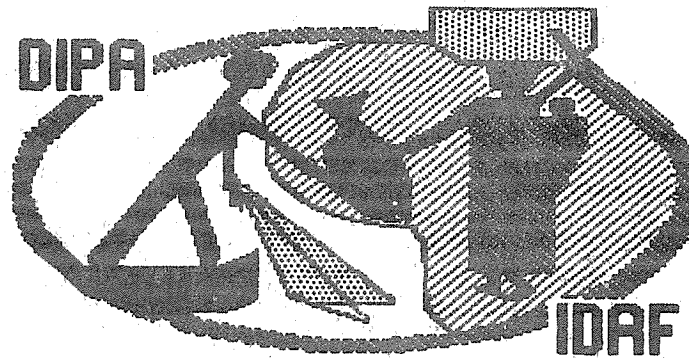


IDAF / WP / 15

January 1987

REPORT OF THE  
SECOND IDAF LIAISON  
OFFICERS MEETING



**FAO / DANIDA / NORWAY**



January 1987

Report of the  
Second IDAF Liaison  
Officers Meeting  
Freetown, Sierra Leone  
12 - 14 November, 1986

Programme de Développement Intégré  
des Pêches Artisanales en Afrique  
de l'Ouest - DIPA

Programme for Integrated Development  
of Artisanal Fisheries in West  
Africa - IDAF

GCP/RAF/192/DEN - GCP/RAF/198/DEN  
GCP/RAF/197/NOR

With financial assistance from Denmark and Norway, and in collaboration with the Peoples Republic of Benin, the Fisheries Department of FAO is implementing in West Africa a programme of small scale fisheries development, commonly called the IDAF Project. This programme is based upon an integrated approach, involving production, processing and marketing of fish, and related activities ; it also involves, in particular, an active and full participation of the target fishing communities.

This report is a working paper and the conclusions and recommendations are those considered appropriate at the time of preparation. The working papers have not necessarily been cleared for publication by the government (s) concerned nor by FAO. They may be modified in the light of further knowledge gained at subsequent stages of the Project and issued later in other series.

The designations employed and the presentation of material do not imply the expression of any opinion on the part of FAO or a financing agency concerning the legal status of any country or territory, city or area, or concerning the determination of its frontiers or boundaries.

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The first IDAF Liaison Officers Meeting was held in Cotonou on May 11-15, 1985.

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## 1. OPENING

The meeting at the Bintumani Hotel, Freetown, was opened at 1000 hours on Tuesday 11 November by Mr. K. Fergusson, Deputy Chief Fisheries Officer in the Ministry of Agriculture and Natural Resources of the Government of Sierra Leone. He recalled the importance of the Programme for Integrated Development of Artisanal Fisheries in West Africa to the region as a whole, and summarised the objectives of the IDAF Project and the importance of this meeting of liaison officers in its work of supervision of IDAF activities. He warmly welcomed the participants to Sierra Leone.

The Programme Coordinataor for IDAF then gave a short address of a mainly administrative nature. This was followed by agreement that Mr. Fergusson be requested to be Chairman, Mr. Mensah be requested to be Vice-Chairman, and Mr. Bouberi be requested to be Rapporteur. The participants (appendix 1) at the meeting then proceeded to follow an agreed agenda (appendix 2).

## 2. REPORT OF FIRST LIAISON OFFICERS MEETING

The IDAF liaison officer for Benin, Mr. Mensah Gilbert, Director of Fisheries, gave a summary of the first liaison officers meeting held on 11-15 May 1985 in Benin. The participants were Mr. Mensah (Benin), Dr. Koffi, Mr. Bouberi and Mr. Doumbia (Cote d'Ivoire), Mr. Onivogui (Guinea), Mr. Fergusson (Sierra Leone), and Dr. Amegavié (Togo). Amongst the objectives of the meeting were (a) to make necessary contacts between the national officers responsible for coordinating the activities of the programme, (b) to promote an exchange of experiences between the different national projects for development of artisanal development, in particular with the model project in Benin, and (c) to familiarise the participants with the programme.

The participants at the Cotonou meeting were pleased with the outcome, in particular with the useful contacts and ideas generated. However, one of the recommendations was that more reports be prepared on the model project and the programme for wider distribution. Another recommendation was that more use should be made of facilities and personnel in the region for work with the programme.

### 3. REPORT OF IDAF PROGRESS

In introducing the paper "Progress Report on the Programme for Integrated Development of Artisanal Fisheries in West Africa" the Programme Coordinator reiterated the main purpose of the project which is to help countries develop their artisanal fisheries, so as to derive from them the maximum economic and social advantages. The secondary purposes are to (i) improve effectiveness of artisanal fisheries development projects, (ii) propagate an integrated approach to the development of artisanal fisheries emphasising participation by the community in the planning of local projects, (iii) implement a model development project—currently project GCP/RAF/198/DEN in Benin, (iv) maintain a system of fishery development or extension units in different countries, and (v) increase technical competence through exchange of specialists among African countries.

Within the regional component (GCP/RAF/192/DEN) there is a coordinator supported by consultants, and the socioanthropologist and senior adviser in institutions and project planning (financed by GCP/RAF/197/NOR). Three Associate Professional Officers have recently been recruited also. Staff of the model project GCP/RAF/198/DEN consists of the chief technical adviser, the fishing technologist, and the adviser in women's activities. The three components are based at Cotonou.

IDAF's associated projects include the model project in Benin, the Lagune Aby project in Cote d'Ivoire and the Shenge project in Sierra Leone. In the three projects there is a specific commitment to integrated development of artisanal fisheries at the village and community levels. At the first liaison officers meeting in May 1985 at Cotonou there were discussions on integrated development throughout the region, and, in addition, the work and priorities of IDAF were discussed.

IDAF had organised technical meetings and training courses in various subjects including artisanal fisheries developments strategies, extension units, and propulsion in small fishing craft. Staff and consultants had worked on specific tasks, in several countries, pertaining to artisanal fisheries. IDAF was also giving emphasis to training, and, since the start of operations in 1984, over one hundred fishery staff from countries within the region had attended courses or visited the model project in Benin at IDAF expense.



#### 4. REPORTS OF ARTISANAL DEVELOPMENT

##### 4.1. The Gunjur Project

The participant from The Gambia introduced the European Development Fund financed artisanal fishery project in The Gambia, which has been operational for about six years. The EDF financed the construction of feeder roads and bridges to the coastal fishing villages south of Banjul to Gunjur. At Gunjur a fishery complex was built to improve facilities for artisanal fishing. Between Gunjur and Banjul on the inland road at Brikama an ice plant (10 tons per day) was built. An Italian fishery specialist has been on site to help with implementation of activities in cooperation with the Department of Fisheries.

The Gunjur site has a store for fishermen's gear, drying racks, ovens, fresh water, workshop etc. There was problems with the well that became saline, but another well has been dug away from the site, and the water is still clean and fresh.

The new chorkor ovens were built with the assistance of IDAF and have proved a great success. FAO supplied a solar ice plant which theoretically gives 120 kg per day but in practice only gives 36 kg per day. The Danish manufacturer is to send a technician to study the situation and see if production can be increased. FAO also supplied a solar drier.

Since the complex was completed in 1983 the number of canoes based on Gunjur has increased from 39 to about 80. Landings have doubled from 2,000 to 4,000 tons.

Most of the gear used is gillnets. The purse seine gear is effective but has never really been taken up on a large scale. Senegalese visitor fishermen are discouraged from landing since the higher volume landed can decrease prices.

##### 4.2. The Tombo Project

The "supergoal" of the Tombo project is to produce more cheap fish for consumption by the poorer levels of society in Sierra Leone. This goal has been discussed at length in the course of implementation of the Tombo project. A number of mistaken approaches to the question were taken but in the latter years of the project it was deliberately decided to work closely with the Tombo boatowners. The boatowners are from the richer strata of Tombo, but they are all from fishermen's families, resident in Tombo. At Goderich a number

of boatowners are resident in Freetown, and not from traditional fishing families.

It was found inadvisable to try out a completely new vessel construction with "modern" methods because the local boatbuilders found the activity took too much time. Also the boatowners were not prepared to pay the extra cost for higher quality, and the traditional relationship, and associated ceremonies, between boatowner and boatbuilder would have changed.

Many problems were encountered at the early stages of the project with installing diesel motors in traditional designs often due to shaft misalignment. In Tombo they decided to overcome this problem with setting the (Yamaha 34 hp) motor on steel beds, near the stern. This is as copied from an earlier inboard diesel craft developed by Tombo villagers in 1960.

At the meeting with boatowners it emerged that most fishermen now had corrugated iron rooves on their houses, which are considered a big improvement. Any extra money earned is usually invested in more fishing gear. This availability of gear was considered a tremendous asset to the village, because it was not now necessary to go to Freetown to obtain it. The creation of a health centre, and provision of fresh running water throughout the year was also a very positive result of the project. The initial success of the diesel motor introduction had allowed fishing to go on throughout the year, whereas previously it had to stop when petrol supplies ran low or were exhausted. The high initial cost was partly covered by a loan, which could be quickly repaid.

Since start of the project the number of houses has increased from 240 to 360, and the number of resident fishermen has increased from 720 to 1,500 with attendant spin-off in additional employment. The landings have increased from 4,000 to 7,500 tons per year.

The all ringet commonly used is 700 metres long and costs US \$ 4,500 ex factory. It has been found impossible to successfully introduce the purse seine because in warmer waters such as Sierra Leone the fish move faster than in cooler waters like in The Gambia and Senegal. The most important part is the length so that the boat can go faster than the shoal and eventually cut it off with net. This is for bonga, but for herring the small mesh is the more important characteristic.

#### 4.3. The Lagune Aby Project

One problem with the Lagune Aby project was that different consultants did the identification to those who are doing the implementation. Thus the whole style of the project needs to be less ambitious and more realistic and it takes time to obtain agreement from all those parties involved (IFAD, ADB, Govt. of Cote d'Ivoire).

Apart from building jetties, workshops, wells, cold stores, markets there is the biological component to reduce fishing of the small pelagics and increase fishing effort on catfish and Tilapia. Trials are being undertaken not only on the diesel outboard but also on a Johnson kerosene outboard. Trials are also being undertaken with surface trawls, light fishing, Niger wire traps, and crab traps. Positive attempts have been made to introduce acadjas, and better ovens have been constructed for the women smokers.

#### 4.4. The Kambia Project

The original idea of the European Development Fund financed Kambia project in the north of Sierra Leone and specifically on Yelebuya island was to introduce energy saving fishing methods through the introducing of diesel inboards, sails, and static fishing gear. One idea that went very wrong however was the attempt to introduce craft already in Europe and elsewhere. It was quite clear early on that fishermen would not accept these craft. Therefore work was started on improving traditional craft and installing inboard and outboard diesels. The trials with sail have been dropped, because, rather like at Tombo, the boatowners saved fuel costs but the crew were suffering greater hardship. However substantial work has been done to improve hanging ratios, mounting, and reinforcing the gillnets and ringnets.

In the present ten month project a four man team is working to perfect the installation of inboards on traditional craft and the design being followed so far differs from that used at Tombo by placing the inboard farther forward with a longer shaft.

It is hoped that this intermediate phase can be followed by a longer development phase where the boats can be built by local boatbuilders and introduced, and financed, to the fishermen in a true development rather than research activity.

#### 4.5. The San Pedro Project

The San Pedro project in Cote d'Ivoire covers the Southwest area of Sassandra, San Pedro, Grand Bereby, and Tabou, where about 4 to 5,000 tons of fish are caught. There are about 3 to 4,000 people involved, from Liberia, Ghana, Togo and Benin. The fishing conditions were improved through construction of landing areas, provision of detaxed fuel, training of fishermen, outboard repair shops, cold stores and ice plants, insulated trucks, and the "modernisation of production means". This included building and making trials with a fibreglass "superpirogue" for handlining. Presently it is of 13 m but if lengthened to 15 m it could be used for purse seining. Credit was made available through cooperatives, and it was interesting to note that fisherman would join the coop to obtain the credit, but then cease to become active members soon after.

#### 4.6. Mauritania

Only about 2 to 3 percent of the 400,000 tons of fish caught in Mauritania's waters is caught by artisanal fishermen. Mauritaniens are not traditional fishermen ; however substantial success had been achieved with equipping the small number of Imraguen fishermen. This has been partly with FAO/UNDP, FAO/Saudi, and Japanese aid. Now a Government/Private/Cooperative organisation, the SPPAM, has been set up and DANIDA is financing cold stores to assist this organisation improve the flow of fish to the interior. There is no government subsidy to aid reduction in operating costs. Government activities had led to construction of large water tanks at many villages, construction of solar desalination plants, and fish drying platforms. It is hoped that the African Development Bank will finance an integrated artisanal fisheries development project.

