickly.

The other trainees will understand the training course owing to a strict supervision and a permanent training.

The lecturers are mainly skippers and fisheries overseers recruited especially for the training.

Under the South Artisanal fishery development project, an adequate and regular training will be conducted for the first time and will help many people find a job, entraining a significant raise of the living standard of the trainees as well a that of people in the informal sector living on the artisanal fishery.

ANNEX 1

FISHERMEN TRAINING

(Excerpts from the evaluation report)

Page 22

3.5 POPULATION AND AVAILABILITY OF CANDIDATES FOR THE ARTISANAL FISHERY

3.5.1 The surplus resources of the area covered by the project can be estimated at 6,700 tons/year. They are meant to be exploited after the training of the new fishermen. The trainee fishermen will be easily recruited. In actual fact, the project could recruit volunteers either from the former continental fishermen, or the 1,300 registered professional fishermen from Nouadhibou (who are about to get involved in the industrial fishery), or from the 130,000 unemployed men in Nouakchott and Nouadhibou. A quick investigation made by the preparation team on a representative sampling of 102 unemployed youths from Nouakchott revealed that nearly 70% of the youths wish to be trained in the sector. All the same, 70% of them want to buy their own means of production jointly with their colleagues. 50% of them do not mind living in camps close to the project's sites.

page 25

Section A : Fishermen Training.

4.3.1 The fishermen will be given a basic practical training which will take place entirely on the beach and at sea. As a matter of fact, it is essential that apprentices operate in working conditions resembling as much as possible those of their future profession. That is why it has been foreseen three training sites presenting a range of representative conditions. The training will consist of two sub-programmes:

- i) an IMRAGEN sub-programme involving 160 young fishermen whose goal is to supervise and monitor the buyers of the 20 yoles financed by the credit section (see section B) during the first year of exploitation;
- ii) a "New fishermen" sub-programme intended for 340 volunteers interested in the artisanal fishery (see paragraph 5.2.3)

pages 36 and 37

Fishermen Training

5.2.3 In the "New fishermen" sub-programme, 50 apprentice-fishermen will be recruited every 3-4 month. The candidates will be selected by a recruitment committee presided over by the training Director from the Ministry of Fishery and Marine Economy (MPEM). The committee is composed of the Director of the Artisanal

Fishery, the project manager and his homologue as well as some professionals (SPPAM, representatives of fisherfolk communities; etc ...)

Only the Ministry of Fisheries and Marine Economy can decide to modify the choices of the committee.

Those apprentices will be recruited among.

- The youth river fishermen unemployed
- The unskilled youths unemployed
- And the seamen awaiting to get embarked on the industrial fleet (registered fishermen)

The candidates will be selected according to the following priority criteria:

- motivation
- experience acquired,
- marine affinities,
- age,
- educational level, namely with respect to the technical education,
- aptitude for sea life
- etc ...

5.2.4 After a three months' basic training on blawakh site, the apprentices will form two groups on each of the two southern sites (i.e, on the average 20 apprentices per group, taking into account defections and possible expulsions for indiscipline). The training on those sites will also last 3 months. The overall goal of the training is

- i) to gradually acquaint the apprentices with the sea, first in the north where there is no surf, then on the southern sites where the surf is strong;
- ii) to make them fish for commercial purposes;
- iii) to help former trainees start as private new fishermen after buying a canoe and the necessary fishing gear on credit.

5.2.5 During the training period, the "canoe-schools" (training canoe) will be operated according to the traditional system where the crew is remunerated in proportion to the value of the catches.

In other words the expenses relating to the fishing trips (fuel and the food of the crew) are deducted from the returns of the sale.

Half of this balance is given to the boat owner (i.e, the project) who will have to deduct some fixed fees (maintenance, reparation and insurance fees) from it.

The remainder of the boat owner's share will also be divided into two.

- * One half of this will be deposited in the account where is put the initial contribution of the trainees more qualified for getting a settlement loan
- * The other will be lodged as security for the settlement loan.

The second half of the balance will be shared between the members of the crew i.e, the overseer for whom this share constitutes a complement to his wages.

page 38

PROFESSIONAL INSERTION OF THE APPRENTICE - FISHERMEN

5.2.10 During the training the apprentices will be sensitized to:

- * The advantage of cooperative societies in centralizing the purchase of their fishing inputs,
- * The access to credit,
- * Fish marketing,
- * The general organisation of fishing camps.

The community monitor recruited within the framework of the project will be in charge of the sensitization. He will also have to follow the apprentice fishermen after the training and help in their professional insertion. The technical follow up of the former trainees will be carried out by the senior master-fisherman and the junior master-fishermen.

5.3 PERSONNEL, TRAINING AND INCENTIVES

5.3.1 Thirty people will be recruited for the implementation of the project. Among them are first of all the staff who will give a logistic assistance to the training center where there should not be any problem for the recruitment. The supervizing staff will be composed of: a senior master-fisherman recruited at the international level, 4 junior master-fishermen and 22 overseers planned to be recruited in Mauritania or in Senegal among the artisanal fisherfolk communities. The community monitor will equally be recruited at the sub-regional level.

5.3.2 The pedagogical supervision will be carried out in series: the senior master-fisherman will supervise the junior master-fishermen, who in their twin will supervise the overseers . The latter will be in charge of training apprentice fishermen.

page 44

JUSTIFICATION

7.1.2 Training The trainee artisanal fishermen will be easily recruited (see paragraph 3.5.1). The project will train them in:

- the design, maintenance and operation of fishing gears,
- the maintenance of navigation canoes and out-board engines.

Given that most of the trainees are former fishermen (continental fishermen and seamen-fishermen), they will quickly understand the training course. As for the others, they will also quickly understand the training course and have a high quality training owing to the very strict supervision, that is one overseer for 5 trainees. It is mainly a practical training, fit for the goals pursued.

Annex 2 page 3.

THE SELECTION OF THE FISHING TECHNOLOGIES

Most of the fishing technologies to be used during the training are already known in Mauritania. Those technologies are adequate. In actual fact, few of the new technologies are suitable for Mauritanian artisanal fisheries. The new techniques to be taught to the new fishermen under the project are as follow:

| <u>Techniques</u> | <u>Target Species</u> |
|----------------------|---------------------------|
| Drop line | Demersal and pelagic fish |
| Jigs | Squids |
| Aggregating devices | Pelagics |
| Trolling line | Pelagics |
| Fish guiding barrier | Green lobster |

However, the project will make a major technological improvement, i.e, the new fishermen will be trained to fish down to 100m isobath, that is in areas unexploited or not very exploited by traditional artisanal fishermen of Mauritania. They will develop this skill owing to the training in piloting, echo-sounding and safety.

ANNEX 2

MINISTRY OF FISHERIES AND MARINE ECONOMY

ARTISANAL FISHERY DEVELOPMENT PROJECT IN THE SOUTH

STANDING ORDERS RELATED TO THE TRAINING OF NEW FISHERMEN AT BLAWAKH AND PK28 SITES.

These standing orders apply to the new fishermen being trained at northern Blawakh and PK28 Sud sites. They have been accepted by each of the trainees after prior reading.

They provide for:

- The goal and duration of the training as well as the training program.
- The administrative and technical supervisors.
- The living conditions on the sites.
- The training materials.
- The new fishermen's rights.
- The new fishermen's obligations.

I. TRAINING OBJECTIVES.

Article 1

Objectives: the practical training given within the project aims at the economic and vocational insertion of the trainees in the artisanal fishery sector.

Article 2

On each site, the supervising team is composed of two skippers and six fisheries overseers.

Those technicians' instructions must be carried out on shore and at sea. Any refusal to abide by them will be considered as a fault which will be considered as a fault which will be punished accordingly.

Article 3

Living conditions on the sites

Private equipments: During their actual stay on Blawakh and PK28 sites, each of the trainees receives the following equipment: 1 mattress, 1 blanket, 1 raincoat and fishing gear (line, hooks etc...)

Equipments per room: gas stove, bowls, cooking pots etc...

The mattresses, blankets, and other materials in the rooms belong to the project, and are lent to the trainees. For that reason, they must be well kept and given back to the project in good working order. In case of loss or theft, the involved trainee will be given notice to pay for it.

The new fishermen's obligations

Discipline: it is prohibited to wear "boubou" during working hours. Each trainee must wear his raincoat at sea. Training activities start at 6:00 a.m. Tasks assignment is the responsibility of the technical supervisors, the skippers and fisheries overseers.

Activities end at 3:00 p.m. on the site. However, when there are things to do (e.g, pulling boats ashore, unloading, cleaning, maintenance and preparation for the next trip etc) everybody must participate and there is no time limit. Fishing is not scheduled, but it is compulsory.

Absence without prior authorisation or any refusal to work on the site or at sea will be seriously punished.

Article 4

Training materials

Theoretical and Technological training courses.

There will be a permanent evaluation in theoretical and technological subjects taught by form masters on the site.

After the first three months of training, the candidates will sit for a general theoretical test on navigation and a practical test on the current navigation operations.

After the training, in addition to the permanent control, the candidates will sit for an overall theoretical test as well as a practical test leading to the award of their certificates.

A board of examiners composed of people from the Departments of Artisanal Fishery and Marine Training as well as skilled professionals will confirm the final evaluation so as to make a list of candidates who will be granted fishing equipment credit.

Article 5: The New Fishermen's Rights.

The new fishermen are given a monthly grant that will help them meet their needs during the training.

On both sites there are shops where the trainees can buy things, but they are free to get their supplies either from the sites or from Nouakchott.

The trainees who get their supplies from the sites are bound to reimburse their creditors as soon as they get their grants.

The new fishermen should have a fair behaviour with respect to people from the sites (i.e, Imragem at Blawakh - Fishermen at PK 28). Any breach of this rule will be seriously punished.

The Community Officer will see to the enforcement of this important rule.

Article 6: Duration of the training and insurance.

The basic training will take place in two periods:

- 1) 3 months at Blawakh (calm-sea)
- 2) 3 months at PK 28 (rough sea with surf).

Through the training on those two sites the trainees will learn all the aspects of their future activities.

- The first aid cares will be given to the trainee if need be.

- The insurance obtained for each trainee before the starting of the training will help meet hospitalization fees in case of accidents or severe diseases during the training period.

