

PROGRAMME FOR INTEGRATED DEVELOPMENT OF
ARTISANAL FISHERIES IN WEST AFRICA

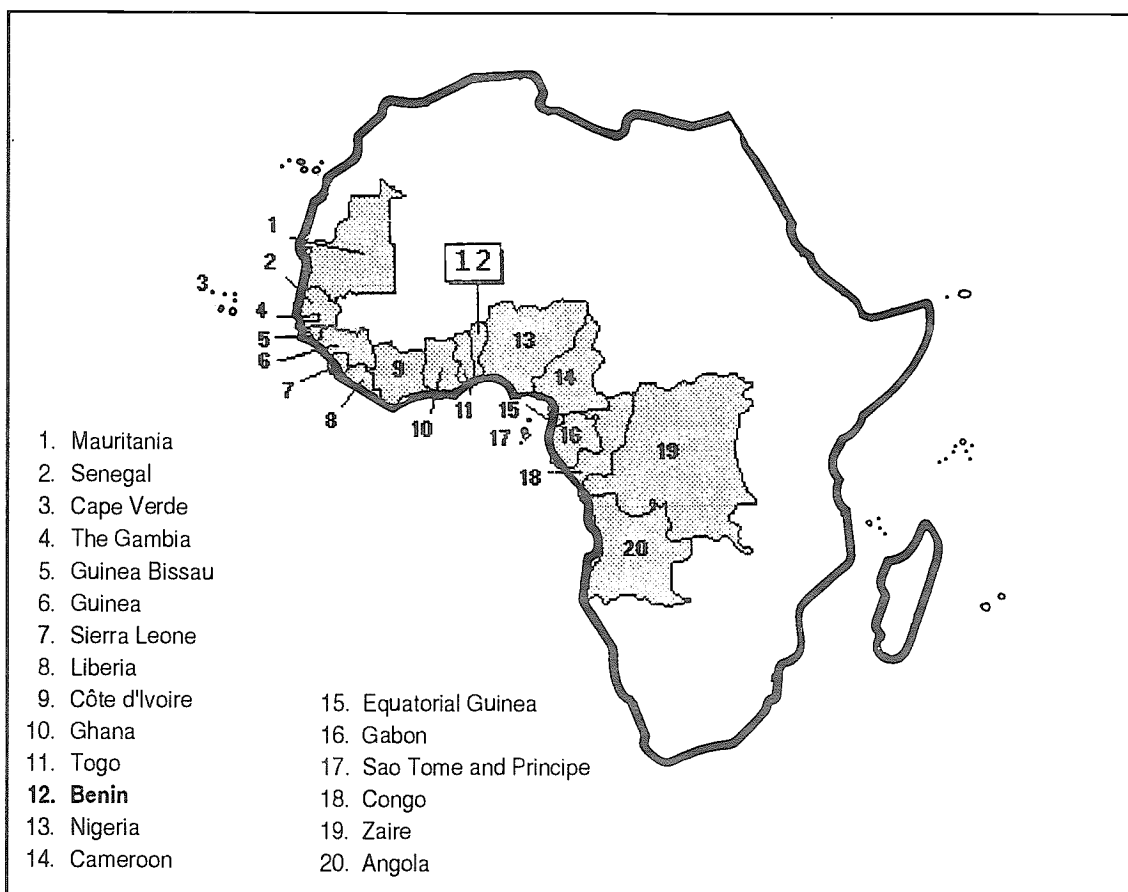
IDAF PROGRAMME

Technical Report N° 73

December 1995

**Report of the Ninth IDAF
Liaison Officers Meeting**

Conakry, Guinea, 09 - 10 November 1995



DEPARTMENT OF INTERNATIONAL DEVELOPMENT COOPERATION OF DENMARK



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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Previous IDAF Liaison Officers Meeting:

| | |
|----------|---|
| First | 11 - 15 May 1985, Cotonou, Benin |
| Second: | 11 - 14 November 1996, Freetown, Sierra Leone |
| Third: | 02 - 04 December 1987, Cotonou, Benin |
| Fourth: | 21 - 23 November 1989, Dakar, Senegal |
| Fifth: | 16 - 18 April 1991, Cotonou, Benin |
| Sixth: | 01 - 05 February 1993, Banjul, The Gambia |
| Seventh: | 22 - 24 November 1993, Cotonou, Benin. |
| Eighth | 03 - 09 November 1994, Pointe-Noire, Congo |

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THE VISION FOR IDAF PHASE III

INTRODUCTION

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

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

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

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

DEVELOPMENT OBJECTIVE

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

The immediate objectives are:

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

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

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

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

TABLE OF CONTENT

| | Page |
|--|------|
| Table of Contents | i |
| Section 1. Report of the Ninth IDAF Liaison Officers Meeting | 1 |
| Section 2. Appendices | 9 |
| 1. List of Participants | 13 |
| 2. Agenda of the Meeting | 17 |
| 3. List of Documents Submitted to the Session. | 18 |
| Section 3. Working documents submitted to the session | 19 |
| 3.1 Report of the Eighth Liaison Officers Meeting | 20 |
| 3.2 Progress Report November 1994 - October 1995 | 27 |
| 3.3 Artisanal Fisheries Geographical Information system Development: FAO's Experience in West Africa | 35 |
| 3.4 Women's role in fishing communities in West Africa and the frame work for detailed studies | 56 |
| 3.5 ARTFISH and ARTSER Computer Systems: A brief technical note note on their purpose and basic functions | 62 |
| 3.6 Exchange of Personal Experiences of Liaison Officers | 67 |
| 3.6.1 Seeking solutions to credit problems of artisanal fisherfolks The Gambian experience | 68 |
| 3.6.2 Management Committee of the port of Lomé: Instrument of promotion of the marine artisanal fisheries in Togo | 72 |
| 3.6.3 "The productive Micro-Projects for Women in Cameroon (MPPF-CAM)" | 73 |
| 3.6.4. Integrated Programme for the Discovery of New Artisanal Fishing Zones and Short Refresher Course for Women Processors in the Cacine Area (Tombali Region) | 76 |
| 3.6.5 A personal field extension and research experience | 81 |
| 3.6.6 Field extension and research experiences from Sierra Leone | 84 |

| | | |
|-------|--|-----|
| 3.6.7 | Paper by the National Director of Maritime Artisanal Fisheries in the Republic of Guinea at the 9th Session of IDAF Liaison Officers | 87 |
| 3.6.8 | Initial results Fish Concentration Devices (FCD) at Sao Tome and Principe | 89 |
| 3.7 | Proposed Programme of Work January - December 1996 | 96 |
| 3.8 | Other matters | 102 |

EXECUTIVE SUMMARY

The ninth session of the liaison officers of the Programme for Integrated Development of Artisanal Fisheries in West Africa was held jointly with the workshop on "Participatory approaches and traditional fishery management practices in West Africa" from 9 to 15 November 1995 at Hotel Mariador Conakry, at the invitation of the Government of Guinea.

The meeting was declared open by Dr. Mamadi Diaré, Minister of Fisheries and Aquaculture of Guinea, in the presence of Dr. Kandjoura Dramé, Minister of Health and Mr. G.J. Bernard FAO Representative in Guinea. Dr. Mamadi Diaré noted that the meeting took place at a moment when Guinea like other countries in the region was concerned with the contribution of artisanal fisheries to food security and expressed the wish that FAO would continue to seek ways to ensure the sustainable contribution of fisheries to human nutrition. He also commended the idea of giving high priority to the role of women in fishing communities, stressing that improvement in the working conditions of women will contribute to alleviating poverty and to improving the socio-economic conditions of the family.

The Minister further underscored the need to involve fisherfolks and other stake holders not only in the management of local fisheries infrastructures but also in the management of fishery resources. He pointed out that Guinea is interested in all actions which can contribute to the sustainable development of artisanal fisheries. He thanked FAO for its continuing assistance to the countries of the region and DANIDA for its financial assistance to the IDAF Programme.

Delegates from 18 of the 20 associated countries participated in the meeting. The delegates from Ghana and Gabon were unable to attend. The Workshop invitees also attended the meeting. Three resource persons, Mrs C. Wetohossou of the Ministry of Rural Development of Benin; Mr. C. Stamatopoulos of Fisheries Statistics Service, FAO headquarters, Rome; and Mr. M. Taconet of the FAO executed project on Geographical Information Systems (GIS), with headquarters in Casablanca, Morocco, attended the meeting. For the Workshop, Dr. R.S. Poméroy of the International Centre for Living Aquatic Resources Management (ICLARM) based in Manila, Philippines and Mr. S. Sverdrup-Jensen, Director of the Institute of Fisheries Management (IFM) of the North Sea Centre in Hirtshals, Denmark, were resource persons.

Seven fishers from Benin (one), Côte d'Ivoire (one), Senegal (one), and Guinea (two men and two women fish processors) participated in the meeting and workshop, and they presented their activities in their respective fishing communities. National managers of 6 IDAF Associated projects also participated in the meeting.

The discussions at the meeting were lively, constructive and fruitful. Several suggestions and recommendations were made for consideration by the Programme in its work programme for 1996. The better organized exchange of experiences between Liaison Officers was very useful and much welcomed.

The methodology applied in undertaking the TCP project in Togo, which involved the active participation of the local fisherfolk in the definition of fisheries management and development plans was appreciated. It was recommended that this approach be used in other countries of the region.

Liaison Officers regarded study tours as an important tool for exchange of experiences in the region and suggested that exchange visits by fishers be encouraged.

The initiative in establishing a working group on the economic role of women in fishing communities was commended. It was suggested that a study on the mentality of the women involved in production, compared with those in other activities, be undertaken.

The participants were introduced to the FAO project GCP/RAF/288/FRA "Geographic Information Systems (GIS) applied to West African fisheries". The concepts and field methods which have been developed in pilot applications in Guinea, Morocco, Mauritania, and Senegal were presented. The participants expressed a desire to see the themes treated by the project enlarged to include themes touching on the socio-economics of artisanal fisheries.

As regards computerization of primary sampled data and derivation of estimates for catch and fishing effort, the meeting was introduced to ARTFISH and ARTSER, which are Artisanal Fisheries Information Systems developed by FAO/Fisheries Statistics Service (FIDI). The meeting recommended that training activities be organized in early 1996 so as to respond rapidly to the urgent need for such standardized systems in the region.

As part of the 9th LOM a visit was organised to the Kamsar Artisanal Fisheries Project (IDAF News Letter N° 27). The visit permitted a better understanding of the fishing activities in the community.

Dr. D. Kane, Director of the Technical Secretariat of the EU financed regional programme on the improvement of the utilization of fishery products (WARF) based in Abidjan, Côte d'Ivoire and who was attending a LOM for the first time, presented the WARF Programme. He requested ECOWAS countries to avail themselves of the opportunities provided by WARF.

Before leaving Conakry participants warmly thanked the Government of the Republic of Guinea for its hospitality, they also thanked the fishers for eloquently sharing their experiences and commended their initiatives to strengthen links between their different communities.

Finally liaison officers commended the contribution of the different resource persons and also appreciated the active participation of the managers of IDAF associated projects

SECTION 1

THE MAIN REPORT

Report of the Ninth IDAF Liaison Officer's Meeting

Agenda Item 1: Opening of the session

1. The ninth session of the liaison officers of the Programme for Integrated Development of Artisanal Fisheries in West Africa was held jointly with the workshop on "Participatory approaches and traditional fishery management practices in West Africa" from 9 to 15 November 1995 at Hotel Mariador Conakry, at the invitation of the Government of Guinea.
2. In the name of the Director General of FAO Mr. J. Diouf and the Assistant Director General a.i. of the FAO Fisheries Department, Mr. W. Krone, the FAO Representative in Guinea, Mr. G. J. Bernard, emphasised the importance of artisanal fisheries in Guinea. He underlined the involvement of FAO in the fisheries sector of Guinea and reiterated that Participatory Rapid Appraisal (PRA) which is today a major tool in the work of IDAF was first tested in the fisheries sector in Africa in Kaback in 1991. He indicated that FAO executed projects in Guinea have served as training grounds for staff and fisherfolks from other countries. He also underlined the benefits which the IDAF member countries could get from the meeting, and underscored the support of FAO for the promotion of artisanal fisheries in the region.
3. The 9th liaison officers meeting was declared open by Dr. Mamadi Diare, Minister of Fisheries and Aquaculture of Guinea, He noted that the meeting took place at a moment when Guinea like others countries in the region was concerned with the contribution of artisanal fisheries to food security and expressed the wish that FAO would continue to seek ways to ensure the sustainable contribution of fisheries to human nutrition. He also commended the idea of giving a high priority to the role of women in fishing communities stressing that improvement in the working conditions of women will contribute in alleviating poverty and also improve the socio-economic conditions of the family.
4. The Minister further underscored the need to involve fisherfolks and other stake holders not only in the management of local fisheries infrastructures but also in the management of fishery resources. He pointed out that Guinea is interested in all actions which can contribute to the sustainable development of artisanal fisheries. He thanked FAO for its continuing assistance to the countries of the region and DANIDA for its financial assistance to the IDAF Programme.
5. Dr. Kandjoura Dramé, Minister of Health of Guinea assisted in the opening ceremonies.
6. Delegates from 18 of the 20 countries associated with the IDAF Programme participated in the 9th liaison officers meeting. The delegates of Ghana and Gabon were unable to attend. The list of participants is given in appendix I. The scope of participation was enlarged to include those invited to the IDAF workshop on participatory approaches in fisheries management in West Africa.

7. Mrs. C. Wetohossou, of the Ministry of Rural Development of the Republic of Benin, Mr. C. Stamatopoulos of FAO headquarters and Mr. Taconet of the FAO executed project on Geographical Information Systems in West African Fisheries GCP/RAF/277/FRA served as resource persons for the 9th Liaison Officer's Meeting. Dr. R. S. Pomeroy of ICLARM and Mr. Sten Sverdrup-Jensen of the Institute of Fisheries Management (IFM) of the North Sea Centre in Hirtshal, Denmark, were resource persons at the workshop on participatory approaches in fishery management in West Africa.
8. A total of 7 fishers (5 men and 2 women) from Benin, Côte d'Ivoire, Senegal and Guinea participated in the meetings.

Agenda Item 2. Adoption of the agenda

9. Mr Ibrahim Sory Toure, national director of artisanal fisheries for Guinea, was unanimously elected chairman of the meeting; with Mr. O.F. Adebisi of Nigeria and Mr. M. Doumbia of Cote d'Ivoire as rapporteurs.
10. The workshop was animated by Dr. R. Pomeroy and Sten Sverdrup-Jensen. Dr. J. P. Johnson from FAO headquarters and Mr. A. Jallow of the IDAF Programme served as rapporteurs.
11. The agenda (given in appendix 2) was adopted. Appendix 3 lists the documents presented at the meeting, while the documents themselves are reproduced in Appendix 4.
12. The secretariat for the meeting was provided by IDAF Programme personnel.

Agenda Item 3 Report of the 8th IDAF Liaison Officer's Meeting

13. The report of the 8th Liaison Officer's Meeting was presented to the participants for their comments. The Liaison Officers expressed their satisfaction with the follow-up actions taken by IDAF on the recommendations of the 8th Liaison Officer's Meeting.
14. The Safety at Sea Project document has been distributed to all countries in the concerned sub-region and the Secretariat of the Sub-regional Commission on Fisheries in Dakar, Senegal. The project proposal was put on the Commission's agenda for their last meeting which took place in Dakar in October 1995. Because not all representatives of the member countries had studied the proposal before the meeting, however, its consideration has now been deferred to the next meeting of the Commission.
15. The Liaison Officers **recommended** that the report of the study on insurance in artisanal fisheries in Senegal be distributed to sensitize fisheries authorities in the region on the problems involved with insurance.

Agenda Item 4 Progress Report

16. The progress report was presented. The Liaison Officers appreciated the assistance provided by the Programme and were satisfied with the activities accomplished in 1995.
17. Congo expressed gratitude for the artisanal fisheries sectoral review and the training on insulated containers undertaken by IDAF. Due to the scarcity of the plastic foam material used for insulation in the containers it was **recommended** that trials using local insulating materials such as coconut fibre or dried banana leaves be carried out by the Programme. Guinea reported on the positive experience of using locally available materials in the construction of ice chests at their port of Bonfi.
18. Cameroon reported that the IDAF-formulated TCP on improvement of traditional boats is progressing well and the authorities believe that it will contribute significantly in improving skills and developing artisanal fisheries in the area. Nigeria requested IDAF's assistance in formulating a similar TCP project.
19. Angola expressed satisfaction that the Programme had fielded a mission to that country in 1995. As a result Angola is now more actively involved in the Programme. A number of collaborative works are on-going. The Liaison Officer from Angola specifically requested that this initiative of IDAF be cited in the Progress Report for 1995.
20. Considering the decreasing rate of catches, Sierra Leone requested IDAF to assist the associated countries in reducing post-harvest losses and the better utilisation of by-catch.
21. Participants appreciated the methodology applied in undertaking the TCP in Togo, which involved the active participation of the local fisherfolk in the definition of fisheries management and development plans. It was **recommended** that this approach be used in other countries of the region.
22. Participants noted the emphasis on sustainable human and fisheries resources development. It was however, stressed that in the management of fishery resources emphasis should also be laid on the management of other renewable natural resources, particularly forest resources which are used in boat building and fish processing.
23. Participants regarded study tours as an important tool for exchange of experiences in the region. Nigeria and Sierra Leone specifically requested to benefit from this mechanism. Guinea Bissau appreciated the assistance of IDAF in facilitating exchange visits between women's groups in the Gambia and Guinea Bissau. Liaison officers suggested that such exchange visits by fishers be encouraged.

Agenda Item 5: Marine geographic information systems

24. Mr. M. Taconet, from the FAO project GCP/RAF/288/FRA "Geographic Information Systems (GIS) applied to West African fisheries", presented the concepts and field methods which have been developed in pilot applications in Guinea, Morocco, Mauritania, and Senegal. It was pointed out that the geographic approach is applicable to both single species and multispecies fisheries. It was emphasized that the field applications being developed use a participative approach which includes the management decision-makers as well as the technicians and scientists at all stages of development of the system.
25. The relevance of these geographic information system methods was discussed. It was noted that knowledge of the zone physically accessible to the fishing units, as determined by their radius of action and the port from which the boat operates, was fundamental for management purposes since this determines the potential impact of possible regulation of a critical fishing area. It was further noted that a fishing fleet whose radius of action includes other potential fishing zones has much more possibility to adapt to severe limitations on fishing in the critical zone concerned than would a fleet whose accessible zone was limited to the critical zone in question.
26. Participants observed that the map of resource distribution is an excellent and readily understood communications tool which enables one to present in an intelligible fashion scientific information which would otherwise be incomprehensible for the non-specialist.
27. Participants suggested that it would be useful to make potential users in the region (notably managers and administrators of fisheries) aware of the possibilities of this approach.
28. They also expressed the hope to see the themes treated by project GCP/RAF/288/FRA enlarged to include themes touching on the socio-economics of artisanal fisheries, especially in those countries already involved in the pilot applications since they are already aware of the possibilities and have already clearly demonstrated their interest.]

Agenda Item 6: Women's role in fishing communities in West Africa and the framework for detailed studies

29. Mrs. C. Wetohoussou of the Ministry of Rural Development in Benin, and Coordinator of IDAF's Working Group on the Role of Women in Fishing Communities, presented the work of the Group. She stressed the problems, issues, and opportunities that were identified in the 14 communities in the 8 participating countries. The main thrusts of future studies will be laid on organization, economic roles, nutrition, and hygiene in fishing communities.
30. Liaison Officers appreciated IDAF's initiative in establishing a working group on the subject. They felt the work was useful and appropriate because of the essential role of women in fishing communities. Some participants gave experiences in their countries which were in agreement with the findings made by the Working Group.

31. It was suggested that a study on the mentality of the women involved in production, compared with those in other activities, be undertaken.
32. Guinea suggested collaboration between IDAF and its pilot project which is addressing some of the problems outlined in the Working Group's report.

Agenda Item 7: ARTFISH

33. Mr. C. Stamatopoulos from FAO, Rome, introduced this item. He first outlined the major programme elements of the Fishery Information, Data and Statistics Service of the FAO Fisheries Department (FIDI), and described those that specifically deal with statistical development aspects in member countries. The meeting was presented with a brief history of methodological and operational approaches used during the past twenty years and noted the drastic change in concepts and techniques resulted by the rapid evolution of computer technology and the expanded use of low-cost and powerful computing tools.
34. The presentation continued with the categorization of sample-based statistical surveys for artisanal fisheries into two principal approaches: (i) those which do not require frame surveys (with a complete geographical coverage of all landing sites) and, (ii) those with limited geographical coverage and for which extrapolating factors from frame survey data are always required.
35. As regards computerization of primary sampled data and derivation of estimates for catch and fishing effort, the meeting discussed the basic functions of ARTFISH, which is an Artisanal Fisheries Information System developed by FAO/FIDI. At present ARTFISH operates under MS-DOS and is available in both English and French. The meeting was informed that several ARTFISH limitations were a result of its operating under MS-DOS, and that a new Windows version has been planned for 1996. The new version would also combine the English and French systems into a single package.
36. ARTFISH is supported by ARTSER, a supplementary MS-DOS system which provides a comprehensive set of reporting and plotting functions for data contained in and produced by ARTFISH. At present, ARTSER is available only in English with the view of developing a French version by mid 1996. The tool is presently being used in several countries, including Gabon, an associated country of the IDAF programme.
37. A major point of the discussion was related to training aspects. It was indicated that the best approach would be the organization of regional workshops providing participants with training on basic statistical principles, hands-on expertise in ARTFISH and ARTSER operations, computer sessions for data preparation, and presentation/interpretation of produced results. The meeting **recommended** that training activities be organized in early 1996 so as to respond the soonest possible to the urgent need for such standardized systems in the region.

Agenda Item 8: Exchange of personal experiences of liaison officers

38. A total of 8 personal experiences were reported by liaison officers. Two of the presentations (the Gambia and Cameroun) dealt with credit initiatives for women. The two papers from Sierra Leone and Guinea were on pilot project activities, while the paper from Guinea Bissau and Nigeria were on fisheries extension. The presentation from Sao Tome and Principe dealt with fishing technology and the presentation of Angola was on introduction to the fisheries sector of that country. Discussions on the experiences were lively and instructive, in many instances indicating areas which were improving and where replication of the activities was reported.
39. Mr. M. Njie of the Gambia reported on non-institutional credit schemes that have been set up and operated by women's and men's fish processing associations in fishing communities through interactive and meaningful self-help initiatives. Important features of these initiatives include: the existence of guidelines (rules and regulations), the maintenance of adequate records, the operation of an emergency fund and the suspension of lending and repayment during low fishing seasons.
40. The experiences of productive micro-projects for women in Cameroun reported by Mrs. M. Bondja indicated the involvement of NGOs in assisting women to obtain credit on very flexible conditions and also to help them increase their incomes while initiating them to the rules of entrepreneurship. Although the project has generally been successful, it was suggested that to ensure sustainability of actions, there should be in depth discussions and work sessions between the different ministries (Livestock and Fisheries, Women's Affairs, Plan and Economy, etc.) NGOs, donors, and the beneficiaries.
41. Mr. D. de Barros of Guinea Bissau reported on pioneering experiences of linking the upstream and downstream fishery activities in the Cacine area. Not only were young fishers trained but were encouraged to fish high value species in relatively unexploited areas. Adequate linkage was established between the fishermen and women processors and distributors and a multidisciplinary team of the Fisheries Administration (fish and fishing technologists, economist, and statistician) provided guidance to the fishers and processors. Attention is also being given to resource management including reforestation of mangroves. the results was increased production and supply of fish with corresponding increase in incomes for all those involved in the sector.
42. Mr. O.F. Adebisi of Nigeria recounted the pilot entrepreneurship scheme that was operated by 4 fisher cooperatives in Uta Ewa in western Nigeria. In 1990 an FAO-executed project assisted participating cooperative societies through short-term credit arrangements of 3 to 6 months for total repayment of inputs at 50% of the purchase price. Working as a group the cooperatives repaid all their loans whereas individual fisheries hardly ever repay. Unfortunately no revolving fund was established. Fishers were encouraged to save to maintain the initiative or to cover replacement costs, but high inflation rates have also hindered a repeat of this experience.