#### 4.7. Guinea

Here there are 8,000 fishermen, 2,209 canoes 1,000 women smokers, and 120 villages or fishing camps. With Japanese aid in 1985 850 outboards of 15-25 hp were sold to fishermen. It is understood that the artisanal fish catch is about 30,000 tons p.a. The large new artisanal fishery development project is being financed by the Africa Development Fund (\$ 15.5 m), the BADEA (\$ 10 m) - replacing the high interest ADB original allocation, and the Government of Guinea is to contribute US \$ 10 million.

An IDAF-associated pilot project for integrated development of artisanal fisheries, to begin operations in 1987, has received preliminary approval from UNDP.

#### 4.8. The Benin and Shenge Projects

The work of the model project in Benin was described in summary, and a video was then shown. A report on the work of the model project has been presented by Sheves (1985) and it is available as an IDAF report.

The work of the Shenge project is described in a pamphlet form presented as one of the appendices to this report.

#### 4.9. Nigeria

Nigeria has the largest population of any country in the region, but this is combined with waters which are rather poor in productivity. The priorities of government have been to (a) raise the living conditions of fishermen, (b) increase production, (c) improve small fishing craft, and (d) improve storage and processing methods. The actual action programmes have included the National Accelerated Fish Production Programme which, in association with the States, subsidised craft and nets at 50 per cent of the initial cost, the Inshore Fisheries Project with FAO/UNDP, the construction of three fish landing terminals in coastal states, and the construction of fish farms in each state. Future fishery development is aimed to be less ambitious, with emphasis given to consolidation rather than expansion.

## CONCLUSIONS AND RECOMMENDATIONS

### 5.1. General

The IDAF liaison officers meeting was held in a good spirit of cordiality which allowed a frank and useful exchange of views between participants. All participants were either involved full time in small-scale fishery development projects, or had direct contact with the problems of the small-scale fishery sector at a national level. This experience of each participant meant that the discussions were based on reality, and overall the meeting benefitted greatly from the practical comments and exchange of technical knowledge. In view of the usefulness of this meeting, to all who attended, it was recommended that the meeting be repeated on an annual basis.

Participants examined in depth the progress of the IDAF regional project. Initially, there were discussions on the topics covered in publications, documents and newsletters. In reply to a question about the number of countries covered the programme coordinator said the programme was concentrating on the maritime area south of Cape Blanc. Although no one from Gabon, Togo, Congo and Zaire was present at this meeting it was hoped that, as IDAF's experience and expertise increased, they could become fully involved in activities. The matter of involvement in inland waters would also be a matter of availability of experience and expertise. The meeting approved the various priorities so far given by IDAF to different social and technical aspects of small scale fisheries. Appreciation was expressed to the financing agencies DANIDA and Norway. There was unanimous agreement that IDAF was worthwhile, and should be continued beyond 1988.

Attention was called to deliberations at the first IDAF liaison officers meeting with reference to the use of facilities and personnel already working in the region. The facilities would serve as a base for training requirements, and as examples for analysis, and sometimes criticism, of past and present efforts to meet the needs for improvement of artisanal fisheries. It was noted at the previous meeting that a number of persons within Fisheries Departments of the region had skills and knowledge which could be applied in nearby countries to solve problems that were not very different from those found in their own country. It was recommended that IDAF continue to try and put into practice this technical cooperation between developing countries (TCDC).

Participants drew attention to the need to bear in mind the reference of the IDAF project document to fishery management. There is a great need to improve the quality of catch statistics on small-scale fisheries. Far too often fishery development plans have been formulated without due consideration being given to the impact of this development

on abundance of available fish stocks. The programme coordinator reported that an associate professional officer in biology and statistics had now been recruited and he would be giving special attention to the matter of stock assessment in the field of artisanal fisheries. It was noted that IDAF had already financed a frame survey of artisanal fisheries in Ghana and if funds and time became available it was hoped to fund a similar exercise in other countries of the region in the future. The meeting recommended that assesment of stocks available of artisanal fisheries be continued, emphasis to be placed on those methods which can use information gathered through artisanal scale operations, as contrasted with the classic expensive stock survey projects.

It was observed that most fishing communities and individual fishermen, wherever they may be, requested a better supply of gear, improved flow of spare parts and repair/maintenance facilities, and better access roads. These have a particular link to fishing, but for the whole community there is a need to improve fresh water supply, health and educational facilities.

Participants were most satisfied with the contents of the meeting, and in particular with learning of the problems and successes of different integrated fishery development projects, which were now becoming a frequent occurrence throughout the region. It was recommended that more frequent contacts between these projects be stimulated and organised, and more information exchanged, so that technicians involved in project implementation can be alert to the problems and the approaches available for overcoming the obstacles which are a common part of any development exercise.

5.2. The Principal Recommendations (by M. Boubéri Doumini)

The participants asked the IDAF Project to intensify its contacts with the countries so as to become better known, and in order to be more closely associated with the definition of policies and strategies for the development of artisanal fisheries.

They sincerely wished that the Project be extended so that the assigned objectives can be attained. In this respect they will stress their real interest in the Project to the evaluation mission from the donor countries, Norway and Denmark, when it visits the countries in the course of 1987.

They recommended that particular attention be given to the integrated approach to development projects, allowing the effective participation of fishing communities expressing their real needs.

The object of these projects is to increase the income of fishermen to allow them to improve their living and working conditions, and this will depend on assessment of the fish resources. In this respect the participants recommended intensifying evaluation of inshore resources, or at least the improvement of fisheries statistics, so as to assess stocks, which is a precondition to formulating any development project.

The participants were pleased to note that many projects had been started, so as to stimulate this activity of concern to the low income rural populace. It was recommended that in each country a policy to coordinate national projects be introduced so that the maximum benefit be obtained from investments and inputs in this field.



Appendix 1 : List of Participants

K.A. Fergusson ; Deputy Chief Fisheries Officer, Freetown, Sierra Leone.

Gilbert Mensah ; Director of Fisheries, Cotonou Benin.

Mr. Armah ; Deputy Director of Fisheries, Accra, Ghana.

Mohamed Mahmoud Jeilani ; Director of Artisanal Fisheries, Nouakchott, Mauritania.

Mamadou Doumbia ; Project for Southwest Cote d'Ivoire maritime fisheries development, San Pedro, Cote d'Ivoire.

Fodé Mamadou Kaba ; Chief of the "Sections des Directions Prefectorales des Peches et des Project", Artisanal Fisheries and Fishculture Division, D.G. of Fisheries, Conakry, Guinea

Nfamara Dampha ; Coordinator of the Artisanal Fisheries Development Project, Banjul, The Gambia.

J.Melvin Thornes ; Assistant Minister of Agriculture for Technical Services, Monrovia, Liberia.

M.A. Obakin ; Assistant Director of Fisheries, Federal Department of Fisheries, Lagos, Nigeria.

Bouberi Doumini ; Chief of the Lagune Aby Project, Adiaké, Cote d'Ivoire.

Edima Nathaniel ; Chief of Fisheries for the Southwest Province, Buea, Cameroun.

Robert Lee ; Masterfishermen/Team Leader of the FAO/UNDP Shenge Project, Sierra Leone.

Uwe Beck ; Project Manager, Fisheries Pilot Project Tombo, German Agency for Technical Cooperation GTZ Freetown, Sierra Leone.

Luc Affoyon ; National Director of the IDAF model project, Cotonou, Benin.

Alexander C.V. Forde ; Co-Project Manager, Fisheries Pilot Project Tombo, Freetown, Sierra Leone.

Theo Brainerd ; Fisheries Economist, CECAF Project, Dakar, Senegal.

Jock Campbell ; Supervisor, Kambia Fisheries Project, Freetown, Sierra Leone.

Jan Haakonsen ; Socio-Economist/Anthropologist, IDAF,  
Cotonou, Benin.

Jan Johnson : Senior Adviser in project planning and  
institutions IDAF, Cotonou, Benin.

William Mc Cauley ; Head of Data Processing Unit, Fisheries  
Pilot Project, Tombo, Freetown, Sierra Leone.

Ms. Ekaete E. Udong ; Fisheries Officer, Federal Department  
of Fisheries, Lagos Nigeria.

George V. Everett ; Programme Coordinator, IDAF, Cotonou,  
Benin.

Appendix 2 : Agenda

Tuesday, 11 November

- 1000 hours, Opening by Mr. K. Fergusson, Deputy  
Director of Fisheries, Sierra Leone
- 1005 Word on administrative aspects, by  
G.V. Everett
- 1010 Agreement on Mr. Fergusson as Chairman  
of the meeting, Mr. Mensah as  
Vice-Chairman, and Mr. Bouberi as  
Rapporteur.
- 1020 Presentation of report of the first IDAF  
liaison officers meeting, by Mr. Mensah
- 1035 presentation of progress of the IDAF  
Project by G.V. Everett, followed by  
discussion.
- Until end of day, reports on the Shenge Project, the  
Tombo Project, the model project in Benin  
(followed by a video).

Wednesday, 12 November

- 0800 hours, Depart for Tombo
- 1000 Arrive Tombo, drinks then visit planning/  
statistics unit, gear store, boatbuilding  
shed and processing unit. Lunch, then visit  
health centre and beach to see canoes  
landing.  
Meeting with boatowners.

Tuesday 13 November

Reports of Lagune Aby Project, The Gambia  
The Cote d'Ivoire Southwest Project,  
Mauritania report  
Dinner offered to participants by the  
Government of Sierra Leone and the  
Tombo Project.

Friday 14 November

Nigeria and Guinea reports  
Summary of conclusions and recommendations.

Appendix 3

REPORT OF THE FIRST MEETING OF LIAISON OFFICERS

From 10 to 16 June 1985 a meeting with the Liaison Officers appointed by the different countries of the region, was held at Cotonou at the headquarters of the Programme for Integrated Development of Artisanal Fisheries in West Africa.

As a result of the new flight timetables the participants arrived between 10 and 11 June, and left 15 and 16 June.

PARTICIPANTS

- Mr. MENSAH	- Bénin	- Director of Fisheries and National Coordinator
- Dr. KOFFI	- Côte d'Ivoire	- Director of Fisheries
- Mr. BOUBERI	- " "	- Liaison Officer, Director of the Aby Lagoon Project
- Mr. DOUMBIA	- " "	- Director of Artisanal Fisheries Project
-Mr. ONIVOGUI	- Guinea	- Director of Administration and Finance, General - Directorate of Fisheries (replacing Mr. Mamadi KEITA, Liaison Officer and Director of BAD/FAD Artisanal Fisheries Project)
- Mr. FERGUSON	- Sierra Leone	- Liaison Officer, Fisheries - Division, Ministry of Agriculture and Natural Resources
- Dr. AMEGAVIE	- Togo	- Liaison Officer, Chief of Fisheries Production Service.

UNABLE TO ATTEND

- Mr. SA NOGUEIRA	- Cape Verde	- Liaison Officer (not available)
- Mr. MINGLE	- Liberia	- " " (abroad)
- Mr. ADEBIYI	- Nigeria	- " " (ticket not received in time)

### OBJECTIVES OF THE MEETING

- to make necessary contacts between the national officers responsible for coordinating the activities of the programme in the countries of the region.
- to promote an exchange of experiences between the different national projects for development of artisanal fisheries, in particular with the Model Project in Benin.
- to familiarise the participants with the Programme, provide information on its objectives, possibilities, procedures for introducing its activities in the countries of the region, as well as in the Associated Projects, the procedures for the relations to be established and maintained with the Programme.
- to define the role and responsibilities of the liaison officers.

### PROGRAMME OF THE MEETING - AGENDA

- 11.06.85 : Discussion on specific problems with the representatives of the Côte d'Ivoire (super-canoe, lagoon fishing, etc).
- 12.06.85 : A.M. Presentation by each country of the situation regarding artisanal fisheries and of on going projects by the national participants, followed by discussion-debate-exchange of ideas.
- P.M. Introduction to and detailed presentation of the Programme, followed by discussion-debate.
- 13.06.85 : All day : visit to the Model Project Benin, communities of Hio-Avlékété, Zogbédji and Ayiguinnou : introduction to the Model project ; detailed explanation of the strategy being applied ; active and continuing

participation of the communities in their development ;  
presentation of on-going activities by the Fisheries  
Development Unit - followed, by discussion.