Experience in Training of Fishermen in Nigeria: A Case Study

by

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ABSTRACT

The training of fishermen in Nigeria involves both the formal and informal method on the latest state-of-art equipment in view of the cost of the inputs and lives of the individuals involved. The Federal government through the Federal Ministry of Agriculture and Natural Resources conducts training for people already on the job. Also, formal training is conducted for new entrants from secondary school through the College of Fisheries and Marine Technology. The Federal College of Fisheries and Marine Technology conducts regular courses on Nautical Science, Marine Engineering and Fisheries, leading to the award of National Diploma (ND) and Higher National Diploma, (HND).

The Federal Department of Fisheries conducts on-the-job training for semiskilled and skilled personnel on the field and their extension officers to help in the dissemination of information to new illiterate entrants into the fisheries and as well skilled fishermen. The main objectives of these courses were to educate fishermen on the new models or improvement on the gear, craft and outboard engine. There was also the desire of the Federal government to increase fish production. Therefore, inputs were provided at subsidized rates to people fishing. To be able to maximize the utilization inputs, training had to be conducted for the artisans and the private sector as well.

INTRODUCTION

With the increased drought in the Northern parts of the country and increase in demand for cheap sources of protein, the Federal government decided to increase fish production by encouraging more people to go into fishing. Additionally, the high cost of importation of frozen, dried and canned fisheries' products were on the increase and out of reach of the ordinary people. To encourage such production, government provided inputs at subsidized rates to all states in the country.

Many rivers traverse the country and having a maritime front on the southern part. Two main river systems divide the country into three; they are Niger and Benue rivers that other major rivers have farther fed. The natural Lake-Chad and man made Lake - Kaniji also contributes toward fish production in Nigeria.

Nigeria has a total of 12,487,817.65 hectares of surface area of water bodies. (Ita et al 1985). The Federal Government pursues various programmes to increase Agricultural production, including fisheries, particularly in the rural sector for self sufficiency in food production; through the modernization of fishing craft, gear and fishing methods of the local fishermen while educating them on their maintenance and operational capabilities.

To achieve these purposes, the Federal Ministry of Agriculture and Natural Resources and Agricultural Cooperatives embarked on the implementation of various approved fisheries' projects such as:

- Integrated Rural Fisheries Development Project.
- Federal Colleges of Fisheries in Lagos and New Bussa.
- Development Project for Fishery Harbour/Terminal jetties and other shore-based infrastructures.
- Aquacultural Development Project.
- Post Harvest Fish Processing and Utilization and Fisheries Information Service.
- Fisheries Inspectorate and Equipment Supply.

The UNDP/FAO input into the projects was the technical expertise provided. Therefore, spending two years in the college provides informal and formal training courses for people already in the industry and through formal education to obtain a Diploma.

A. TRAINING COURSES

1. An orientation course on Small Fibre-Glass (GRP) Fishing Boat Building at Igbokoda, Ondo State held under the auspices of the UNDP/FAO Artisanal and Inshore Fisheries Development Programme of the Federal Department of Fisheries, Lagos, at the BOATYARD, Igbokoda, Ondo State, from the 20th to 31st May, 1986.
2. Training course in Small Wood Mechanized Fishing Boat Construction held under the Auspices of the FAO/UNDP at the BOATYARD, Igbokoda from the 16th to 27th July, 1990.
3. An orientation course in Small Wooden and Fibre Glass mechanized Fishing at Igbokoda, BOATYARD, Ondo State, from the 5th to 10th July 1993.
4. Training course in Small Wooden and Fibre Glass Mechanized Fishing Boat Construction held at Boat Yard, Igbokoda - Ondo State from the 28th November to 2nd December, 1994. The project was tripartite agreement between Nigeria, UNDP and FAO to assist in Integrated Rural Fisheries Development Project.

SETUP OF THE BOATYARD

The setting up of the Pilot fiberglass or wooden boat building facility at Igbokoda in 1985 under the Artisanal and Inshore Fisheries Development Project of the Federal Department of Fisheries demonstrated the Government's commitment to the acceleration of the plans to bringing modern boats building technology to the doorsteps of the many Artisanal fishermen as well as foremen, carpenters who would like to acquire boat building knowledge. Therefore, the main purpose of this course was to introduce the participants to the various methods of producing

modern and durable boats suitable for the various coastal conditions from wood and fiberglass available to Artisanal fishermen.

This was based on the fact that indigenous fishing canoes were small with limited fishing capacity and the fishing methods employed are labour intensive. Furthermore, the trees used for carved fishing canoes were fast becoming threatened as suitable big logs were becoming unavailable.

Consequently, the Federal Department of Fisheries, between 1982-1985, through the project managed to introduce new improved types of fishing canoes and boats suitable for different fishing areas using fibre glass materials that are far superior to wooden canoes. The effort by the government on this issue led to the introduction of Ghana type of fiberglass Beach canoe in Lagos State. The banana type GRP canoes in Ondo and Ogun States as well as small inboard motorized fishing boat in other maritime states.

The introduction of these boat types had to be matched by efforts to develop the technical expertise to build and maintain these boats besides the operational skills. The course was therefore engaged in the training of not only the operatives of the fishing boats and extension personnel but also technicians in building boats, fabrication of fishing gear, maintenance etc.

TRAINING ACTIVITIES

1. Orientation Course on Small fibreglass Fishing Boat-building

Composition of Trainees and their profile:

Number of Participants: 15

Age: Between 25 - 45

Origin: Lagos, Ogun, Ondo, Delta and Edo

Educational Level: Coxswain, skippers, Graduates, Diploma

Gender: 93% males and 6.7 % females

Designation of the participants;

In order of superiority:

- | | | |
|----|---------------------------------|-----|
| 1) | Principal Fisheries Officer | (1) |
| 2) | Fisheries Officer I | (1) |
| 3) | Fisheries Assistants | (3) |
| 4) | Higher Fisheries Superintendent | (1) |
| 5) | Fisheries Superintendent | (4) |
| 6) | Skippers | (3) |
| 7) | Laminator/Monk Builders | (2) |

Basic Course Outline includes:

- Small Fishing Boat and their construction
- Boatyard practical and Introductions
- Understand Lines/lofting
- Theory of Fiberglass Boat-building

- Introduction to Fibre Glass Boat Building Practical
- Fibre Glass Boat building
- Practical Glass Reinforced Plastic (GRP) boats 66% of time devoted to practical boat building.
- Field trips to Aiyetoro (community BOATYARD)
- Fishing Boats for Small-scale Fisheries

2. Vocational Boat building course

Aim: Updating the knowledge in the construction of small mechanized fishing boats.

States Involved: Ondo, Ogun, Lagos, Bendel, Rivers and

Cross River (Maritime states).

Number of participants: 21

Gender: 3 females, 18 males

Age: 25-50

Designation of participants:

| | | |
|-----|----------------------------------|-----|
| 1) | Fisheries Officer | (1) |
| 2) | Higher Fisheries Superintendents | (2) |
| 3) | Fisheries Superintendent | (6) |
| 4) | Fisheries Assistant | (1) |
| 5) | Foreman | (1) |
| 6) | Quarter masters | (3) |
| 7) | Fisheries Overseer | (1) |
| 8) | Fisheries Attendant | (1) |
| 9) | Carpenter | (1) |
| 10) | Deckhand | (1) |

Elements of motivation after graduation: None

Constraints: Lack of continuity, follow-up courses, monitoring and motivation.

Educational Level: Diploma holders, West African School Certificate, First School Leaving Certificates, Skilled illiterates.

3. Training courses in small wooden and fiberglass mechanized fishing boat construction

Course Content:

- Outboard Engines-Fault-Detecting, Repairs and Routine maintenance.
- Practical out Board Engines
- Practical out Board Engines uses, care and maintenance of hand tools, wood working machinery and portable power tools.
- Reading of simple drawing and preparation of lofting platforms.
- lofting of fishing canoes.
- Timber selection, stacking, moisture etc. Preparation and stacking of planks.
- Frame Assembly - Type of planking.
- Planking - Fishing transportation boats

- Fibre Glass Boat building
- Practical on GRP
- Field trips to fishing villages.
- Inboard Engines - Installations, Fuel tanks, shafts etc.
- Fishing boat for small scale fisheries.
- Paints and Preservatives
- The role of the State Fisheries Division in the Development of Artisanal Fisheries.

Lecturers: 78% of the lecture given by expert from FAO/UNDP and a National to understudy the experts.

4. Vocational Training Course in small wooden and Fiberglass Boat/Hatchery Tank construction

Course Content

- General Introduction to the course, Artisanal fishermen and Fisheries Extension.
- Introduction to Boat Building.
- Wooden Boat Building.
- Practical - boatyard tools equipment, selection and preparation of timbre and stacking of planks.
- Fibre glass Boat Building.
- Fish pond construction.
- Fish pond management.
- Practical - use and application of Fiberglass chemicals.
- Practical -frame Assembly planking methods, Planking of fish transport boat.
- Practical - maintenance and servicing of outboard engines
- Routine maintenance of a small inboard engine
- The role of the state Fisheries Division in the development of Artisanal Fisheries.
- Field trip.

Lecturers: 100% nationals.

Designation of participants:

| | |
|---------------------|------|
| Boat Builders | (4) |
| Craftsmen | (12) |
| Quartermaster | (1) |
| Fisheries Overseers | (2) |
| Technicians | (1) |

Total 20

Gender of participants: All male

Educational Level: First School Leaving Certificate and West African School Certificate of Education.

5. **Training course in Small Wooden and Fiberglass mechanized Fishing Boat Construction held at BOATYARD Igbokoda, 28th November to 2nd December, 1994**

Participants:

| | |
|---------------------|---|
| Craftsmen | 5 |
| Technicians | 2 |
| Fisheries' overseer | 2 |
| Quarter master | 3 |
| Fisheries Officer | 2 |

14

Achievements of the Training Courses

Under the Integrated Rural Fisheries Development Project, the following objectives were realized;

- i) Identification and organization of target fishermen cooperative societies in the project fishing villages of Ogheye, Uta Ewa, Okoro Ete,
- ii) Survey identification of fishing gears in project areas completed, Socioeconomic background information has also been collected for Ogheye - Delta State.
- iii) Rehabilitation of existing infra structural facilities at project centers.
- iv) Procurement of inputs - outboard engines and spare parts, fishing nets. New fishing gears developed and existing traditional gears improved upon.
- v) Procurement of boat-building materials and appropriate in-board engines for installation. Construction of improved mechanized 12.95 meters wooden fishing boats.
- vi) Completion and commissioning of two wooden (9.2 meters) trawlers and banana fibreglass boat.
- vii) Completion and commissioning of the jetty for canoes at the Igbokoda boat yard.
- viii) Better and reliable sensitization of fishermen regarding use and maintenance of fishing crafts and gears.
- ix) Introduction to safety measures at sea.