43. Mr. A.C.V. Forde of Sierra Leone shared experiences in 3 pilot projects executed in the country (Tombo, Kambia, and Shenge). These projects have helped to revitalize the artisanal fisheries sector in the country, especially with regard to marine engineering and boat building, and in improving the conditions in fishing communities. The results could have been much better if government was able to meet its financial and human resource obligations to the projects, and if the elements and processes of involving users in the various activities were mastered.
44. Participants were updated on developments in the Kaback project in Guinea by Mr. F.A. Camara. In keeping with its philosophy of progressively empowering users, the Fisheries Development Unit (FDU) and Village Development Committee (VDC) are now legally recognised autonomous organisations. Presently the project's National Director serves as a facilitator to the project and is a co-signatory to the VDC's bank accounts. But from February 1996 these funds are expected to be managed entirely by the VDC. The project continues to lay emphasis on training because of the high illiteracy rate in the area. Users continue to participate actively in all aspects of the project.
45. Mr. O. Dos Santos made a presentation of the preliminary results of the use of Fish Aggregating Devices (FADs). In Sao Tome and Principe, several types of FADs have been tried and the results are encouraging. The use of these devices enable fisherfolk to reduce not only the duration of their fishing trips, but also fuel consumption. Catches are also high but emphasis in the future would be laid on analyzing the economic aspects of using these devices.
46. Participants were introduced to the artisanal fisheries of Angola. In his presentation, Mr. J-P. Lartigue reported on a comprehensive frame survey that is ongoing. So far data on 5 of the 7 coastal regions have been processed. There are no migrant fishermen in Angola. About 10 projects have been executed in the country over the last 15 years. Four projects: naval workshop for repairs of fishing boats, fisheries surveillance and control, support to the artisanal fishery sector to improve fish supply to Luanda and Benguela and a computerized information system for the sector are ongoing.

Agenda Item 9. Work Programme for 1996

47. The 1996 workplan was elaborated and agreed upon based on the methodology evolved during the 7th liaison officer's meeting.
48. The proposed work programme was extensively discussed. Based on comments, requests and suggestions from liaison officers, the philosophy, structure and thrust of the work programme were agreed upon with some modifications of details being incorporated.

Agenda Item 10: Workshop on participatory approaches and traditional fishery management practices in West Africa

49. The objectives of the workshop were:
 - i. to review existing participatory and traditional fishery management experiences in West Africa.
 - ii. to identify possible interventions in cataloguing and revitalizing participatory approaches in fishery management.
50. Eight papers were presented on participatory and traditional fishery management experiences in 9 fishing communities in 7 countries in the region. There was also a paper on participation approaches in community forestry in Senegal. In addition, participants gave information on the situation in their respective countries.
51. Participants commended IDAF for organising the workshop to address this very important issue. It was remarked that traditional management practices existed in many inland fisheries in the pre-colonial era. Some of them were documented but several were not documented.
52. Several countries mentioned that the involvement of stake-holders in fisheries management was essential and that the political, social, and economic climate in their respective countries were conducive to the introduction of this strategy. They however stressed the importance of creating awareness among government officials, scientists, administrators, fishers, etc on the issue in view of the potential problems of implementing innovation in any community.
53. The discussions also underscored the difficulties of involving migrant fishermen in fisheries management.
54. Participants followed keenly two conceptual presentations, the first on "Fisheries Co-management and Small-scale Fisheries" by Dr. R.S. Pomeroy and the second by Mr. S. Sverdrup-Jensen on "Analysis of Fisheries Co-management Arrangements: A Research Framework".
55. Dr. Pomeroy defined co-management as the sharing of responsibility between the government and local fishers/ community to manage a fishery or other natural resource. Co-management covers various partnership arrangements and degrees of power-sharing and integration of local- and government-level management systems. It may involve recognition and legitimization of traditional local-level management systems. It involves some degree of communal management of the resource. that is, a recognized group of fishers or an organization establishes and enforces community rules, norms, and regulations for catching fish or using the resource, with support from the government.

56. In his presentation Mr. Jensen stated that the Fisheries Co-Management Research Project is a DANIDA funded collaborative project between ICLARM, IFM, and the National Aquatic Research System, with partners in the Philippines, Vietnam, Thailand, Indonesia, Malaysia, Zimbabwe, Zambia, Mozambique, Malawi, and, hopefully, West Africa. There are two components to the research: (a) comparative case studies of fisheries co-management strategies on the basis of existing literature and country research, and (b) co-management models based on (a) and tested at pilot sites. A common research framework will enable comparison worldwide between case studies, country research, and pilot-tested co-management models.
57. The purpose of the framework is to describe and characterise the key factors which influence the institutional and organisational aspects of fisheries co-management arrangements. In particular, the framework will enable the analysis of: (a) the existing property rights systems; (b) the scale and level of user group involvement in decision-making; (c) the nature of the representation of user groups in the decision-making process, and (d) the type of existing management organisations. Co-management arrangements would be tested for (a) cost efficiency; (b) equity as regards representation, transparency, and distributive effects; (c) resource stewardship; and (d) management system resilience.
58. There was considerable discussion on the presentations, particularly on the limitations of co-management arrangements and the various indicators in the framework.
59. The following recommendations were made:
- a) IDAF in collaboration with ICLARM and IFM should organize an international training workshop at the regional level on the concepts of participative fisheries management (co-management).
 - b) IDAF, IFM, and ICLARM should assist their partners in the region to catalogue experiences of participatory approaches and traditional fishery management practices.
 - c) Evaluate the impacts of on-going experiences in the Tchonvi fishing community in Benin and Lagoon Aby project in Côte d'Ivoire.
60. Participants expressed regret at the absence of the programmed presentation on the legal aspects of co-management.
61. The observations of resource persons are included in the workshop Proceedings.

Agenda Item 11: Other matters

62. Participants followed with interest presentations made by artisanal fishermen and women fish processors on their activities in their respective fishing communities.

63. The seven fishers at the meeting reported on the behind the scenes consultations they held to initiate collaboration and effective exchange of information and experiences and requested IDAF to continue to arrange for practising fishers to join in their meetings.
64. Participants thanked the fishers for eloquently sharing their experiences and commended their initiative to strengthen links between their different communities.
65. Dr. Demba Kane, Technical Secretary of the EU financed regional Programme on the improvement of the utilization of fishery products (WARF) based in Abidjan, Côte d'Ivoire, presented the Programme to participants and requested ECOWAS countries to avail themselves of the opportunities provided by WARF.
66. The Secretariat thanked the Liaison Officers for their country papers and promised that in addition to providing a summary, the papers would be photocopied and distributed to all liaison officers in their present form.
67. The Government of the Republic of Guinea was thanked for its hospitality.
68. Participants thanked the fishing community of Kamsar for permitting them to better understand the fishing activities in their community.
69. Liaison Officers commended the contribution of the different resource persons and also appreciated the active participation of the managers of IDAF-associated projects as well as the authors of the papers presented at the workshop.
70. It was agreed that the next Liaison Officers Meeting will be held in the central zone of IDAF, the details to be worked out by the secretariat.

Agenda Item 12: Adoption of the report

71. The liaison officers adopted the report and asked the secretariat to ensure its finalisation and proceed with its distribution.

Agenda Item 13: Closure of the meeting

The ninth IDAF Liaison Officers Meeting was declared closed by Mr Yaya Camara, Secretary General at the Ministry of Fisheries and Aquaculture of Guinea.

SECTION 2

APPENDICES

List of participants at the Ninth Liaison Officers Meeting and Workshop

| <i>Name</i> | <i>Country</i> | <i>Telephone</i> | <i>Fax</i> | <i>Address</i> |
|-----------------------------------|----------------|------------------------------|--------------|---|
| Mr. Alfonso Kingombo | Angola | 244-2-334112 | 244-2-393039 | Biologist, das Pescas Artesanais, Rua José Pedro Tuca 36/38, Luanda |
| Mr Jean-Philippe Lartigue | Angola | 244-2-334112 244-2-340598 | 244-2-393039 | Conseiller Technique da Pesca Artesanal, Rua José Pedro Tuca 36/38, Luanda, Angola |
| Mr Joaquim José da Silva Salavisa | Angola | 244-2-334112 | 244-2-393039 | Director Nacional da Pesca Artesanal, Rua José Pedro Tuca 36/38, Luanda, Angola |
| Mr. Adégbité Toussaint | Benin | 244-2-393039 | 362104 Dom. | |
| Mr Jean Gallène | Benin | (229) 33 15 51 229-330925 | 229-330519 | Direction des Pêches, BP: 383 Cotonou Integrated Development of Artisanal Fisheries (IDAF), BP 1369, Cotonou |
| Mr. J. Gbodogbé, | Benin | 333171 | | c/o PPL Cotonou (Sèmèpodji, Ouémé) |
| Mr Benoît Horemans | Benin | 229-330925 | 229-330519 | Integrated Development of Artisanal Fisheries (IDAF), BP 1369, Cotonou |
| Mr Alhaji Jallow | Benin | 229-330925 | 229-330519 | Integrated Development of Artisanal Fisheries (IDAF), BP. 1369, Cotonou. |
| Mr Gilbert Mensah | Benin | 229-331551 | | Direction des Pêches, BP 383, Cotonou |
| Mr Benedict P. Satia | Benin | 229-330925 | 229-33-05-19 | Integrated Development of Artisanal Fisheries (IDAF), BP 1369, Cotonou |
| Mme Wétohossou Z. Célestine | Benin | (229) 33 15 02 | | ONASA, BP. 06-2544 ou 06-1115, Cotonou |
| Mme Monique Bondja | Cameroon | 237-316049 | 237-221405 | Direction des Pêches, BP 930, Yaounde |
| Mr. Jean-Calvin Njock | Cameroon | 237-316049 | 237-221405 | Directeur des Pêches, Ministère de l'Elevage, des pêches et des industries Animales, Yaoundé |
| Mr José Manuel Lima Ramos | Cape Verde | 238-311307 | 238-311612 | Instituto Nacional de Desenvolvimento das Pescas, BP 132, Mindelo, São Vicente |
| Mr André Bitoumba | Congo | 242-834598 | 242-832908 | Direction Générale des Pêches, BP 1650, Brazzaville |
| Mr. K.E. Amanzoulé | Côte d'Ivoire | | | c/o Projet Pêche Lagunaire (Angaman ci) |
| Mr Mamadou Doumbia | Côte d'Ivoire | 225-356315 | 225-218054 | Direction de l'Aquaculture et des Pêches, BP V 19, Abidjan |

| | | | | |
|---------------------------|-------------------|-----------------|---------------|---|
| Mr Angaman Konan | Côte d'Ivoire | 225-537029 | 225-537029 | Projet Pêche Lagune Aby, BP 184, Adiaké |
| Mr. Demba Yessou Kaqne | Côte d'Ivoire | (225) 227588 | (225) 227592 | Programme Régional Afrique de l'Ouest - Valorisation des Captures de la Pêche Artisanale, Abidjan 17 B.P. 56A Abidjan 17, Côte d'Ivoire |
| Mr. Sten Sverdrup Jensen | Denmark | 98 94 33 00 | +45 98944833 | The North Sea Centre, P.O. Box 104, 9850 Hirtshal |
| Mr José Bikoro Eko Ada | Equatorial Guinea | 240-9-3464 Off. | 240-9-3178FAO | Ministerio de Agricultura, Pesca y Alimentación, Malabo, Bioko Norte, Rép. de Guinée Equatoriale |
| Mr. Koffi Afful | Ghana | 240-9-2556 Dom | | Economics Department University of Cape Coast, Cape Coast |
| Mr Martin Mensah | Ghana | 233-21-776071 | 233-22-12982 | Fisheries Department, PO Box 630, Accra |
| Mr. S.K. Avoke | Ghana | | | P.O. Box 4, Yeji, Brong-Ahafo |
| Mr Wim Scheffers | Ghana | 233-51-2024 | 233-21-668427 | Integrated Development of Artisanal Fisheries on Lake Volta, PO Box 4, Yeji |
| Mr Antoine R. Nkogho-Eyi | Gabon | 241-761444 | 241-739892 | Direction des Pêches, BP 20247, Libreville |
| Mr. Momodou Njie | The Gambia | (220) 228727 | | Fisheries Officer, Fisheries Department, 6, Marina Parade, Banjul |
| Mr. Nfamara Dampha | The Gambia | (220) 228727 | | Senior Fisheries Officer, Fisheries Department, 6, Marina Parade, Banjul |
| Mr Akambi Lassissi | Guinea | 224-444897 | 224-444725 | Project 'Assistance à la consolidation et à la pérennisation de l'approche Kaback', c/o Représentation de la FAO en Guinée, BP 633, Conakry |
| Mr Fodé Aly Camara | Guinea | 224-444897 | 224-444725 | Project 'Assistance à la consolidation et à la pérennisation de l'approche Kaback', c/o Représentation de la FAO en Guinée, BP 633, Conakry |
| Mr. Fode Sylla | Guinea | | | Port de Pêche de Dubreka |
| Mr Fadoumba Pascal Konaté | Guinea | 224-444897 | 224-444725 | Project 'Développement d'une base de pêche à Kamsar', c/o Représentation de la FAO en Guinée, BP 633, Conakry |
| Mr. Issaga Daffe | Guinea | ABSENT | | Port de Pêche de Boulbinet |

| | | | |
|---------------------------------|------------------|-----------------------------|--|
| Mr. Ismaël Kéïta | Guinea | (224) 41-35-23 | Ministère Pêche et Aquaculture |
| Mr. Ibrahim Sory Touré | Guinea | (224) 413523 | Directeur National Pêche Artisanale |
| Mme Fatou Séné | Guinea | (224) 412358 | Ministère de la Pêche et Aquaculture |
| Mme Kadiatou Fofana | Guinea | (224) 412358 | Ministère de la Pêche et Aquaculture |
| Mrs. Nana Sounah | Guinea | Fax c/o FAOR (224) 414725 | Ministry of Fisheries and Aquaculture |
| Mr. Aboubacar Sidiki Kaba | Guinea | (224) 412358 | Coopérative des pêcheurs, mareyeurs "Boulbinet", Ministère de la pêche et Aquaculture |
| Mr. Nianga Kolomou | Guinea | Fax: (224) 414725 | Projet UND/GUI/87-004CDF Kamsar, c/o FAOR Conakry, Guinée |
| Mrs. Diallo née Falématou Barry | Guinea | Fax (224) 414725 | Projet Kamqsar Gui/87-004 CDF, c/o FAOR Conakry Guinée |
| Mme Fatoumata Dioulde Diallo | Guinea | Fax (224) 414725 | Projet Kamqsar Gui/87-004 CDF, c/o FAOR Conakry Guinée |
| Mr. Domingos Barros | Guinea-Bissau | 245-201273 | Directeur des Pêches, Bissau B.P. 102 |
| Mr. Constantine Stamatopoulos | Italy | 39-652256477 | Fonctionnaire Principal des Pêches, Département des Pêches de la FAO, Rome |
| Mr. Jan P. Johnson | Italy | 39-652254734 | Fishery Industry Officer, FAO 00100 Rome |
| Mr Mike Doeff | Italy | 39-6-52256739 | Fish Utilization and Marketing Service, FAO, 00100 Rome |
| Mr. T. Do Chi | Italy | | Fisheries Department, FIRM FAO Rome |
| Mr Isaac Flowers | Liberia | 231-261322 | Bureau of Fisheries, PO Box 9010, Monrovia |
| Mr Mohamed Lemine ould Meymoun | Mauritania | 222-2-57892 c/o Fax FAO NKT | Ministère des Pêches et de l'Economie Maritime, BP 137, Nouakchott |
| Mr. M. Taconet | Morocco | | ISPM Cassablanca |
| Mr Olawande F. Adebiyi | Nigeria | 234-1-614537 | Assistant Director, Federal Department of Fisheries, PMB 12529, Victoria Island, Lagos |
| Dr. Robert S. Pomeroy | Philippines | 632-8163183 | Research Scientists, Fisheries Economics, ICLARM MCPO Box 2631 0718, Makati, Metro Manilla |
| Mr Oliwto Dos Santos | S. Tomé & Princ. | 239-22091 | Direcção das Pescas, BP 59, São Tomé (Projet Pêche Artisanale) |

| | | | | |
|--------------------------------|--------------|---------------|---------------|---|
| Mr. A. Tavares De Pinho, | Senegal | | 221-235897 | Conseiller Régional en Droit des Pêches c/o FAOR Dakar |
| Mr. Bakalilou Diaby | Senegal | | 221-511546 | Expert National Agro-économistes FAO GCP/SEN/043/NET B.P. 338-A Thiès, Sénégal |
| Mr. Dao Gaye | Senegal | 321174 | 221-321175 | Patron-Pêcheurs à Kaya, Secrétaire Général du Collectif (CNPS), B.P. 3211 |
| Dr. Moustapha Kébé | Senegal | | 221-212606 | CRODT/ISRA, BP. 3120 Dakar |
| Mr Ousman Ndiaye | Senegal | 221-214758 | 221-228876 | Direction de l'Océanographie et des Pêches Maritimes, BP 289, Dakar |
| Mr Kamorba K. Dabo | Sierra Leone | 232-22-250201 | 232-22-251431 | Dep. of Fisheries, Department of Marine Resources, Brookfields, Freetown |
| Mr A.C.V. Forde | Sierra Leone | 232-22-250201 | 232-22-251431 | Dep. of Fisheries, Department of Marine Resources, Brookfields, Freetown |
| Mr. H.A. Robbie | Sierra Leone | 232-242117 | 232-22-251431 | Dept. of Fisheries and Marine Resources Marine House, Old Railway Ligne, Freetown, Sierra Leone |
| Mr R.P. Jones | Sierra Leone | 232-22-250201 | 232-22-251413 | West-North-West Artisanal Fisheries and Community Development Programme, PMB 1261, Freetown |
| Mr Marius Denke | Togo | 228-213645 | 228-217820 | Direction de l'Elevage et des Pêches, BP 4041, Lomé |
| Mr Dieudonné Kisalima Katsongo | Zaire | 243-12-33436 | 234-88-43353 | c/o FAO Representative, BP 16096 Kinshasa |

Agenda of the Meeting

1. Opening of the Session
2. Adoption of the Agenda
3. Report of the Eighth Liaison Officers Meeting
4. Progress Report
5. Marine geographic information systems
6. Women's role in fishing communities in West Africa and the framework for detailed studies
7. ARTFISH
8. Exchange of personal experiences of Liaison Officers
9. Work Programme for 1996
10. Workshop on Participatory Approaches and Traditional Fishery Management Practices in West Africa
11. Other Matters
12. Adoption of the Report
13. Closing of the Meeting.

List of Documents Submitted to the Session

Working Documents

- Report of the Eighth IDAF Liaison officer's Meeting and Action taken on Recommendations and suggestions.
- Progress Report November 1994 - October 1995
- Artisanal Fisheries Geographical Information system Development: FAO's Experience in West Africa.
- Role of Women in fishing Communities in West Africa and the frame work for detailed studies.
- ARTFISH and ARTSER Computer Systems: A brief Technical note on their purpose and basic functions.
- Exchange of Personal Experiences of Liaison Officers
- Seeking Solutions to Credit Problems of Artisanal Fisherfolks the Gambian Experience, by Momodou N'jie.
- Management Committee of the Port of Lomé: Instrument of promotion of the Marine Artisanal Fisheries in Togo, by A.M. Denke.
- "Productive Micro-Projects for Women in Cameroon (MPPF-CAM)", by Monique Bondja
- Integrated Programme for the Discovery of New Artisanal Fishing Zones and Short Refresher Course for Women Processors in the CACINE AREA (Tombali Region), by Domingo de Barros.
- A Personal Field Extension and Research Experience, by O.F. Adebisi
- Field Extension and Research Experiences from Sierra Leone, by A.C.V. Fordé
- Paper by the National Director of Maritime Artisanal Fisheries in the Republic of Guinea at the 9th Session of IDAF Liaison Officers, by Ibrahim Sory Touré.
- Initial Results fish Concentration Devices (FCD) at Sao Tome and Principe, by Olavio Anibal.
- Proposed Programme of Work January-December 1996.

SECTION 3

WORKING DOCUMENTS

SUBMITTED TO THE SESSION

Report on the Eighth Liaison Officers' Meeting

Agenda Item 1. Opening of the session.

1. The eighth meeting of the liaison officers of the Programme for Integrated Development of Artisanal Fisheries in West Africa was held jointly with the workshop on "Seeking improvements of fish technology" from 3 to 9 November 1994 at M'bou Mvoumvou Hotel Pointe Noire, at the invitation of the government of the Congo.
2. In the name of the Director General of FAO, Mr. J. Diouf, and of the Assistant Director General a.i. of the FAO Fisheries Department, Mr. W. Krone, the FAO Representative in the Congo, Mr. S. Aidara, emphasised the importance of artisanal fisheries to the Congo. He also underlined the benefits which the IDAF member countries could get from the meeting, and re-iterated the support of FAO for the promotion of artisanal fisheries in the sub-region.
3. The 8th Liaison Officer's Meeting was declared open by Mr. R. Ngoulali, Minister of Forestry and Fisheries of the Congo. He noted that the meeting took place at a moment when the Congolese artisanal fishers have become aware of the need to unite their efforts to improve both their working conditions and their living conditions. He pointed out that the Congo is interested in all actions which can contribute to the development of artisanal fisheries. He thanked FAO for its continuing assistance to the countries of the sub-region, and DANIDA for having renewed its financial assistance to the IDAF Programme.
4. Delegates of the 20 countries associated with the IDAF Programme participated in the 8th liaison officer's meeting. The list of participants is given in appendix 1. The scope of participation was enlarged to include those invited to the IDAF workshop on improvements in fish technology in West Africa.

Agenda Item 2. Adoption of the agenda.

5. Mr. D. Ebiou, Director General of Fisheries for the Congo, was unanimously elected president of the meeting, with Mr. O. Ndiaye of Senegal and Mr. K. Dabo of Sierra Leone as rapporteurs.
6. The workshop was animated by Mr. A. Tall of INFOPECHE with Mr. F. Teutscher from FAO Headquarters and Mr. A. Jallow of the Gambia serving as rapporteurs.
7. The agenda (given in appendix 2) was adopted. Appendix 3 lists the documents presented at the meeting, while the documents themselves are reproduced in Appendix 4.
8. The Secretariat for the meeting was provided by IDAF Programme personnel.

Agenda Item 3. Follow up Actions on the Recommendations of the 7th IDAF Liaison Officer's Meeting.

9. The report of the 7th liaison officer's meeting was presented to the participants for their comments. The liaison officers expressed their satisfaction with respect to the actions taken in response to the recommendations of the 7th liaison officer's meeting.
10. Guinea underlined the success of the PRA methods being used in the development and management of its artisanal fisheries sector. In this context, it was **recommended** that the liaison officers encourage the utilisation of similar PRA techniques in their own countries.

Agenda Item 4. Progress Report for 1994

11. The progress report was presented. The liaison officers felt that, in general, the activities which had been undertaken corresponded to the 1994 work plan. The Liaison officers acknowledged with thanks the assistance which had been provided by the Programme.
12. They also took the opportunity to express gratitude to DANIDA for its ongoing support to IDAF and particularly for their approval of the present third phase.
13. Certain countries drew attention to the limited direct IDAF interventions in their own countries. In response, the Secretariat recalled the Programme's criteria for intervention which had been established at the seventh liaison officer's meeting, and especially the role of the liaison officers in the preparation and implementation of IDAF's work programme.
14. Angola indicated their regret that they had not been able to actively participate in the Programme in the past, although they had been satisfied with the information exchange provided by the Programme. They wished to henceforth actively participate in the activities.
15. The countries of the northern sub-region (from Mauritania to Sierra Leone) expressed satisfaction with the sub-regional workshop on safety at sea. They asked the programme to speedily disseminate the report of the meeting, as well as the completed project proposal. Senegal suggested fellow-countries in the sub-region to actively follow up on assuring presentation by their own governments of the safety at sea project proposal to the sub-regional commission on fisheries.
16. Certain projects acknowledged the collaborative work which been done by IDAF with them. They **recommended** that IDAF ensure that the final drafts of joint publications be cleared by the projects concerned.