14.06.85 : Meeting to summarize results - conclusions - recom-  
mendations.

15.06.85 : Lagoon Fishery problems : visit to the Pisciculture  
Station for Tilapia at Godomey (EEC project), and  
to lake Nokoué to see the fisheries in pens made  
of branches, "Acadja", and in intensive pisciculture  
in enclosures.

#### RESULTS AND CONCLUSIONS

During the meeting for summarising the results and conclu-  
sions, the participants commented as follows :

- the meeting in Cotonou of the Liaison Officers and National  
Project Directors was an excellent initiative to generate  
contacts - information - conviction, in that :

(i) the spontaneous presentation by each participant of  
the situation of artisanal fisheries and on-going projects  
in their respective countries, during which the different  
constratints were mentioned, stimulated the greatest  
interest which lead to a very wide exchange of views. These  
discussions highlighted the common and specific problems  
of artisanal fisheries, for which the solutions applied  
or tried, according to the special context of each country,  
were a very valuable experience for every one.

(ii) the participants were very impressed by the presentation  
by the national team of the Model Project and by the  
strategy utilized : the concepts and principles of integrated

development ; the consultation with and continuing participation of the communities in the activities of the project, including the women's activities considered particularly edifying, together with those of the fishing technology group ; the group work of the Fisheries Development Unit, the working mechanism of each of its components was understood ; its utility, effectiveness, dynamism.

A particularly well suited proverb was quoted, which sums up the conclusion to be drawn from this visit :  
"Better to see once than to describe a thousand times".

- (iii) the participants assimilated entirely the objectives of the Programme ; its strategy for support to the region in seeking solutions to common problems ; its facilities for technical support to associated projects ; its methods of intervention by country as well as its assistance in training national staff assigned to direct integrated development of artisanal marine and lagoon fisheries projects, and to setting up Fisheries Development Units, with particular attention to women's activities and the technical and socio-economic aspects of the sector.
- (iv) the Liaison Officers understood their responsibilities in the relations to be maintained with the Programme, to increase its effectiveness in their respective countries. In confirmation of this conclusion, the delegates from Guinea and Côte d'Ivoire expressed their intention to request the Programme for consultancies in planning and formulation of artisanal fisheries projects ; training of personnel for management-administration of projects ; training of mechanics for canoe motorisation programmes ; training personnel for mobilisation of fishing communities

and women's activities in particular and in socio-economic studies. All these interventions will expand considerably the future activities of the Programme, in particular in Cape Verde, Côte d'Ivoire, Guinea and Sierra Leone.

#### RECOMMENDATIONS

- (i) The participants underlined the positive impact of this meeting, which through personal direct contacts, has enabled each one to get to know each other better, and has stimulated useful and enriching exchanges of experiences between national staff assigned to the same duties thereby strengthening the relations between their respective countries.

They unanimously wished that such meetings should be repeated periodically, annually if possible, and suggested that it should be held alternately in the Associated Projects to the Programme - Model Project Benin, in order to stimulate the interest of the different countries and broaden the experience of the national staff, in view of the particular context in which each project evolves. Sierra Leone was sounded out unofficially as the place for the next meeting (English speaking country-Associated Project Shenge).

- (ii) The participants expressed disappointment at not finding at the Programme headquarters any specific documentation on integrated development of artisanal fisheries, nor on the Model Project Benin.

This remark is very pertinent : at the present time there is no published document in French on the strategy for integrated development of artisanal fisheries, nor has the Model Project produced any technical document on its activities as a whole.



It was explained to the delegates that, concerning the Programme, the reports of the Consultants on the problems of interest to the region were not yet available ; also, documentation on the strategy for integrated development existed in English (see appendices 3.1) but had not yet been translated into French. Concerning the Model Project, a lot of basic data had been collected, but up to now it had not been possible to analyse this ; many sectorial activities had been carried out, but their presentation in the form of technical documents is still lacking : partial documents exist, that require assembling and finalizing.

To fill these gaps as quickly as possible is a requirement of evident high priority : the documents to be prepared both at FAO Headquarters and in the Programme Model Project must be published simultaneously in English and French.

- (iii) The participants expressed the wish that existing regional resources in specific fields of specialisation (National Directors of Projects, other specialised staff, Fisheries Development Units, etc...) be utilized when the Programme needed to call in Consultants.

This possibility has already been applied whenever possible by the Programme, whenever it has identified personnel in the countries of the region whose practical qualifications in the field coincide with the profile required for the planned mission, as in the following cases :

- |                                   |                         |
|-----------------------------------|-------------------------|
| . Fish Identification and systems | - (Mr. Paraíso - Bénin) |
| . Fish Technology                 | - (Mr. Zinsou - Bénin)  |
| . Outboard motor mechanics        | - (Mr. Dovon - Togo)    |

- |   |                                |
|---|--------------------------------|
| . Artisanal Fisheries Technology        | - (Mr. P. Seck - Sénégal)      |
|   | - (Mr. B.A. Doyi - Ghana)      |
|   | - (Mr. E. Dossou - Benin)      |
| . Marine carpentry                      | - (Mr. Alioune - Sénégal)      |
| . Mobilisation of community development | - (Mr. L. Zannou - Bénin)      |
| . Family Economy                        | - (Mrs. Oumi Cissé - Sénégal)  |
| . Sociology                             | - (Mrs. Fatou Sow - Sénégal)   |
|   | - (Mr. C. Atti Mama - Benin)   |
| . Women's Activities                    | - (Mrs C. Ahouanmènou - Benin) |

The Programme will continue to identify more potential consultants as its contacts develop with the countries of the region.

With an aim to strengthen the competence of the expertise of national consultants from the region, it is suggested that during a first stage they should be used in a team together with a confirmed consultant.

#### ARTISANAL LAGOON FISHERY

Both because the Programme has competence for artisanal lagoon fisheries and also to comply with a request from the Ivory Coast delegation, a visit to the Pisciculture Centre of Godomey and to lake Nokoué was organized, in collaboration with the Fisheries Directorate and the E.E.C. Project, which was also attended by the other visitors.

All the participants were very interested in the characteristics of a hatchery for hybrid Tilapia, methods of rearing and feeding fingerlings, water fertilization (organic waste, compost, etc...).

On lake Nokoué, traditionnal fishing in pens made from branches "acadja", unique to Benin, and also the intensive pisciculture of monosex Tilapia in enclosures were visited. At each site, detailed technical explanations were discussed at length, as well as all the environment problems.

The visitors realized how extremly complex was the lagoon-environment linked to the sea ; the problems arising from introduction of new fishing and piscicultural techniques ; the need to exercise the utmost prudence and pragmatism, and to proceed through a relatively long period of trials for every intervention, before begining extension work. The same as in integrated development of artisanal marine fisheries, the management of lagoon fisheries can only be carried out by very long term projects (at least 10 years), which are the only ones that can provide concrete and lasting results.

APPENDIX 3.1.

1. Ben Yami and Anderson (1985) : "Communities Fishery Centres Guideline for Establishment and Operation".
2. Ben Yami : "Questions and Answers and Communities Fishery Centres".
3. Paper of the "Symposium on the Development and Management of Small-Scale Fisheries" - Kyoto Japan 21-23 May 1980.
4. Ben Yami, M. (January, 1985) : "The Coordinated Community Fishery Project (CCFP). An evolution of the Community Fisheries Centre (CFC) concept in the context of integrated small-scale fisheries development".
5. Johnson, J. (1983) : "A proposed FAO strategy for integrated development in small-scale fisheries in Case Studies and Working Paper Presented at the Expert Consultation on Strategies for Fisheries Development", Rome, May 1983, FAO Fisheries Report N° 295 Supplement, pp. 279-286.
6. Johnson, J. (January 1985) : "Steps towards and integrated strategy for small-scale fisheries development".
7. Johnson, J. (November, 1984) : "Some considerations on the unique characteristics and special problems of small-scale fisheries of relevance to the justification for and design of small-scale fisheries projects".

Appendix 4

Progress Report on the Programme for  
Integrated Development of Artisanal  
Fisheries in West Africa

A. Background

The Programme for Integrated Development of Artisanal Fisheries (commonly known as the IDAF Project) consists of component GCP/RAF/192/DEN to cover the regional activities, GCP/RAF/198/DEN to cover the model project component in Benin, both financed by Denmark, and GCP/RAF/197/NOR financed by Norway in support of the regional component. The Project is executed by FAO.

The Project covers mainly the maritime artisanal fisheries of West Africa, which are found in coastal countries that are members of the FAO Committee for Eastern Central Atlantic Fisheries (CECAF). The CECAF Region extends from the Straits of Gibraltar to the Zaire River.

The main purpose of the Project is to help the West African countries to develop and manage their artisanal fisheries, so as to draw from them the maximum economic and social advantages, thanks to an approach centred on the community and aimed at improving productivity and increasing the well-being and autonomy of the fishermen and all those who work in this sector. The secondary purposes are to :

- a - improve effectiveness of artisanal fisheries development projects
- b - propagate an integrated approach to the development of artisanal fisheries emphasising participation by the community in the planning of local projects
- c - implement a model development project - currently project GCP/RAF/198/DEN in Benin
- d - maintain in each country a system of fishery development units, and
- e - increase technical competence through exchange of specialists among African countries.

Headquarters is at Cotonou, where the Peoples Republic of Benin kindly provides office space and local support. The project became fully operational on signature of the project document, by all parties concerned, in December 1983. Activities are scheduled to continue into 1988.

The project first informed the CEECAF Sub-committee on Fishery Development at its sixth session in Banjul in October 1984 of progress. The first IDAF liaison officers meeting was held at Cotonou in May 1985, where project progress was discussed, and future priorities were determined. The second liaison officers meeting is scheduled to be held in November 1986 in Freetown.

Within the regional component (GCP/RAF192/DEN) there is a coordinator supported by consultants, and the socio-anthropologist and senior adviser in institutions and project planning (financed by GCP/RAF/197/NOR). Three Associate Experts have recently been recruited.

Staffing of the model project (GCP/RAF/198/DEN) consists of the chief technical adviser, the fishing technologist, and the adviser in womens activities. The model project is fully supported by counterpart staff from the Department of Fisheries in Benin.

Staff of both components have received considerable assistance from the various services of the FAO Department of Fisheries in Rome, FAO country representatives, and Departments of Fisheries in the region.

The IDAF Project's work plays a key role in the follow-up to the technical discussions and recommendations of the FAO World Conference on Fisheries Management and Development which was held in Rome on 27 June - 6 July 1984. It is in fact an integral part of the second programme of action which "is the development of small-scale fisheries, based on an integrated approach, and the improvement of the socio-economic conditions of communities of artisanal fishermen and their families. It will promote the skills, capacities and potentials of fishing communities, through their active involvement and participation in the planning and implementation of management and development activities. Attention will be given not only to the technologies and skills involved in harvesting, handling, processing and distribution but also to economic and social considerations including education, health and infrastructure".

## B. Achievements

### 1. The effectiveness of artisanal development projects

The regional component has kept in close touch with artisanal fishery projects, financed both bilaterally and multilaterally, and with activities of government departments, so that effectiveness of projects throughout the region can in time be assessed and improved. Frequently the staff has been asked to advise on specific matters.

The coordinator has been involved in a number of missions to countries to make recommendations for support to artisanal fisheries. These have included Gabon, Cameroon, Guinea and also Burundi. In the Gambia the regional component has assisted experiments to improve the quality of smoked fish, and in Cape Verde it has provided inputs to strengthen fishery institutions.

A naval architect studied the types of canoe used in the artisanal fishery throughout the region, and recommended actions to be taken with regard to improvements and present experimental designs. This consultancy has been followed up with the recruitment of a boatbuilder who has worked with the model project, and assessed continuing progress in the region, normally in the framework of national projects.

The boatbuilder also travelled to Senegal, Mauritania, Guinea Bissau, Sierra Leone, Ghana and Cote d'Ivoire to assess recent developments in small craft design. There is considerable interest throughout the region in these developments. This interest is linked to the expected shortage of suitably large logs which will eventually limit the possibilities for producing the dugout canoes traditionally coming from Ghana. Boatbuilding capabilities are impressively well developed in Ghana relative to other zones along the West African Coast.

The model project in Benin is proceeding on an experimental scale with introduction of various types of inboard motors in fishing canoes, in cooperation with engine manufacturers.