B. COLLEGE OF FISHERIES AND MARINE TECHNOLOGY

The college was established in 1965 to offer in-service-training for staff of the Federal Fisheries Service. Formal institutionalized training started in 1969 aimed at upgrading the proficiency level of civil service, fishermen in fishing methods and operations of the few available vessels. The vessel operators required certification as coxswains according to the merchant shipping Act of 1963 to be statutorily qualified to man the vessels.

Larger vessels introduced required higher levels of competence for their operations such as a nine (9) months course leading to the award of mate fishing certificates.

Between 1976-80, there was two-year Fisheries assistance and superintendents' courses introduced to train the backlog of untrained junior and senior extension and development officers

for the states of the Federation. The course was later restructured into the Ordinary and Higher Diploma courses respectively.

The indigenization of manpower between 1981 - 1985 on-board of fishing vessels led to the introduction of courses and the award of Ordinary Diploma in Nautical Science and Fishing and the Ordinary Diploma in Marine Engineering. Also, the Mate Fishing and Motorman II courses were upgraded to the Ordinary Diploma courses.

The idea behind the establishment of the school was for self sufficiency at all levels in manpower requirements of the Nigerian Fishing industry. The formal training within the school, at fisheries vocational orientation courses are also organized for senior officers in the industry to update and upgrade their knowledge and skill from time to time.

Objective: Intermediate level personnel trained at the College of Fisheries and Marine Technology, Lagos should on completion of the course be able to;

Nautical Science and Fishing Programme:

- 1) Man fishing vessels below 30 meters (100 ft) length over all (LOA) with 250 horse power (HP) as a skipper.
- 2) Manoeuvre Fishing vessels in water bodies
- 3) Identify all equipment on board a fishing vessel.
- 4) Operate all equipments on board a fishing vessel.
- 5) Construct and use various fishing gears.
- 6) Quote and observe all navigational and fisheries' laws and regulations.
- 7) Keep accurate log books.
- 8) Perform routine maintenance duties on vessels
- 9) Identify and sort out fish for storage on board.
- 10) Lead command and discipline, crew and see to their welfare.

On completion of Marine Engineering course

- Take charge of the engine room of a vessel below 30 meters (100 ft) length over all (LOA) with 250 horsepower.
- Fabricate simple tools and materials
- Identify all equipment on board of a fishing vessel
- Operate all equipment in the engine room
- Maintain in good working order all equipment on board.
- Keep accurate engineers' log book.

On completion of the Fisheries Programme:

- Use effectively various communication techniques to transfer knowledge and skill to fishermen.
- Operate, correctly different types of available fishing gears and craft to maximize catch with minimum hazards to operators.

- Keep accurate accounts using acceptable accounting procedure to be able to transfer the knowledge to fishermen.
- Organize fishermen in recognized fishing communities into cooperative societies to attract government assistance.
- Identify fish qualities using physical microbial and chemical tests to produce fish acceptable to consumers.
- Operate correctly, different types of fish preservation equipment such as smoking kilns, freezers and cold stores to increase the shelf life of the fish.
- Identify various pest agents that attack stored dried fish and subsequently apply appropriate methods for their effective control.
- Construct ponds using locally available equipment and ensuring that the stocked fish can survive in captivity.
- Stock ponds with fish and monitor regularly their growth rate, feeding habits and fecundity and be able to compare these parameters with those in their natural habitat.

Programmes Offered

The college current annual training programmes are;

1. General Fisheries:

A 2 year course in fisheries studies leading to the award of National Diploma in General Fisheries.

Minimum Qualification Required:

West African School Certificate (WASC) or a General certificate Examination (GCE) at ordinary level credit passes in biology or Agricultural Science and Chemistry plus credit in any two of the following subjects: Physics, Mathematics, Geography, General Science plus at least a pass in English Language. School certificates lapses after five years. Therefore, pupil ages range between 17-25 years depending on the age at entering secondary school.

Programmes outline

National Diploma - First sessions in school (Fisheries)

- Promotion Examinations
- Three (3) Months Industrial Training
- Six (6) months in school
- Diploma examination.

Higher National Diploma (Fisheries)

- First sessions in school
- Promotion Examinations
- Five (5) Months Industrial Training
- Six (6) Months in school
- School Diploma Examination.

2. Marine Engineering

A two (2) year course in marine Engineering leading to the award of Marine Engineering Certificate of competency (third class).

Minimum Qualification Requirement.

West African School Certificate (WASC) or a General certificate Examination (GCE) at Ordinary level Credit passes in Physics and Mathematics plus credit in any two of the following subjects: Chemistry, General Science, Biology or Agriculture Science, Technical Drawing and at least a pass in English Language.

Course: Inboard/outboard Engine Maintenance

Duration: 75 hours (2 hours lecture, 3 hours practicals)

Goal: To enable students to acquire the knowledge and skill in operating and repairing inboard and outboard engines.

COURSE CONTENT:

- a) Differences between inboard and outboard engines
- b) Heat engines
- c) Operating principles of internal combustion engines
- d) Trouble shooting in inboard and outboard engines
- e) Maintenance and repairs of engines

Course: Nautical knowledge and seamanship

Duration: 75 hours (2 hours lecture and 3 hours practicals)

Goal: The course is designed to acquaint students with the principles of navigation and seamanship and to enable them to operate small fishing vessels.

COURSE CONTENT:

- a) Principles of Navigation and Seamanship
- b) Rules of navigation and seamanship
- c) Use of navigational equipments
- d) Operation of fishing vessel
- e) Fish detection equipment
- f) Security on fishing vessel

Course: Practical Fishing

Duration: 135 hours (9 hours of practical)

Goal: To acquaint students with the processes of fish detection, the use of fishing gear and methods, and the general safety of crew and vessel during fishing operations.

COURSE CONTENT:

- a) Fish detection techniques
- b) Fish finding Devices
- c) Function of Echo sounder
- d) Fishing methods
- e) Safety of crew and vessel.

Industrial Training

Students on industrial attachment ensure that Industrial training Supervisor endorses his or her "Industrial Training Activities Booklet" weekly. The book contains information on the student's punctuality, daily activities, and supervisors observations on the student. The supervisor's rating of the student is quantified and used as part of the score for the project report that is a major subject for the award of the relevant diploma.

The college-based supervisor is then appointed for each student to assist with the project write-up on return to school at the end of the Industrial Training. The External Examiner for each school programme conducts a "viva" (oral examination) on the Project Report at the end of each year's sessional examination.

The College Board and Committees

- The College has five (5) boards/committees
- The Academic Board
- The Examination Board
- Research and Publication Committee
- Ceremonial Committee
- Disciplinary Committee

Heads of Programme/Departments are responsible for supervising the curriculum under their charge.

The College Departments areas:

- Higher National Diploma - General Fisheries (Marine)
- National Diploma - General Fisheries
- Nautical Science and fishing/mate (including coxswains)
- Marine Engineering
- Pre-ordinary National Diploma

COURSE CONTENT:

Course: Fishing Gear and Craft Technology 1.

Duration: 60 hours (1 hour lecture, 3 hours practical)

Goal: The course is designed to teach the students the basic principles of designing, constructing and use of the common fishing gear and craft.

General Objective:

- a) Classification of Fishing gear;
- b) Netting Materials for Gear Construction;
- c) Net Construction;
- d) Fishing Craft/Boats;

Course: Elementary Navigation, seamanship and Fishing.

Duration: 75 hours (2 hours lecture and 3 hours field work)

Goal: To acquaint students with the basic concept of navigation and seamanship in marine and inland water bodies, to be able to operate motorized fishing boats and understand the operations of small fishing vessels.

COURSE CONTENT:

- a) Meaning of Navigation and Seamanship;
- b) Navigational terms
- c) Navigational Aids
- d) Celestial Navigation
- e) Fishing vessels and equipment
- f) Engines used in fishing vessels
- g) Safety in vessels
- h) Fire fighting

Course: Fishing Gear and Craft Technology 11

Duration: 75 hours (2 hours lecture and 3 hours practical)

Goal: To study the methods of designing and construction of various types of fishing gear and craft used in the marine and inland water bodies in Nigeria.

COURSE CONTENT:

- a) Twines and ropes
- b) Knots and net mending
- c) Net braiding and mending
- d) Fishing twines and ropes
- d) Fishing gear design and construction
- e) Choice of fishing gear and methods
- f) Fishing gear accessories
- g) Ordering of fishing materials
- h) Gear maintenance
- i) Maintenance of inboard and outboard engines.

Course: Practical Fishing

Duration: 90 hours (6 hours practical fishing)

Goal: The course is designed for students to understand the different fishing gear and methods for practical fishing.

COURSE CONTENT:

- a) Preparation for fishing
- b) Fish detection
- c) Active fishing gears
- d) Passive fishing gears
- e) Other fishing methods
- f) Handling of fishing gear and accessories.

Course: Fishing Gear and Craft Technology

Duration: 75 hours (2 hours lecture, 3 hours practical)

Goal: To enable students to acquire knowledge and skill in the techniques of designing and constructing fishing gears. Acquaint students of the vessels and crafts.

COURSE CONTENT:

- a) Rules guiding the design of fishing gears
- b) Forces acting on fishing gears during operations
- c) Design and construction of trawl nets
- d) Design and construction of gillnet
- e) Design and construction of castnet
- f) Design and construction of seine nets
- g) Modeling theory
- h) Characteristic of fishing vessels
- i) Maintenance of fishing gear and crafts.

Manpower development for the fishing industry has evolved from vocational training of fishing operations in 1969 to a more diverse technically oriented middle managerial level by 1976. In all, more than 3,5000 students have graduated from the Federal College of fisheries and Marine technology and more 2,500 students from at Federal Fisheries school, New Bussa, regular courses between 1970 and 1995. About 1,500 trainees have undergone the short term induction courses. The training methodology course and the fisheries extension workers course.

Suggestion and Recommendations on how to improve the Efficiency of such programmes

1. Updating the knowledge of previously trained personnel from time to time is essential, and making it possible for all former participants to attend the course to show continuity and show proper coordination and transfer of the knowledge acquired.
2. Visits to the trainees after the course on a fact finding missions on;
 - a. Usefulness of the course at the end of the course to their present status in the community.
 - b. Constraints faced by the trainees after the course to enable improvement on subsequent courses.