17. Participants stressed the importance of credit for the development of small-scale fisheries, and requested information on the status of the regional credit project proposal which was to have been submitted to the European Union. The secretariat replied that only one country (Guinea) had succeeded in getting their formal request to the EU. A minimum of two more formal requests from the region are required by EU rules before they can take the request under official consideration. Those countries interested were strongly encouraged to be sure that their own requests for this programme were completed and forwarded to Brussels through the official government channels.
18. Several countries expressed concern with the need to restrict fishing pressure on their limited resources, a particularly difficult problem in artisanal fisheries. The hope was expressed that the participation of local users in the management process could be one way of approaching this goal. The assistance of IDAF in developing appropriate participatory methodologies was requested. The Secretariat replied that collaboration on this subject with the relevant HQ services had already been initiated. The issue will be further discussed at the meeting of the CEECAF working group on the management of resources within the limits of national jurisdiction in Agadir, Morocco, in December 1994.
19. Countries also remarked on the problem of increasing fisherfolk populations, and expressed their hope that education may be a useful tool in helping to deal with some of these problems.
20. A number of countries requested assistance in training for gathering and analysing fisheries statistics. It was pointed out that CEECAF is the most appropriate forum for dealing with matters of fisheries statistics. IDAF has been collaborating with CEECAF through co-sponsoring of appropriate workshops and other activities, and will continue to do so.
21. The secretariat further mentioned that FAO developed and is presently carrying out in Gabon a test of ARTFISH, a computerised system for processing and analysing artisanal fisheries data. Participants recommended that results of this test be disseminated throughout the region.
22. Participants liked the IDAF documents, which have shown improvement with time. It was recommended that future publications should start with an executive summary. Liaison officers proposed that they themselves should also extract from IDAF publications the elements which are most relevant for their own countries, drawing the attention of their national decision makers to these aspects.
23. Participants also commended their colleagues who contributed to the IDAF Newsletter, and in particular on the theme of the effects of devaluation of the FCFA on artisanal fisheries in the region.

Agenda Item 5. Methodologies for assessing capital needs and availability in artisanal fisheries.

24. Liaison officers appreciated IDAF's initiative in addressing this important issue by establishing a working group on this subject. Participants congratulated members of the working group for having already undertaken case studies in Ghana and Senegal.
25. There was considerable discussion concerning the methodologies and other technical issues involved in assessing capital needs and capital availability for the sub-sector. Participants expressed their desire to apply aspects of these methods in their own countries. It was therefore **recommended** that the reports of the two case studies and of the second meeting of the working group should be finalised and distributed to member countries as soon as possible.
26. It was also **recommended** that consultants and IDAF fellows recruited to work in countries in the region should intimately involve the national IDAF liaison officers and national fisheries departments concerned with all activities being carried out in their country of assignment.

Agenda Item 6. Fish consumption in IDAF countries.

27. Participants felt that this agenda item was very appropriate in view of the increased importance being given to food security.
28. It was requested that the implications of this study with respect to the need to meet future demands for fishery products be studied in greater detail.
29. There was lively discussion on details of the statistical information provided. The fact that this type of comparative study requires data from the same year for all countries contributed to the difficulties encountered in reconciling the data.

Agenda Item 7. Artisanal Safety at Sea.

30. Participants re-iterated their appreciation for IDAF having organised the safety at sea workshop in the northern region, to give them a more global view of marine safety problems.
31. Information was provided by participants on some of the safety activities in their own countries.
32. Liaison officers drew attention to the particular safety needs of certain geographical areas and environments, especially inland lakes and rivers, islands, and surf landing zones. Certain countries indicated that their major source of fatalities was on inland lakes rather than in the marine zone, and requested appropriate technical advice.

33. Participants were particularly interested in the question of insurance, and wished to receive more detailed information concerning the already operating artisanal fisheries insurance programmes in Senegal and Cape Verde.
34. Members expressed their strong need to have lists of appropriate safety equipment, and suppliers (or local means of fabrication) and costs involved.
35. A number of countries requested IDAF's assistance in developing the plans for their own national artisanal safety at sea programmes.
36. Emphasis was also placed on the need for creating awareness on the safety issue in other sub-regions of the IDAF zone.

Agenda Item 8. Empowerment of local fishing communities

37. Participants followed with interest presentations made by artisanal fishermen from Congo and Gambia on empowerment mechanisms in their respective fishing communities.
38. Liaison officers felt that these presentations gave them some concrete ideas on how to deal with some of the problems they face in their own countries with respect to migrant fishermen and local management of physical infrastructures.
39. The presentation on migrant fishermen highlighted both the extent of possibilities for effective social and economic integration within the local society, and the limits on the "administrative" integration of any immigrant community. The lessons were instructive both for home and host countries.
40. The construction of infrastructure has been an important component in many fisheries development projects, yet in very few has this infrastructure been effectively taken over and maintained by the local fishing communities after the end of the project. Thus, the example from Gambia where the local users have not only taken over and maintained, but also extended the facilities using their own income is particularly pertinent.
41. The liaison officers thanked the fishermen for eloquently sharing their experiences, and requested IDAF to continue to arrange for practising fishermen to join in their meetings.

Agenda Item 9. Work Programme for 1995

42. The 1995 work plan was elaborated and agreed upon based on methodology evolved during the 7th liaison officer's meeting.
43. The proposed work programme was intensively discussed. Based on comments, requests and suggestions from liaison officers, the philosophy, structure, and thrust of the work programme was agreed upon with some modifications of details being incorporated.

Agenda Item 10. Report of the workshop

44. The objectives of the workshop were:
 - (i) to update information on fish technology in the region
 - (ii) to identify possible interventions in fish handling and processing in the artisanal fisheries sector that will ensure:
 - increased earning capacity of fisherfolk
 - increased availability of fish for consumption
 - protection of the environment
 - protection of the health of processors and consumers.
45. The list of identified interventions will serve as a guideline for all projects, programmes, etc which have an interest in fish technology in West African artisanal fisheries, including IDAF itself, FAO's regular programme, INFOPECHE, the Regional Programme funded by the European Union on Improved Utilization of Artisanal Fish Catches in West Africa (ECOWAS), the Ghana/Netherlands Regional Training and Applied Research Programme on Artisanal Fish Processing.
46. Eight papers were presented on traditional fish processing technologies and on the use of ice. In addition participants gave information on fish technology in their respective countries.
47. The following recommendations were made :
 - a. Existing technologies should be the starting point for any activities on improved technologies. The existing technologies should be carefully analyzed in each phase of their operations. Furthermore, the whole range of activities from fishing to consumption should be considered and not a single step. In this light the relations between fishermen, traders and consumers should be taken into account and it should be realised that improvements usually result in a change in product characteristics and price.
 - b. The active participation and commitment of the target group should be assured.
 - c. Fish processors and traders should have access to credit to improve their operations.
 - d. Fish processors should be sensitized on matters of health, hygiene and environmental protection.
 - e. Community based agro-forestry activities should be encouraged by artisanal fishery projects to ensure the availability of fuelwood for fish smoking as well as for domestic purposes.
 - f. Smoke houses should be constructed and improved so as to reduce health risks from smoke as well as fire hazards.
 - g. Quality assurance programmes should be implemented in all countries. In this view the quality and safety of traditional products should be studied while products for export should comply with regulations in importing countries.

- h. The use of ice and insulated containers must be encouraged. To this effect emphasis should be placed on training of fishermen and traders on improved handling, storage, and marketing of fresh fish while the availability of ice in artisanal fishing centres must be assured.
- i. Insulated containers must be adapted to specific local conditions. In general, further studies must be conducted aiming at reducing their cost.
- j. The exchange of successful experiences in fish technology will accelerate their introduction. This is relevant for:
 - bonga ovens in Gambia and Sierra Leone which are of interest for all countries with large catches of small pelagic fish, in particular bonga,
 - insulated containers in Senegal and Guinea, which are relevant for all countries,
 - ice plants in Gambia and Senegal, also of interest to all countries

Agenda Item 11. Other matters.

- 48. Liaison officers contributed corrections and additions to the list of relevant NGOs in the region being compiled by IDAF, and were reminded that this roster remains open and further additions by Liaison Officers are encouraged.
- 49. The Secretariat thanked the liaison officers for their country papers and promised that in addition to providing a summary, the papers would be photocopied and distributed to all liaison officers in their present form.
- 50. The government of the Republic of Congo was thanked for its hospitality.
- 51. The liaison officers also thanked the fishing communities of Matombi and Pointe Noire for permitting them to better understand the fishing activities in their areas.
- 52. The liaison officers appreciated the active participation of the managers of IDAF associated projects as well as the authors of the papers presented at the workshop.
- 53. It was agreed that the next liaison officers meeting will be held in the northern zone of IDAF, the details to be worked out by the secretariat

Agenda Item 12. Adoption of the report

- 54. The liaison officers adopted the report and asked the secretariat ensure its finalisation and proceed with its distribution.

Agenda Item 13. Closure of the meeting

- 55. The eighth IDAF liaison officers meeting was declared closed by Mr. D. Ebiou, Director General of Fisheries of Congo.

Progress Report November 1994-October 1995

ACHIEVEMENT HIGHLIGHTS

Main technical achievements include.

- * organised two operational training workshops for trainers on Participatory Rapid Appraisal (PRA) in Guinea (Kamsar and Kaback).
- * reviewed participatory mechanisms and traditional management practices in artisanal fisheries in 8 locations within the region; and organised a regional workshop on the subject;
- * pursued work on Costs and Earnings in artisanal fisheries at 10 Fishing Communities in the region;
- * finalized the fisheries development and management plan for Togo;
- * assisted in the execution of a Technical Cooperation Project on the improvement of traditional fishing boats and training of marine carpenters in Cameroon;
- * set up of a Working Group to study the Role of Women in Fishing Communities and undertaking studies in 14 fishing communities on the subject;
- * organised the 9th Liaison Officers Meeting (LOM) in Conakry, Guinea.

RESUME OF OBJECTIVES

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

THE IMMEDIATE OBJECTIVES OF THE PROGRAMME

1. to identify, assess and disseminate strategies and mechanisms for sustainable management and development of the artisanal fisheries in fishing communities;
2. to improve the competences of national Fisheries Department staff in development and management planning of artisanal fisheries;

3. to enhance regional technical competences in the fisheries disciplines, particularly in fishing and fish technology;
4. to improve information and experience exchange related to artisanal fisheries within the region;
5. to promote regional and sub-regional collaboration for the development and management of artisanal fisheries.

SUMMARY OF ACHIEVEMENTS BY OBJECTIVES

Objective 1: Strategies and mechanisms for sustainable development and management of artisanal fisheries.

Training Courses in Participatory Rapid Appraisal (PRA)

Two 2 weeks workshops for the training of trainers were organized for 23 participants from Kaback and Kamsar in Guinea. The tools and techniques learned were tested in Dougoula village some 21 kilometres from Kamsar.

Support to Fisherfolk Organisation

IDAF provided in-the-field support in the organisation of fisherfolks at the Integrated Rural Development project at Aguégues, Benin; the Owendo Fisheries Centre in Gabon and the Kaback and Kamsar projects in Guinea.

Role of Women in Fishing Communities

Women involvement in artisanal fisheries is usually said to be significant. However, the degree of this involvement and the role of women in fishing communities in the Region has not been studied in a detailed manner and on a long term basis. In this context, IDAF constituted a Working Group of eleven eminent scientists and technicians involved in rural development to work on the subject.

The Working Group held a 3 days brainstorming meeting in Cotonou, Benin, to develop the methodology and strategies to follow to analyse the role of women in fishing communities, to identify the problems women encounter and to suggest realistic and practical actions to improve their socio-economic conditions.

The women then carried out studies in 14 different fishing communities in 8 countries of the Region. The outcome of their work was discussed in another meeting at which resource persons were invited. Among other things, participants at the meeting drew up the framework for further work by the Working Group.

The main thrusts of work done in this area were presented and discussed at the 9th LOM held in Conakry, Guinea, 9-15 November 1995.

Objective 2: Improve competence in development and Management Planning of artisanal fisheries.

Fisheries Development and Management Plan for Togo.

As part of the programme for the elaboration of a development and management plan for the fishery sector, a national seminar, bringing together 60 representatives of those involved in the fishery sector was held in Togoville 6-8 December 1995. The draft plan of Action (for the development and management of the fishery sector) that had been drawn up by a multidisciplinary team of international and national experts with the active involvement of economic operators and user groups was presented and discussed at the seminar. The plan has now been finalized and will be submitted to the appropriate Government authorities through the appropriate channels.

Participatory approaches and traditional Management Practices

As a follow up to the 9th LOM there was a workshop on Participatory Approaches and traditional fishery management practices in West Africa. The workshop was animated by Dr. R.S. Pomeroy of ICLARM, Manila Philippines and Mr. S. Sverdrup-Jensen, IFM, Hirtshals, Denmark

The objectives of the workshop were:

- i. to review existing participatory and traditional fishery management experiences in West Africa; and
- ii. to identify possible interventions in cataloguing and revitalizing participatory approaches in fishery management.

Eight papers were presented from 9 fishing communities in 7 countries in the region. There was also a paper on participation approaches in community forestry in Senegal. In addition, participants gave information on the situation in their respective countries.

Presentations were made by Dr. R.S. Pomeroy on "Fisheries Co-management and Small-Scale Fisheries" and Mr. S. Sverdrup-Jensen on "Analysis of Fisheries Co-management Arrangements: A Research Framework".

The following recommendations were made:

- a) IDAF in collaboration with ICLARM and IFM should organize an international training workshop at the regional level on the concepts of participative fisheries management/co-management.
- b) IDAF, IFM, and ICLARM should assist their partners in the region to catalogue experiences of participatory approaches and traditional fishery management practices;
- c) Evaluate the impacts of on-going experiences in the Tchonvi fishing community in Benin and the Aby Lagoon in Côte d'Ivoire.

Network on Costs and Earnings in Artisanal Fisheries.

The *modus operandi* developed at the Dakar meeting in June 1995 was tested in the 10 fishing communities and made location specific. The work is progressing well in most centres and a review meeting is planned for late February 1996 in Banjul, The Gambia.

Objective 3: Enhance Regional Competence in Fish and Fishing Technology.

Improvement of traditional boats

In 1994 IDAF helped identify a TCP project for the improvement of traditional fishing boats and the training of marine carpenters in Cameroon. The project became operational in April 1995. Eight local marine carpenters have been trained and 3 boats constructed. The 3 boats were handed over to Cameroon authorities on 19 December 1995. Mr. Gulbrandsen FAO Naval Architect Consultant described the boats to be of excellent quality. Other field activities such as training in and construction of insulated containers and the marketing of high value fish species to hotels in the major towns have started.

Improvements in fishing gear

** Crab traps*

Technical assistance was provided to Lagoon Aby Project in Côte d'Ivoire on the use of traps (balances) for catching crabs (*Callinectes amnicola*). The improved traps caught 3 times more crabs than the traditional traps with a savings in labour time of over 60 percent.

** Gillnets in rocky bottoms*

The office for the Development of Artisanal Fisheries in Cameroon (MIDEPECAM) evaluated the impact of gillnets in rocky bottoms, a technique introduced in 1993 with the assistance of IDAF in the south eastern coast of Cameroon. The analysis indicates that the introduced gillnets with a surface area of 840 m² captured about 2 times the amount of fish caught by a traditional net of about 10 000 m² during identical fishing periods. For reasons related to the high costs of fuel and other fishing inputs, the local fishermen have not pursued the introduced fishing techniques.

Objective 4: Improve Information and Experience Exchange.

Two issues of IDAF Newsletter: N° 27 "Partners in Development" and N° 28 "Rethinking Fisheries Management" together with six working papers were produced.

IDAF also assisted the Integrated Artisanal Fisheries Development Project in Yeji in synthesizing lessons learned from executing the project during the past 7 years.

Objective 5: Promote regional and sub-regional collaboration.

Sixteen study tours were organized. Thirteen man months of IDAF Fellows (TCDC arrangements) were used in various assignments. Financial and technical support was given to 10

national experts to review participatory mechanisms and traditional practices in resource management.

Mr. Marcel Rakotondrasoa of the FAO executed Project on the Restructuring of the Fisheries Sector of Madagascar visited fishing activities in Benin and Guinea from 12 October to 02 November 1995.

The ninth session of the liaison officers of the Programme for Integrated Development of Artisanal Fisheries in West Africa was held jointly with the workshop on "Participatory approaches and traditional fishery management practices in West Africa" from 9 to 15 November 1995 at Conakry, Guinea.

The meeting was declared open by Dr. Mamadi Diaré, Minister of Fisheries and Aquaculture of Guinea.

Delegates from 18 of the 20 associated countries participated in the meeting. The delegates from Ghana and Gabon were unable to attend. The Workshop invitees also attended the meeting. Three resource persons, Mrs C. Wetohossou of the Ministry of Rural Development of Benin; Mr. C. Stamatopoulos of Fisheries Statistics Service, FAO headquarters, Rome; and Mr. M. Taconet of the FAO executed project on Geographical Information Systems (GIS), with headquarters in Casablanca, Morocco, attended the meeting.

Seven fishers from Benin (one), Côte d'Ivoire (one), Senegal (one), and Guinea (two men and two women fish processors) participated in the meeting and workshop, and they presented their activities in their respective fishing communities. National managers of 6 IDAF Associated projects also participated in the meeting.

The discussions at the meeting were lively, constructive and fruitful. Several suggestions and recommendations were made for consideration by the Programme in its work programme for 1996. The better organized exchange of experiences between Liaison Officers was very useful and much welcomed.

INPUTS

National Counterpart Staff

Mr. G. Mensah, Director of Fisheries and Liaison Officer for Benin.

INTERNATIONAL STAFF

1. B.P. Satia, Coordinator
2. B.W. Horemans, Fisheries Planning Expert
3. J.P. Gallene, Fishing Technologist
4. Alhaji Jallow, Socio-Economist
5. A. Haegens, APO Information (from 19/9/95)

NATIONAL STAFF

1. A.M. Ouffoué, Administrative Assistant
2. F.C. Houéhou, Communication Expert (Separated 30/09/95)
3. A. Quenum, Secretary
4. D.D. Saizonou, Secretary
5. R. Kinnon, Secretary - Documentalist
6. V. Adite, Driver
7. D. Hounsou, Driver

IDAF FELLOWS

| NAME | COUNTRY OF ASSIGNMENT | ASSIGNMENT |
|------------------------|-----------------------|--------------------------------------|
| Mr. Sery Camara | Cape Verde | PRA training |
| Mr. B. Houndékon | Guinea | |
| Dr. M. Kébé | Senegal | Fiscal Policies |
| Dr. Julienne Ngo Som | Cameroon | Role of women in fishing communities |
| Dr. Stella Williams | Nigeria | |
| Ms. Elizabeth Zanou | Benin | |
| Dr. Irene Okotei | Ghana | |
| Ms. Bou A. Annabelle | Côte d'Ivoire | |
| Ms. Nana Soumah | Guinea | |
| Ms. Diallo Salematou | Guinea | |
| Ms. Sy M. Seynabou | Senegal | |
| Ms. Oumoukhairy Ndiaye | Senegal | |
| Ms. Isatou Touray | The Gambia | |

STUDY TOURS

| NAME | FROM | TO | PURPOSE |
|--|----------------------|----------------|--|
| Mr. R. Nkogho Eyi Mr. Setho Kokou | Gabon | The Gambia | Organisation and Management of Community Fisheries Centres |
| Mr. Bille Issac Mr. Koane Mindjina | Cameroon | The Gambia | |
| Ms. A.P. Menezes Mr. M.S. Duarte | Sao Tomé et Principé | Gambia/Senegal | Organisation of Fishers into Economic groups and Credit Systems in Senegal |
| Ms. Helena Le Ms. Paula Nanque Ms. Nina Le Ms. Emilia Nanque Mr. Malam Mane Mr. Domingos Co | Guinea Bissau | The Gambia | Economic role of women in fishing communities |
| Mr. J. Salavisa Mr. A. Kingombo | Angola | Guinea | Organisation and Management of Community Fisheries Centres and Landing Sites |
| Mr. F. Konaté Mr. I. Keita | Guinea | Mauritania | Training of young fishermen |

EQUIPMENTS RECEIVES/OBTENUES 01 JULY- 31 DECEMBER 1995

| N° | Date | Qty | Equipment | Valeur en \$ | Poster |
|----|----------|-----|--------------------------------------|--------------|---------|
| 1 | 06/07/95 | 1 | Telecopier BROTHER-FAX 370 | 1,33196 | COTONOU |
| 2 | 20/07/95 | 1 | Photo camera PENTAX ESPIO 115 | 396.00 | COTONOU |
| 3 | 28/11/95 | 1 | Typewriter electronic BROTHER EM 605 | 1,513.27 | COTONOU |
| 4 | 11/12/95 | 1 | Photocopier CANON NP 6020 | 5,010.16 | COTONOU |
| 5 | " | 3 | Computer HP VECTRA 486 DX-2 | 8,125.50 | COTONOU |
| 6 | " | 3 | Printer CANON LBP-4 U | 3,132.21 | COTONOU |
| 7 | " | 1 | Printer HP Laserjet 4 L | 1,113.82 | COTONOU |

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Artisanal Fisheries Geographical Information system Development: FAO's Experience in West Africa

by

Marc Taconet
FAO, Project Expert

Summary

The objective of the Project "Geographical Information Systems (GIS) for Fisheries in West Africa" (GCP/RAF/228) financed by France and executed by FAO, is to promote the use of (GIS) as a decision-making tool in fisheries management. A preliminary set of criteria for this tool such as technical accessibility and availability in time and space as well as the specificities and stages of development with special regards to fisheries have been determined. Indeed, to produce a GIS that is appropriate for fisheries management, one which takes into account unforeseen phenomena, calls for a good assessment of users needs and proper identification of the geographical concepts related to operation parameters.

The relevant management-related geographical units are introduced through a schematic conceptual model. Relationships are established from boat units with so-called operation units (boat types, port, fishing practice, employment and licence), from which geographically-based attributes are used to define "homologous" geographical units: authorised zone, accessible zone, activity zone and operation zone. The model indicates how such an established link allows the decision maker to act in the distribution of fleets on the basis of operation factors.

By adopting these geographical concepts and associating them with the activity of fleets is a step forward in the development of a regional data base. This approach also offers a solution to the problem of diversity in data collection systems in terms of geographical coverage and frequency. Two converging approaches are presented for the elaboration of the limits of these management geographical units: the statistical approach uses geographical objects identified in the list of available data, and undertakes, on request, successive selections of these objects on the data base; while the typical spatial model approach of functionalities offered by the GIS is a result of an expert-type knowledge of sites.

Introduction

The need to take into account geographical dimension in fisheries management is justified by the heterogeneity of the phenomenon of spatial distribution; a factor that has not so far been taken into account in fisheries management plans. However, the emergence of modern technologies such as GIS opens new perspectives in this area.

The FAO Project: "The Geographical Information Systems applied to fisheries in West Africa financed by France and executed by FAO is operational since September 93, has four objectives: to valorise data bases on fisheries and their exploitation, to improve human capacities in fisheries management and analysis, to promote GIS as a decision-making tool, and to strengthen regional collaboration. The project covers 4 coastal countries in the north of West Africa: Guinea, Morocco, Mauritania and Senegal. A first sensitization and training phase was undertaken in April 1995 during a Training Workshop in the use of GIS in fisheries at Rabat, Morocco. The on-going second phase started with the programming of GIS applications as developed for fisheries in each of the countries.

This document presents the approaches and methods which if applied in a collaborative mode at regional level should facilitate the production of GIS as a decision-making tool.

1. Specific criteria for a decision-making tool:

For GIS to constitute a decision making tool the data to be used must meet the criteria of technical accessibility as well as **availability in real time**.

Technical accessibility: in the development of an information system, Technical accessibility is very important. It covers the notion of "disseminated" information (thereby addressing simple questions) as well as that of usage in fisheries management. Information produced must enable the manager to intervene through the concepts on which he can act on or manipulate.

Availability in real time: from the moment initial prototypes of a technically accessible tool are produced, the stage within which information is made available in real time must be envisaged. This also covers two notions: 1) organisation of an effective chain of collection, centralisation and processing of important data to enable the production of requested information within a very short timeframe; 2) possibility of a final user (decision-maker) to consult interactively, all useful information produced and recorded by technicians and researchers.