The Project has paid for experiments to be undertaken with different sail rigs and designs on the canoes based at Shenge in Sierra Leone. This has involved experiments with an outrigger canoe. Detailed discussions on progress so far, with sailing designs and installation of inboard motors, will take place in Sierra Leone on 15-18 November at a

preparatory technical meeting on propulsion in fishing canoes.

A common constraint to increased fishing activity is the shortage of fishing gear and materials. In a number of countries the difficulty of importing the material can inhibit the time spent at sea. This problem has been investigated by consultants. One of their recommendations is that governments allow gear and materials, including outboard and inboard motors, to be imported freely and sold free of tax. A further recommendation is that more attention be given by importers and traders to the type of material and gear sold, to be assured that it meets the real requirements of the fishermen. In this way also the role of government can continue to be one of support to and not replacement of the private sector.

In Guinea Bissau and Senegal the regional component has paid for visits by specialists specifically to assess progress with small craft development for fishing and (in Guinea Bissau) for transport. Important work with installation of inboard diesels funded by various donors has been going on in Mauritania, and the early results encourage expectations that more small fishing craft will soon be powered by diesel rather than two stroke outboard motors.

## 2. An integrated approach to artisanal development

The Project was asked to prepare and propagate an integrated flexible approach to the development of artisanal fisheries emphasising participation by the community and the sharing of responsibilities in the planning and implementation of local micro-projects.

The soci-anthropologists have produced documents on the social background of a number of fishing communities in the area, and this information is of basic importance for understanding how projects can play a role in the integrated development process.

A number of institutions in the region are collecting data on various aspects of social and economic conditions of fishermen and their communities, and these now need to be closely examined and analysed. Consultants also have been recruited by IDAF to undertake economic studies on small scale fisheries, the use of capital and credit in its various ways, and the nutritional aspects in artisanal fisheries.



Training has been given to persons associated with cooperatives and fishermen's associations, in accounting, and simple management procedures.

At Cotonou in January 1985 there was a meeting to discuss strategies and methodologies of small scale fisheries development. FAO staff working in a number of countries in Africa attended.

Through analysis of the anthropological, social and economic conditions of fishermen a better understanding of their role in the process of integrated development of fishing communities can be established, and so appropriate development interventions can be devised and implemented. These interventions may well be required as policy decisions, to ensure for example the improved surveillance of coastal waters so that industrial vessels do not fish inshore in zones resorted to for artisanal fishermen. Another policy decision may involve the abolition of fixed prices for fish and fish products. At the level of the rural fishing community the priority interventions may well require the provision of clean drinking water, better health care, educational facilities, and land communications.

### 3. The model project in Benin

Based on preliminary sociological studies of all the villages along the Benin coast, nine fishing camps were provisionally selected as target communities for project activities. The villagers were given a general outline of the project activities, and they were asked to discuss the proposals amongst themselves, and to gather for a subsequent meeting to give their reaction. Five villages were finally chosen, on the basis of enthusiasm for the project, fishing activity, and social cohesion.

Project activities have been conditioned by the principle of community or group participation in the planning and execution of supportive micro-projects. In all cases the approach has been to have in-depth discussions with the group involved, before a micro-project commenced, to examine alternatives and to decide upon action. The fisheries group has been involved in training courses in fishing techniques, construction of fishermen's meeting houses, and retrieval of pirogues with block and tackle. Community development activities have involved provision of first aid facilities to fishermen, the construction of wells with associated programmes of education in their use, the improvement of access roads, and the organisation of women's groups to trade, produce goods for sale, and cultivate vegetables.

The model project had done trials on installation of diesel motors in canoes, in experiments with an improved type of gillnet, and in the introduction of small echosounders on canoes. This has been in Cotonou port, and its potential for impact on the thousand or so full time artisanal fishermen based there is very substantial.

The model project has built up a most valuable record of experiences in integrated development of fishermen's communities.

#### 4. Fisheries development units

One of the purposes of the IDAF Project is to help to maintain a system of fisheries development units which will provide technical and economic assistance to the fishing communities, including the technical inputs necessary for fishing, for the storage, handling, distribution and marketing (including the reduction of post-harvest losses) of fish, and for management of the fisheries.

In order to carry out implementation the IDAF Project involves itself with particular national projects in the region, which are termed associated projects. These projects are found in Benin, as the model project, in Sierra Leone as the Shenge Project, and in Cote d'Ivoire as the Lagune Aby Project. The projects are working as fishery development units. In October 1986 a training workshop on fishery development units was organised in Cotonou.

The Integrated Project for Development of Rural Fishing Villages in the Shenge region of Sierra Leone is financed by UNDP and executed by FAO. The IDAF Project gave assistance to formulation of the original project document, and has paid for consultants to be assigned to the project to assist with community development studies, craft propulsion and sailing. In addition, IDAF pays for ongoing sociological work by a Sierra Leone professional, and has paid for a fish marketin study. The FAO team has made an encouraging start, and the well-being of the communities will slowly improve as a result of the fishery development process.

The IDAF associated project on Lagune Aby is financed by the International Fund for Agricultural Development. Annual catches on Aby were reduced from 11,000 tons in 1979 to 3,500 tons in 1982. The object is to assist reestablishment of the fishery and at the village level, with wells, landing spots, simple health care, access etc, and a loan programme has been strted to aid established fishermen to renew equipment, as well as try out new types of craft and fishing gear. The IDAF Project has facilitated

exchange of information with the Aby development, and assisted staff to travel in various countries of the region.

Outline documents have been drawn up for projects in Guinea and Liberia, and it is hoped that follow-up can be maintained to ensure that financing is obtained for small scale fishery development in rural areas of other countries. Another project that is in the course of execution, and has all the elements of a fishery development unit, is the EEC financed integrated fishery project on the Lagdo Lake near Garoua in Cameroon, and with which IDAF is in close liaison.

##### 5. Exchange of specialists and information

IDAF has given close attention to the need for more training of staff and persons involved in the fishery sector. Many visitors have visited Benin to learn about small scale fishery activities both there and in other countries of the region. Numerous problems are common to small-scale fisheries throughout the region. IDAF has given formal or informal training to about one hundred persons, for varying periods of time. Visitors have included individuals from countries in the region, as well as from important fishing nations such as Indonesia, that have been impressed with the approach and output. Thirty participants were at the FAO/CECAF/IDAF Workshop of Small-scale Fisheries Development in Lomé, Togo, in November 1985, and the work and priorities of the Project were described and analysed. The participants went to Benin to see the work of the model project in the coastal fishing villages.

Close links are maintained with the CECAF Project, which was formerly funded by UNDP, and is now financed through U.S. Trust Funds (Project GCP/RAF/215/USA).

The following arrangements have been made for reporting on project findings, results and achievements :

(i) a Working Paper series (blue cover) published in Cotonou, for distribution of data and information of a technical nature to assist government personnel and staff connected with the sector in their various activities, (ii) Travel Reports, normally for restricted distribution, which are accounts of travel missions by project staff, and which include much up to date information on the fishery sector, (iii) Semi annual reports to inform FAO, UNDP and financing agencies of all phases of the project progress, (iv) Newsletters, produced at periodic intervals to inform governments and interested persons of project activities,

and (v) other documents prepared for meetings and training courses, by the staff in the course of their normal duties.

One constraint to the improved exchange of information is the frequent absence of a central documentation centre in many Fishery Departments. At headquarters in Cotonou a comprehensive collection of documents on the fishery of each country in the region has been established.

The project has also been producing video films for publicising its work, and in education and promotion of various techniques.

### C. Increased participation

In the maritime zone stretching along the West African Coast from the Zaire River to Cape Blanc (20° N) the greater percentage of the fish caught annually by coastal flag vessels, amounting to about 900,000 tons, involves catches of canoes (about 600,000 tons). Millions of persons are associated with artisanal fishing, and millions depend on fish for their primary source of animal protein.

Any regional programme, and in particular one where more than a dozen countries are involved, needs time before effective personnel, with knowledge of the priority tasks, can be assembled and moulded into a team. It takes time also for the participating countries to learn best how to use the available services of the programme. In some instances certain countries can play an important role in providing facilities for training and as practical applications for technical or other improvements, and approaches to certain problems in a number of countries.

With regard to followup it is important to ensure that as many people as possible are involved in IDAF activities, so that as funding in time is reduced there will be continued participation in promotion of artisanal development, not only by public entities but also by the private sector, the fishermen, and their communities.

Appendix 5

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- Collart A., 1986 Planification du développement des pêches artisanales en Afrique de l'Ouest: Production et traitement du poisson, ses aspects matériels, techniques et socio-economiques. Cotonou, Projet DIPA, 67p. DIPA/WP/7.
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Appendix 6

Project FAO/UNDP SIL/82/015 Integrated Development  
of Rural Fishing villages, Shenge Region

Introduction

The project area, Shenge Region, includes 13 villages, having a total population of approximately 7 000 people. These villages cover a shoreline of about 21 miles, from Bumpetoke to Singibull.

It was originally intended that the Shenge Region Project, beginning in February 1985, should undertake one year of preparatory assistance ; however, in July 1985 the project was upgraded to a full development project with an increase in funds and an additional implementation time of two years, bringing the final termination date to March 1988.

The main objectives of this project, as stated in the Project Document, are :

- to increase the fish production capacity, and
- to increase the socio-economic well being of the villagers of the Shenge Region.

It is planned that the Project will achieve these goals by :

- using the integrated approach to development
- conducting socio-economic surveys to establish a system for self-monitoring and evaluation
- introducing technical innovations to improve the efficiency in operations
- supplying fishing gear and processing materials for sale to the fishermen and to the fish processors
- formulating, as requested by the villagers, village associations
- involving the target group in the planning and implementation of various micro-projects
- liaising and coordinating with other agencies which will come into the project area and undertake such works as the construction of roads, wells and schools

### Fisheries Service Complex

In order to have a base of operations from which to conduct project activities, a Fisheries Service Complex was constructed at Shenge. It contains :

Offices : The administration of all project activities is based here.

Fishing Gear Store : Members of local fishermen's cooperatives may buy fishing gear, outboard engines and their spares, materials for construction of Chorkor ovens, etc.

Workshop : Fishermen may bring their outboard engines or other equipment for repair. Training courses for maintenance and operation of outboard engines are conducted here.

Freezer Room : Experiments in the freezing of high quality fish for export to up-country markets are being conducted.

Waterside Shed : Project fish sales, experimental fishing activities, vessel modifications and net construction are carried out here.

### Experimental Fishing

The fishing grounds of the Shenge Region Project range from the Bompe River in Yawri bay to eight miles South-east of the Shenge Peninsula.

In March 1985 the Project began experimental fishing excursions in order to assess the fish stocks within the project area. Project staff keep accurate daily records of fish landings (number, length, and weight ; total weekly export) of the various species caught within the region.

Results of the experiments show :

- The most productive fishing months for the bottom set nets are September, October, April and May, the average daily catch being 180 lbs. per trip (90 lbs. /trip/man).
- The most productive fishing months for hook and line fishing are August through December, the daily catch averaging 120.4 lbs. per trip (60.2 lbs./trip/man)

- The total weight of fish caught from March to June 1986 is 21,654.5 lbs. (9832 kgs).

Additional experiments are being carried out with bottom set longlines, fishing traps and drift nets.

The Project is also investigating the possibilities of exporting the high quality bottom fish (Snapper, Kuta, Grouper, Tenny etc.).

### Boat Modification

85 % of Shenge Region fishermen must, of necessity, use paddles and sails. Initial project investigations indicated that the high price and the scarcity of both fuel and outboard engine spare parts have caused a serious decline in the use of outboard engines. Further investigations showed that the type of sail presently in use is ineffective in sailing into the wind, with the result that the fishermen must paddle out to the fishing grounds in the day, then sail downwind towards home in the evening.

In response to these problems, the Project has introduced several modifications to the traditional locally made boats, i.e.

- Beginning with the basic 3-5 man plank canoe, known as the Yelefufu boat, strengthening features were added.
- An outrigger pontoon was attached for added stability.
- A delta (crab claw) sail rig was introduced, giving a larger sail surface and increased windward sailing ability.

The final result is an improved sailing boat which is more efficient for the fishermen and more suitable for the weather conditions. The testing of the motorization of these modified canoes with 4-stroke, low fuel consumption outboard engines is also underway.