- c. Contacts should be maintained with all the trainees for future reference.
- 3. Provision of adequate training materials and equipment for demonstration. They should compliment this with proper motivation for the trainers.
4. There should be means of giving trainees finished boat building inputs to enable them practice the acquired knowledge.
5. In selecting trainees, for effectiveness, the categories of beneficiaries should include;
 - Rural resident boat builders who will remain in the village community to practice.
 - Skilled enough to impart the knowledge to new comers to the trade.
6. Adequate and sustained logistic and financial support by the three tiers of government - federal, state and Local authorities.

CONCLUSION

Traditional fishing, are not easily accepted by the younger generation because of the drudgery, risk, uncertainties and little or no returns. There is needed to attract more new comers into the trade by providing enough information on new or improved method of fishing. Acquisition of the knowledge should be affordable and within easy reach of the fishermen. On completion adequate tools and incentives should be provided for the new entrants to make it attractive and worth while.

Experiences in Training Fishermen and Fish Farmers in Sierra Leone

by

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1. INTRODUCTION

With the ever increasing need of fish production, fishermen have had to be abreast with various aspects to harvesting techniques. This generally has been seen in the various modifications to the catching methods and equipment in Sierra Leone. In the early 50's when the Department of Fisheries wanted to introduce newer fish catching methods and gear in Sierra Leone to replace the cast nets which were the dominant nets used for catching fish. Training of the fishermen was a crucial factor ; so fishermen had to be trained in the use of outboard engines on planked canoes to replace the dug out canoes. The mono and multifilament improved nets to replace the locally fabricated fishing nets made from vegetable materials was also very crucial.

Most of the earlier trainings of fishermen were not quite organised in the sense that it was adhoc and to a great extent they were various forms of demonstrations at sea where the departmental staff demonstrated the use of new nets to local fishermen at the fishing grounds. This however was the basis of organised training which came with the artisanal Fisheries Development Projects in Sierra Leone.

As the Artisanal Fisheries Development Projects had as a principal objective to increase fish production, the introduction of strong and better built boats had to be done nets with high catching efficiencies had to be used and these required skilled fishermen to operate them. So all of the development projects contained in their programmes training of fishermen. Another aspect of increasing production was the sustainability aspect. How were the fishermen going to maintain their increased catches maintain the various interventions of the projects when their life spans ended ?

The need to train the same fishermen in cooperativism also became important. So that they would collectively be able to administer the structures created by these Development Projects. Most important were credit administration and management for the very in puts which are the important elements in any fishing venture.

In this report, the coastal Sierra Leone and its inland fisheries are divided into the Northern and Southern Regions. The Northern covering Freetown up to Guinea (see annex 1). In both cases the trainings which have made good impacts are the ones that are reported. In

addition the training in fish farming is cited for both regions as they have also been very used in getting fish farming to have a good start in Sierra Leone prior to the rebel war.

2. SPECIFIC TRAINING PROGRAMMES (NORTHERN REGION)

2.1. Capture Fisheries Training

In both regions, training was principally geared towards the dominant fishing activity. So in the North the training were addressed to ring net fishing for bonga (*ethmalosa fimbriata*), saving and investment and fish farming.

2.1.1. Fishing Technology Training

This training was offered by the West north-west AFCOD Programme in 1992 for Ring Net Fishermen in the AFCOD Programme area stretching between Goderich and Rokai near the Guinea border. Three specific groups of eighteen (18) fishermen were selected and trained at three major venues (Yeliboya, Konakriedee and Goderich).

Worthy of note here is that the encircling gillnet fishing method was first introduced into Sierra Leone fisheries in the early 50's by migrating fishermen of the Fante tribe of Ghana. Nowadays the fishermen are trying to use their encircling gillnets as seine nets but without being able to close or purse them. Neither one of the two methods is therefore completely followed nor successfully conducted resulting in a mixture of rather unprosperous fishing activity that still needed improvement considerably to be used in the shallow areas of the fishing grounds.

The Herring net as in use were throughout 40 mm and twine 210d/9 (R-230 Tex) with lengths of 640-820 meters and depth of 28-40 meters. Average lead per meter (1500g/m) but floatation much less at only 700-1000g/m thus sinking the net to the bottom and the floatline submerging in any water depth greater than 3/4 of stretched net depth. The nets were hung at an average 0.97 (i.e. fully stretched on the framelines) which means reduced sinking speed.

The Bonga nets are very much similar in shape and construction to the herring ones except that their meshes are 55-80mm stretched mesh and of much lighter lead lines. The lead is put at 250-300g/m compared to 1400-1,600g/m in the Herring net. If the net is composed of different meshes the greater mesh is used next to the lead line. The Bonga etc. were much shallower than the herring etc... The recommended nets the training produced are seen in (Appendixes 2 & 3).

There was a thus a need to improve on the ring nets used in the Herring and Bonga fishery in the North ; as such the AFCOD Programme contracted an Icelandic Master Fisherman to (a) Modify and increase the efficiency of the ring nets commonly in use within the programme area for catching herring and Bonga (*sardinella maderesis* and *Ethmalosa fimbriata*). These two species are predominantly caught in the pelagic fishery in the northern and Southern Sierra Leone, and (b) to practically demonstrate the use of each modified net at sea in the three localities of Yeliboya, Konakriedee and Goderich (see annexes). He was also to teach basic navigations and seamanship, Basic Engineering, Basic gear material and construction and basic safety at sea.

Table (1) shows the profile of the training programme in the three stations

TABLE I

Fishing Technology Training of Fishermen in the AFCOD Programme

| | Yeliboya | Konakridee | Goderich |
|-----------------------------|---|--|--|
| 1. Date of training | Jan. 26 to Feb. 5, 1992 | Feb. 6 to 15, 1992 | Feb. 15 to 15 1992 |
| 2. Duration of training | 25 days | 25 days | 25 days |
| 3. Profile of trainees | All male, young and between the ages of 15 and 30, 55 % partly literate and 35% illiterate | Same as in Yeliboya but the literacy level was slightly increased here that 60% being partly literate and 40% illiterate | Same as in Yeliboya but the literacy rate was quite high here as this station is close to the city Freetown 75% were partly literate and 25% illiterate. |
| 4. Objectives of the course | <ul style="list-style-type: none"> i. To modify the Herring and Bonga nets in order to increase their efficiency ii. Demonstrate fishing with the modified nets using Inboard diesel Ghana canoe for the trainees to practically see the activities of the modified nets and the fuel saving aspect of the diesel Inboard engine. iii. To teach Fishermen basic seamanship and safety at sea | | |
| 5. Basic course outline | <ul style="list-style-type: none"> i. Basic navigation and seamanship ii. Basic engineering iii. Basic gear material and construction iv. Basic safety at sea | | |
| 6. Organisation of training | <p>The training was organised outdoor where basic classroom facility was made available i.e. blackboard, desks and chairs, etc. an interpreter was obtained for the illiterate trainees for both the theory and practical classes. Classes lasted for eight hours but split into two three hourly sessions with a two hour lunch break between them. Practical fishing was done at the fishing grounds of each village</p> | | |

7. Elements of motivation Fish caught in each practical fishing with the nets in each locality was given to the trainees. Certificates were issued to the trainees and for outstanding performance the trainees were given prizes of fishing gear material. Co-operate credits were easily endorsed for capable trainees to start new ventures.
8. Achievements As an impact of this training and the use of improved nets, the catch levels increased especially for the ring net fishers. Fishers started to observe basic safety precautions at sea (carrying paddles to sea which ring net fishers hardly did before).
9. Constraints Initial constraints were basically attitudinal that they never wanted to modify their nets but for some it was really financial constraint, for them to be able to buy the additional netting materials.

The modified nets were tried at sea in each locality. 12 other fishermen joined the six originally trained to make the modified net in each village for the seaborne training. Each sea borne training per locality lasted for 10 days. The catch in each locality was given to fishermen as an incentive. They were also paid a paltry sea allowance for the entire period of training in each village.

As a follow up action by the Project, they employed a Master Fisherman who became the counterpart to the Icelandic TA and he also went through the entire training in all the villages. So ha was now the focus of knowledge for reference to the trainees in their respective fishing activities. Fishing gear materials necessary for the modification to the old nets of the trainee fishermen were made available in each of the villages for sale under co-operative supervision.

The project's desire to maintain improved catches and maximise income generation for the trainees, held a couple of months later another training in savings and investment management to which the previous trainees were invited to attend together with other participants who were engaged in ancillary fishing activities.

2.1.2. Savings and Investment Management

The AFCOD programme considers training as fundamental in the overall programme especially for management of the interventions which are put into place by the Project. For this training the targeted trainees were young fishermen operating both co-operatively or singularly or in little groups and owned or operated fishing vessels together with boat operators and women fish processors. The training was designed to improve communication, and leadership skills, record keeping, action planning, income generating and resource management.

TABLE II

SAVINGS AND INVESTMENT MANAGEMENT TRAINING PROFILE

| | |
|------------------------|--|
| Duration | 2 weeks. This training was done 3 times, once yearly between July, 1992 and July 1995. The venues were Yeliboya 1992, Konakridee 1993, and Goderich 1994. |
| Composition | The training composed of both males and females (i.e. fishers, fish mongers/processors). The ladies were generally wives of the fishers, who generally do fish processing and marketing. There were 40 participants targeted per locality but only 16 reported for training in Yeliboya, 10 in Konakridee and 20 in Goderich. Their general educational background was fairly literate and virtually similar in all the villages. Female members were school drop outs mainly due to early pregnancy. The fishermen were in virtually the same situation as being school drop out. |
| Objective | The main objectives for the training were : a. to explore savings and investment opportunities and identify options with optimum pay off. b. to prepare savings targets and small scale investment plans. |
| Course outline | Methods of saving in cash and in kind. Reasons for savings and savings mobilisations Financial implications and possible issues and solutions Investment options Preparing savings target Making investment decision. |
| Organisation | The course was administrated using lectures, talks, discussions and practical exercises and using visual aids. |
| Elements of motivation | Certificates and prizes for high performance were given. (These varied from fish processing equipment to fishing gear). The young ladies specifically were encouraged by the project to undertake small scale income generating ventures. |
| Achievements | The training was quite achieving. Young fishermen and fish processors in the project area have become quite enterprising. Girls constructed improved fish processing bandas and thus processed increased capacities of fish. The fishermen started to save in kind, for instance, saving in buying a bundle of fishing net even when the need was not immediate. This served specifically to contain the inflation which was high in the country by then. |
| Constraints | One constraint was that young girls were difficult to get as trainees. The nursing mothers were not very regular in attendance. |
| Follow up actions | The project's M & E unit actually monitored the trainees activities after training in terms of savings and business management. |

3. CULTURE FISHERIES

Pond fish farming is new in Sierra Leone, it only started gaining foot hold in the early 80's. A lot of pond fish farming training was necessary so the Department of Fisheries had established a pond fish farming station in Northern Sierra Leone at Makali. This station was equipped with laboratories, office classrooms, ponds and living quarter for the station manager. When the Peace Corps Programme was still ongoing, this station was the venue for all their orientation programmes for - peace corps who were recruited for fish culture.