2. Development Stages in Technically Accessible Fisheries GIS

2.1 Identification of Needs for Fisheries GIS

A comprehensible product fits a user's request. The development of any information system starts with the following question: «what are your needs?». Officers in charge of fisheries management, the final users of fishery GIS, have had the opportunity during the Rabat Workshop, to specify their needs in space related information. They clearly identified the following important themes: «Cephalopods fisheries management», for Morocco and Mauritania and «Artisanal

fisheries development and interactions with industrial fishing», for Guinea and Senegal. Inspired by these guiding themes, the participants were able to list the most frequent management-related problems which decision-makers ask researchers, with emphasis on the spatial aspects of these problems (see table 1).

Responses to these questions (the outcomes sought in GIS) correspond to thematic covers to be produced. They are classified in terms of priority and complexity of production into basic thematic covers, composite thematic covers, and finally geographical covers indicating flows or spatial relationships between various geographical units.

Basic thematic covers therefore constitute the foundation for a fisheries-based GIS: and includes such elements as spatio-temporal localisation of resource, fleet activity, fishing communities and useful fisheries infrastructures, which are the most frequently sought information by the manager. Moreover, any combination of these covers must facilitate the production of more complex information, therefore closer to the real problem to be solved: localisation of conflicts in fishing gear, over exploited zones, studies of the impact of various management measures. These are the basic thematic issues which are presently the basis for pilot applications in Guinea, Morocco, Mauritania and Senegal.

2.2 Determination of the relevant fisheries management units

GIS is a tool that allows the delimitation of geographically-related units, provided that the latter are clearly defined. The second stage in the determination of GIS tools consists in identifying relevant management entities. This stage is very delicate in fisheries as the envisaged phenomena are very often invisible and correspond to virtual units.

This stage is achieved through the design of a conceptual data model. Such a model indicates the relevant units, their attributes and the relationships existing among them. It constitutes the critical reference of the information system reference because Computer Scientists, thematians and decision-makers will see their reflections and activities guided by this model. Two examples are illustrated below.

- 1) Localisation of fisheries resources: five units seem relevant with regard to fisheries management: distribution zone (presence of the resource), concentration zones of the species (qualitatively and quantitatively specifying various levels of variability, or specific diversity), since they determine the actual or potential localisation of fleets; Nurseries and Breeding areas, which are sensitive zones from a stock sustainability point of view and which must therefore be the subject of particular attention in management. It should be noted here that depending on the objectives assigned to the localisation of these units, various combinations of parameters and methods may be used.
- 2) localisation of fleet activity: relevant geographical units must correspond to the critical issues on which the decision-maker must act, through economic, regulatory, educational measures or through the development of infrastructure. After **identifying the exploitation** units with concrete and reliable attributes on which he has a hold the decision maker should, then define the **identical geographical** units.

In the centralized conceptual model given in figure 1, the boat constitutes the link between maritime (target of management measures) and coastal regions (where exploitation factors on which applicable management measures are controlled).

Technical type of boat: This exploitation unit refers to a fleet classification according to relevant technical parameters of an operational boat under normal fishing conditions. The identification of a technical type should make it possible to assess the two major attributes of fleet localisation: the field of action from a port (the maximum distance depends on autonomy and cost consideration determined by technical factors) and physical obstacles to navigation. The characteristics of the boat's architecture, especially the least detachable (hull, propulsion type and power, fish preservation tool) are the main parameters to be considered in identifying the boat with a *type*.

The port: It represents the base of the boat, and constitutes a fundamental geographical unit in the spatial distribution of fleet activity. The importance of keeping a boat in a given port depends on the proximity to fishing zones, regulatory advantages or constraints, supply and marketing infrastructures, port costs, availability of labour etc. The port is therefore a particularly interesting management unit with regard to the spatial distribution of fleets.

Fishing practice: This exploitation unit implies the use of fishing gear by a given crew. These two attributes which characterize the fishing practice constitute concrete management supports; on the one hand the gear is subject to regulatory measures and on the other hand the crew can be the subject of motivations and/or training depending on the skills expected of them.

SKILLS: this operational unit is associated with the research of target species. It characterizes the boat activity on a time sequence corresponding to a fishing operation or to a tide: The required skill is influenced by the gear - target species combination, and could or should be likened to a licence.

The licence (or fishing rights): like the *fishing practice*, the licence is an exploitation unit with different legal attributes: minimum mesh size, geographical sectors and closed seasons, prohibited species and size limits. Licence attributes may be applicable within the exclusive economic zone (EEZ).

As far as the fisheries management is concerned, one of the main assets of the exploitable units/entities is to allow either directly or by combination, the definition of homologous geographic entities. It is a composite relation which mixes two exploitation entities at a time, and allows the generation of the geographic entity. Note that the only direct relation remains the licence that limits authorized zones.

Authorized zone (fig. 3a): It is not described by the fishing licence, which rather specifies prohibited zones. The authorized zone is therefore the complement of the prohibited zone within the EEZ.

Accessible zone (fig. 2a). The limits of this geographical unit are determined from the port by a specified range of action for the boat type not including the possible inaccessible regions due to physical obstacles for this type of boat (poor bathymetry for big boats, sea too agitated for the

small ones, ...). The accessible zone can be divided into sub-zones corresponding to the intensity of traffic (due to cost differences, for example).

Activity zone (fig. 2b): It is necessarily included in the accessible zone. It defines the area of boat operations, with respect to the type of *fishing practice*. In fact, the *fishing practice* characterizes the capacity of a given crew, embarked on a particular *boat type*, to operate a fishing gear; whereas the characteristics of the physical environment (depth, nature of the depth, state of the sea, nature of currents,...) can constitute total or partial constraints to the operation, according to the boat type and the technical know-how or cultural habits of the crew. These physical parameters will define the limits of the *activity zone*. Moreover, the *authorized zone* must also be taken into account in elaborating the outlines of the *activity zone*, in so far as one can consider that rules regarding the *authorized zone* are respected.

The activity zone does not take into account the seasonal nature of fishing activities, often associated with the search for one target species (or a group of species) - hence the need to define the geographical unit of the operational/exploitation zone.

Exploitation zone (fig. 5 and 6): The Skills or *Profession* unit qualifying fishing operation or tides, makes one suppose that fishing activity has been concentrated in areas of abundance and/or attractivity zones of the target species. The operational zone is therefore the geographical unit, demarcated in a given season, by the seasonal intersection of the gear activity zone and the abundance/attractivity zones of the target species.

The geographical units that have been defined above are relevant from a management point of view, because they are interfaced with exploitation/operational units on which the fishery manager can act through economic, regulatory, developmental, or educational measures. They can produce maritime zones (that will be named geo-management zones) offering the perspective of a real fisheries management.

3. Implementation of concepts in the West African Fisheries GIS.

3.1 Development aspects of a regional GIS application:

Concurrent with identifying the types of information for GIS, making an inventory of available data at the initial stages of developing a GIS is also very important. These two elements determine further activities which include organisation and structuration of data, additional data collection, and identification of tools (user interface, data processing) in generating desired information.

The rest of the document will try to illustrate how the inventory of data, with reference to products in demand, determines additional data requirements as well as tools to be developed. The elaboration of data regarding fleet activity will adequately illustrate this aspect.

3.2 Illustration: example of data bases on fleet activity

3.2.1 Data Inventory:

It shows that at a regional level, the available geographical data is variable in type as well as in precision. Thus, for the various fleets exploiting the same zone/region at a time, the following levels of information will be found in terms of catch and effort statistics.

in industrial fisheries:

- Fleet Data obtained through registered boats authorized to fish, specifying the boat mooring ports, and authorized zones within EEZ (fig.3a);
- Activity Data by tide, landing port and important data strata (FAO type strata, or north/south zone of an EEZ) (fig. 3b);
- "Fishing Record Book" allocating effort and daily catches of a boat to a statistical zone (fig. 3c);
- Data on Activity collected by embarked observers, and specified by fishing operation;

in artisanal fisheries:

- Punctual or One-off Data on fleets gathered through inventory; catch estimates and number of trips per landing site recorded can also be obtained in the same way, in the survey month. The origin of catches on the sea is therefore allocated to a coastal belt accessible to artisanal fisheries (fig. 3a);
- Beach Survey Data undertaken on arrival from fishing trips, compiled every fortnight or every month for the most important ports, and attributing the origin of catches according to stratification by sector and bathymetry (fig. 3b);
- Beach Surveys generally specify the vernacular name of the fishing site visited by the fisherfolk during the trip. In Senegal and Guinea, the localisation of these fishing sites was the subject of scientific works which make it possible to geo-reference, with precision, the origin of catches (fig. 3c).

Other data are sometimes collected during these surveys which can be used by GIS to improve the localisation of catches: travelling and fishing time, depth of the fishing, etc.

This diversity of space-time scales could be a constraint to obtaining relevant results with GIS, whose potential force comes from its capacity to cross various thematic layers. In fact, it suggests the need for two types of approach developed exclusively or in a combined way, where each stage maintains one of the units of the proposed conceptual model. From the protocols associated with these two approaches spring data structuration, additional data identification to be collected and data and statistical tools to be developed.

3.2.2 The two approaches for producing exploitable data for decision-making:

1) Statistical approach:

This approach uses geographical and attributory information recorded in the data inventory, and is useful when this data is relevant (in terms of spatio-temporal scale) with regards to the problem to be addressed. The process consists in a succession of selective requests at the level of specific attributes of operational units, incidentally associated with geographical objects. After each request, selected objects are labelled thus making it possible to identify them as accessible zone, activity zone or exploitation zone. Two examples illustrate this approach:

in industrial fisheries (fig. 4a), the data collected by fishing operation thanks to observers embarked on boats is very relevant data with regard to management issues. Each trawl identified by its position from the beginning to the end, can be represented by a line type (arc/or bow) geographical object. This object is linked to a set of attributes describing, among other things, the boat and its crew, the gear used, the date and time of fishing and species captured. The first request specifying the display for a given period, of all the "trawls of particular boats, based in a particular port, using a particular fishing practice, make it possible to visualize the *activity zone* made up of arc concentrations representing selected trawls. Another request may limit the preceding sample to trawls having caught specific species in a particular season. It is therefore the *operational zone* which will be seen through bow/arc concentrations as a result of the selection.

in artisanal fisheries (fig. 4b), the Beach surveys generally characterise each trip by the type of boat, crew, gear used, species captured, and sometimes the name of the often exploited fishing site. The cartography of these fishing sites (in polygonal form) as is identified in a fishing village facilitates the localisation of catches and fishing effort of each trip. The display of all the fishing sites often exploited by motorised canoes, makes it possible to see the *accessible zone* to this type of boat. Another inquiry in addition to the previously mentioned conditions is the use of a hand line type gear which allows the sighting of the activity zone thanks to selected polygons, of the motorised canoes practicing hand line fishing. A third rate inquiry specifying "target species = Thiof" allows the qualification of the still displayed polygons of the *operational zone* of motorised boats based at Kayar targeting hand line fishing.

2) Approach by spatial modelisation (fig. 5 and 6)

When statistical data are not available at a scale compatible with the issue in question, GIS officials envisage this second approach, using spatial data (action line, distance, headline), or geographically equivalent attributory data (bathymetry, nature of the depth, targeted species) to produce *accessible zone, activity and fisheries zone* geographical units. This approach thus integrates "expert" type skills or specific survey issues undertaken by fishers or fishing boats. It needs initially having good cartographies of environment parameters, even of species distribution. Examples similar to those illustrating the statistical approach are described below:

accessible zone: Producing an accessible zone initially demands the assessment of a range of action from a set of data on boat autonomy: travelling speed and time, volume of hold, type of preservation, capacity of reservoirs, ... Some zones are then withdrawn from sea-front regions including zones with a range of action; for example, zones included between isobaths 0 and 10 are inaccessible to heavy tonnage boats in industrial fisheries; as for artisanal fisheries, it could be a question of zones where the state of the sea generally

hinders access to small boats. The accessible zone may be sub-divided into sub-zones characterised by probable distinct exploitation resulting in cost considerations for example.

activity zone: Trawling may be limited to the depths situated between 0 and 80 m for a slow-powered boat; moreover, if the staff embarked on such a boat are ill-trained on modern sailing methods, they will avoid trawling in risky (rocky) areas. The resulting activity zone will thus be situated between isobaths 0 and 80 m, in non-rocky zones, included in the range of action. In artisanal fisheries, hand line is generally used on rocky or highly steepy zones, and below a variable maximum bathymetry according to the fishers' skills.

Exploitation zone: It is the intersection of the above-mentioned activity zone with the abundance/attractivity zone of the species or group of target species. The limits of this abundance zone may be obtained by fixing, for example, a density limit for the target species considered acceptable to the fleet concerned.

3) Combined approach:

In many cases, it is a hybrid method combining the statistical approach and the spatial model. It facilitates the production of different types of geographical units.

Conclusion:

The conceptual model with regard to fleet activity proposed here has undeniable qualities:

- geographical data produced is **exploitable from a fisheries management** point of view because it is always interfaced/linked with exploitable factors. It is therefore possible to envisage a spatial allocation management of fishing efforts considering at best the fishers' behaviour and assess the impact of management decisions;
- it is of great **flexibility** since it uses very diverse data combinations, varied data sources and methods and allows each to place available data at the appropriate conceptual level. In fact, determining an accessible zone requires a relatively limited skill whereas georeferencing fishery is a result of a much more complex process;
- it is **adaptable** because it integrates current skills, without jeopardizing the possible enhancement of these skills in future.

The operation of such a model is therefore conceivable at the regional level. As a corollary of this, a standard structure of data bases, offers the possibility of developing common users interfaces and eventually that of an easy data exchange. The objective of regional collaboration, initiated during the Rabat Workshop with the identification of GIS tools to be produced, would therefore be reinforced through all the activities related to the development and application of GIS.

The applications actually developed in the FAO regional project context aim at achieving the first prototypes of thematic resource covers, fleet activities, means of production, services and structures. As specified in the introduction, these initial results, which should meet the technically accessible data criteria, will constitute the first development stage of a decision-making tool. The second stage which would aim at providing decision makers with GIS information in real time and its use in management plans, could be the subject of a West African Regional ATLAS Project on marine resources and their exploitation. The objectives of such a project shall be:

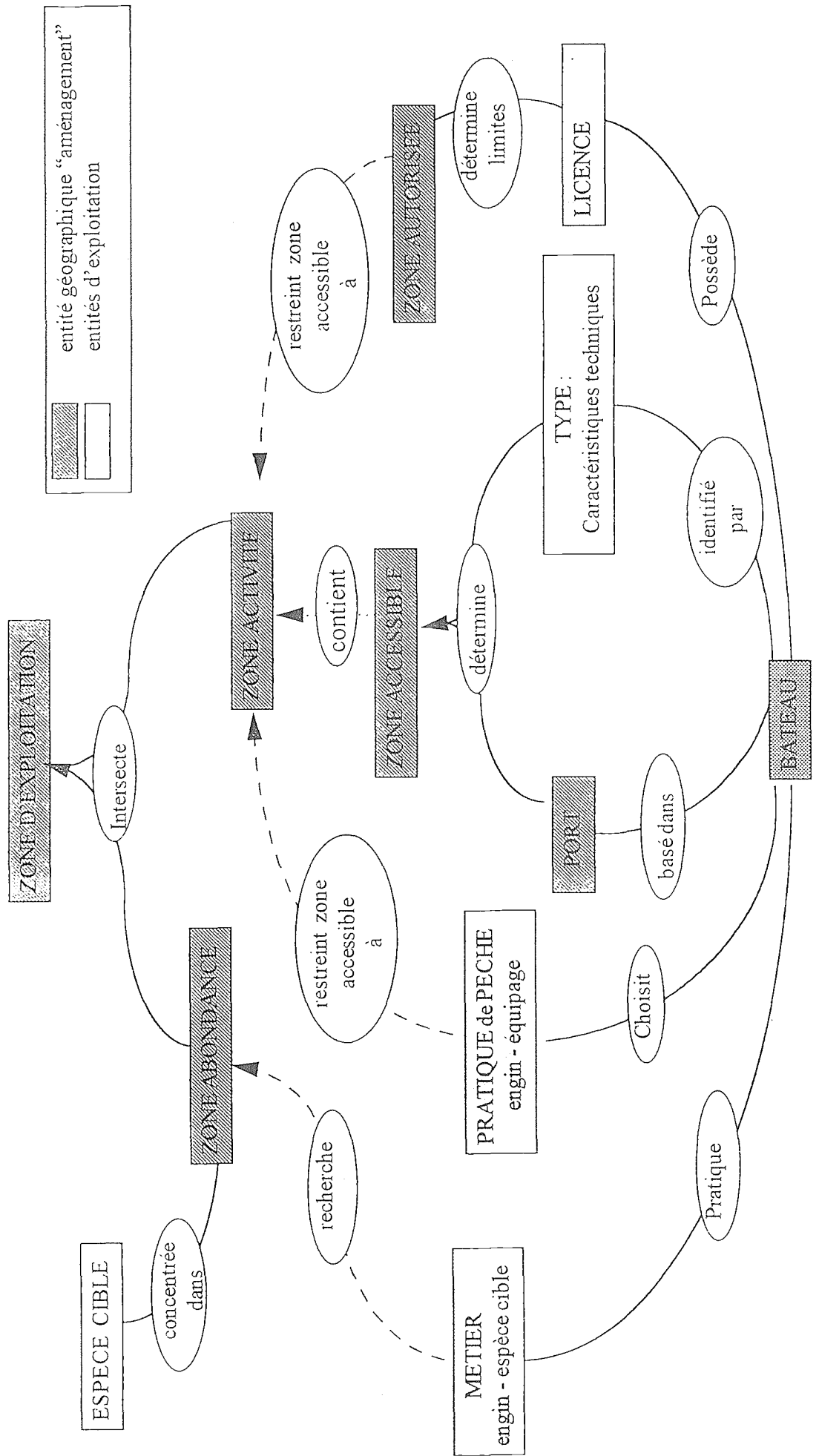
- strengthening institutional frameworks through:
 - ⇒ the training of decision-makers in the use of geographical data in fisheries management plans;
 - ⇒ the motivation of researchers to produce routine geographical information;
 - ⇒ the support to the establishment of data systems specifying data management protocols from the various collection sources to the final user;
 - ⇒ the consolidation of "fisheries observatory" type structures, by promoting their primary role in the institution of management plans and follow-up of the fisheries sector;

- strengthening regional collaboration through the development of data at the regional level.

TABLEAU 1 : Classification des questions posées par les administrateurs chargés de l'aménagement des pêches

| Objectifs Économiques | Apport de services / stabilité de la balance commerciale | Maximisation des revenus (profit) / Optimisation des investissements fiscaux | Quelles taxes / subvention: appliquer aux différents éléments de la filière pêche ? Quel est l'impact prévisible d'une modification de mesures fiscales sur l'activité des flottilles ? |
|---|--|--|---|
| <p>Décideurs : Questions sectorielles à composante spatiale</p> <p>Sous- Questions</p> <p>Quelles nouvelles ressources allouer à la pêche artisanale ?</p> <p>Jusqu' où favoriser l'extension de la pêche artisanale ?</p> <p>Les infrastructures en place sont elles adéquates pour un développement de cette activité ?</p> <p>Comment améliorer les dispositifs de surveillance ?</p> <p>Comment répartir l'espace entre flottilles: - exerçant des techniques de pêche incompatibles ; - ayant des conceptions du droit d'usage différentes</p> <p>Comment réduire la surexploitation de croissance dans le cas de pêcheries séquentielles ?</p> <p>Comment prévoir des situations de concurrence (produits issus de flottilles différentes) sur les marchés ?</p> <p>Quels sont les circuits de commercialisation du poisson ?</p> <p>Quelle adéquation existe t'il entre infrastructures et besoins/ disponibilités en poisson ?</p> <p>Comment fournir du poisson à prix adéquat aux populations locales ?</p> | <p>Quels potentiels halieutiques sont accessibles - à une exploitation étrangère sous licence ? - à une exploitation nationale d'exportation ?</p> <p>Comment cantonner les flottilles à l'exploitation de ces ressources ?</p> <p>Quelle définition des licences de pêche ?</p> <p>Comment mieux répartir l'effort de pêche en évitant une réduction de l'effort nominal ?</p> <p>Comment réduire une surexploitation biologique/économique des ressources halieutiques ?</p> <p>Comment protéger la ressource au niveau de ses stades névralgiques ?</p> | <p>Où est la ressource dans sa dimension spatio-temporelle</p> <p>STADES SENSIBLES</p> <p>Nourriceries</p> <p>Frayères</p> <p>Aire de répartition</p> <p>Zones d'abondance</p> <p>Quels sont les potentiels de captures accessibles à telle flottille ?</p> <p>Quelles sont les zones d'exploitation rentable à telle flottille ?</p> <p>Où sont les zones à taux d'exploitation excessifs ?</p> <p>Quelles zones délimiter pour un cantonnement optimal ?</p> <p>Où sont les conflits d'interaction directs ?</p> <p>Quelle est la pertinence de la législation actuelle sur les zonages ?</p> <p>Quelle allocation des infrastructures pour encourager les opérateurs privés</p> <p>Quels sont les flux de produits halieutiques ?</p> <p>entre zones de capture et zones de débarquement</p> <p>entre lieux de débarquement et marcs</p> | <p>Comment se répartir l'activité des flottilles dans l'espace et dans le temps ?</p> <p>Répartition : de l'EFFORT des CAPTURES des DÉBARQUEMENTS</p> <p>Quels sont les zonages juridiques en vigueur ?</p> <p>Où sont les infractions à la réglementation ?</p> <p>Où sont basées les communautés de pêcheurs ?</p> <p>Où sont les infrastructures de commercialisation d'aide à la pêche</p> <p>Quels sont les marchés de produits halieutiques?</p> <p>Répartition: - de la COMMERCIALISATION du poisson - des CONSOMMATEURS - des PRIX du poisson</p> |
| <p>Obf. Sociétaux</p> <p>Création d'emplois</p> <p>Quelles possibilités de développement pour la PA</p> | | | |
| <p>Paix sociale</p> <p>Comment faire cohabiter au mieux des communautés diverses de pêcheurs</p> | | | |
| <p>Sécurité alimentaire</p> <p>Comment alimenter les populations locales en poisson ?</p> | | | |
| DONNEES GEOREFERENCEES | | ANALYSES MULTICRITERES / MODELISATION | |
| LOCALISATION DES ENAUTES | | SCENARIOS D'AMENAGEMENT ET DES DEBARQUEMENTS | |
| ANALYSE DES RELATIONS SPATIALES | | ANALYSE DES RELATIONS SPATIALES | |

Figure 1 : Modèle conceptuel schématique de données - activité des flottilles
Entités pertinentes d'un point de vue de l'aménagement des pêcheries