In addition, many of the local fishermen have been trained by project staff in the use of the modified boat, and carpenters and a local tailor have also been trained in the techniques of manufacturing sails and riggings from locally available materials.

### Chokor Smoking Oven

Not only is fishing an important aspect of the nation's economy, but the catch is also a rich source of the much needed protein in the diet of Sierra Leoneans. The fisherwomen of Sierra Leone, from the individual women who buy and sell small lots of fish, to the entrepreneurs who own large fishing vessels, form an integral part of the important fishing community.

In recognition of the vital role played by the fish proprocessing women, the Shenge Region Project is giving assistance to this group by introducing the Chorkor smoking oven. The efficiency of this oven over the traditional banda is exemplified by the following :

- a 50 % savings in wood consumption
- a 30 % savings in smoking time
- a 30 % savings in space required for smoking the fish
- a 20 % reduction in the breakage of fish (caused by the extra handling required by traditional methods)
- production of a higher quality product in the form of a more evenly dried product.

To date the Project has constructed Chorkor ovens in two villages and training of fish processors in the correct use of these ovens is underway.

### Cooperatives

In order to facilitate community action in the villages of Kargboro Chiefdom, the Project is assisting in the creation of an organizational system by which members of the organization can help themselves through cooperative community effort.

The system is composed at the lowest level of individual members in the fishing villages in the project area. These members are part of cooperative groups, one for each village, each cooperative having an elected president and other officers. All the cooperative groups together are united in a large group, the Kargboro Central Cooperative (KCC), which has a Board of Directors composed of all the presidents of all the village cooperatives.

This institution, the KCC, proposes to develop and set up the following facilities and services for its members :

- a fishing gear store,
- a consumers' store
- a central workshop
- a transport system
- a savings and loan credit union

In order for the KCC to achieve these goals, the Project will give assistance through the Fisheries Development Unit (FDU). This is a complementary group of multidisciplinary project staff, each of whom will train a local counterpart in the required proficiencies. The FDU will act as a technical support team, giving advice and training in response to requests from both the KCC and the village cooperatives in the planning and implementation of their various community undertakings.

#### Coordination and Cooperation

##### WMO

A coastal weather station has been set up in Shenge to monitor general weather conditions. The information provided will be used by the Government for weather forecasting and by the Project to assist in determining the most suitable canoe for the weather conditions.

##### ILD/UNCDF/WFP

Plans are presently being formulated for the cooperation of the Project with this group of agencies for the improvement and major repair of feeder roads in the Shenge Region.

##### Rural Water Supply Project/CARE

The Project has given logistical support in terms of boat transport, storage space, accomodation, etc. for the construction of six wells in the Shenge Region.

ppendix 7

Summary Description of the Lagune Aby Artisanal Fisheries  
Development Project, Côte d'Ivoire

I - OBJECTIVES

The project's main objective will be to improve the living conditions of the fishermen and women fish smokers of Lagune Aby. Following the uncontrolled overexploitation of the lagoon bonga shad, the fishermen experienced a considerable decline in catch and revenue so that now most of them find themselves in a critical financial situation. The project's aim will be to encourage a well studied and rational exploitation of the lagoon through the selective utilisation of fishing gear in use. This will enable an income recovery for the fishermen concerned as well as for the fish smokers who depend on the supply of fish.

Living conditions will also be improved by setting up a socio-economic infrastructure including a certain number of wells, wharfs and covered markets. Sanitary and hygienic conditions are inadequate in this region. The close availability of drinking water due to the construction of the forty wells will be an important support, especially for the fisherwomen who sometimes have to cover great distances in order to fetch water. The wharfs and covered markets will ease trade and the like between fishermen and fishsmokers.

The project's secondary effect will be to promote the expansion of a centre for development in the Lagune Aby region. The induced development will derive not only from fishing and smoking activities but also from secondary activities such as livestock trade. The project will also contribute to some extent to reduce urban migration by improving employment and income possibilities for the inhabitants around the lagoon, especially the young.

Côte d'Ivoire is importing more than half the fish (of all species) consumed in the country. The project will to some

extent reduce this dependence. It should also be noted that a part of the project's production will be fresh fish. This will increase the availability of this very sought-after product for the Ivoirian consumer.

## II - DESCRIPTION

The project will cover a period of five years from 1985 to 1989. The approach that will be adopted will be based on the fundamental observation that there exists on the one hand an overexploitation of the bonga shad\* and on the other an underexploitation of the high-value species tilapia and rough head sea cat-fish. Moreover, the lagoon's marine resources having natural limits, it is advisable to begin experiments in aquaculture in order to eventually increase these limits.

In its first phase (1985 - 87) the Project will aim at encouraging the use of gillnets and set longline for the capture of high value species.

The means used will be an elaborate technical training at Adiaké as well as a credit system financed by the project. The latter will allow the fishermen to take responsibility in financing activities initiated by the project's training personnel. The training will be mainly undertaken by many of the "Groupements à Vocation Coopérative" (G.V.C.) that exist around the lagoon. At the same time the development of trade in fresh fish to the main markets (Abidjan and Aboisso) will be encouraged. Towards this purpose, the Project will be equipped with a cold store network at Adiaké. The Union of G.V.C. will ensure its proper functioning. The project will allocate credit to the Union for two more cold stores to be placed at strategic points around the lagoon.

\* Ethmalosa

On the basis that the present overexploitation of the bonga shad will diminish and that stock will be reconstituted with time, it is foreseen that the project will allocate credit to the fishermen during the remaining three years (1987 - 89). The credit will be used to buy a limited number of purse seines and beach seines used to catch bonga shad. The ultimate objective in the long term is the rational and balanced exploitation of Lagune Aby.

The training personnel will also experiment in aquaculture (enclosure systems and acadjas) with an aim at testing the viability and profitability of such an activity on Lagune Aby. During the last two years (1988 - 89), credit will be allocated to those fishermen who wish credit to follow such activities at their own cost.

An improved oven will be installed during the first year for demonstrations. A project training officer will be responsible for this oven. It will enable experimentation in new techniques so as to see in what way fish smoking could eventually be rendered more profitable and less arduous for the smokers. Short term credits will also be allocated to fish smokers in order to allow them to cover their needs in revolving funds during the most busy part of the year.

Finally the project will finance the setting up of a socio-economic infrastructure that will include forty wells, eleven wharfs for embarcations, three covered markets in order to facilitate fish smoking, and a centre for repair of equipments and wharfs at Adiaké. The financing of this infrastructure will aim at improving the socio-economic environment of the fishermen and fish smokers the project is concerned with.

It is expected that during the project's growth slightly less than 5.000 tons of fresh fish will be produced and marketed,



of which 3.200 tons will be constituted of bonga shad and the remainder of high-value species (tilapia and rough head sea cat-fish).

The project's components are the following :

- A - Administrative training
- B - Direct assistance in fishing and fish smoking
- C - Socio-economic infrastructure
- D - Training, monitoring and evaluation.

### III - DETAILED CHARACTERISTICS

#### A - Administrative training

The project's centre at Adiaké will ensure the training of fishermen and fish smokers. With the help of the material means put at its disposal and the insitutional support of the representatives of the MDR at Adiaké, the centre will be responsible for the technical training of fishermen and fish smokers around the lagoon. This training will be done through the GVC's and other informal groups and will aim at exploiting the lagoon in the manner described in chapter II.

The personnel at the centre will more particularly have the task to remain in direct and close contact with fishermen and fish smokers and to urge and encourage them to use the recommended fishing equipment. They will also have to assist fishermen and fish smokers in all the necessary procedures required to obtain allocated credit to be used in the project's context. This credit will enable fisherfolk to take up activities encouraged by the project at their own expense.

The majority of the investments of this component will take place during the first three years (with the first one

predominating) and will be mainly in technical assistance followed by salaries for technical personnel. The total cost of this component (including unexpected break-down in materials and a provision for an increase in prices) is set at 611.50 million F CFA. or \$ 1.65 million.

B - Direct assistance in fishing and fish smoking

This direct assistance consists of all the direct investments and credit concerning fisherman and women. The most important aspect is credit provided and administered for the project by the BNDA. This aspect includes loans over five years to fishermen for the purchase of fishing equipment and to the Union of the GVC for the purchase of cold stores enabling the marketing of high-value species. It also includes short term loans to fishsmokers.

The first direct investment consists of a cold store put up at Adiaké by the project. Its operation will be entrusted to the Union of the GVC's. In this way the union will acquire an experience in the marketing of fresh fish (high value species) and will be encouraged to obtain credit allocated to other cold stores. An improved oven for the demonstration of fish smoking will also be put into place by the project at Adiaké. It will enable experimentation in new smoking techniques.

Experiments in aquaculture will also be made with the enclosures and acadjas planned in the project towards this purpose. Small amounts of credit will be allocated to those fishermen who are interested to follow up this activity at their own cost during the last two years of the project. Some light equipment for research as well as demonstration will be put at the disposition of the training personnel to help them in their work with fishermen and fish smokers.

The majority of the investments under this aspect will be made during the project's third year and will be mainly in the form of credit to fishermen and fish smokers. The total cost of this component (including unexpected break-down in materials and a provision for an increase in prices) is set at 501.84 million F. CFA or \$ 1.36 million.

#### C - Socio-economic infrastructure

The infrastructure consists of constructions and installations destined to improve the socio-economic environment of fishermen and fish smokers. It includes among others the setting up of eleven wharfs and forty wells (twenty of which have to be built and twenty others to be put back in good condition). The exact location of these infrastructures will be determined in the light of various circumstances that will be encountered.

Three covered markets will also be built in order to facilitate fish marketing. One will be built in Adiaké during the first year, another will be built in Assim during the second year and the last in Mona during the third year. A centre for services destined for the reparation of equipment and wharfs will also be built at Adiaké during the first year.

The majority of the investments under this component will take place during the first two years. They will be mainly used for the construction of covered markets and secondarily for wharfs.

#### D - Training - Monitoring and Evaluation

The training stages aim at reinforcing the level of technical competence of the local personnel, especially for the period when the internationally recruited experts will have left.

The monitoring of the project will be ensured by the secondary centre of the DDP at Adiaké. It will not entail any expences other than routine ones. An exception will be the supply of offices for the collection of physical and socio-economic data which are necessary for evaluations. The project's evaluation will be done in three periods (1985, 1987 and 1989) each necessitating the services of two experts for one month. One will be an expert in fisheries technology and in aquaculture, the other will be a socio-economist. The evaluation will also include one month's work by an expert in order to study the availability of wood around the lagoon and a teacher/accountant for a period of one one month.

The majority of the investments of this component will take place in 1985. They will be mainly in the form of technical assistance. The total cost of this component (including unexpected break-down in materials and a provision for an increase in prices) is set at 65.72 million F. CFA or \$ 0.18 million.

#### E - Cost estimates

The total cost - duty free - of the project is set at 1.611.89 million F CFA (\$ 4.35 million) of which 608.76 million F CFA (\$ 51.64 million) or 38 % will be in hard currency.

Appendix 8

**PROFILE OF THE FISHERIES PILOT PROJECT TOMBO**  
( by Uwe Beck, Project Manager)

**1. General Information**

**1.1 Title:**

Fisheries Pilot Project Tombo  
Promotion of the integrated development of the  
coastal small-scale fisheries in Sierra Leone

**1.2 Location:**

Fishing village Tombo/Western Area and Bonthe District

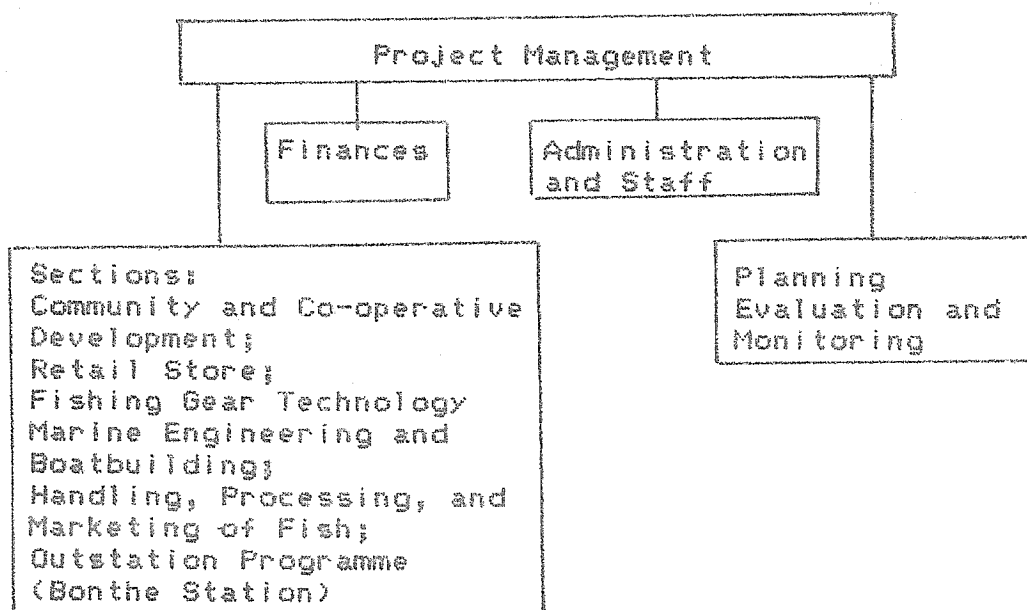
**1.3 Funding:**

September 1980 - August 1987  
Republic of Sierra Leone 1.8 Million Leones  
Fed. Rep. of Germany 12.1 Million Deutschmarks  
Prolongation until August 1989 proposed and under  
consideration

**1.4 Executing Agencies:**

Fisheries Division/Ministry of Agriculture and Natural  
Resources of the Republic of Sierra Leone and Deutsche  
Gesellschaft fuer Technische Zusammenarbeit, GTZ GmbH  
(German Agency for Technical Co-operation).