A series of trainings were conducted by Makali Station between September 1986 and early 1990. Training was a yearly programme in order to boost up the National fish culture Programme. Two of such training programmes are included in this report (One set of training done in Makali in the North and the other in Bo in the South).

Training in Fish Farming for Fish farmers and Technicians (Makali)

This training was an annual programme which took place at the end of the rainy season in mid September and lasted till mid October (4 weeks). There were five training programmes conducted between 1986 and 1990, each lasting for 4 weeks.

The trainees were carefully selected to include specially literate farmers and school leavers both male and females so that they were to be the key instructors at village level. The emphasis was on third form graduates and primary school graduates who were numerate and could understand English and be able to write fairly.

Twenty-five participants were selected from prospective fish farming villages in the Northern Sierra Leone. There were 20 males and 5 females.

The aim of the course was to provide training for field level extension agents who never had formal instruction in fish farming.

Specifically it entailed:

- a. Understanding what is fish farming is
- b. be able to plan a fish farming enterprise
- c. be able to identify suitable sites for fish farming
- d. be able to survey the sites and construct ponds
- e. know good pond management practices
- f. be able to keep records for production and economic purposes
- g. be able to cultivate rice and fish in the same pond
- h. and be able to know extension methods for extension services needed in fish farming.

The course content then was tailored to satisfy these public objectives i.e;

1. fish farming in ponds
2. the importance of fish farming
3. planning a fish farm
4. site selections and pond construction

- a. water source
 - b. soil type
 - c. slope
 - d. brushing and cleaning top soil
 - e. pegging burns
 - f. digging
 - g. making bunds
 - h. fitting inlet and outlets
5. Pond Management
- a. filling
 - b. fertilising
 - c. stocking
 - d. feeding
 - e. breeding
 - f. sampling
 - g. harvesting
 - h. selling
6. Economic of fish farming
- a. Record Keeping
 - b. Preparing the balance sheet
 - c. Assessing production
7. Comparing rice cultivation and fish farming
- a. Methods
 - b. Initial costs
 - c. Incomes
8. Extension methods
- a. Qualities of a good Extension Agent
 - b. Individuals
 - c. Groups
 - d. Mass
 - e. Extension services (case studies)
9. Field Visits

The training were organised to last for 4 weeks and comprised of lectures and practicals (both laboratory and filed work). Resource people were obtained mainly from the Fisheries Department and the Department of Agriculture.

On graduation, the trainees were given certificates and they were paid allowances for subsistence. Pond construction implements were made available to trainees from the station on graduation once they were involved in fish farming.

The achievement of this training became evident almost immediately in the Tonkolili, Kono and Kabala Districts where trainees were drafted from; because series of inland valley swamps were developed and swamp rice farmers were encouraged to have at least a fish pond within the swamp developed for swamp rice cultivation. By 1990, a total of 80 fish ponds on average 400m² each were recorded in the Northern Sierra Leone and their productions levels were reported as being 2000kg/Ha/yr for Tilapia nilotica and P. affter (cutlass fish).

A few constraints were evident,

- a. Getting the resource people who also had their regular duties in their respective stations for long periods was difficult and that made shuttling them costly.
- b. Government could not buttress fully the farming programme especially from the in-put point of view ; and NGO's who were very helpful had limitation to their expenditures.

After the training follow up on the trainees was done by the Training Centre Manager who was based at Makali up to early 1990 but the general economic situation and the rebel was could no longer permit extension supervision visits.

4. SOUTHERN REGION

4.1. Capture Fisheries

In the south there was also a similar fishing technology training like that of AFCOD. Apparently the ring net fishing methods for Bongo were the same in the south like in the north as earlier stated.

Two types of trainings (one in Fishing technology and the other in outboard engine maintenance) were conducted by the F.A.O. Integrated Fisheries Project in Shenge.

4.1.1. Fishing Technology Training

4 of this trainings were conducted within eight years of the programme when it was supported by FAO. The trainings were conducted during the raining season when fishing activity was low and in alternate years. They were administrated in 2 weekly sessions in alternate years and during August of such years between 1985-1993.

The trainees comprised of Boat owners and fishermen (all males), twenty percent (20%) were young and literate and eighty percent (80%) were fairly elderly, illiterate and Mainly boat owners who were fishermen as well.

The objectives of this training sprung from the background of the fishery in Shenge. There was a keen competition in the ring net fishery in Shenge for Bonga (*Ethmalosa fimbriata*) and there was this intention of the project to direct part of the pelagic fishery into demersal fishery. This needed training for which a UNV master Fisherman was employed by the project. The specific objectives were:

1. To create focus attention towards Demersal fishery, which involved the marketing of demersal high priced fish species.
2. To catch fishermen handling of such fish at sea.
3. To diversify fish marketing in the region.

For these objectives, the basic course outline for the training was:

- a. Gear construction and repair
- b. Techniques and methods of shooting nets
- c. Maintenance of vessels
- d. Basic navigation
- e. Fish handling at sea
- f. Fish marketing

Before organising the training, meetings with fishermen and boat owners in each of the project's 13 villages was done by the UNV Master Fisherman in each village and the idea of the training discussed. The choice of candidates, venue and date for the training were discussed and agreed in these meetings before training began.

Formal lectures were given with major emphasis on practicals ; visual aid, group discussions and display of various types of gears and sea borne demonstrations which made this course very lively.

As a means of motivations certificates were given for participation. Prizes were also given for outstanding performance-like paints for boats, netting panels etc. Trainees could get loans easier in the sense that they would be able to utilise such loans better.

The achievement of these training only became evident in the latter years of the project and were shown in the improved catches from the demersal fisheries, improved seamanship and skills. Safety precautions have been appreciated (e.g. carrying life jackets to sea. Bottom drift net fishing became a challenge to traditional fishers who have been fishing for many year as pelagic fishers.

Major constraint was that the participants were largely illiterate which made trainee apprehension slow even in practical skills. Attitudinal changes were slow especially with the illiterate trainees.

4.1.2. Outboard Engine Repair and Maintenance Training

This was a longer duration and was only done once. The village mechanics needed to be trained in outboard engine repair and maintenance. Six male trainees were thus selected from the thirteen villages covered by the project and they under went outboard engine mechanical training for nine (9) months (February - October 1991) at the Project Engineering workshop in Shenge under the supervision of the Project Mechanic.

The trainees were mostly school leavers who wanted to learn the trade of mechanical engineering and were numerate and thus were carefully selected. They were all youths 18-20 years old and had just left school (fifth form).

The objectives of this training were:

1. To train outboard engine mechanics for fishing vessels in order to increase engine longevity
2. To promote the use of two stroke oil in the outboard engines of the fishing vessels in the project area in order to increase engine performance and reduce fuel consumption.

The course outlines for these objectives were:

- Knowing the outboard engine, (how it works)
- Oil/fuel ratio and how to mix them
- Easily worn out parts
- Diagnosing faults
- Repairing faults
- Using the parts catalogue
- Engine longevity measures

The training was organised to include minimal lectures and maximum practical training which involved diagrams, other visual aids, engines modules etc. There were a lot of discussions and demonstrations.

Certificates were issued to the six participants and workshop equipment was provided for them in order to facilitate their work in their villages. A year later the Project built workshops for 3 of the leading trained mechanics in locations where outboard engine were many (Plantain, Katta and Bumpetoke).

One good achievement was that except for major problems, outboard engines were looked after at village level which prior to their training were brought to Shenge at the Project's workshop for all repairs.

4.1.3. Fishing Technology Training (Bo/pujehun Project)

In the Bo/Pujehun Project area, similar fishermen training has been done. In this area, there are rivers and lakes so the fishery is different from the coastal fishery to a large extent though the coastal area in Sulima has coastal marine fishers.

The Fisheries sector of the Bo/Pujehun Rural Development Project undertook both fish culture and capture fisheries. For the Coastal fishermen in this area series of trainings were organised between 1989 and 1991.

Weekly trainings in fishing technology were conducted in the total coverage of the 16 target villages covered by the Project and the trainings were actually administered in each village between June and August of every year between 1989-1991.

The trainees were selected from the fishermen and women in each village training had to be done. One striking thing about inland fisheries is that even the women get involved in fishing together with the men. Unlike coastal marine fisheries. Ten trainees were selected, the ration of females to males was always 1:3. The participants were primary school leavers or drop out as well as illiterate married women. They were all between the ages of 18-20 years. The trainees were actually hand-picked by the Project's Gear Technologist prior to the beginning of training.

The major objective for this training was to train youths to replace the elderly fishermen and to get fishermen to make their own nets, rig them and maintain them.

In the organisation of this training local and illiterate net makers (weavers), who were very useful in teaching the youths net weaving. A lot of net weaving is done in this area and mostly by women who use hand nets for fishing in the shallow areas, of the rivers and lakes especially in the dry season. Demonstrations were mainly emphasised. The courses were held in informal places under the shade of big trees where trainees would spread out to make nets or in open meeting house in village.

Certificates for participation were given to the trainees. Gifts were given according to positions achieved on assessment. Most of these trainees ended up in the employ of the project as extension workers and enumerators.

There were striking achievements from the trainings given in these riverine areas in the District. Net maintenance increased, nets were now hung away from the sun after use under shades of big trees as opposed to being left in the sun as the fishermen use to do. Hand nets used by women became very common.

The constraint was mainly keeping these youths together for two weeks at a time especially the girls who were married and came from other villages to the training village. To leave their husbands for prolonged periods was a difficulty for both the husbands and wives. As a result some were irregular at the training.