Zones accessibles à partir du port / débarcadère

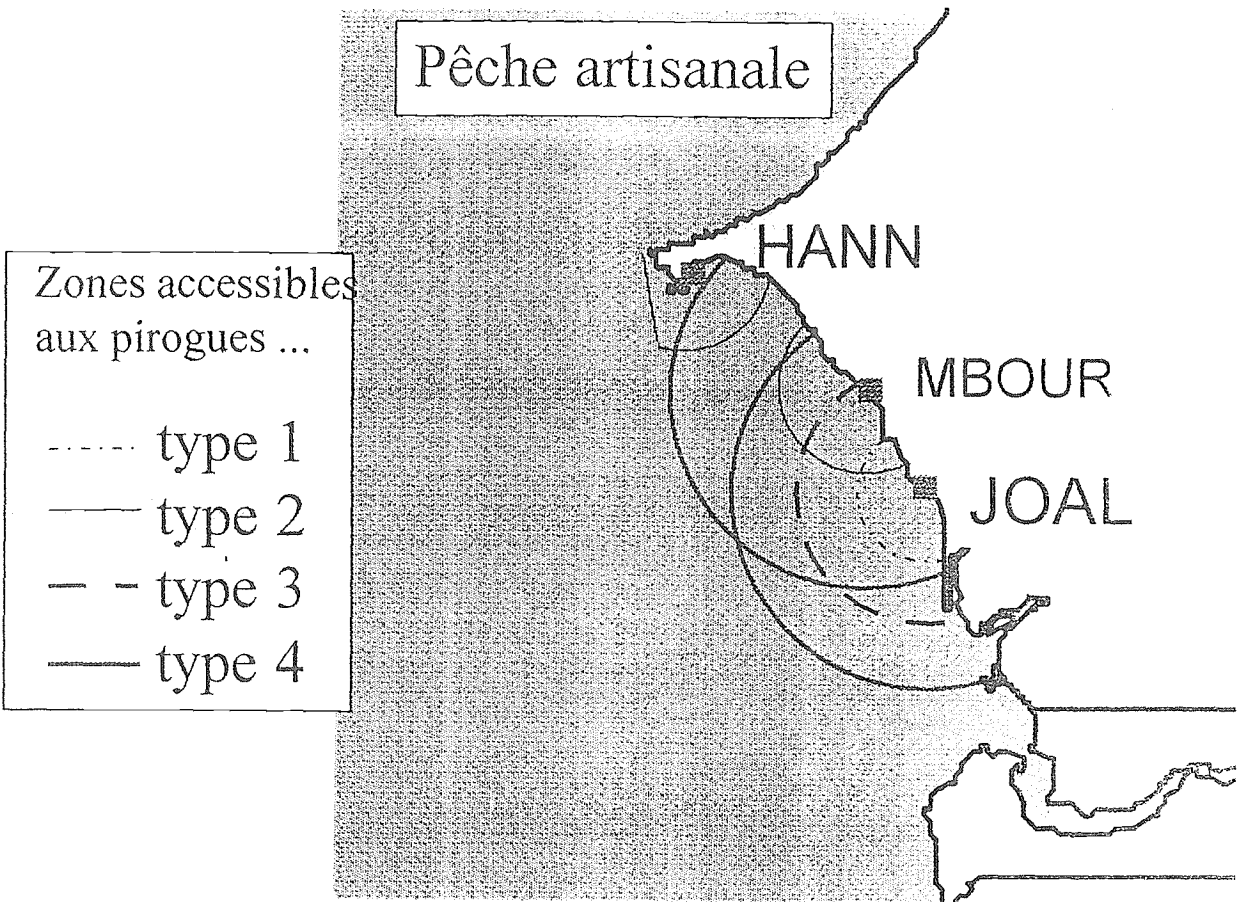
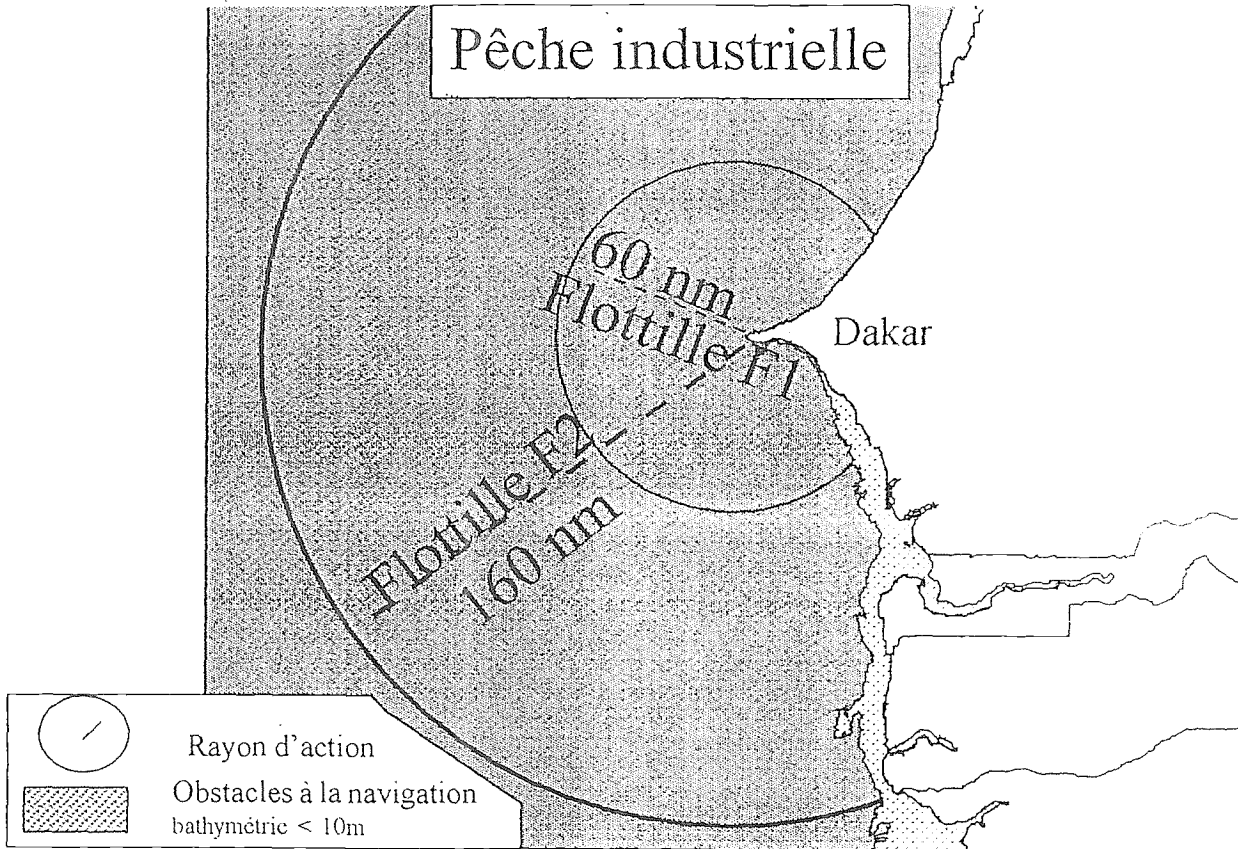


Figure 2b

Pêche industrielle : Zones d'activité relatives
aux contraintes imposées par la pratique de pêche

Flottille 1

Sénégal

Contraintes locales
à l'activité de pêche

Zones rocheuses



Continues

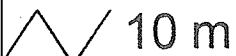


Discontinues

Bathymétrie inaccessible au chalut



Isobathes



10 m



60 m



200 m

Zones vaseuses profondes



Flottille 2

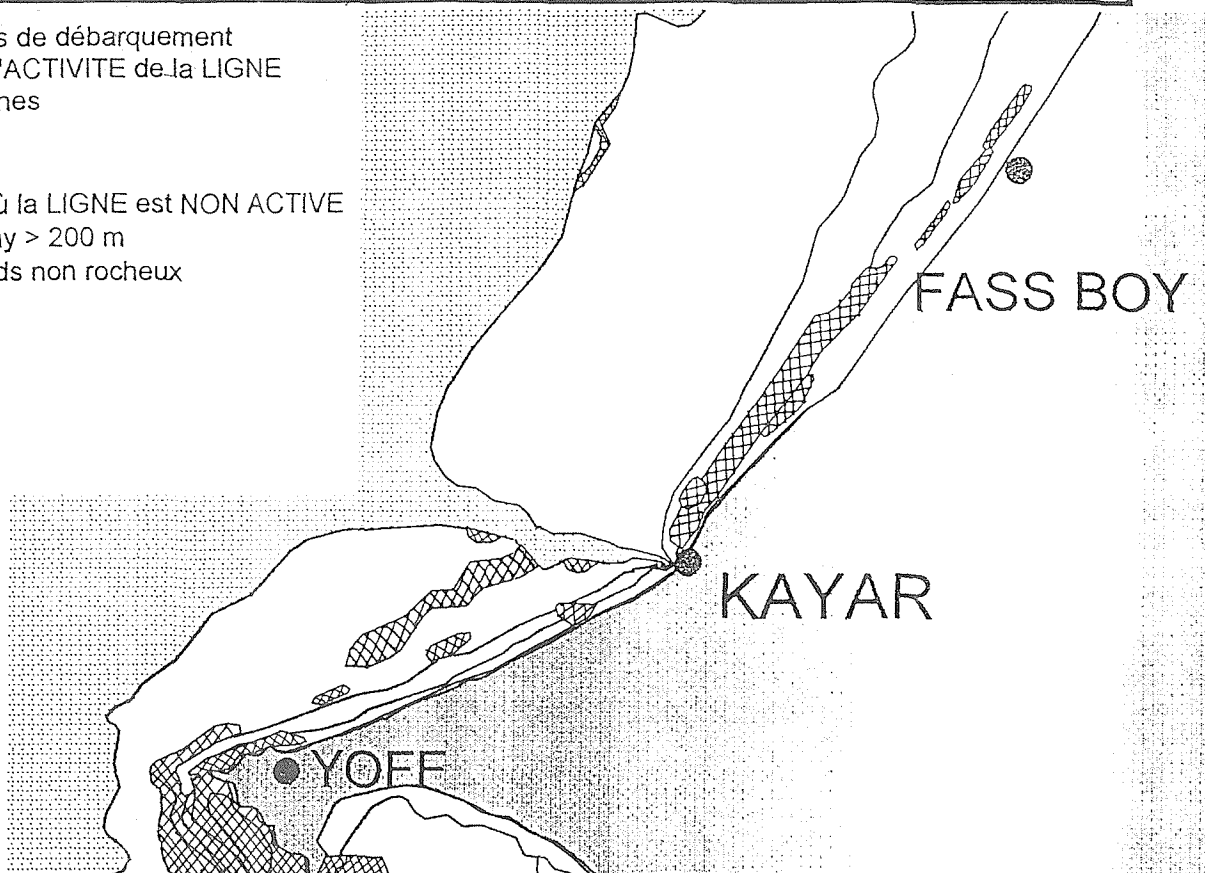
Sénégal

Gambie

Zones d'activité des engins de pêche artisanale

- Sites de débarquement
- ZONES D'ACTIVITE de la LIGNE
- ▨ Roches

- ZONES où la LIGNE est NON ACTIVE
- ▤ Bathy > 200 m
- Fonds non rocheux



- Sites de débarquement
- ZONES D'ACTIVITE du FILET MAILLANT
- ⋈ Bathymétrie < 110 m

- ZONES INACCESSIBLES AU FILET MAILLANT
- ⋈ Bathymétrie > 110 m

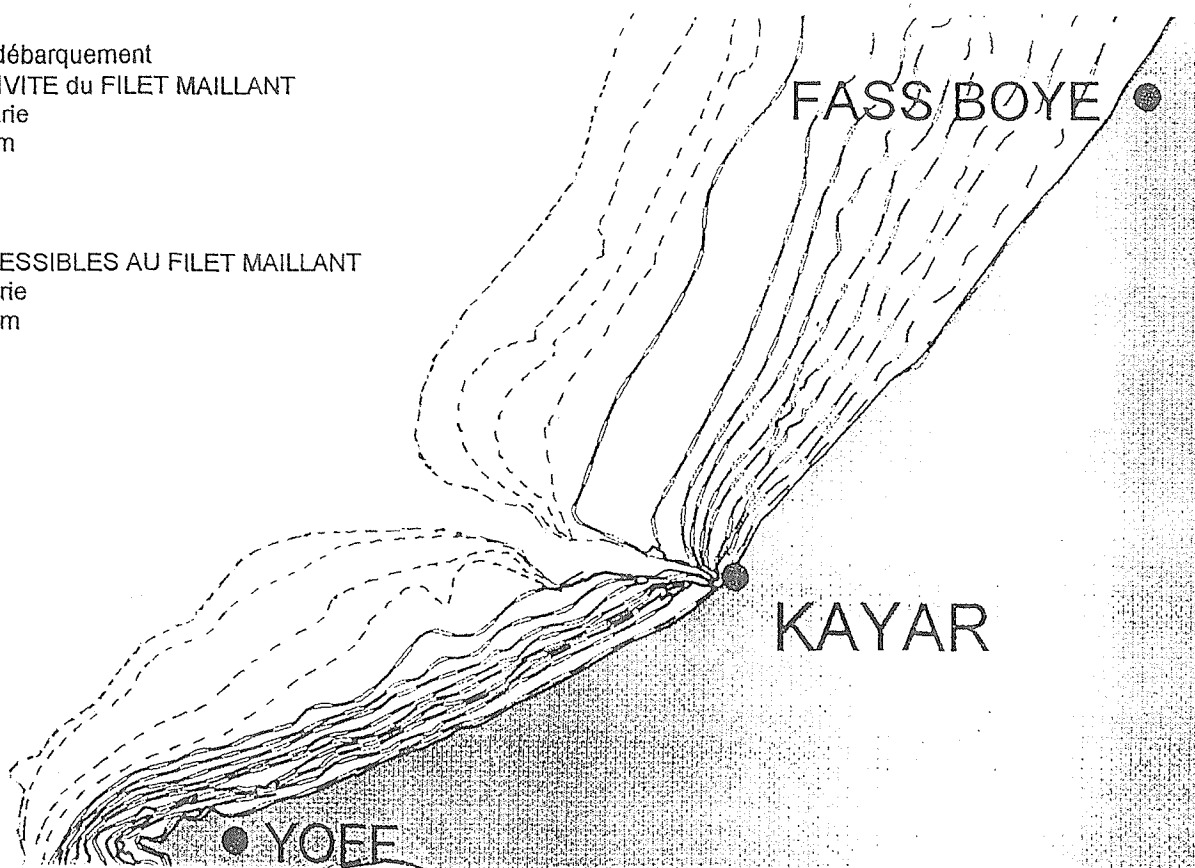
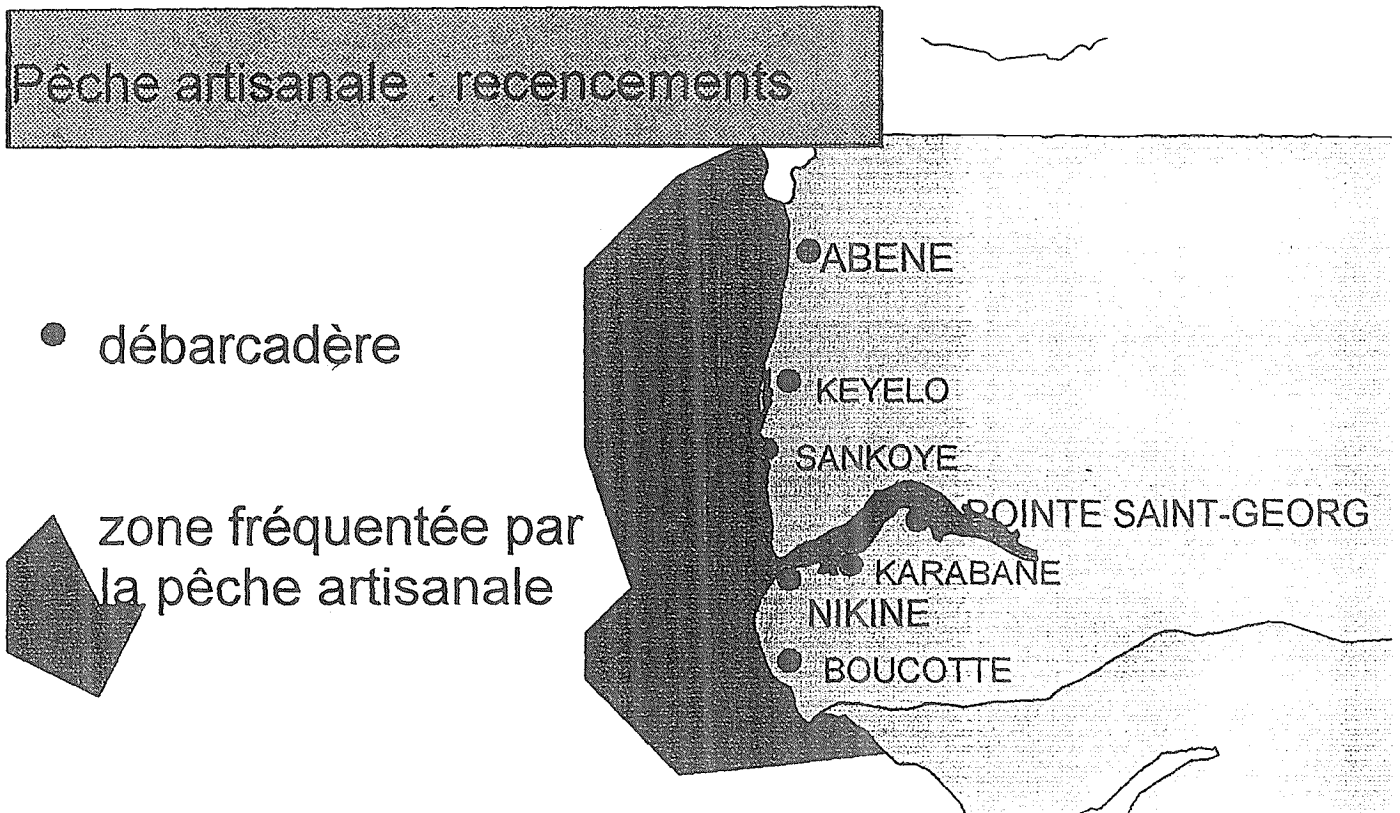
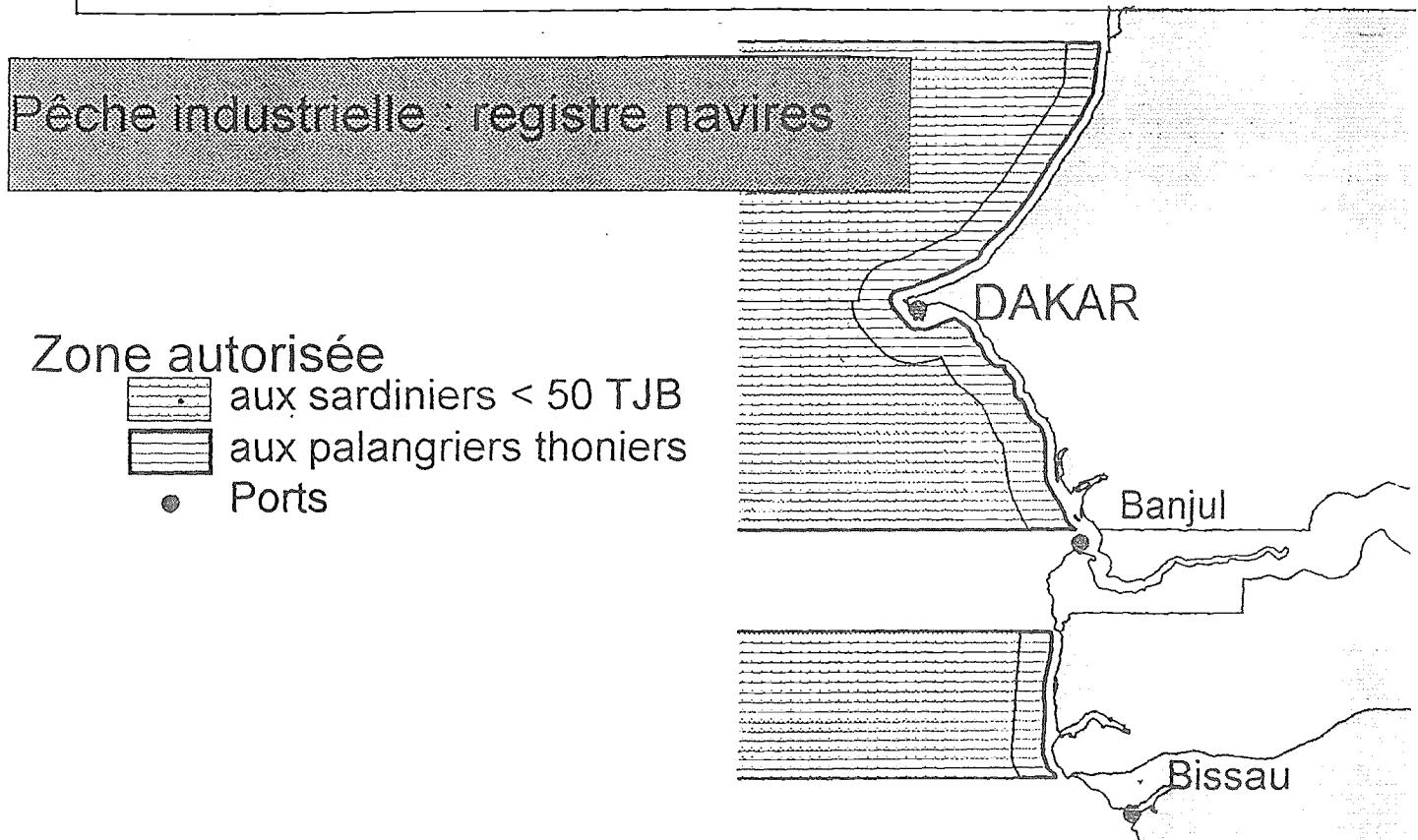


Figure 3a

Localisation des flottilles : Objets géographiques liés aux statistiques flottille

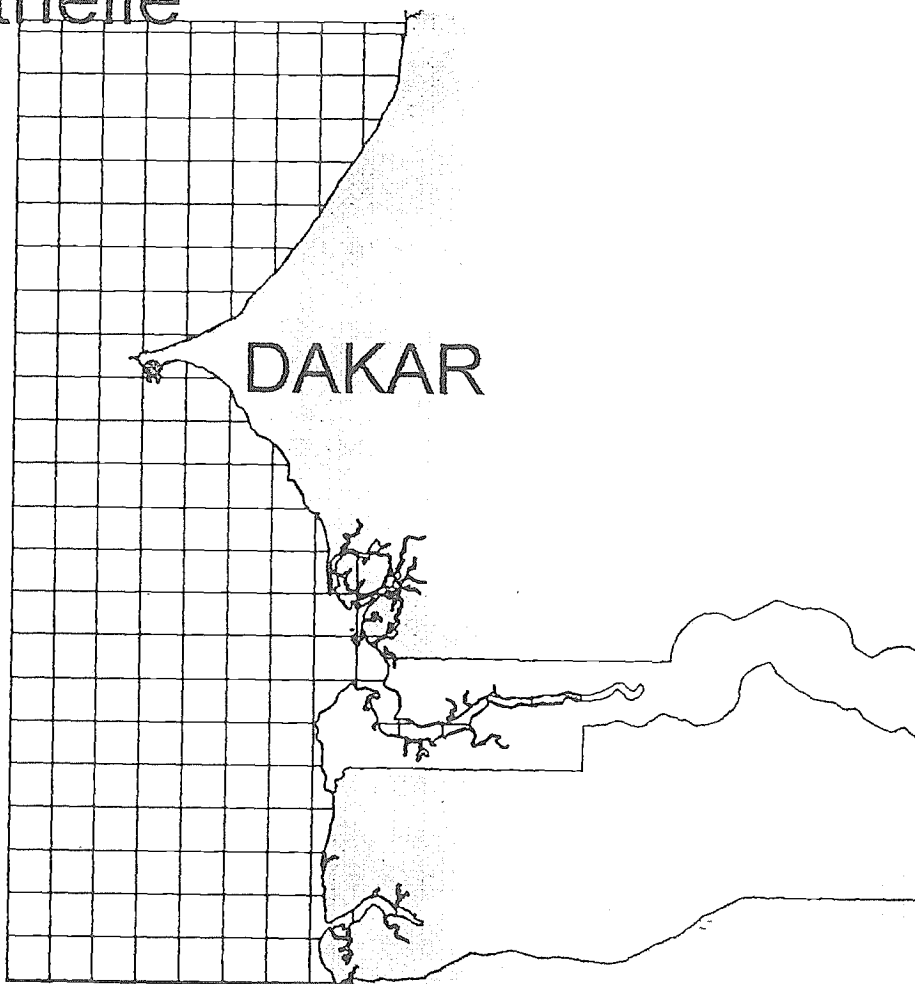


Localisation de l'activité des flottilles :