**1.5 Organizational Structure:**



### 1.6 Staff:

Eighty persons, including the technical counterparts of the following ex-patriate staff: project manager, financial controller, fishing gear technologist, engineer, marine training engineer, sociologist, programme/data analyst, planner, community development officer, various short-term consultants. The ex-patriate staff is from the Federal Republic of Germany (GTZ), the U.S. Peace Corps, and the U.K. VSO.

## 2. Project Objectives

The short - and medium-term objective of the Project is to advance a model for fishery community development. This model shall prepare the ground for implementation of a coastal-wide long-term programme for the development of coastal artisanal fisheries. This will lead to the long-term goal, which is to increase the supply of inexpensive fish to the low income population.

## 3. Project Description

The Fisheries Pilot Project Tombo is a fisheries sector integrated development project involving technical, social, economic, and community elements. The Project consists of three main elements which are interlinked: the commercial element, the technical development element, and the social and community development element.

The Commercial element imports or locally buys fishing gear and marine equipment (nettings, floats, lead, ropes, twine, spare parts, and boat building materials) which it sells to small-scale fishermen on a commercial basis. The proceeds from this retail activity are used to re-purchase stock, to finance operational costs of Project development and extension programmes, and to feed a Village Common Good and Fishery Loan Fund for fishery community development.

The technical development element promotes fisheries technical and economic development such as (1) improved materials for the construction of fishing gear, (2) the improvement of locally built wooden fishing craft by application of improved construction techniques and materials and by the use of energy-saving diesel inboard technology, and, (3) the improved handling, processing, and marketing of fish.

The social and community development element of the Project is to advance the social development of the entire fishing community through stimulation to self-help, including the stimulation to problem perception and decision making for solutions to infrastructural, social, economic, and political problems.

The Project approach is an experiment to create a financially self-sustaining fishery community development with

strong participation by all groups (horizontal and vertical integration) which make up the coastal village-based small-scale fishery. The commercial element should be the primary financial mechanism for the internal generation of funds to finance the Project and its model for fishery community development. It is essential it be developed in order to make the model independent of foreign and Government of Sierra Leone contributions. The commercial element provides a reliable supply of fishery equipment. By doing this, funds are generated to enhance fisheries technical, economic, and social development. It should also be recognized as mechanism of income re-distribution: in effect, the commercial element skims off a part of the profits of those who directly benefit from Project developed innovations, and directs these benefits toward the social and infrastructural development of the entire fishery community.

FOR EXAMPLE :

Project developed diesel inboard engine technology enhances the income of boatowners but not necessarily the income or well-being of crew members or others in the community. Through importation of goods and a price policy which realizes substantial profits for the retail operation, funds are provided for community development. It was in such a way that funds were made available for the construction and operation of the Tombo Health Centre as well as for other infrastructure developments.

#### 4. Problems

##### 4.1 Foreign Exchange Requirements

Project operations depend on the proceeds of the commercial element, the Retail Store. Fishery equipment for the Retail Store can be bought from Freetown dealers, who have an easier access to the foreign exchange necessary to import the material. This locally purchased supply can be sold with moderate profits for the Retail Store, but the greater profits necessary for funding the Project and community development can only be generated through the sale of equipment imported by the Project. This requires the capability of converting some of the Leone revenues of the Retail Store into hard currency. However, due to the present unfavourable economic situation in Sierra Leone, foreign exchange is not easily obtained through official channels. At the present time the Federal Republic of Germany is providing the necessary foreign exchange for the importation of fishery equipment, but the future progress of this model project will depend on the availability of hard currency through official channels.

The possibility of generating foreign exchange within the fisheries operations of Tombo through catching and exporting high value fish has been discussed. Apart from infrastructural bottlenecks, such an operation would require considerable structural and social change in the Tombo fishery. Moreover, at this stage the diversion of resources toward the development of a

fishery to exploit high-value fish would not be consistent with the long-term Project goal to improve the supply of inexpensive fish for the low income population of Sierra Leone.

#### 4.2 Community Participation

This model requires considerable participation from the community. Tombo has an semi-industrial level fishery with a strong profit-motivation, which gives it the potential for much social conflict. The socially dominating boatowners play a decisive role in this multi-tribe community. They are the economic engine of the community, which makes it necessary to channel major technical innovations through them (diesel technology, for example). This further strengthens the economic position of the boatowners, a result not desirable in itself. But the further enrichment of the boatowners is justified in the short-term by their willingness to accept the risks of innovation, and by the fact that increasing amounts of inexpensive fish (Sardinella maderensis and Ethmalosa fimbriata) are thereby produced for the low income up-country population.

The skimming and re-direction of some of the boatowner profits toward community development requires boatowner co-operation. For as long as they perceive that their interests are served by co-operating with the Project they will do so, and as long as there is an acceptable balance between individual and common benefits this is acceptable, and the model will operate.

In order to keep this balance certain external financial inputs are still necessary. To make the model self-sustaining under reducing external financial support considerable behavioral changes will have to be induced in the community. This will require a long period of training and education, suggesting the necessity for very long-term external inputs for the training of the largely illiterate community.

Such a model would also exist as a kind of island within an unchanged environment. The stabilization of such a model within a much different environment would certainly be another problem of unknown dimensions.

The Project is finding it difficult to stimulate the participation of locals other than the influential villagers such as the boatowners. Such participation would be easier to achieve if Tombo was more like a typical small fishing village with a vertically arranged hierarchy. Tombo, with its horizontal multi-tribal hierarchy, is a considerable challenge.

Another factor which handicaps community participation in Tombo is the seasonal presence of some of the population. In this respect Tombo has long resembled a settlement more than a closely knit community. But this appears to be slowly



changing. More substantial concrete block houses are replacing the shacks and zinc-pan huts. This trend is the result in part of increasing wealth and of improvements introduced over the last 6 years by the Project or by the village with Project support (e.g., pure water supply, latrines, health centre, improved roads in the village, improved social amenities, gear supply, waste disposal). As this trend continues one can expect to see a greater readiness on the part of villagers to take part in the development of their community.

#### 4.3 Managerial Inputs/Financial Controls

The considerable business volume of the commercial element (a few millions of leones annually) requires a well-trained and reliable business administration staff. Such qualified staff cannot be found at Tombo and so it has to be brought in from Freetown. This solution brings a problem, for the commercial element is to be under the supervision and control of the Tombo community, the majority of which is illiterate. It is necessary, of course, for the target group, the community of Tombo, to control the commercial operation to ensure the appropriate use of funds. Mechanisms to secure the business operations against manipulations will have to be developed, making it likely that long-term reliable external supervision, advice, and control will be necessary.

#### 4.4 Conflicting Interest: Small-scale and Industrial Fishery.

The development of the marine small-scale fisheries depends on the fish resources available in coastal inshore waters. The exploitation of these inshore areas is exclusively reserved for the artisanal and small-scale fisheries (Sierra Leone Government Act). It is a bitter experience of Sierra Leone coastal fishermen that Freetown based shrimp trawlers frequently intrude into these protected inshore zones where they exploit resources illegally, destroy juvenile fish stocks, destroy gear of artisanal fishermen and overrun fishing canoes, endangering the lives of fishermen. The efficient protection and control of these inshore areas is a pre-condition for further effort at the development of the village-based small-scale fishery.

## 5. PROFILES OF SELECTED PROGRAMMES

### 5.1. Planning, Evaluation and Monitoring

<u>Objective</u>	. Plan, monitor, and evaluate project programmes as well as the internal and external conditions affecting programme progress ; provide management with the information necessary to adjust programmes in order to minimize delays and to enhance the effective use of project resources.
<u>Personnel</u>	. One planner (vacant), 1 data analyst, 1 data processor, 2 biologists, 8 field enumerators.
<u>Activities</u>	. Conduct annual goal-oriented project-planning workshops with internal staff and external advisors, and prepare up-dated plan of operations. . Cost activities. . Conduct monthly programme meetings. . Monitor progress of programmes and report to project manager. . Re-plan activities according to monitoring results. . Monitor reaction and acceptances of target groups, communicate and analyse problems with them. . Monitor for economic performance and social acceptance of introduced innovations and test programmes. . Conduct microcomputerized data processing, interpret results, write reports.
<u>Outputs</u>	. The PEMU staff under permanent training. . Extensive data collection undertaken for 2 years. . Two microcomputers installed, data analysis programs developed and established. . Three Sierra Leonean staff completed local programming course, 2 of whom continued studies on data processing in Germany. . Two goal-oriented project-planning workshops conducted. . Plan of operation established.
<u>Problems</u>	. Though data have been collected for nearly two years, there is concern over the quality of monitoring data. Further, the acquisition of computers for data analysis was delayed for several months, delaying analysis of data. . Training and supervision of enumerators in the field has been inadequate, which leads to uncertain methodologies, and results in a lack of clear understanding of the purpose of uncertain methodologies, and results in a lack of clear understanding of the purpose of the monitoring programmes and ineffectiveness in overcoming informant resistance to giving information (information from boatowners crew members is often difficult to obtain or is unreliable). . Relating to the above point, enumerator motivation to work carefully and to work the hours necessary to get their jobs done is not adequate to the requirement.

. The position of project planner (and head of PEMU) is unfilled, due to the difficulty of finding a qualified Sierra Leonean planner with applicable experience. The planning function is accomplished by the project manager and his assistants.

. Two more months will be required for data entry and continued work on software before significant data analysis can begin.

## 5.2. Fishery equipment retail store

<u>Objective</u>	. To provide fishing equipment to the small-scale fishery and to generate profitable returns with which to finance the models operating costs as well as community and social development.
<u>Personnel</u>	. One accountant, 1 cashier, 1 assistant cashier, 2 storekeepers, 1 store hand.
<u>Activities</u>	. Buy locally or import fishing equipment and retail it at commercial prices to the target group. . Establish and organize the Retail Store. . Conduct costing of business operation. . Monitor both the needs and the individual buying patterns of fishermen. . Secure foreign exchange for overseas purchasing. . Audit financial books annually. . Develop socio-economic strategy for the use of Retail Store returns.
<u>Outputs</u>	. Retail Store building constructed (a floor space of 350 square meters). . Fishing equipment purchased according to local demand. . Retail Store business administration unit established and staff under continuous raining. . Retail Store returns applied to the financing of Project operations, Fishery Loan and Common Good Funds. . Fishing gear, engines, spare parts, and boat building materials provided to Tombo, various villages in the Western Area, Port Loko District, Bonthe District, UNDP/FAO Integrated F.D.P. Shenge Region, Plan International. . Volume of total turnover from mid-1984 to October 1986 was about 5.5 million leones. . Project financed trip to the Far East to visit manufacturers to assess gear quality. . Negotiations held with manufacturers in South Korea, Japan, Germany, Denmark, and elsewhere . . International tender procedures continuously conducted to ensure best prices and good quality. . Fishing gear tested in laboratories of the German Federal Fisheries Research Board to maintain standard of gear supplied to local population.