As a follow up of the training, the Project introduced the principle of selling nets on credit to only the fishermen who had attended training. This was a management technique, in order to use the trainees as resource conservation agents. The Project's gear technologist made field visits to villages where trainees came from in order to have discussions with the trainees for post training problems.

5. CULTURE FISHERIES

5.1. Pond Fish Culture Training

As pond fish culture was a component of the fisheries Programme within the Projects, a few trainings in Fish Culture were also undertaken by the Fisheries sector of the Project.

Twelve such training workshops were conducted between July 1989 and June 1991 in selected villages specifically in the Bo District as it had many inland valley swamps which were under development by the Ministry of Agriculture.

Each Workshop lasted for one week at the Fish Farming Station in Bo. The station already had ponds under culture and enough land for development. Twenty participants were selected for each training of whom four were women who incidentally became better pond managers. Most of the male participants were primary and secondary school drop outs who were involved with the inland valley swamp development programme. The female participants were completely illiterate but were diligent farm workers. The participants ages varied between 15 and 30.

The objectives of this training workshops were two-fold:

1. To introduce pond fish farming in order to augment protein production in southern Sierra Leone.
2. To introduce rice and fish production in the rice fields within the inland valley swamps.

The course outline for the training workshops were carefully drawn as follows:

(i) Pond construction

Site selection
Brushing
Soil test
Pond excavation and bunding

(ii) Pond management

Rice and Fish production in the same ponds
Composting
Fertilisation
Filling and Stocking
Feeding

The workshops were conducted by the Fisheries staff of the Project. Resource people came from the Project staff as well as Fisheries Departmental Staff. Lectures were given only to be taken as reference material ; because the workshop took the form of practicals and demonstrations. Participants went through the practical aspects of pond construction with their hands on the job.

Certificates were not given here, but as an incentive, the participants benefited from a rental loan scheme arranged by the Project for equipment for pond construction. Basic fertilisers were given to farmers free once you had made a pond in your swamp.

By the end of two years of the training, Tulip nilotical production had reached 300 Kg.Ha.Yr. That for Heterobranchus sp. attained 2.000 Kg/Ha/Yr, both species produced in mono and polyculture from 50 farmers ponds each of average 400 m².

Major constraint in this training was the literacy level which made apprehension of the subject matter difficult, and again this was to a large extent hampered by the lack of visual aids which were not available due to inadequate finance for logistics. Follow up on the training was not possible because the rebel war had engulfed most of the areas under fish farming.

6. SUGGESTIONS AND RECOMMENDATIONS

There were quite valuable trainings given within 5 to 8 years when the Fisheries Development Projects began in Sierra Leone. It was realised that there was no correlation between the various Projects specifically in their planning as there were duplications which could have been avoided if they had co-ordinated between themselves. Such training's could have been conducted on a national basis with the proper involvement of the Department of Fisheries.

It is recommended that in future the preparation of the each project's annual programmes of work all training's planned should be co-ordinated so that Fishermen nation wide should be invited to attend. This would mean that even the funds could be pooled together so that fortified training which benefits a larger section of the national fishermen could be attained.

As for follow up actions to these training's, the Department should maintain their complete involvement so that their coastal station officers should include desired follow up activities in their extension packages.

The fewer number of fishculture training was not enough for a national coverage, this should be enhanced and specifically it will be very useful if these trainings are conducted at village level with the use of locally available inputs promoted.

Togolese Experiences in the Training of Fishermen

by

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INTRODUCTION

Togo has no long experience in the training of fishermen. However, within the multi-national relation context, Japan, in 1984, offered materials and equipment (net sheets, out-board engines and their spare parts, maintenance tools) to Togo to help support its maritime artisanal fisheries, a 16m trawler to boost semi-industrial fisheries and refrigerated lorries for transporting and distributing fresh fish.

Proceeds from the distribution of fishing materials and equipment as well as the use of the trawler were be used to finance the Maritime Fisheries Development Project (PRODEPEMA) initiated as Japanese Gifts.

An important aspect of this project is the training of young fishermen to take over from the dominantly foreign, heterogenous ageing fishing population. These mainly illiterate people are hardly open to technological innovations but have knowledge which they are nevertheless, willing to transmit.

The Togolese fisherman benefitted from two series of training:

1. training of fishermen in trammel net and line fishing with the help of the portable Echo-Sounder through the BENIN MODEL PROJECT (FAO between April and July 1988);
2. training of young fishermen in fishing technology with the help of Japan (1989).

A. MARITIME FISHERIES DEVELOPMENT PROJECT

This training-based project was initiated to help absorb an available but idle work force, from among unemployed graduates without any professional training. After training in sea-related employment, these youths will be installed.

The training's philosophy was based on that of the rural youth in agriculture.

The training aims at providing practical training that will lead the young to earn their own living.

The eight (8) month programme, two (2) of which is theoretical, aims at training two teams of fifteen (15) youth per course who will organise themselves into pre-cooperative groups to jointly use the fishing training craft which will be assigned to them.

No certificate recognised by the Civil Service will be delivered at the end of the training.

Through their respective obligations, the Ministry of Rural Development undertakes to:

- ensure the training of the youth and make teaching resources available to them (two equipped canoes and monitors remunerated according to shares from production);
- return the fishing craft as credit-grant to pre-cooperative groups.

The young fishermen should:

- scrupulously follow the training programme;
- jointly manage the fishing craft which will be assigned to them;
- re-imburse the non-subsidized cost of the fishing craft;
- accept, in the course of exercising their profession, the technical follow-up of the ministry's department;
- share fish products with monitors.

The School is day.

The training was to offer employment to the youth, teach them how to earn a living and improve fish supply to the population.

Recruitment is done through a national competition on the basis of the opening of a Young Fishermen Training and Installation Centre with a view to initiating them into sea-related employment.

Some of the selection criteria stipulate that the candidate must know how to swim, be at least 18 years old and not more than 25 at the time of the competition and be a holder of the End of First Cycle of Secondary School Certificate (BEPC) or its equivalent.

School actually began in October 1989. Of the fifty (50) students recruited, thirty-four (34) completed their training. (One died and five dropped out).

The students came from five (5) Administrative Regions in Togo.

TRAINING PROGRAMME

This programme, of no interest to the civil servants from the State, concerns literate unemployed fishermen's children with no occupation, professional fishermen wishing to enhance their skills when installed. It will be more practical than theoretical. However, all theoretical data are reviewed in the form of accelerated lessons.

To reinforce the future fishermen's general skills, lessons in French will cover technical terms in fishing: knots, cable length, reading of technical texts, writing of minutes, reports, and if possible elaboration of projects, marketing and general accounting notions.

Practical work could be alternated with theoretical lessons, in a day or an entire week. There will be regular field visits to: the port, warehouses, fish products sales shops...etc.

Sea trips will start in the fourth month and in groups of three (3) or four (4) and two (2) or three (3) times per week in UNICOOPEMA canoes until they acquire the experience necessary for them to be self-sufficient.

The Cooperation will thus emerge and be installed with necessary equipment and supervision.

FIRST PART

THE PROGRAMME'S STRUCTURE

| THEORITICAL TEACHING | PRACTICAL TEACHING |
|---|---|
| I - <u>Study of the marine environment</u> II - <u>Marine Fisheries</u> 2.1 <u>Location of the fishing areas (Marine Geography)</u> 2.2 <u>Classification of Fishing Methods</u> a) - Passive method b) - Active method c) - Attraction method d) - Commotion method e) - Production method | - Three (3)swimming sessions per week - Hand making of a net - How to weave a netting panel - How to fill a mending needle - How to handle a mould -How to make simple or double knots - By stages, how to obtain a piece of netting manually |
| 2.3 - <u>Fishing gear classification</u> a) - catching without gear b) - catching by injury c) - handlining d) - fish traps e) - framed nets f) - seining g) - trolling lines h) - liftnet i) - set gillnet j) - mechanized gears...etc | Comparison between imported mechanically made netting and locally hand made netting. - By study, to determine the respective particularities of : - <u>The mesh</u> a) - various names b) - measurement c) - various knots |
| 2.4 - <u>Materials used for Marine Fisheries</u> a) - Natural fibres b) - Synthetic twines/ropes c) - making and quoting of textiles d) - Use of textiles | - <u>The netting</u> : - Dimensions - Cutting - Various cuts - Their peculiarities |
| 2.5 - <u>The nets -Their fabrication</u> a) - Manual weaving b) - <u>Mechanical fabrication with or without knots</u> c) - Net specification - Netting - The mesh (measurement) - Various shapes of the pieces of netting - Dimensions | <u>Joining various netting</u> a) by joining b) by lacing c) the peculiarities <u>The textiles</u> : Knowing them is of importance for the future fishermen coming from an inland environment, hence the need to learn everything |

| | |
|--|---|
| <p>2.6 <u>Accessories</u></p> <p>a) Twines and ropes b) Floats c) Ballasts and miscellaneous</p> <p>2.7 <u>The mounting</u></p> <p>a) - Methods of construction b) - Joining pieces of netting c) - Cuts d) - hanging or mounting</p> <p>2.8 <u>Mending the nets</u></p> <p>a) - <u>Definition and generalities</u> Although it appears very simple , mending is one of the most complex techniques in fishing</p> <p>b) - <u>Material used</u> The frames, the twines, the moulds, the needles, knives or scissors. - Perseverance and attention is required from the instructor. This involves several delicate operations : like cutting, weaving and net mending.</p> | <p>a) <u>Natural fibres</u></p> <p>- Hemp : characteristics - Sisal : -//- - Cotton: -//-</p> <p>b) <u>Synthetic textiles (peculiarities and utilisation)</u></p> <p>- Polyamide - Polyester - Vinyl - Polyethylene</p> <p>c) <u>Fabrication of twines and ropes</u></p> <p>- Various knots used for joining ropes in general - How to use the mending material at disposal - Various torn pieces to mend, (to be created voluntarily) - previous work on net cuts/preparation prior to mending - The mending itself</p> <p>- d) <u>The manual weaving</u> - various types - When and how to practise ?</p> |
| <p>SECOND PART</p> <p>- <u>The sea</u></p> <p>1.1 <u>The peculiarities</u></p> <p>1.2 <u>Physical and chemical characteristics of the sea water</u></p> <p>a) Salinity b) Temperature c) Density</p> <p>1.3 <u>Movements of the sea</u></p> <p>a) The currents b) The counter currents c) Tides d) The swell</p> <p>1.4 <u>Classification of Marine organisms</u> Two main groups, vegetal and animals -The Pelagos - the Benthos - The Plankton - The Phytoplankton</p> <p>1.5 <u>The fisheries products</u> The fish Table of the main species known with their common names</p> <p>1.6 <u>Dissection of the fish</u></p> <p>- Different parts - Different organs - Food value</p> | <p>SECOND PART</p> <p><u>Motorization</u></p> <p>At the mechanical workshop, we will try to know the out-board engines.</p> <p>- Starting - (Handling engine at sea)</p> <p>- maintenance (the most important : the spare parts).</p> <p>- At the harbour fish market, with list at hand, we will discover the various species during the landing of the products. As far as possible, together with the health authorities, we will : observe the different species of fish during landing of the products. - Identify the different species landed at the fishing port - Control of the quality of fisheries products.</p> |