Objets géographiques liés aux statistiques d'effort et de capture

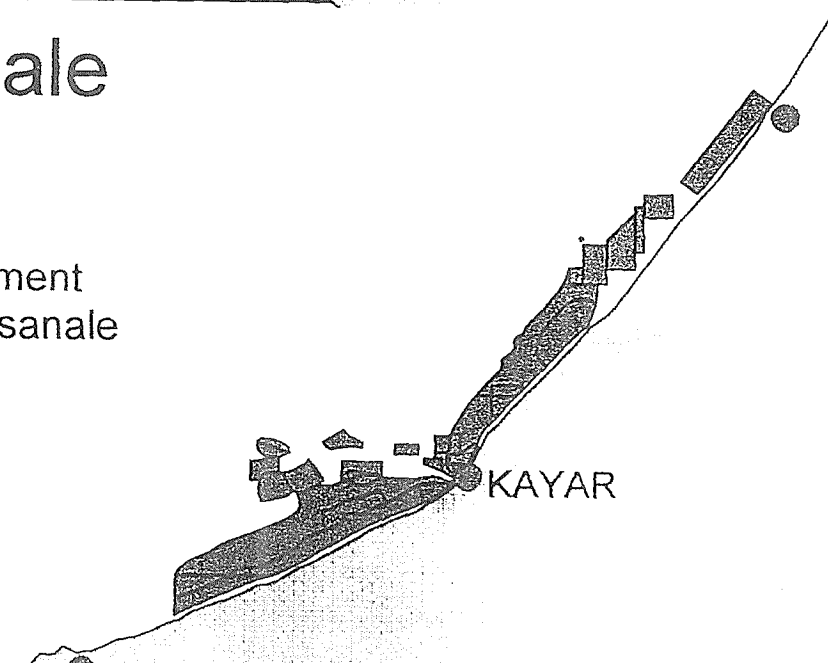
Pêche industrielle

- Grille statistique
- Port



Pêche artisanale




- Sites de débarquement
- Sites de pêche artisanale

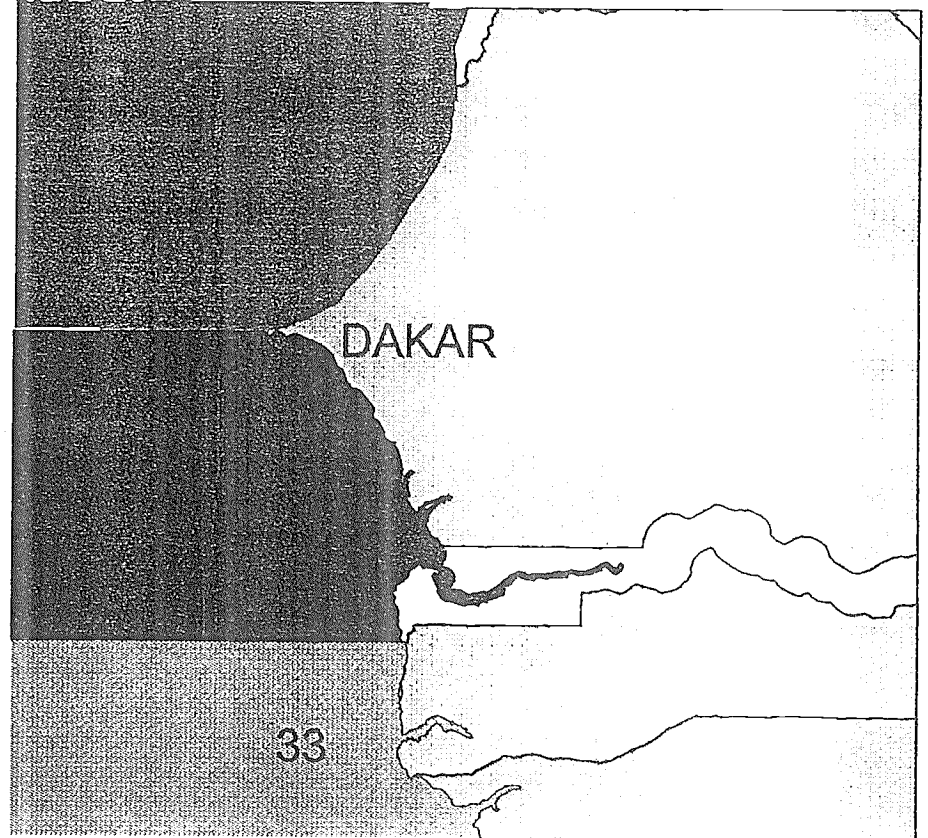


Localisation de l'activité des flottilles :

Objets géographiques liés aux statistiques d'effort et de capture

Pêche industrielle

- Ports
- Strates d'échantillonnage
-  33
-  44
-  55



Pêche artisanale

 Strates Secteurs latitude et Bathymétrie

- Débarcadères

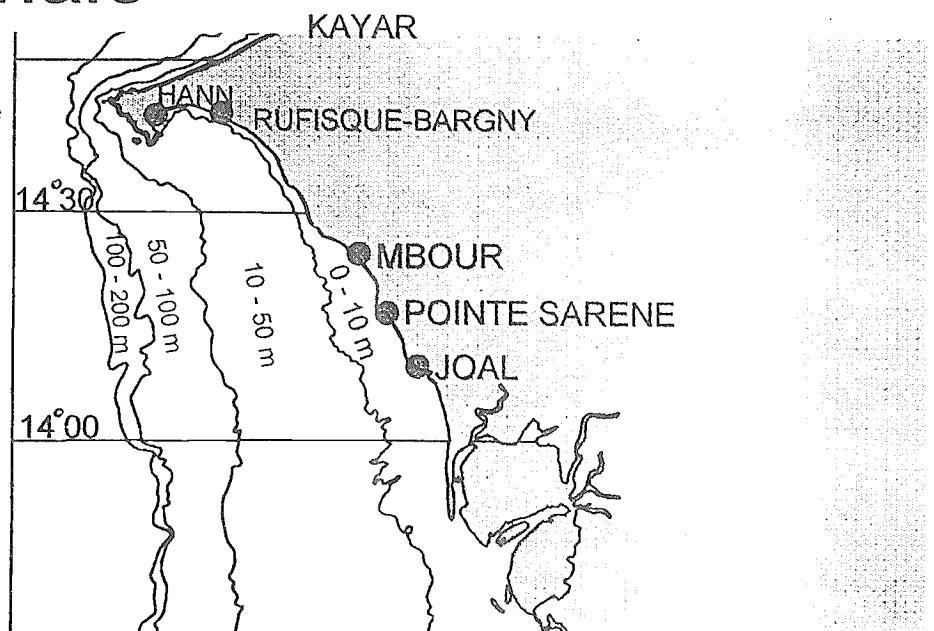


Figure 4a

Approche statistique : requêtes selectives appliqués aux traits de chalut

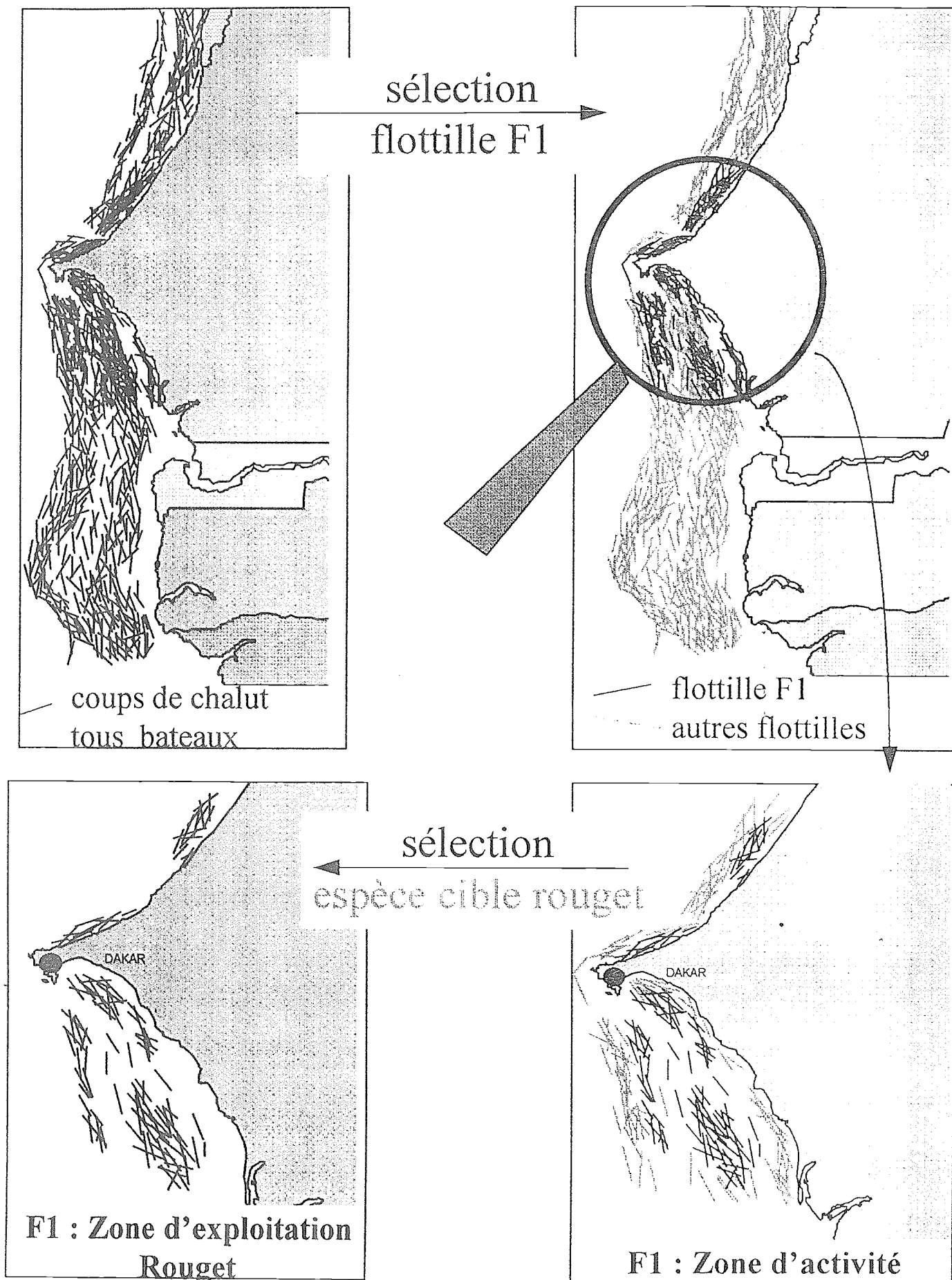


Figure 4b

Concepts géographiques d'ACCESSIBILITE, d'ACTIVITE D'EXPLOITATION appliqués aux sites de pêche de KAYAR

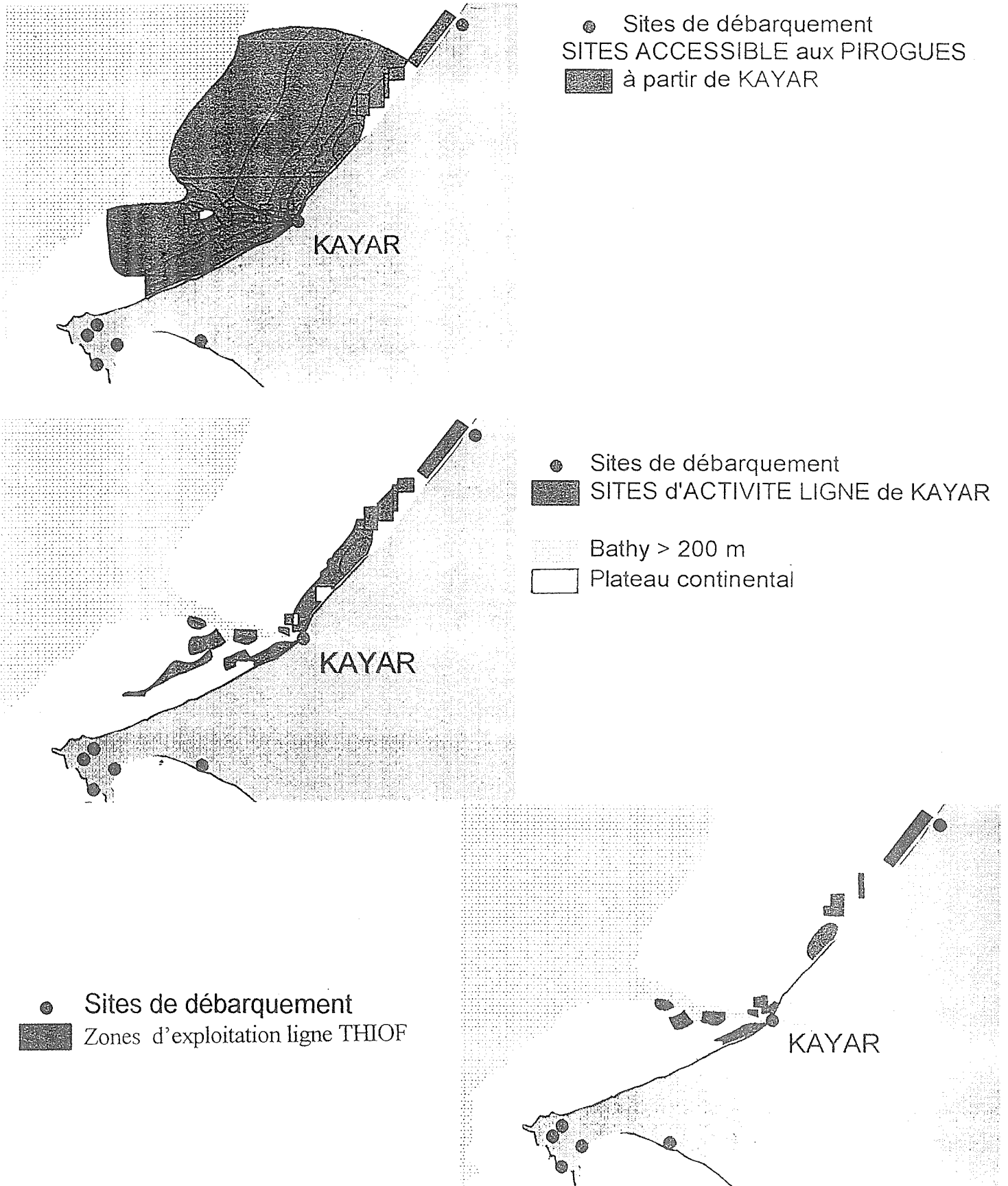
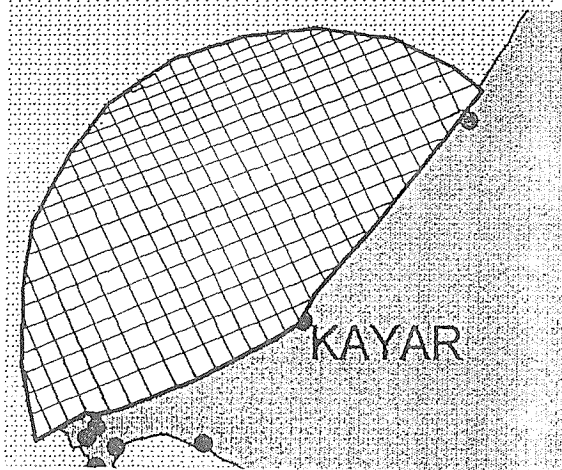
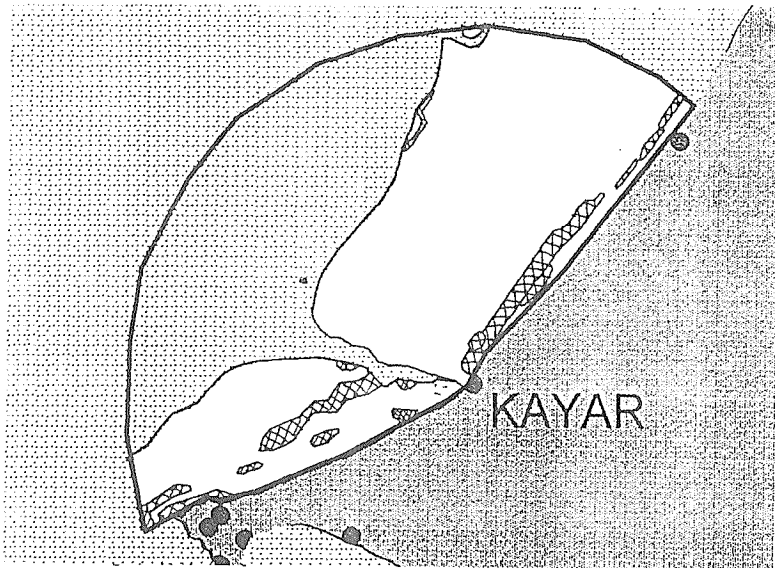


Figure 5

Concepts géographiques liés à l'aménagement : illustration en pêche artisanale

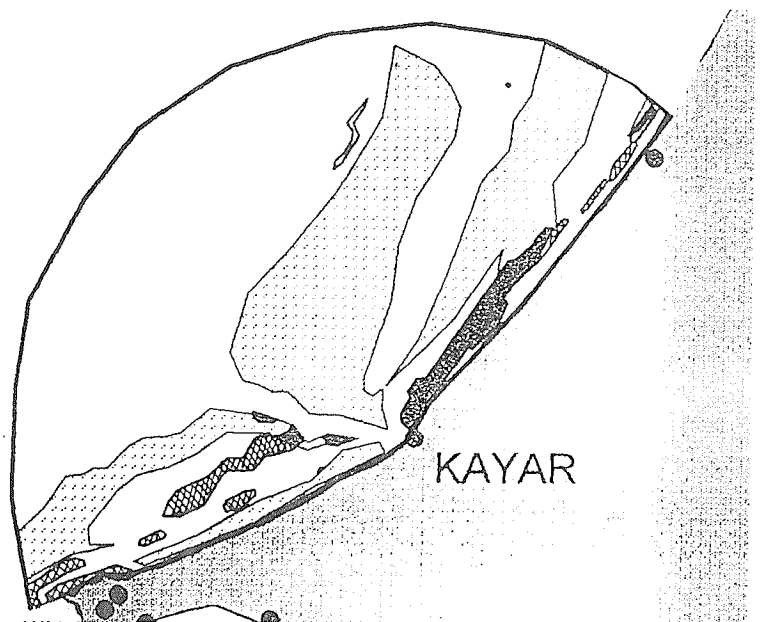


- Site de débarquement
- ZONE ACCESSIBLE A PARTIR DE KAYAR
- ▨
- Zones hors rayon d'action
- ▤

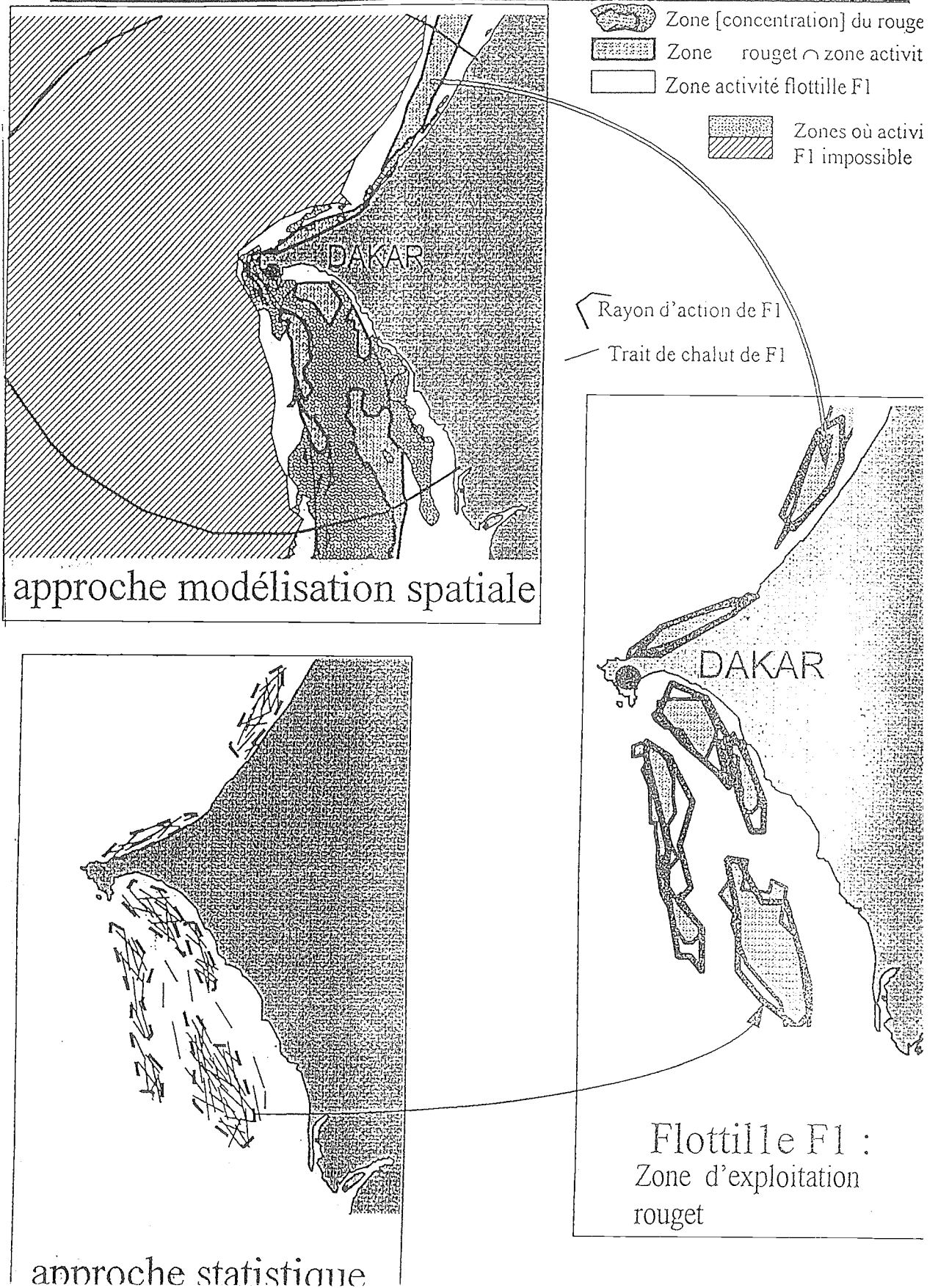


- ZONES d'ACTIVITE de la LIGNE à partir de Kayar
- ▨
- Zones où la ligne n'est pas active
- ▤ trop profondes ou éloignées
- Type de fond inadéquat

- Sites de débarquement
- Zone d'exploitation ligne THIOF de KAYAR
-
- Aire de distribution thiof
- ▤
- Zones rocheuses
- ▨
- Zones où la ligne est non active
-



Localisation des Zones d'exploitation : 2 approches pour une même entité



Women's role in fishing communities in West Africa and the frame work for detailed studies.

Introduction

The low profile of women as actors within the development process remains a reality although women participate, at various levels, in the socio-economic development of the countries. In this respect, the statistics of the United Nations are very illustrative. In general the situation can be summarized in six major points:

- the economically invisible role by women;
- the low importance given to the contribution of women in development planning and the failure to take into account the effects of such development actions on women;
- the absence of women within the planning and decision making process;
- the significant participation and in some cases almost total contribution of women to household expenses of the family;
- the involvement at more than 90% of women in rural activities;
- the active participation at more than 50% by women in food production.

This shows that although present, women are invisible in the development process.

Since the declaration of the "Decade of the Women" in 1975, efforts have been made to improve the living conditions of women and to correct the disequilibrium between men and women. The objective of several meetings, among them the most recent one held in Beijing in September 1995 is to give women more access to development funds for production, training and technology. Furthermore, emphasis was put in the elaboration of a Programme of Action on "how to better involve Women in the Development process".

In fishing communities, women involvement in artisanal fishing activities is significant. However, the degree of this involvement and the role of women in fishing communities of the region have not yet been studied in a detailed manner and on a long term basis. Concerned by this situation, the IDAF Programme has taken up a leadership role by constituting a Working Group to brainstorm and to undertake indepth studies on the Role of Women in fishing communities. The members of the Working Group are eleven eminent scholars and technicians involved in rural development in the region.

1. The main steps of the IDAF process: Objectives and Results

The first meeting in Cotonou

On the eve of the fourth UN Conference on women in Beijing, China, IDAF's Working Group on the Role of Women in fishing communities held a three days brainstorming meeting (28th to 30th August 1995) in Cotonou, Benin.

The objective of that meeting was to elaborate the methodology and strategy to follow to analyse in detail the role of women in fishing communities, to identify the problems women encounter and to suggest realistic and practical actions to improve the socio-economic conditions of women whose activities play a major role in food security not only for their individual families but for populations who are served by the work of these women.

The Working Group revised the survey guideline that had been prepared by IDAF Programme, elaborated the approach they will use in carrying out their work in the field and drew up the outline for writing the reports of their case studies.

Members of the Working Group spent the month of September 1995 doing field work in one or two fishing communities in their respective countries. Emphasis was placed on activities undertaken by women in analysing the differential roles of men and women in the community.