Problems

- . Leone returns from retail Store operations are not freely convertible into foreign exchange for overseas re-purchase of fishing gear.
- . Commercial level business administration requires qualified and experienced staff of financial controller, accountants, cashiers, storekeepers from the open market. Management of the enterprise is not possible under Government responsibility (i.e., a flexible business organization is necessary).
- . A continuous control of the business enterprise by the illiterate target group is possibly only through external audit.
- . The control of a large cash flow by the cashier at Tombo and the logistics of the transfer of cash to Freetown is risky.

5.3. Community and co-operative development

Objectives

- . Promote community self-help activities, re-direct benefits generated from technical innovations toward common benefits.

Personnel

- Three community development officers, 1 sociologist, Tombo village committee, 1 Co-operative inspector, 1 Co-operative bank inspector, 1 public health inspector, 1 dispenser, 1 nurse, 1 midwife, auxiliary staff.

Activities

- . Mobilize self-help potential of the community, develop financial mechanism to link community to fisheries development, establish and organize the Common Good and Fisheries Loan Funds, develop social strategy for model, strengthen existing societies, village committee and co-operatives, strengthen the influence of the community on governmental decision-making.

Outputs

- . Regular meetings of Tombo Village Committee and sub-development committee ; boatowners's, women's, and salary earner's co-operatives Loan Fund ; financing of individual loans for procurements and diesel boat construction, Altona ovens, Co-operative diesel boat Peatheh, co-operative lorries, rent for bank building ; Village Common Good Funds and its financial management in operation ; Retail Store generated profits transferred to Common Good Fund and financed up to now :
  - dam and pipe-borne water supply
  - construction, equipping, and operating of Community Health Centre
  - Tombo Retail Store building
  - salaries for Common Good Fund managerial staff
  - rehabilitation of village roads
  - construction of about 50 pit latrines (with EDF additional inputs)
  - quarters for Health Centre staff (under construction)
  - waste disposal scheme with 6 Public Health Workers
  - under preparation : construction of paved fish handling centres ; reconditioning
  - Tombo Primary School and construction of additional school building.

Problems

. The Village Committee consists of influential villagers such as tribal headmen, the relatively wealthy boatowners, political headmen. At this stage it is an advantage to have such village leaders on the Committee, but there is the risk that personal interests of influential leaders can direct the conduct of affairs so that personal interests rather than common interests are served. However, there is no help for it now : the existing social hierarchy makes it necessary that the Project work through these prominent and wealthy groups. The upkeep of a reasonable balance between individual and common interests requires wise long-term guidance from outside.

. Tombo is a multi-tribal community. The village consists of more than 15,000 inhabitants of very different social positions. The society is very profit-oriented, with strong individual business activities (boatowners, fish mammals, boatbuilders, and other skilled laborers, traders). The fishery is providing considerable income. All these facts render the mobilization of non-financial self-help activities of villagers very difficult.

. The present role of traditional self-help groups (secret societies, credit and savings societies) concerning informal decision-making is not yet fully transparent and will certainly remain to some extent secret.

5.4. Tombo health centre

Objective

. To provide primary health service, drugs, and primary health care training to the community.

Personnel

. Dispenser, 1 nurse, 1 midwife, trainee nurses, auxiliary staff, working in a new building of 7 rooms (with a maternity unit and beds for serious cases) equipped with kerosene refrigerator, generator, and medical equipment.

Activity

. Collection of funds in community and through the Retail Store to finance construction and operation of the health centre.  
. Construct and equip health centre.  
. Establish organizational and financial operation.  
. Develop programme with the Village Committee.  
. Provide primary health services to Tombo and adjacent villages.  
. Monitor performance of Health Centre and develop socio-economic strategy for its operations.

Outputs

. Funds for construction of Health Centre generated from Retail Store operations and contributed by villagers.  
. Operation commenced December, 1985.  
. Ministry of Health staff seconded to Tombo.

- . Management scheme for Health Centre implemented, controlled through the target group.
- . Frequent use of Health Centre villagers.
- . Very severe Cholera outbreak in Tombo and adjacent villages in June-July 1986 controlled (240 cases treated ; mortality rate of 3 %, as compared to a mortality rate of 70 % during a similar outbreak in 1969).
- . Cholera prevention training of villagers permanently set up (household visits and public information campaigns) ; close co-operation between Health Centre staff and EEC/MSF Cholera Team.
- . Construction of quarters of Health Centre Staff commenced.

Problems

- . Basic drugs not always available in Sierra Leone.
- . Sanitation in Tombo is deteriorating because of rapidly growing population. This is caused in part by the improved opportunities in Tombo brought on by Project development programmes and in part by continuing lack of awareness of the importance of hygiene and public health.
- . Major improvements of sanitary conditions are urgently needed to forestall local epidemics and the spreading of diseases from Tombo to other areas (via dried fish and the frequent movement of people in and out of Tombo to major fish wholesale markets of Waterloo, Kenema, Makeni, Bo, Sefadu, Koindu, Freetown).

5.5. Development and construction of diesel fishing boats

Objective

- . To develop, test, and introduce diesel inboard engine power to the traditional planked craft constructed by Project trained village boat builders in order to improve the economics of the village fishing fleet.

Personnel

One master boat builder, 2 skilled boat builders, 2 wood working machine operators, various skilled carpenters and boatbuilders, 10 apprentices, local boat builder teams. All Sierra Leonean.

Activities

- . Identify local boatbuilder's social and technical organization and skills ; identify technical short-comings in traditional boatbuilding practices ; identify the needs of boatowners, and identify fishing and operating techniques ; discuss problems and solutions with boatowners ; establish agreement on future craft development programme and implement the programme ; construct prototypes, test and monitor them, adjusting designs as necessary ; monitor social changes among boatbuilder teams and changes in their labour organization as well as costs and risks to boatowners.

Outputs . Seven diesel boats were financed and built by Tombo boatowners. The standard of construction has been gradually improved through the training of local boatbuilders. The improved design proved to be acceptable, the boats are seaworthy, durable, and suitable for the operation of ringnet fishing for herring and bonga (Sardinella maderensis and Ethmalosa fimbriata).

Problems . Improved design, better quality of materials used and longer construction time requires higher initial investment on the part of the boatowner when compared with traditionally built outboard engine powered herring boats. Some boatowners are unable to finance the greater costs thus entailed. Hence, boatowners have to go to others in the community for construction financing or they have to sell something, such as older boat and outboard engine and fishing gear. To mitigate the strain on less financially able boatowners the Project set up a fishery loan fund which is used in some cases to partly cover the cost of construction.

. Improved technical standard make it necessary that the Project boatbuilder train and to some extent control the work of local boatbuilders. The local boatbuilders have a high social position in the community and regard such supervision as unwarranted interference which will weaken their social position. A careful approach to this problem is necessary.

. The longer construction period requires new arrangements between boatowners and boatbuilder with larger costs for the boatowner (e.g., more food must be provided for workers, more drinks, cigarettes, and money for social ceremonies during the construction period). The effect of the longer construction period on the relationship of builder and boatowner is presently under investigation by the Project.

#### 5.6. Marine engineering and diesel motorization

Objective . To provide fuel saving diesel engine technology to the Tombo fishery in order to improve the economics of small-scale enterprises.

Personnel . One marine engineer (GTZ), 4 engineer/mechanics (Sierra Leonean), 1 diesel engine training engineer (U.K. VSO), various mechanics, fitters, welders, 8 apprentices from Tombo.

Activities . Train extension service engineers, mechanics and fitters in the various aspects of diesel engineering, installation of diesel engines and shafts into wooden fishing craft : train village mechanics in maintenance and repair of boat diesel engines ; train engine operators of fishing craft in handling, simple servicing, and trouble-shooting at sea.

- . Import and test different types of marine diesel engines and of auxiliary equipment under fishing craft in order to select the most suitable type for standardization.
- . Maintain sufficient spare parts in stock ; encourage local engine dealers to import and sell suitable diesel engines, and to build up a reliable after-sale-service.

### Outputs

- . Seven extension service diesel engineers, mechanics and fitters were locally trained and 3 of them received 18 months of diesel training in Germany. Sierra Leone counterparts are now fully capable and competent in all aspects of diesel engine service, maintenance, repair, and engine installation. Fifteen seagoing diesel engine operators at Tombo received training and are able to keep the engines in good running condition at sea. Diesel engine types were tested and introduced. Engine beds and after section of fishing craft were strengthened to avoid misalignment problems.
- . Spare parts stock has been built up.
- . Results of tests show diesel motorization leads to some 60-70 % fuel savings. Due to the availability of diesel fuel during the past several months of petrol shortage in Sierra Leone, only diesel boats produced significant landings at Tombo.
- . To the present time there is no indication that the CPUE of diesel boats differs from the CPUE of outboard powered boats.
- . Diesel engine manufacturer induced to closely co-operate with Project test programme to provide engines for tests and training, to frequently send test and training engineers to the Project.
- . Diesel fuel and lubricant quality tested by engine manufacturers.

### Problems

- . A weak point of the programme is the requirement by diesel engines of considerable maintenance attention by boatowners and their engine operators. Outboard engines are replaced easily, so fishing craft can be kept continuously operating. On the other hand
- . The repair of a diesel engine means the fishing boat remains on the beach until repairs are completed, leading to income losses.
- . Carelessness leads to losses of boats during storms (ineffective anchoring, inattention to conditions at the moorage, poor seamanship). Outboard engines are removed from moored to boats, so when such a craft sinks at the moorage the cost of damage is not great. On the other hand, when a diesel boat sinks at the moorage the damage can be very costly.
- . The high initial cost of diesel powered boats, as opposed to the cost of a boat and outboard engine, requires the provision of a credit scheme through a fisheries loan fund.



. At this time the short-term benefits of diesel motorization (fuel cost savings) are not passed on to crew members or to the community. This is because of the heavy initial investment necessary on the part of boatowners and the intransparency of the long-term economics of this technology. The usually illiterate boatowners are accustomed to thinking in short-term, which does not encourage the passing on of the economic benefits of the diesel technology.

#### 5.7. Fishing gear technology

<u>Objective</u>	. To improve existing gear (increase life span and effectiveness) and test the suitability of new gear in the area fished by Tombo boats, in order to increase the catches of local fishermen.
<u>Personnel</u>	. One master fisherman/fishing gear technologist (GTZ), 1 master fisherman (Fisheries Division, MANR, GOSL) 4 fishermen, net-makers, auxiliary staff.
<u>Activities</u>	<ul style="list-style-type: none"><li>. Inventory coastal artisanal fishing gear and prepare gear catalogue for Sierra Leone.</li><li>. Identify problems with traditional gear and develop, test, and provide improvements.</li><li>. Test and introduce new gear, as appropriate to the needs and capabilities of local fishermen.</li><li>. Test fishing operations with the new diesel boats and communicate results to diesel boat builders and owners.</li><li>. Monitor, process and interpret economic performance data on village fishing fleet.</li><li>. Advise fishermen and boatowners on all aspects of the small-scale fishery.</li><li>. Established and control the Fishery Loan Fund.</li></ul>
<u>Outputs</u>	<ul style="list-style-type: none"><li>. Selection of a range of good quality fishing gear, with recommendations for Retail Store procurement.</li><li>. Preparation (in final draft) of the fishing gear catalogue for Sierra Leone.</li><li>. Reinforcement of selvages at float and lead line of ringnets was introduced, leading to an extended life span of the gear.</li><li>. Durable floats have been tested and introduced into the area. Lead weights with center holes have been successfully introduced, replacing lead plates which were formerly used to hammer around lead lines. The use of lead plates led to damage from entangling on sharp, hammered edges.</li><li>. The bunt of traditional ringnets has been reinforced with 210d/12, 1 1/4" netting, replacing 210d/9, 1 5/8" netting. The use of the form increases the life span of nets and reduces losses of catch through damaged bunt.</li><li>. The outlay of the diesel herring boats are arranged in such a way that the ringnet can be operated in the traditional way.</li></ul>

- . The possibility of replacing ringnets with purse seines was tested. The purse seine has not been adopted for the following reasons : high costs ; it is a 2-boat operation, with twice the fuel costs of a 1 boat operation, the swimming speed of bonga is greater than in an upwelling area, requiring long purse seines to encircle shoals ; and the purse seine length to water depth ratio locally would then be unfavorable.
- . An increase in the number of herring boats operating ; the swimming speed of bonga is greater than in an upwelling area, requiring long purse seines to encircle shoals ; and the purse seine length to water depth ratio locally would then be unfavorable.
- . An increase in the number of herring boats operating out of Tombo from 40 (1980) to 85 (1986).
- . Shark net and longline gear studies are currently underway.
- . Trammel nets tested, but not well accepted by local fishermen because of difficult handling and cleaning characteristics.
- . Fishery Loan Fund established, with a total loan turnover of about 2 million leones (to November, 1986).