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| <p>THIRD PART</p> <p><u>I Different fishing methods</u></p> <p>1.1 <u>Pelagic Fishery</u></p> <ul style="list-style-type: none"> - The gillnet and surrounding net - The ring net or purse seine - The lampara net <p>1.2 <u>Classical and mechanical operations with purse-seine net</u></p> <p>1.3 <u>The line fisheries</u></p> <ol style="list-style-type: none"> a) Hand-line type b) Trolling ligne type c) Drift long-line d) Bottom long-line <p>1.4 <u>Live bait fishing</u></p> <p style="padding-left: 20px;">Various methods</p> <p>1.5 <u>Bottom fishing operation</u></p> <ul style="list-style-type: none"> - The traps - Bottom gillnets for crustaceous - Gillnets and trammel nets for fish - The dredges - Beach-seine and others coastal traps <p>1.6 <u>The trawls and trawling</u></p> <ul style="list-style-type: none"> - Various methods - Making and rigging - Operations - Rules <p>1.7 <u>Identification of fish shoal</u></p> <ul style="list-style-type: none"> - Principle - Apparatus - Methods | <p>THIRD PART</p> <p><u>Making the fishing gears</u></p> <p>1 - We will observe several nets(in use) at the harbour</p> <p>2 - We will hang nets ourselves in the normal fishing conditions (according to two methods)</p> <ul style="list-style-type: none"> - 1 or 2 drift gillnets - 1 surrounding net - 1 purse-seine. <p>Those nets will be dismantled and hanged as far as possible to make the trainees familiar with various kinds of hanging.</p> <p>For the beach-seine, we will visit several at beach level and one small model will be made.</p> <p>The fabrication of lines and longlines is more delicate. We will deal progressively with this type of fishing gear. One must be listening and observing well the technique.</p> <p>No trawl gear will be fabricated, but a trawler will be visited during the visits at the harbour. We will observe the trawl gears on board of a trawler, to appreciate better the theoritical course already done.</p> |
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| <p>1.8 <u>Special fishing</u></p> <ul style="list-style-type: none"> - Light-fishing - Electric fishing - Pump fishing <p>1.9 - <u>Fish processing</u></p> <ul style="list-style-type: none"> - Refrigeration - Deep frozen - Processing like smoking, drying, salting <p>1.10 <u>Health / sanitary control</u></p> <ul style="list-style-type: none"> - Organoleptic peculiarities of the fish <p>1.11 <u>The Co-operative organisation</u></p> <ul style="list-style-type: none"> - The role of a co-operative - Importance of a co-operative in fisheries - A fishermen Co-operative - Training - Structure - Management | <p>We will use photographs, pictures, drawing and theoretical demonstrations.</p> <p>For the refrigeration and deep freezing, we will visit the cold store of the fish shop of UNICOPEMA.</p> <p>For the drying and salting operations, the particular installations of the female fish mongers at the harbour will suffice for a demonstration.</p> <p>For the observations on freshness and deterioration of fish products, this can be easily observed at the harbour.</p> <p>By the end of their training, the new fishermen will be organized in a Co-operative. It is therefore important that they be aware of all aspects of Co-operation, putting emphasis on the advantages, so that they can realize maximum profit.</p> |
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Table N° 2

TIME TABLE

| Time | Monday | Tuesday | Wednesday | Thursday | Friday |
|-------------|---------------|---------------------|--------------|----------------|--------------|
| 8H - 9H | Civic studies | Workshop | Oceanography | Technology | Oceanography |
| 9H-10H | Technology | Mechanical workshop | Oceanography | Technology | Oceanography |
| 10H-10H20 | Break | Break | Break | Break | Break |
| 10H20-11H30 | Technology | Workshop | seamanship | Health control | Mechanics |
| AFTERNOON | | | | | |
| 15H-16H30 | Oceanography | Co-operation | management | Technology | Seamanship |

Table N°3

COURSES AND DATES

| | |
|---|------------------------|
| <p>- OCEANOGRAPHY - Definition</p> <p>- Section of Oceanography</p> <p>CHAPTER I : STUDY OF THE MARINE ENVIRONMENT 1.1 - <u>Physico-chemical characteristics of the sea water</u></p> <p>a) <u>Physical properties</u></p> <ul style="list-style-type: none"> - Light penetration - Temperature - Density - Other physical properties : resistivity, viscosity, acoustic waves, radio activity. <p>b) <u>Conservative chemical properties</u></p> <ul style="list-style-type: none"> - Major constituents - Salinity - Secondary constituents <p>c) <u>Non conservative chemical properties</u></p> <p>Dissolved gas Dissolved salts</p> | <p>9 October 1989</p> |
| <p>CHAPTER II : Movements of the sea</p> <p>2.1 Cyclic and periodic movements</p> <ul style="list-style-type: none"> - The tides - The swell and waves <p>2.2 Aperiodic movements</p> <ul style="list-style-type: none"> - The sea currents. | <p>25 Octobre 1989</p> |

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| <p>CHAPTER III : STUDY OF SEA-DWELLING PLANTS AND ANIMALS</p> <p>3.1 <u>Pelagic zone</u></p> <ul style="list-style-type: none"> - Major categories - Plankton - Nekton - Minor categories <p>3.2 <u>Benthic zone</u></p> <p>3.3 Vegetal kingdom</p> <p>3.4 Animal kingdom</p> <ul style="list-style-type: none"> - Invertebrate unicellular invertebrates (protozoa) - Multicellular invertebrate - Vertebrates <p>3.5 <u>Exploited marine groups</u></p> <ul style="list-style-type: none"> - Large algae - Molluscs - Decapod crustaceans - Echinoderms - Teleosts - Sharks - Marine mammals <p>II - <u>FISHING TECHNOLOGY</u></p> <p>CHAPTER I - Fishing</p> <ul style="list-style-type: none"> - Definition - Evolution - Fishing in Togo - Terminology - Location of fishing zones <p>CHAPTER II - CLASSIFICATION OF METHODS AND FISHING GEARS</p> <ul style="list-style-type: none"> - Passive methods - Active methods - Attracting methods - Production methods (fishculture) - Classification of fishing gears <p>CHAPTER III - FISHING MATERIALS</p> <ul style="list-style-type: none"> - Natural fibres - Synthetic fibres - Fishing nets specification - Ropes <p><u>The nets :</u> Their fabrication</p> <ul style="list-style-type: none"> - Material utilised in a workshop - Mechanical fabrication - Knotless netting - Preparation of a netting panel - The meshes | <p>8 November 1989</p> <p>2 Octobre 1989</p> <p>16 October 1989</p> <p>1</p> <p>9 Octobre 1989</p> <p>2 November 1989</p> <p>9 November 1989</p> |
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| <p><u>SHAPING AND CUTTING OF A PIECE OF NETTING</u></p> <ul style="list-style-type: none"> - Process of cutting all clean meshes - process of cutting all bars - Joining panels of netting - <u>Mounting a net</u> <p><u>Accessories</u> : the floats</p> <p><u>The nets</u></p> <ul style="list-style-type: none"> - Purse-seine - Fishing with light : sardine fishing or lampara fishing - Special fishing - Shade fishing - Electric fishing - Demersal fishing - Passive methods - The traps - The dredges <p>III - <u>Maritime navigation</u></p> <ul style="list-style-type: none"> - Definition - Geographical representation <p>CHAPTER I - <u>The compass</u></p> <ul style="list-style-type: none"> - Magnetism - Description of a compass - Dry card compass "Thompson type" - Magnetic compass <p>CHAPTER II - <u>The echosounder</u></p> <ul style="list-style-type: none"> - Purpose of an echosounder - Hand sounding device - Ultrasonic echosounder - Interpretation of an echosounder <p>IV - <u>SEAMANSHIP</u></p> <p>CHAPTER I - <u>The ropes</u></p> <p>A - <u>Generalities</u></p> <ul style="list-style-type: none"> - Purpose of the ropes, knowing the kind of rope - Rope size, softness of a rope | <p>20 November 1989</p> <p>18 December 1989</p> <p>4 January 1990</p> <p>15 March 1990</p> <p>11 April 1990</p> <p>16 May 1990</p> <p>18 December 1990</p> <p>3 January 1990</p> <p>19 January 1990</p> <p>11 Octobre 1990</p> |
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B - Differents ropes

- Rope yarn
- Strand of yarn
- Docking line
- Spun yarn
- Staple fibre
- Marlin
- Houseline
- Halyard
- Messenger rope
- C - Maintenance of hemp rope
- D - Fabrication of steel wires
- E - Maintenance of steel wires
- F - Combination wire
- G - Synthetic rope
- H - To promote new ropes
 - . Textile ropes
 - . Steel cables/wires

CHAPTER II : The knots

Definition

Precaution to be taken

- Whipping
- Half-hitch
- Overhand knot
- Reef knot
- Sheet bend
- Double sheet bend
- Bowline
- Double bow line (for bosun's chair)
- Bowline on the bight
- Double bow line on the bight
- Bend knot
- Round turn and one half hitches
- Clove hitch on the bight
- Clove hitch on the end
- Timber hitch
- Round turn and two half hitches
- Running bowline
- Catspaw
- Fisherman's knot
- Bowline simple/double