1.2. The second meeting in Cotonou

This meeting was held from 9th to 12th October 1995. It was the logical follow-up of the first meeting where the basic frame for the realization of national studies were made. IDAF staff and resource persons from Benin and Nigeria participated at the meeting.

The objective of the meeting was to study all the national reports with the aim to identifying specific aspects which could be the target of indepth studies in the near future. More specifically, the work assigned to the participants from Benin, Cameroon, Côte d'Ivoire, Ghana, Guinea, The Gambia, Nigeria and Senegal, can be summarized as follows:

- presentation and analysis of case studies by country;
- identification of specific aspects;
- preparation of a methodology and approaches for future work;
- preparation of an outline for drafting reports.

1.2.1. Synthesis by country: diagnosis and particularities.

Country reports were presented in two phases: the papers from Senegal and Guinea, a total of 4 studies and then the six studies from Benin, Cameroon, Côte d'Ivoire, Ghana, The Gambia and Nigeria.

The two studies in Senegal were carried out in Mbour and Joal while the studies in Guinea were undertaken at Kamsar and Matakang on Kaback island.

Fisheries contributes significantly to the economy of Senegal (principal foreign exchange earner) and this explains the high number of landing sites along the coast. There are about 190

landing sites in the five coastal fishing zones: Grande Côte, Cap Vert, Petite Côte, Sine Saloum and Casamance.

The two communities studied (Mbour and Joal) are located in Petite Côte at about 100 - 115 km from Dakar. In this community, the main activity of the women is in the fisheries sector. They are indirectly involved in the production aspect but are directly involved in processing and marketing. The women are evidently well organized especially in Economic Interest Groups. Their presence at all levels of the production chain and their dynamism dictates the type of relationship they have with men. Generally this relationship is characterized by partnership and competitiveness.

If the women's involvement in production consists mainly in partial or total financing of the crews, in the processing and marketing areas they play a leading role; in spite of some inequalities observed with regards the means to effectively undertake fish processing. Their activities are sources of employment and incomes and consequently ensure food security for households in the region. The case studies also revealed ten basic points which are priority problems relating to the quality of the finished product and the sanitary conditions of the places, the painfulness of the work especially for women more than 40 years old, the political and institutional aspects and the thorny problem of access to credit.

In Guinea, the fisheries sector's impact on the economy is not particularly important, but in the Kamsar and Kaback region a large proportion of the women are involved in the fisheries sector. Like the Senegalese women they are also present at all levels of the sector. In Kamsar and Kaback, smoking using Banda ovens is the only processing technique. Although the traditional Banda has been improved, it is not widely used. Furthermore, in the Guinean Communities, owing to gender prejudices, women tend to be involved only in specific activities or perform only specific tasks. Among the constraints that hinder a good development of women activities, the first is the lack of credit, to which should be added the difficulties in fuelwood supply and the inadequacy of the smoking equipments, that is, the Banda Ovens.

The Koko fishing community in Delta State was the site for the study in Nigeria. Of the 8 coastal states of Nigeria which stretch over 800 km, the Koko Region covers about 160 km, that is, about 1/4 of the total length. The most striking characteristic in Koko is the importance of exchange networks with other fishing communities outside Delta State.

The women are directly involved in fish production just like the men. But in addition, they carry out important related activities (the processing of cassava and palm products). Owing to overfishing, the women are unable to make substantial incomes from fisheries, hence the women would like to promote side activities to improve their living conditions. In this light, training and the funding of income generating or related activities are priorities.

In Cameroon, the study on women activities in the fishing sector was dedicated to the localities of Limbe and Kribi. The first particularity is the preponderance of foreigners in the overall fishing activity and the women's mode of organization characterized by individualism. (individual work). The women are present in the full chain of the fishing sector, but they are more active in processing and marketing and have developed three types of relationships with the men: dependence, partnership and collaboration/association. The main problems encountered by the women are related to the supply of fish and fishery products, the lack of guidance or extension services, the absence of storage facilities and the lack of associative structures.

The work in the Gambia was concentrated at the Brufut and Gunjur communities. In the Gambia some women are boat owners and women would like to be trained in fishing techniques just like the men. The women are certainly victims of Senegalese women supremacy whose husbands being fishermen would sell their catch to their wives. But the Gambian women of Brufut and Gunjur communities, relieved of gender prejudices wish to have more means to increase their incomes.

In Ghana, the study centered on Elmina. In this zone fairly rich in fishery resources, women constitute 50% of the population. Women are involved exclusively in post-harvest, that is, fish processing (smoking) and marketing on a large scale in the sub-region. In the past, the women were involved in production but had to withdraw as they could not efficiently control the crews. The main constraints are related to financing the activities, access to the processing area that has now been located in the outskirts of the town and the hygienic conditions of the processing area.

Two fishing communities, Grand Lahou and Adiake, were investigated in Côte d'Ivoire. These two localities supply fish to Abidjan, the capital. If in Adiake the number of foreign master fishermen is small, they are many in Grand Lahou and this has a direct effect on the proportion of the catch/production processed and/or marketed by Ivorian women. These differences aside, the problems in the two localities are the same. The striking feature in the Ivorian case is the almost inexistence of women associations, and smoking remains the main processing technique. Furthermore, previous social conflicts in Adiake seem to have an effect on the involvement of foreigners in fish production, and this seems to adversely affect the supply of fish and the income of women as well as the nutritional status of the local population.

In Benin, the study focused on Aguégué an inland fishery community located on a river in Oueme Division, and at Ayiguinou a coastal fishing community in the District of Grand Popo. The two sites permitted us to study simultaneously the problems and strategies of women in an inland and coastal setting. The configuration of Aguégué region justifies the almost inexistence of related activities where as these are well developed in Ayiguinou. In both communities, women involvement at all levels of fishing is evident. Their relationship with men is either on the basis of partnership or dependence. The main difficulties are related to the preservation of fishery products, access to credit and the inappropriateness of working equipments.

Problems - Regional Similarities

The studies indicated that women spent more than 50% of their income to feed their families. Medical care and schooling for the children comes in second and savings through credit systems is in third position.

The ten studies reveal some problems that are common to the region. Among these problems are those related to:

- the quality of the product which does not guaranty the competitiveness of the work undertaken by the women;
- the improvement of working tools and equipments, which presently is a source of hardship and is time consuming;

- the improvement of general working conditions which in the majority of the countries is prejudicial to the health of women and children;
- the lack, insufficiency or inappropriateness of financial arrangements/schemes which hinder women's work.
- gender prejudices which ties women to certain tasks considered feminine, thus limiting women's involvement in fishery production;
- ecological problems which are acute in some countries for example Guinea and Benin (Ayiguinou) limit the development of processing activities such as fish smoking;
- insufficiency of training in management and simple book keeping, and
- inadequate organization of women.

Centres of interests and opportunities

The most important ones are:

- the highly developed organization of Senegalese women which could serve as a reference for other women communities;
- the dynamism of Nigerian, Beninese and Ghanaian women as exemplified by their desire to diversify;
- the breaking of gender prejudices notably in the Gambia;
- the type of relationships (partnership, dependence and associative) which women in Benin, Cameroon and Guinea have been able to forge with men;
- the importance of regional exchanges initiated by Ghanaian women.

Considering each community and women from the different communities on the whole, the opportunities can be grouped in three main categories.

- the growing interest in the international community to valorize and promote the work of women;
- the political will, strong at States level, for the promotion of women welfare especially the women in rural areas;
- the dynamism of the women themselves.

It is up to the women in the different communities to take advantage of these opportunities. But for this to be possible they need to be well guided by efficient extension services and also to be well informed.

Perspectives of the IDAF Process

Working in commissions, the Working Group identified not only specific areas to be further studied, but also the countries where the work should be undertaken. The objectives were also defined. This information is provided in the table below.

Synoptic table of the perspectives of the IDAF process

| Themes | Targeted Countries | Objectives |
|--|--------------------------------------|--|
| Women organization and gender approach and development | Ghana The Gambia Côte d'Ivoire | to reinforce the organizations in a sustainable way at fishing community level |
| Economic role of the women: costs and earnings | Nigeria Benin Guinea | to calculate the costs of production and revenues from the activities in terms of housing and for all employment within the community |
| Nutrition and, Hygiene in the fishing communities | Senegal Cameroon | to evaluate the nutritional conditions of the children, appreciate the quality of the products as well as the working environment and its effect on the women. |

For each of these themes/topics, the Working Group elaborated a detail methodology for undertaking the study and also agreed on a sample outline for drafting the report.

ARTFISH and ARTSER Computer Systems**A brief technical note on their purpose
and basic functions**

by

Constantine Stamatopoulos
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FAO - Fisheries Department

This brief note describes two PC-based systems (ARTFISH and ARTSER), developed by the Fishery Information, Data and Statistics Service of the FAO Fisheries Department (FIDI) for the computerization of data on artisanal fisheries. The aim of these two software products is to provide national fishery administrations with standard and fully-tested systems and procedures which do not require further software maintenance on the part of national staff. In 1995 ARTFISH and ARTSER have been implemented in Gabon, Cambodia and Tunisia, where their standardized approaches and computer procedures have been adapted to local situations and needs by setting-up appropriate classification schemes, and by implementing effective frame surveys and catch/effort assessment surveys.

1. ARTFISH**1.1 The ARTFISH Objectives**

ARTFISH (Artisanal Fisheries Information System) is a general-purpose computer system designed for the statistical monitoring of artisanal fisheries. Its objectives are:

- (i) to provide National Fishery Administrations with an integrated computer tool applicable in most fishery surveys, thus reducing development costs;
- (ii) to combine, in a single package, most of the data retrieval and reporting functions that are common in sample-based fishery surveys;
- (iii) to facilitate maintenance and enhancement of computerized statistical systems;
- (iv) to harmonize data storage, principles and operations amongst national systems and thus facilitate the exchange of fishery statistics at national, regional and inter-regional levels.

This first version of ARTFISH was developed by the Fishery Information, Data and Statistics Service (FIDI) of the FAO Fisheries Department. ARTFISH runs under MS/DOS and requires a 386 PC with VGA screen and about 5Mb of free disk space for programs and standard system tables.

1.2 ARTFISH Operational Principles

ARTFISH operates within the context of sample-based fishery surveys by means of which data on catch and fishing effort are sampled from selected beaches and are complemented with up-to-date inventories (frame survey data) of fishing craft and fishing gear. The ARTFISH statistical operations are divided into the following basic components:

- (i) Setting-up system standards which remain in force for a period of one reference year. These standards include:
 - i.1 stratification of the landing sites (beaches) into minor strata;
 - i.2 formulation and consolidation of classifications for species and all types of fishing craft and fishing gear;
 - i.3 formulation and consolidation of frame survey data related to all beaches and boat/gear types;
 - i.4 definition of data items that will be included in data collection.
- (ii) Based on finalized system standards ARTFISH registers data resulting from two parallel sampling surveys by means of which:
 - ii.1 data on landings and associated fishing effort, prices/values and number of fish caught are regularly collected from selected beaches for the formulation of sample Catch Per Unit Effort (CPUEs) and sample unit-values on a by boat-by-gear basis;
 - ii.2 data on boat/gear activity are collected from selected beaches for the formulation of sample Boat Activity Coefficients (BACs) and Gear Activity Coefficients (GACs).
- (iii) Based on monthly data on CPUEs, boat/gear activity and frame survey raising factors, ARTFISH formulates estimates of total catch, fishing effort and value of landings. Estimates are always produced at minor stratum level. These estimates can then be combined to produce totals at various aggregation levels such as major strata, districts, regions, etc.
- (iv) The reporting component of ARTFISH provides both detailed and overall information by means of computer displays and printouts.
- (v) Finally, ARTFISH provides the tools for the exchange of data between national users thus allowing the distribution of data storage and analysis.

In this respect ARTFISH allows for the decentralization of computer operations thus achieving:

- v.1 data storage performed nearest to its source with the obvious benefits of better editing, distribution of inputting effort, elimination of bottlenecks and providing local users with data analysis and reporting services;

- v.2 the National Statistical Unit at HQ receives data that have already been computer-processed and can thus focus on data analysis without the burden of handling the regular inflow of large volumes of data.

The chief feature of ARTFISH is that it operates on both boat-and gear-basis which means that two types of estimates are produced in a parallel fashion. This approach provides the means for the cross-checking of the resulting estimates and the application of corrective actions if required.

From the data processing viewpoint ARTFISH attempts to reduce to a minimum level all operations that require manual keystrokes and inputting of coded information. This is achieved by:

- (i) setting-up mnemonic codes which are meaningful and also play the role of short names. Input parameters are always specified by selecting items from pre-set tables rather than keying them in from the keyboard;
- (ii) using menu-driven functions. No commands need be specified;
- (iii) the only manual input is related to figures on catches, effort, prices and values and these are cross-checked with control-totals so as to eliminate the risk of gross errors resulting from incorrect inputting.

In general, ARTFISH focuses on data quality and consistency, sometimes at the expense of the speed of the input operations which can become slow and somewhat inflexible. On the other hand, ARTFISH assumes that computer operations will be organized in a decentralized manner by means of which the inputting effort will be evenly distributed so that the slowness in data operations should not result in significant workloads and delays.

1.3 ARTFISH Limitations

ARTFISH is designed to allow customization of sampling surveys without changes to the computer software. This means that a national system on artisanal fisheries can be set-up by simply providing ARTFISH with the necessary parameters for its implementation. This is feasible when the following criteria apply:

A. Data on Landings

Based on experience gained in the design and implementation of sample-based surveys for artisanal fisheries the following data items were identified as the most commonly used:

- | | |
|----------------------|--|
| 1. Sample id no. | 7. Gear type |
| 2. Boat register no. | 8. No. of boats producing landing |
| 3. Boat name | 9. Fishing effort in gears (or gear use) |
| 4. Skipper's name | 10. No. of fishermen |
| 5. Time of sampling | 11. Duration of fishing |
| 6. Boat type | 12. Fishing ground(s) |

Of these data items users may use only those that are essential for the purposes of the system, but no more data can be added to the list. This is the most limiting factor of ARTFISH and cannot be overcome without significant changes to its structure.

B. Minor Strata

ARTFISH operates on a maximum number of 99 minor strata. This is a structural limitation which cannot be overcome. If an already established data collection scheme exists with more minor strata, then some of these must be re-grouped to form larger sets and thus reduce their number.

C. Species

ARTFISH assumes that no more than 20 species are reported by a single landing of a boat. This could be a limitation in industrial fisheries but for artisanal fisheries experience has shown that such extreme cases are rather rare. However this is, again, a structural limitation which cannot be overcome.

D. Codes and Names

ARTFISH uses 12-character mnemonic codes (short names) for strata, beaches, fishing grounds, species, boat types and gear types. The system tables provide space for longer qualifiers (up to 24 characters) but it is the short names that appear in all working forms and computer displays.

2. ARTSER

2.1 The ARTSER Objectives

ARTSER (Artisanal Fisheries Monthly Time Series) is a general-purpose computer system designed for the analysis of data resulting from the statistical monitoring of artisanal fisheries. Its objectives are:

- (i) to provide National Fishery Administrations with a flexible tool for the analysis and reporting of data related to catch, fishing effort, CPUEs, values and prices;
- (ii) to combine, in a single package, most of the data retrieval, plotting and reporting functions that are common in fishery surveys;
- (iii) to facilitate the comparison of monthly data during a calendar year.

This first version of ARTSER was developed by the Fishery Information, Data and Statistics Service (FIDI) of the FAO Fisheries Department. ARTSER runs under MS/DOS and requires a 386 or 486 PC with VGA screen and about 5Mb of free disk space for programs and data.

2.2 ARTSER Operational Principals

ARTSER operates within the context of sample-based fishery surveys by means of which data on catch and fishing effort are stored and processed by the ARTFISH system (Artisanal Fisheries Information System) for the derivation of estimates at minor stratum-month level. ARTSER automatically searches the ARTFISH storage for estimated data and constructs monthly time series each of which is organized by minor stratum, boat/gear type and species and contains catch, effort, values, CPUEs and prices for the period January - December of a calendar year.

The ARTSER system standards and classifications are all taken from ARTFISH and these include:

1. Minor strata short-names (up to 12 characters);
2. Boat/Gear types (up to 12 characters);
3. Species short names (up to 12 characters);
4. Units of measurement for weights, effort, values, prices and CPUEs.

Thus, ARTSER is a supplement to ARTFISH and can be operated only if ARTFISH is in regular use.

2.3 ARTSER Key Features

ARTSER operates on a calendar year basis. For each reference year two datasets are created: the first contains monthly estimates resulted from the BOAT-BASED estimation approach and the second from the GEAR-BASED approach.

ARTSER does not require that ARTFISH estimated monthly data exist for the entire year. Users are provided with the option to fill data gaps by means of simple interpolation methods. Alternatively they can deliberately insert zeroed figures in those cases that data gaps should be reflected on the data (for instance closed fisheries for specific minor strata and/or periods).

Exchange of Personal Experiences of Liaison Officers

- Mr. Mamadou Njie, The Gambia
- Dr. Marius Denke, Togo
- Mrs. Monique Bondja, Cameroon
- Mr. Domingos de Barros, Guinea Bissau
- Mr. O.F. Adebisi, Nigeria
- Mr. A.C.V. Forde, Sierra Leone
- Mr. Ibrahim Sory Touré, Guinea
- Mr. Olavio Anibal, Sao Tome et Principe

Seeking solutions to credit problems of artisanal fisherfolks The Gambian experience

by

Momodou N'jie, IDAF Liaison Officer
Fisheries Officer, Fisheries Department
Banjul - The Gambia

Introduction

As in many countries, source of credit is a major problem for artisanal fisheries operators in The Gambia. Although fishing attracts relatively high initial capital investment, most operators in the post-harvest sector including fish traders and processors require small initial investment. They operate small-scale business that attract relatively small working capital. However they are often confronted with access to this vital factor, perhaps due to the nature of their businesses ; spin-offs (or grains) are consumed in supplementing household and basic needs of the family, and in ceremonial and other affairs.

With implementation of the EEC financed Artisanal Fisheries Development Project (AFDP) in 1983 community fisheries centres (CFC) were built in six coastal fishing villages providing artisanal fisheries infrastructures and facilities for beneficiaries. Facilities are rented to users who were encouraged to form user groups (trade associations or economic interest groups) locally known as "Kafoo", User groups include fishermen, fish traders, male smokers, female smokers and dryers. The number of groups and degree of organisation varied from centre to centre. A Representative management committee was formed at each centre to whom management of the centre and it facilities was gradually devolved.

The project operated a credit component : revolving loan fund (RLF) for beneficiary operators in the project area for fish production, processing and marketing, and working capital for operators. However, many associations could not benefit immediately. They were encouraged and assisted to continue their associations, the useful lessons of which ensured establishment of informal credit schemes through interactive and meaningful self-help initiatives.

Origin of the informal credit schemes

Among the objectives of the AFDP project was to mobilise people's participation for organisation and management of their own development. Hence project beneficiaries were mobilised and encouraged to form the user groups and associations for cooperate and self reliant initiatives. Members were encouraged to make regular subscriptions on the basis of the traditional "osusu" practice. Due to the changing policy of the Credit Unit of the Fisheries Department <which later administered the RLF of the project and which was shifting emphasis from individual to group lending, fisheries associations could be encouraged to take up self-help initiatives to address their common problems including development and establishment of informal savings and credit schemes through periodic meetings and membership subscriptions, thanks to improved organisation and the provision of cash savings boxes at the CFC.

Individual members of groups and the management committees of fisheries centres were mobilised to ensure survival of the associations. Some women groups in particular and men smoker's associations were convinced that the associations and especially the credit schemes they operated were useful and could be made to work;

With continued support, encouragement and dialogue, association members have learned; therefore they agreed among themselves to set rules that guided the associations and the successful establishment of informal credit schemes.

Operations of the credit schemes - examples

1. At Brufut CFC, the "Nyodema" (or self-help) "Kafoo" comprising women smokers and formed in 1988 with only 16 women members and later 37 members. At inception, members were required to pay a weekly subscription of D3.00 (three Gambian Dalasis) that was saved in the centre cash savings boxes. After 3 month's regular weekly subscriptions, the association could give out D100.00 as working capital credit to each of six members. This was payable back within one month of disbursement with 10 % interest. Over time, the association had funds to enable it give credit to more of its members at each disbursement schedule and more money later on. By 1993, up to D400.00 could be credited to members. Association members now subscribe D12.00 on the last Wednesday of each month when they meet.

According to rules of the Kafoo, if a member failed to pay subscription for four consecutive weeks/months, she is expelled from the association and is liable to lose all monies subscribed. For this reason subscriptions are paid regularly.

2. The "Fang-maakoi" (self-help) "Kafoo" was successfully reformed in Gunjur in 1993 between 20 women. It had objectives to remain strongly bound and to establish a revolving credit fund from a savings and credit scheme to support the credit requirements of members. As measure to ensure success, and from past experience members agreed to make rules and regulations for operation of its credit scheme.

From December 1993, members subscribed D5.00 each weekly. Proceeds are kept in a cash safe-deposit at the CFC to which two trustee members separately keep combination keys. Statements of account and physical cash are presented before members at meetings.

Members received D200.00 as credit, starting with only five members. According to rules, payments is due within one month of credit disbursement with 10 % interest. Defaulters pay D5.00 fine if payment is overdue by five days without genuine reason, and D5.00 for any additional day until effected. After one month without settlement, the defaulter is reported to the Fisheries Centre Management Committee (FCMC) for mediation. If the FCMC is unable to resolve the case which seldom happens, the matter is then furthered to courts for settlement. Written rules, regulations and a letter of understanding, agreed and signed (thumb printed) by all kafoo members are evidences at both mediation meetings and in court. No case has yet been taken to court but two are pending on which the management committee advised restraint while seemingly fruitful negotiations continue.

The Fang-maakoi scheme was supplemented with a D500.00 donation in April 1994 by IDAF whose advice the association also acceded to. This sum, together with subscription

monies have now translated into about D6,091.00 of which D3,900.00 is cash in hand as in September 1994. Members comfortably receive credit from the association for working capital requirement in a rotating fashion.

3. The male smoker's association, Nyodema Kafoo in Gunjur has about 25 members. It was strengthened and seeded at the beginning of AFDP with D985.00 from the project's RLF. This amount was managed and revolved around members, starting with only four members each receiving D250.00 as credit. A further D25,000.00 was loaned to the association from the RLF in 1989 interest-free. This, and the accumulated monies of the association were manipulated by lending D1,000.00 to each of 11 to 16 members at a time. With 10 % interest and repayable within 4 to 6 months period, the loan has since been repaid and the association supporting its members from the association supporting its members with working capital. About D5,896.00 could be given as credit to 17 members from the association's own funds of operation, the association supports all its members from an ever growing source of self-supporting credit fund of over D25,000 now.

Other associations exist in CFCs that operate the scheme with varying degrees of organisation and success. Common features and rules among kafoolu (associations) that operate the informal credit scheme include the following :

- All subscriptions, lending and repayment are suspended during low catch or supply. They agree to resume when the situation improved.
- Records are kept of all monies transacted and statements of account and physical cash are presented to members at regular meetings.
- Reserves are left over from the credit fund of the kafoo after credit disbursement, for emergency purposes.
- Rules are operated that guide both the kafoo and the credit scheme, to which members agreed and signed in some cases. Any deviation from these rules must have the prior consent of all members.

Constraints lessons and prospects of the informal credit scheme

Initially, members of certain kafoolu thought monies subscribed was to belong to Government. However, with clarification during initial weekly and later monthly meetings, mutual understanding and trust could be established among members.

Members of many associations broke away initially withdrawing subscriptions the made. However, through the system of rule-making fines, peer group pressures at times and weeding of what was termed bad elements, several associations could streamline their existence for the mutual benefit to members.

The scheme may appear relatively slow in reaching adequate credit levels to cater for large business expansions. However, the size of credit matches scales of operation and nature of businesses of many members. The scheme is flexible and go a long way to satisfy credit needs of members. They use them to remain in vital socio-economic activities of the fisheries sector from which they made a living and support the family.

Perhaps lessons could be drawn that: organisation and institutionalisation have contributed to successes. It may be possible to improve and expand the schemes through linkages to extend the concept to the level of bigger money makes or lending institutions, or cooperatives and unions to take care of the credit needs of fisherfolks for fisheries development.