#### Problems

- . Even with technical inputs it is difficult to induce greater production by subsistence fishermen. Social patterns and obligations and transport bottlenecks discourage increased production. Development of the small-scale fishery through profit motivated boatowners is a more effective means of increasing fishery productivity.
- . Improvements to gear which extend its life span are not well accepted unless the improvements also increase catch. Long-term economic benefits are not well understood by the target group. Most decisions are made on short-term criteria. Considerable training will be required to change this pattern. Here, again, the wealthier boatowners play a significant role in the generalized acceptance of innovation, as they can more readily afford the risk than the poorer fishermen. This makes it advisable to work through the wealthy fishermen. This can naturally be misinterpreted by the local population, as well as outsiders, to imply favoring the rich.

### 5.8. Handling, processing, and marketing of fish

#### Objective

- . To improve the handling, processing, and marketing of fish to upgrade the quality of product delivered, to reduce post-harvest losses, to reduce deforestation caused by fuel-wood cutting, and to ease access to fish markets.

#### Personnel

- . Tombo Women's Co-operative Society members and boatowners, community development officers, 1 skilled fish processor, with various trainees.

#### Activities

- . Identify bottlenecks and discuss solutions with target group.
- . Develop, test, introduce fish processing methods which improve product quality and which conserve fuel wood.
- . Provide transport facilities (managed by the Women's and Boatowners' Co-operative Societies) for the movement of dried fish to the provincial markets.

Outputs : . Ten Altona ovens were adapted for local use and built for local processing women.  
          . Fish processors trained in the use of Altona ovens.  
          . Experiments with Chorkor ovens and solar dryers were conducted.

Problems : . Though the efficacy of Altona ovens is shown (60 % fuel savings, better quality product), target group is unwilling to make the long-term investment necessary to convert from the traditional banda to the Altona oven;  
          . Though fuel savings are significant they are only 2.7 % to 3.7 % of the fresh fish cost, which is small compared to the cash flow of the entire processing operations. This results in processors regarding fuel savings as unimportant, another aspect of the short-term perspective.  
          . Construction costs of the Altona oven are not stable. The oven requires steel. Imported materials in Sierra Leone in recent years (such as steel) have been subject to a very high inflation rate, and have been intermittently unavailable due to lack of foreign exchange.  
          . An important reason for non-acceptance of the Altona oven (and to some extent the Chorkor oven) is the effect on the organization of labor in the processing family, and the social disturbance which this brings. Social interaction of family members is changed.  
          . Poor management by the Women's Co-operative Society of the operations of their marketing lorry resulted in the termination of lorry operation and the sale of the vehicle. It is too early to ascertain whether the Boatowners's Co-operative lorry operations will be better managed.

1. A detailed evaluation of the fish processing programme is given in U. Beck and S.E. During, 1986, Developmental aspects of village-based fish processing methods in Sierra Leone, West Africa : an appraisal of some technical, social, environmental, and economic factors ; Contribution N° 3, Fisheries Pilot Project Tombo.

#### 5.9. Bonthe district outstation programme

Objective : . To rehabilitate the extension service function of the Fisheries Division outstation at Bonthe, and to provide assistance to some 200 fishing villages in the remote but productive Bonthe District.

Personnel : . One station manager, 1 co-manager, 1 accountant, 1 storekeeper, 1 store hand, 1 coxswain, fishermen, auxilliary staff.

Activities : . Rehabilitate infrastructure of Bonthe Station.  
              . Recruit qualified personnel.  
              . Establish fishery equipment retail store to provide gear for some 200 remote fishing villages.  
              . Use returns to re-purchase fishing gear in Freetown and from the Tombo Retail Store.

- . Use profits from gear sales to cover operating costs of the station, and to create an entirely self-sustaining operation.
- . Conduct fisheries statistical frame survey.
- . Conduct fisheries technical training programmes with target group.
- . Promote co-operative formation.
- . Finance mobile primary health care unit and its operations.
- . Provide transport, fuel and auxiliary staff to agricultural extension officers working with fishermen whose families are parttime subsistence farmers.
- . Provide reliable radio and transport links between Bonthe District and the Western Area for emergencies.

#### Outputs

- . Station established and virtually self-sustaining (minor government inputs).
- . Station infrastructure developed (HF radio link, GRP boats, outboard motors, diesel GRP boat, retail store, financial management procedures).
- . Co-operatives established (credit and savings).
- . Le 400,000 in fisheries equipment sold in 1985-86 (the only reliable supply of gear in the area).
- . Cholera outbreaks, in several villages successfully treated and the disease eradicated in the District, largely due to logistic support provided by the station to EEC, MSF, and MoH<sup>2</sup> who provided drugs and medical personnel.
- . Fisheries statistical frame survey conducted (100 % coverage).
- . Working co-operation established with co-operative inspectors, government medical teams, and agricultural officers.

#### Problems

- . Logistical problems are always present due to the topography of the District (mangrove swamps, no roads), the distance (some 14 hours by boat) from Tombo, and the presence of navigation hazards over much of the distance.
- . There has been little fisheries technical development in the District due to the lack of qualified staff. Gear supply remains the major station impact on the fishing productivity of the area.

## Appendix 9

Project GCP/RAF/198/DEN  
Programme for the Integrated  
Development of Artisanal  
Fisheries in West Africa.  
Benin Model Project.

### 1. Introduction

The Project area includes five communities along the coast of Benin. These villages are Adouanko, Hio and Avlékété in Atlantique Province and Zogbédji and Ayiguennou in Mono Province, having a total population of approximately 3100 inhabitants, and a total of 61 canoes (pirogues). After an identification mission carried out in December 1983, January 1984 the final choice for these villages was based on three criteria : enthusiasm for the project, fishing activities and social cohesion.

The long term objective of the model project is to test a new integrated approach of fisheries development involving production processing and marketing of fish and related activities and in particular an active and full participation of the target fishing communities.

Main components of this integrated approach are the fishery development unit (FDU), and micro-projects.

The FDU is a multidisciplinary team of well trained and experienced national and international specialists and generalists, who provide technical, managerial and logistic support to the target communities and groups. They are in charge of supporting fishing communities in the establishment, maintenance and operation of new technologies and techniques on the one hand and new organisations and institutions on the other. The identification, planning, and implementation of the FDU activities rely on the participation of the fishing community. In Benin the team is divided into four subteams : fisheries development, women's activities, community development and sociological aspects.

Microproject priority activities can be identified and planned in co-operation with the target community within a reasonable time limit and within the absorptive capacity of the community involved. Once completed they give the participants a feeling of accomplishment and confidence. Micro-project proposed can also be presented to other potential donors. In each project village a cluster of micro-projects can exist.

The activities of the model project are based on three objectives (short-term):  
diversification of the fisheries, introduction of alternative income generating activities for women, and intervention, where possible, in community aspects of development.

## 2. ACTIVITIES:

### 2.1 Diversification of fisheries

#### 2.1.1 Line fishing

The objective is to train local fishermen in line fishing to create an opportunity to continue fishing during the dead season. Since 1985 training in line fishing has been given to fishermen of the project villages from the harbour of Cotonou using two traditional pirogues. The training takes place under supervision of the projects fish technologist and is organised on a commercial basis. Considerable progress has been made. The crews operate almost without support (especially fishermen from Zogbédji and Ayiguennou are enthusiastic). Until now the introduction of line fishing in the villages is prevented by lack of ice (necessary for trips of two or three days) and good marketing facilities. Local women can not offer such high prices as in Cotonou and it is not possible for them to sell the fish in Cotonou because of bad and expensive transport facilities.

#### 2. 1.2 Bottom set gillnets

The objective is the improvement of gear already employed locally. Bottom set gillnets and danish wrecknets were purchased and tested with the project vessel and local pirogues. They give good results especially when used in combination with an echo-sounder. Local fishermen not directly being assisted by the project have expressed interest in acquiring this type of net.

#### 2.1.3 Training of young fishermen

The objective is to improve fishing skills and employment opportunities of young fishermen. This training started in April and followed up other training. The weekly sessions were attended by 78 fishermen. In comparison with former training greater emphasis was put on compass work and familiarisation with the echo-sounder to prepare fishermen for training in line fishing and gill netting offshore. For the future there is a real need for more intensive training in motor operation and repair.

#### 2.1.4 Diesel powered pirogue

The objective is to improve local pirogues by the installation of an inboard diesel engine (longer life, less expensive regarding fuel consumption) and a cooling system along the keel. Three typical ghanaian canoes were purchased to test three different engines. An air cooled Lombardini 24 hp diesel was installed with the propeller in a tunnel. Also two volvo engines were installed, one keel cooled with a slope sided tunnel, and another keel cooled with a pivoting shaft system. Especially the first installation offers interesting prospects for large scale use in the artisanal fisheries of West Africa. Local businessmen and fishermen have already had serious discussions with project staff on the possibility of investing in vessels of this type. For the time being the installation is beyond the capabilities of

Beninese boat building skills but Ghana, where already most of the canoes are built has the capacity. The work was carried out by a boatbuilding consultant in collaboration with a naval architect.

#### 2.1.5 Biological and economics statistics

The objective is to collect biological and economic data for use in project planning. A data collection system has been set up in the villages by the project biologist. The data of 1985 have been analysed. In 1985 the total catch for the five project villages was 653 tons presenting a total value of 76.079.000 FCFA.

### 2.2 Women's Activities

#### 2.2.1 Fish smoking trials

The objective is to test a new type of chorkor oven with a rounded interior shaped inside to ensure better air circulation and energy efficiency compared with traditional and original chorkor ovens. This new type of chorkor oven was installed at the village smoking centre of Hio. After several smoking trials the women were satisfied as the new oven appears to save fuel and to provide a better smoke distribution. However, more tests are needed to prove this.

#### 2.2.2 Horticulture

The objective is to create an income generating activity for women and to improve the nutritional status in the villages. This year on the demand of local women vegetable growing was started in some project villages. The women organised in groups grow local (gboma, gombo) and european vegetables (leeks, onions, lettuce, cabbage). The project supported this activity by creating a fund by which utensils (hoe, rake, wateringcan) seeds and insecticides were bought which were later resold to the women. The animatrices were trained and demonstration plots installed. Land was provided by community members. Now at the end of the first growing season the marketing of european vegetables except onions, has taken off more slowly than expected.

#### 2.2.3 Salt making

The objective is to test an improved oven for energy efficiency in order to find a way to increase the profitability of this activity. Salt making is one of the main income generating activities of women. Women are therefore very interested in the outcome of the tests, which started recently. In november an improved oven was installed in Hio.

#### 2.2.4 Knitting and crochet course

The objective is to create an extra income generating activity for women and to supply local markets with cheap cloths for children. About 44 mostly young women from Zogbédji and Ayiguennou have undergone a training of 8 months in knitting and

crochet. A revolving loan fund needs to be created for the first investments in materials to start production.

#### 2.2.5 Pigraising

In August 1986, local women of Adjahindji (one of the Hio villages) already organised in a group for this purpose asked the project to help them to make pigraising more profitable. The project is under implementation. Technical advice has been given by a Peace Corps Volunteer experienced in pigraising using relatively simple methods.

### 2.3. Community development

#### 2.3.1 Improvement of village tracks.

Since the beginning of the project the villagers of the Atlantique Province have expressed the need to improve village tracks leading to the main turmac road. Despite contacting all possible sources of funding no organization was prepared to finance these improvements. It was therefore decided that the project using village labour would finance the work. Carder Atlantique cooperated by lending a truck. The work was accomplished in July.

#### 2.3.2 Well digging programme

Twenty eight wells have been constructed by village labour to improve water supply under the supervision of the German Volunteer Organisation and funded by Unicef.

#### 2.3.3 Health education

People living around the newly constructed wells were trained to ensure well maintenance and correct water utilization. Because the training didn't give the expected results a different approach was started. A Canadian Volunteer working for the project started to introduce health education in primary schools.

#### 2.3.4 Fishermen's first aid boxes

To improve health services for fisherfolk, first aid boxes were given to two villages Zogbédji and Ayiguennou. In each village, two fishermen underwent a first aid course. In Zogbédji these fishermen work extremely well. A record book is kept in which is noted the patient's name, the illness and the assistance given. This is checked every month by a local doctor.



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