20 Octobre 1989

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| Catspaw knot Fisherman's knot Bowline single:double | |
| <u>CHAPTER III: Eyes splices</u> | 11 January 1990 |
| A - Generalities | |
| - Spike | |
| - Short splice | |
| - Long splice | |
| - Long splice on four strands rope | |
| - Making of a eyesplice on four strands rope | |
| V - CO-OPERATION | 10 Octobre 1990 |
| - Co-operative organization | |
| - Co-operative movement | |
| - Creation of a Co-operative | 11 Octobre 1990 |
| - Fundamental principles/ rules of a co-operative | 12 Octobre 1990 |
| - Equity rules | |
| - Definition | |
| - Objectives | |
| <u>Administrative organization of a co-operative</u> | 18 Octobre 1990 |
| - Structures and roles | |
| - General assembly | |
| - Extraordinary General Assembly | |
| - Right to vote | |
| - Board of Directors | |
| <u>MANAGEMENT</u> | 3 Novembre 1999 |
| <u>The status</u> | 8 November 1989 |
| <u>Special structures of control</u> | 10 November 1989 |
| . Accounting Officer | |
| . Monitoring and control Officer | |
| <u>The Commercial Manager</u> | 15 November 1989 |
| <u>Financial organization</u> | |

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| - Social Fund : how to collect it ? | |
| - Nature of the Social Fund | |
| - Peculiar characteristics of the social shares | |
| - Responsibility toward creditors | |
| - Stocks | |
| The Co-operative : Memorandum of understanding | 1st December 1989 |
| <u>Function of the co-operative movement in developing countries</u> | 19 April 1990 |
| <u>Classification of the various co-operative branches</u> | 20 April 1990 |
| - Agricultural co-operatives | |
| - Processing co-operatives | |
| - Fisheries co-operatives | |
| <u>MANAGEMENT</u> | 18 April 1990 |
| - Management and Administration in the co-operative movement | |
| - Management's principles | |
| - Plan of action for the Board of Directors | 23 April 1990 |
| - Management regulations | 28 April 1990 |
| - Technical activities of the Board of Directors | |
| <u>Juridical bases of the co-operative movement</u> | 3rd May 1990 |
| . Co-operative law | |
| <u>Shortcoming in the work of the Board of Directors</u> | |
| <u>Status</u> | 14 May 1990 |
| - Typical status | |
| <u>VI - HEALTH CONTROL</u> | 7th May 1990 |
| - Health control for fisheries products | 2 April 1990 |
| - The fish | 9 April 1990 |
| - Processing and preservation | 7 June 1990 |
| - By-products | |

ORGANISATION AND ADMINISTRATION OF LESSONS

Lessons were given following a definite time-table and programme. Lessons were scheduled twice: in the morning and evening (See Time-table Page 10) at the UNICOPEMA's "MAISON DU PECHEUR" at the PK12 harbour area.

The problem of transportation was raised by these financially impoverished youth at the beginning. The proposal to buy a minibus was not accepted. The long distance from the school led to the adoption of a continuous school day system.

Practical training was carried out in the field: port, warehouses, workshops and at sea on canoes and trawler.

For sea trips, the youth were divided into three (3) groups of 11 to 12 persons. Each team was supervised by 4 or 5 professionals.

Each trainee received 10,000 CFAF a month and the instructors 30,000 CFAF.

They were fed in the afternoon and treated in the event of illness.

The operation of the school is estimated at 1,720,000 CFAF.

Training cost estimated at 5 000 000 CFAF is based on resources generated from the exploitation of the trawler "KERAN" and the sale of the fishing materials and equipment, gifts from Japan.

The training was supported by Japanese assistance in the form of teaching materials.

MOTIVATION OF TRAINEES AT THE END OF THE TRAINING

- Regrouping of trainees into pre-cooperatives (2 teams of 15 persons per course);
- Assignment of equipped teaching units as credit-subsidy;
- Award of an attestation.

ACCOMPLISHMENTS

- The training programme, initially scheduled for 8 months, lasted 12 because of the trainees' slow assimilation rate.
- For regrouping into the pre-cooperative and installation phase, three (3) motorized and equipped canoes were provided.

Practical Training on the "Keran" Trawler

1. Organisation

- Distribution of the students into five (5) groups of seven (7).
- Duration: three (3) months per team following a weekly tidal run.
- Allowances: 10 000 CFAF per month per person, financed with the earnings from the trawler.

2. Practical Training Aspect

Practical navigation - throwing in and resurfacing manoeuvre of the drag-net - mending of the drag-net - splicing of the rope - behaviour of the drag-net in different depths.

3. Regrouping of the trained youth

Despite everything else, two groups were initiated by the young fishermen.

1 - The Young Baguida Fishermen Group

It benefitted from a loan from the French Development Fund and a subsidy from the World Bank.

2 - The Sailors' Cooperative

It's seeking a source of financing.

CONSTRAINTS

1. Financial (scholarships for trainees)

The school is day. Consequently, the scholarship amount made the following difficult:

- a) accommodation of the trainees from different Prefectures and who have to pay for their accommodation;
- b) transportation: the school is far from the centre of town, hence need to find accommodation nearby or subscribe to urban transportation.

These important elements led to drop-outs right in the first week of the course.

2. The objective to train competent spokesmen, the basis for disseminating innovations, was not met. Trainees were more interested in obtaining a diploma recognised by the Civil Service.

3. The importance of the scheduled programme was more theory oriented and the practical phase was only followed by a few trainees who were willing to continue fishing activities.

4. Closure of the school after only one cycle (suspension after one attempt).

5. Lack of follow-up.

ANALYSIS

Training and installing young Togolese fishermen is an appreciable nationalist objective. It could have also been concretized by a specific training (maritime fisheries, river fisheries and pisciculture) mainly strengthened by the idea of installation after the cycle. River fishing is not less profitable than maritime fisheries considering the fact that river and lagoon species are more valued than maritime ones.

Training of the youth, sons of fishermen with prior knowledge that needs to be reinforced, will facilitate the practical phase and enhance easier integration of the trainees into basic fishing family units where each one will play the role of leaven in disseminating innovations and be a force in managing the family unit.

Due to its specific objective (training-installation of young fishermen), rather than THE TOGO SCHOOL OF FISHERIES which used academicians as teachers and awarded diplomas, the name "FISHERMEN'S LEARNING CENTRE" would be more appropriate, using practitioners as monitors and leading maybe to an attestation or certificate of participation.

The programme is broad enough to be covered in two months of theory. It seems to have given preference to the theoretical phase.

Necessary and very appreciative readjustments permitted the School to function normally.

Granting of financial assistance to trainees and monitors as well as operational credit to the School, which was not initially planned for.

It would be unfortunate if the School closed down after its first attempt.

SUGGESTIONS

Togo would gain a lot from training national fishermen. The training can be specific.

1. Maritime fisheries for those already used to the sea
2. River fisheries for residents of riversides
3. Pisciculture.

It is hoped that this first attempt will not be the last. The project could be taken up again and properly managed, with external financing and national contribution.

UNICOPEMA could help to identify youths with skills willing to give themselves to fishing and to sensitizing fishing communities on the objectives and aims of the activity.

PROJECT DESCRIPTION

TRAINING OF YOUNG FISHERMEN'S SONS

| | | |
|-----------------------|---|--|
| COUNTRY | : | TOGO |
| TITLE | : | Training of Young Fishermen's Sons |
| DURATION | : | 3 years |
| MAIN OBJECTIVE | : | Enhance the technical skills and production capacities of the youth and learn from traditional know-how so as to create pilot units of autonomous producers. |

SPECIFIC OBJECTIVES

- Reduce unemployment through the creation of employment
- Awaken and strengthen the idea of cooperation among the youth
- Improve the living and working conditions of the youth
- Strengthen the role of fishing in the fisherman's economic and nutritional development.

JUSTIFICATION: Togolese fisheries is mainly the responsibility of highly skilled foreigners. The Togolese, on the other hand, practice the profession like heads of enterprises. They lack know-how. It is necessary to teach the youth to face the rigours of the waves. Still receptive and available, the youth can better understand that fishing is also a source of wealth. The training of about twenty youths permitted a sufficient number for a purse seine unit. 20 youths will be trained per year for 3 years i.e. 60 young fishermen.

ACTIVITY:

- Give practical lessons to the youth in technology, navigation and security.
- Give notions on groupings, marketing, fish processing and preservation.
- Equip the youth at the end of their training.

RESULT:

- Constitute pilot production and extension units of innovations.
- Complete practical operations for the teams.

RESOURCES TO BE USED

- A trainer in technology with good fisherman's skills
- A Cooperation agent
- An economist

Equipment: Complete purse seine, gillnets, complete line fishing gear.

Consumable: Fuel, spare parts

APPROXIMATIVE COST: 30,000,000 CFAF.

B. Training of Young Fishermen through the Benin-Model Project

This 15-day project, financed by FAO, initiated 19 fishermen into bottom gillnet and line fishing with the portable Echo-Sounder.

OBJECTIVES

Train the trainers in the use of the portable Echo-Sounder in bottom gillnet and line fishing, in the manufacture and adaptation of insulated boxes to canoes.

Supply the population with quality fish through the introduction of ice into fishing as well as enhance autonomy in fishing

Training was carried out in two phases:

1. a theoretical and practical phase on land covering:

- a) portable Echo-Sounder: its use, tuning, basic maintenance technique;
- b) net fixing procedures;
- c) preparation procedures of a canoe for fishing:

- manufacture of insulated boxes
- adaptation of insulated boxes to the canoe.

2. A practical phase at sea covering mainly learning and exercising of new net, line fishing techniques.

Constraints

The only available teaching unit does not enhance adequate practical training (existence of two teams of trained fishermen).

The Echo-Sounders were quickly abandoned for hand sounders (lead weighted line) especially because of difficult equipment maintenance on board the canoes.

Theft of equipment: equipment cannot be kept on board. It has to be frequently moved for security reasons.

Difficult and expensive maintenance.

Rocky zones are limited and not well known to fishermen.

Value of the Echo-Sounder: poor receptions from the use of the equipment did not justify its utility.

Lack of apparent willingness to acquire an Echo-Sounder.

Lack of a follow-up programme to facilitate the supervision of the project and multiply the number of equipped canoes.

LISTE DES RAPPORTS DIPA - LIST OF IDAF REPORT

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1986
- Van Hoof, L., Small-scale fish production and marketing in Shenge, Sierra Leone. Cotonou, IDAF Project, 36p., IDAF/WP/12.
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1986
- Anon., Report of the second IDAF liaison officers meeting; Freetown, Sierra Leone (11 - 14 November 1986). Cotonou, IDAF Project, 66p., IDAF/WP/15.
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