Management Committee of the port of Lomé : Instrument of promotion of the marine artisanal fisheries in Togo

by

Dr. A.M. Denké

Summary

Professional life at Lomé Fishing Port is confronted to a series of acute problems such as: insecurity, insalubrity, conflictual cohabitation between operators and administrative authorities. This tricky situation constitutes a major constraint even for the monitoring of fisheries and in addition to that for the promotion of fisheries.

Bearing in mind the proposed legal arrangements for the sector and in the endeavour to improve the involvement of all users at the Lomé fishing port in what happens in the port, the Department of Livestock and Fisheries is setting up a Port Users Management Committee. The administration (Autonomous Port of Lomé, Merchant Navy, Police, the Gendarmerie) and private sector (indigenous and foreign fishermen, women fish processor, male and female fish sellers) are equally represented on the committee.

In our view this new frame of concertation is essential for the Port to operate well and for the promotion of the activities of the sub-sector.

Contents

Introduction

General context

1. Legal dispositions and perspectives
 - restructuring of the institutions for rural development
 - Agricultural development policy.
2. Social life at the Fishing Port

Method of approach

- Interviews - census of the problems
- Group Meetings (discussion on the problems and solutions)
- Reports to Administrative Authorities

Results - Conclusion

- Options: Proposed Management Committee
- Constraints
- Lessons learned

"Productive Micro-Projects for Women in Cameroon (MPPF-CAM)"

by

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Introduction

Financial institutions' intervention in the artisanal fisheries sector in Cameroon is still uncertain despite its important contribution to the country's economy (80% of the national production come from artisanal fisheries). However, the Cameroonian government has not stopped concentrating its efforts on sustaining the sector. Consequently, since 1977, attempts have been made to fund it through parastatals like the Maritime Artisanal Fisheries Development Mission, the Maritime Fisheries Development Fund and very recently, the Investment Fund for Agricultural and Community Micro-projects. Due to enormous difficulties encountered in the past in recovering debts, these structures evolved a credit system, the modalities of which were not flexible, thereby making it difficult for the actors in artisanal fisheries in general and more especially women who are highly involved in allied activities (processing, marketing) to benefit from it. The results of the last study-framework and the socio-economic study carried out in August 1995 are an indication of this. Today, thanks to the MPPF-CAM project, women organizers of micro-projects and/or small fishing enterprises, can benefit from funds to enhance their activities.

Presentation of the "MPPF-CAM" project

After identifying the difficulties encountered by Cameroonian women in receiving credit facilities, the Cameroonian government negotiated and obtained from the Canadian government (ACDI) in 1992, a credit line for the execution of the MPPF-CAM project.

The project has been functioning since 1993. It supports and provides guidance to women-oriented economic activities. These activities are also managed by them. The project's objective is to contribute to the improvement of the socio-economic conditions of women and their families towards a sustainable development. Its aim is to increase women's incomes while initiating them to the rules of Entrepreneurship. In this light, a revolving fund of 1,350,000 Canadian dollars constitutes the credit available to the organizers.

In the fishing sector, the project's originality comes from the fact that it finances women's activities like smoking, marketing fish products. Presently, existing structures for funding fisheries are rather for fishermen and fish breeders. MPPF-CAM has accepted to finance the purchase of a freezer to a female fish operator who is having problems with conserving products for smoking or for sale. Loans are given to individual female operators or to groups with no maximum nor

minimum amount. At present, the project is in its experimental phase and covers two provinces (Coast and Centre).

Methodology

To reach the target population, MPPF-CAM works with partnership networks with a lot of experience and expertise. The network consists of four national NGOs (CERFAP, CRAT, CRETES, CIBLES) in rural and urban zones. They are responsible for teaching credit management notions as well as recovering debts. Once the credit request is approved by the NGO, it is submitted to MPPF-CAM Main Office for funding. The interest rate practice by the project is 12% or 14% per year depending on whether it is a micro-project or a small enterprise. This rate is relatively lower than normal commercial rates (20-22%) and those of the informal sector (more than 40%).

"MPPF-CAM" activities in the fishing sector

As stated above, MPPF-CAM funds micro-projects designed and managed by women. These activities in the fishing sector are generally allied activities. The female fish operators have already benefitted from about 30 million francs CFA. This amount is allocated to: smoking, marketing and restoration (braised fish).

Recovering money loaned out is not a problem at the moment. Recovery rate is almost 100%. This can be explained mainly by the procedure based on the follow-up of the organizers or group of organizers. The MPPF-CAM project at present, attracts many women. To this end, many requests for assistance are made to the NGOs concerned.

Problems encountered by the project in the field

The project encounters a certain number of difficulties with partner NGOs as well as with organizers. With regard to the partners, we can note the following: lack of understanding in managing financial risk, inter ONG geographical limitations and enclavement of rural zones.

With the female fish operators, the difficulties are linked to:

- Training: organizers are mainly illiterate, a fact that complicates the transfer of knowledge; they are rather reticent about keeping elementary accounting documents;
- the inadequacy of the present methodology with regard to micro-projects.

Conclusions

MPPF-CAM deals with the informal sector which it has succeeded in penetrating. This sector has eluded financial institutions in Cameroon. One of the advantages with the project is that the instituted methodology can be modelled with the participation of ONGs and organizers. For example, thanks to the organizers, MPPF-CAM has realised the need to adapt payments to sale cycles. Moreover, savings and credit cooperatives have been created; they are replenished on one hand with savings obtained from organizers who have benefitted from the project's assistance and on the other hand, from recycled funds. These funds are only given to cooperatives who have

proved themselves in management. The aim of these cooperatives is to continue when the project would have ended. In addition, to encourage the women to embark on income generating activities, dynamic female fish operators receive bonuses from MPPF-CAM.

To ensure the sustainability of the project, in-depth discussions and work sessions between the ministries concerned, resource-fields, ACIDI and MPPF-CAM are regularly organised. These work sessions facilitate the arriving on a consensus as to the recommendations to be made by the joint Canada-Cameroon committee.

**Integrated Programme for the Discovery of New Artisanal Fishing Zones
and Short Refresher Course for Women Processors in the Cacine Area
(Tombali Region)**

by

Mr. Domingo de Barros
Director-General
IDAF Liaison Officer

Introduction

Since the second half of December 1994, the new central administration of the fisheries sector (Ministry) of the young Republic of Guinea-Bissau, through its Artisanal Fisheries Direction General (DGPA), has not ceased innovating and carrying out concrete activities with the aim of realising the notions of **Promotion, Support and Development**, stated many times in previous statements on the artisanal fisheries sub-sector.

The basis for this success does not only lie with the level of follow-up of recommendations resulting from computerized processing of catch data and efforts in the recent data bank set-up in 1993. Neither does it lie only on better confidence in local technicians (technologists and/or trained personnel). It basically lies in the judicious use of experiences from a previous project, financed by the Swedish Agency for International Development (SAID), concerning the training of young national fishermen on the Bijagos islands, as recommended in the Blue print of Artisanal Fisheries in Guinea-Bissau. An interesting observation from a sociological/anthropological viewpoint is that these young people had no previous links with fishing. On one hand, they showed interest in the fishing profession and on the other hand, they were from the archipelago (the Bijagos archipelago) even though many of them found themselves far from their own territory. It is to be noted also that they had a rather high level of primary school education.

More than a hundred of these young fishers were trained by the end of the project. They are not all involved in marine fishing despite the knowledge acquired, which seems to confirm the fairly popular adage that says that " a professional fisher cannot spring from a Training Centre". Fortunately, and as if to prove the adage wrong, a good number of the young people trained have remained active to date at the national level and are as highly professional as migrant fishermen from other West African countries, mainly neighbouring countries, with regard to fishing efforts and the quality and quantity of products landed.

Perhaps because of the initial schooling level and their permanent proximity to administrative structures, these young fishers are more receptive to innovative ideas than traditional fishermen. It is with them that AFH initiated the integrated programme for the discovery of new fishing zones, the demonstration of fish catching capacities with various demersal fishing gears, synchronous training/refresher courses for fishermen (women in particular) from an inland landing

landing site, and working out techniques for processed products, with particular emphasis on hygiene-related aspects.

Justifications for the Programme

At the end of the artisanal fisheries statistical data bank establishment and following recommendations on Coastal Zone Resource Management resulting from critical analysis of computerized results of collected data, DGPA decided to give priority to alternative research that will facilitate a reduction in fishing pressure at traditionally known and used zones by the fishermen. In fact, a relatively high fishing effort has been put in these traditional zones. The main obstacle in the search for a long-term solution is in the remoteness of the real maritime zone with regard to the geographical position of landing sites on the coast. The consequences of this remoteness are more significant in certain enclaved areas where motorization rate is not yet very high and where fuel supply problems regarding motorized boats are very acute. The Cacine area in the Tombali region is one of those zones currently suffering from these constraints. Moreover, it is the preferred zone for temporary or permanent camping by migrant professional fishermen from Guinea-Conakry. The latter are specialists in ethmalose fishing (*Ethmalosa fimbriata*) which they preserve using the smoking technique. The local population also, because of long practice and perhaps because of not having a fishing profession, adopted this monospecific fishing method. It is also true that with no cooling preservation facilities (ice), ethmalose is the species whose sale is sure from a marketing point of view (quickly despatched to Kamsar).

Programme Objectives

The significant quantities fished annually and smoked most often with mangrove wood, and the persistent reduction in the average size of the target species (already indicated in a 1990 study), were determining factors in initiating the alternative research programme to solve the above problems by DGPA.

Methodology used

Acceptance of the programme by the young fishermen initially trained by DGPA was immediate. They agreed to mobilize two (2) motorized boats (with crew) for one month (27/04/95 to 25/05/95) at the Cacine landing site. DGPA gave a strong technico-logistic support in terms of an insulated light van for the sale of part of the catches, fuel on credit and food in the two boats (to be reimbursed by the two teams at the end of the campaign). It helped above all to provide supervisory technicians to follow-up activities: an economist, two engineers, masters in fishing and/or processing technologists as well as statistical data collection agent to ensure adequate campaign supervision.

The methodology used is simple:

1. Initially, populations in the regions concerned were informed through official media in such a way as to sensitize all fishermen and women processors of the campaign objective.
2. The two mobilized boats and their crew, each completed with a DGPA master fishing technologist, leave their usual landing site on the Bubaque island (Bolama Bijagos region) and

settle at the Cacine artisanal fisheries landing site (Tombali region) located at a seven-hour navigation distance in good weather with a 25 hp outboard engine from Bubaque Island.

3. The other crew members continue on to Cacine by road. These are the economist, processing technologists, as well as the insulated light van (and the rest of the logistics). The statistical and biological statistical data collection agents are based at their posted site since the setting up of the data collection system in 1993.

4. The boats go on daily trips to traditional fishing zones as well as to zones hardly visited or not visited normally by the fishermen in the region. The fishing gears used are those used for demersal fishing (bottom set gill nets, hook and lines, drift gill nets).

5. Catches are unloaded in the presence of all the other fishermen in the locality, measured and divided into two parts:

- the first part, that of first quality species, therefore of high commercial value, is immediately preserved in an insulated car equipped with ice at departure in Bissau. Fresh sales are carried out everyday for the Cacine population and its environs at landing and sales at Bissau (from the car) only every three days;
- the second set, that consisting of species with less commercial value but of great importance when processed in the presence of women.

6. Afternoons are for plenary discussions on the beach with local fishermen, on fishing zones, trip problems, etc...

Results Obtained

Fishing activities

Cacine's old fishermen publicly acknowledged before the authorities that it was the first time such a variety of demersal species landing was seen in their locality from fishing activities in neighbouring waters. The species unloaded, especially the red snapper(lutjanidae), big captains (polynemidae), otolithes (sciaenidae), catfish (ariidae), sicklefish(Drepanidae), thick-lipped diagrammes and grunts (haemulidae/pomadasydae). Shark and ray landings are quite significant.

Discussions facilitated explanations to fishermen about exact positions of fishing zones discovered by the two teams of the young DGPA trained fishermen as well as cases and practical use of fishing gears. Nine distinct fishing zones were identified. Local fishermen started going there before the end of the campaign.

The quantity unloaded by the boats was so significant that local fishermen were astonished because they thought that the gear was not profitable and could only serve as spot subsistence fishing.

The statistical data from the two boats taken separately indicated that Boat No.1 with only 17 trips (for caulk reasons) unloaded a more significant quantity than the second boat with 25 trips. The main difference between the two units were in the characteristics of the nets used. Boat No.2

used 650 m long nets with a 6m drop while Boat No. 1 worked with 500m long nets with a 2m drop. It would seem, according to competent authorities, that the 2m drop is more adapted and manageable for fishing in not so deep zones, targetting coastal sciaenidae species or those in deep water.

From a biological viewpoint, that is from the resource angle, it should be emphasized that the sizes of species captured are extremely big compared to sizes commonly seen in ports with large demersal fishing activity, thereby confirming the relative intactness of the stocks. For example, the average weight of red snapper(Lutjanidae) caught is 12 kg, whilst 4 to 5 kg is considered good when compared with observations made in the sub-region. It is the same for otholiths, big captains and thick-lipped diagrammes.

Processing activities

Refresher course/training sessions in product processing techniques had very positive results. The specialist technologist, not only emphasized hygiene-related aspects of the products but also taught the women the Salted-Dried preparation technique called "bacalhau". The objective of the teaching was to reduce the cutting down of mangrove wood commonly used for smoking while presenting an interesting alternative to smoked products. As a matter of fact, "bacalhau" is more expensive than the smoked product (whichever species used) because it is considered to be the product for " a certain category of people" in the capital. Demand is extremely high in Guinea-Bissau and supply does not follow. In Europe, only one species is used for "Bacalhau". On the other hand, during the campaign, the technologist and women developed this type of product from many local species. The introduction of the product to Bissau was preceded by a radio announcement to give the selling date. Demand was much higher than supply for "bacalhau" and for Fermented-Dried.

The end of the refresher course/training session was presided over by His Excellency, the Fisheries Minister. He later presented certificates to the women.

Conclusion

The campaign carried out at Cacine had many fruitful results not only with regard to fresh product production but also product processing and environmental protection. Many studies deplored the increase in cutting of the mangrove by fishermen for smoking purposes. The teaching of a commercially more interesting and less tedious alternative will go a long way in considerably reducing mangrove depletion. The experience is also more positive in the sense that many local fishing communities have already shown an interest in such a campaign in their locality.

On the other hand, net financial yield for the crew of young fishermen has been remarkable due to good management by the DGPA economist. Some financial management aspects of the revenue from trips often considered inconsequential by the fishermen have been seen to be a determining factor in profitability.

However, it should be emphasized that if resource is abundant, the fresh/processed production in adequate quantity, the results obtained would not attain the records noted without the logistical support made available by DGPA. In fact, the southern province is faced with the problem of

evacuating products by road to the capital. Maritime routes are more used by the fishmongers and their movement causes a high profit margin, which is to the fishermen's disadvantage.

Consequently, in the New Fishing Policy instituted by the Ministry since the beginning of the year, absolute priority is given to DGPA to find out ways and means of equipping the southern province with adequate infrastructures for a dynamic commercial fishing sector. Many projects are presently in their completion phase to address these issues.

A personal field extension and research experience

by

O. F. Adebisi
IDAF Fellow

1. Preamble

About 80% of total Fish Production in Nigeria is credited to over 500,000 artisanal fishermen operating in marine and inland waters. There are 7 coastline states in the country. These are Lagos, Ondo, Delta, Edo, Rivers, Cross River, Akwa Ibom, as well as Delta and Akwa Ibom states are located in the mid-western and eastern parts of the country respectively. A lot of fishing activities goes on in these two states resulting in a substantial amount (45%) of the total artisanal fish catch.

The actual coastal and inland fishing activities are carried out by men (though a few women too engage in fishing) ; while the women play a pivotal role in fish processing and marketing.

Type of Fishing Method

The majority of fishermen do marine fishing. However, some fishermen fish from rivers, creeks and estuaries. Some combine the 4 different types of fishing methods;

Fishing craft

The fishing craft used are banana boats which are wooden and planked. These canoes are traditional in design and come in various sizes. The marine fishermen use more in planked canoes while dugout ones are mainly for riverine fishing. A few fishermen own fibreglass boats which are mainly used for water transport rather than fishing.

Fishing gear

Two types of fishing gears are used for fishing. Those are.

a. Modern gear

For marine fishing, drift nets, drag nets and longlines are used. However in some parts of delta, the fishermen believe that drift nets (Gabon-common name) are more efficient. However, this type of net has become scarce due to it's non-availability as well as high cost of purchasing it. The "Osusu" net is also used and is reported to be quite durable. Longlines and casts nets are also used for river fishing.

b. Traditional gear

There are various distinct traditional gears being used alongside the modern gears. These are "Eta" or "Ita" which is made from bamboo and cane strips, "Ekobi" - a conical shaped trap woven with cane strips. "Otu" is made from red or white mangrove. "Ekobi" and "Otu" are used for shrimp fishing.

Outboard engine

Motorization/Mechanisation of the artisanal fisheries in these fishing areas are limited to outboard engines (OBE) on traditional canoes. However mechanisation has declined considerably due to lack of knowledge of maintenance and servicing facilities as well as high cost of inboard engines.

Due to the dwindling supply of fishing inputs like outboard engines (OBE), nets/accessories etc. from both Federal and State Governments, because of the downward turn of the National economy, and in order to boost fishery activities in the artisanal sector by keeping the already active and interested fishermen from being idle a mini project was proposed from the Integrated Rural Fisheries Development Project (IRFDP).

2. The project

The IRFDP from which the mini project was developed succeeded earlier projects and was designed to link the economic, social and infrastructural needs of the fishing communities.

One of the immediate objectives of the project was to develop and foster welfare programmes aimed at ameliorating the socio-economic conditions of the target rural fishing communities. The Integrated approach, aimed at encouraging the participation of members of the community in the planning, implementation and evaluation of project activities. To this end, a detailed socio-economic study of the target fishing communities was carried out at the beginning of the project (1990). The findings from this survey among others show that :

Fish production has declined over the years due to:

- i. unavailability and high cost of essential fish production inputs;
- ii. lack of finance to run the fishery business;
- iii. decline in motorization and use of improved gear;
- iv. the use of old outboard engines has yielded not too high income compared to non-motorization.

Sequel to the findings of the socio-economic mini-project was developed: The Pilot Entrepreneurship Development Scheme.

* Integrated Rural Fisheries Development Project (FAO/UNDP amited NIR/87/010)

The objectives of the mini project are:

- i. to support economic projects initiated by the fishermen's cooperative societies within the target villages;
- ii. to further the transmission and adoption of improved fishing practices.

In this project, fishing inputs such as outboard engines, nets and other accessories were given out to cooperatives. Proceeds made from the joint fishing was shared among members after deduction of the running cost. This was to help augment whatever income realised from individual fishing. The trammel net, which was developed by the project's fish technologist was also introduced for adoption by the fishermen.

Four fishermen cooperative societies out of the total of 12 registered and nurtured by the IRFDP were initiated into the pilot scheme. The project assisted the participating cooperative societies with reduced cost of fishing inputs on short term credit facilities. The societies paid half of the cost as deposit and the rest was paid in three monthly instalments. A loan application/agreement form was signed by beneficiaries. The prices of the inputs given out were at the time about 50% lower than the prevailing market prices.

Fishermen's contribution

the members of cooperative provided a boat per village-cooperative for the mini project. All members shared fuel and engine oil expenses on each trip, engine maintenance etc. The crew consisted of 4 or 5 members.

3. Key lessons/remarks

The Pilot Entrepreneurship Scheme can be said to be a success story. The fishermen showed a lot of commitment to their project and did not consider the inputs given them as part of the "national cake" meant to be taken and eaten free. All the cooperatives that benefitted from the Scheme have paid up their debts. The revenue made by the cooperatives increased considerably. Although the money realised from the sale of the inputs was supposed to serve as seed money but due to inflationary trends, cost of outboard engines as of today has gone up by over 600 %. This situation could further impoverish the fishermen and inevitably lead to reduced fish production.

As a result of the termination of the project (FRFDP), the activities of the Fishermen's Pilot Scheme could not be monitored as would have been desired. Government inputs fell short of expectation while the foreign assistance did not last enough for proper germination of the seed planted.

If adequate counterpart funding from the Government which is essential in sustaining assisted Artisanal Fisheries Development Projects was forthcoming, the achievement of the mini project would have been more quantifiable. Simply put, the mini project came in as a useful stop-gap.

Field extension and research experiences from Sierra Leone

by

A.C.V. Forde

The Artisanal Fishery and its community, play an important role in the economic livelihood of a large sector of the Sierra Leone population. The Government has therefore since the 80's gone into bilaterally funded Fisheries Projects with foreign Governments or organizations, in a number of coastal artisanal fishing villages such as :

A. Tombo Fisheries Pilot Project : 1980 - 1994

Bilaterally funded by the Government of Sierra Leone and German Agency for Technical Cooperation (GTZ)

B. Kambia Fisheries Development Project : 1983 - 1987

This was replaced by the present day WNM AFCOD Programme, 1989 to end of present phase in June, 1995 with future continuity soon.

Both these programmes were funded by the Government of Sierra Leone and the EEC.

C. Shenge Integrated Development Fisheries Project : 1984 to end of May 1995

This project started in late 1984 with a six months preparatory phase and an implementation phase lasting five years, February 1985 to December 1990, funded by UNDP. This was followed by a second phase lasting from January 1991 to end of May 1995, FAO funded.

Main objectives of the projects

The general aims and objectives of these Artisanal Fisheries Projects in Sierra Leone was the improvement of socio-economic status of the target groups by embarking on technical, social and infrastructural development activities, through the introduction of improved or new fishing technologies and methods and also loans and credit schemes.

Fisheries projects have been introduced from the 80's and the experiences gained from past projects have been helpful in the implementation of present day or ongoing ones.

Highlighted below are a few such field experiences

1. Write-up of project Documents/Agreements are usually biased towards the donor Country/Agency because of the political impact created in favour of the Governing Political Party (especially in the political constituency in which the project is located).

2. Government's failure to meet its obligations as per agreed Project Agreements, because of insufficient financial and qualified staff contribution.
3. Initial community participation are led by the ruling class or rich business village elites
 1. The village target population are usually slow in taking up active participation because of organisational problems and ignorance in understanding the main objectives and benefits of the project.
 2. Required need to change the attitude of the target groups from "passive beneficiaries" of development to active partners, contributing financially and physically.

Active participation are in most cases found to be personal oriented.

3. Despite claim by Project Management that all village development activities are identified and prioritised by the village community, are in many cases discovered to be totally dependent on direct project support.
4. Community participation are generally male dominated. Projects normally need and put great effort into getting or increasing the participation of female members of the community, through Micro-projects which are female orientated.
5. Loan and credit repayments are found to be good and regular at start of repayments commitments, followed by a period or reduced payment, leading to a period of default (i.e. Zero payment).

Although loans and credit programmes have for a long time deemed as effective component for the effective transfer of appropriate fisheries technology to Artisanal Fisheries, it has resulted in failure.

4. An important section of Fisheries projects has been that of the Marine Engineering, located at the project's main location point from where mobile engineering services and awareness campaigns are carried out.
 - a. This section has introduced the installation of diesel inboard operated engines in local fishing vessels and the training of local machine and engine operators to service target areas.
 - b. It carried out the successful campaign in correct use of two stroke engine oil for petrol engines presently purchased and supplied by the project, with the apprehension of sustainability at project's final phase.
 - c. Likewise apprehension is expressed for the purchase and supply of spare parts at the same project reduced prices at project's end.

5. Another important component of Artisanal Fisheries in Sierra Leone has been Boatbuilding, with lead from the Tombo Fisheries Pilot Project which introduced reduced boatbuilding and maintenance cost resulted from:
- a. Damage done by marine borer teredo nasalis and limnoria to most species of timber used for planking artisanal wooden boats, resulting in increased cost, as replacing of infested timber is needed at frequent intervals.
 - b. The length/width ratio of inboard engine boats were discovered to be unsuitable, leading to frequent shaft misalignment problems.
 - c. Weight of boats were considered to be very heavy and therefore difficult to beach for minor hull repairs, as compared to the higher petrol outboard engine boats.
 - d. Improved inboard engine boat construction with the introduction of cold-moulded timber construction, bonded and coated with epoxy resin. This it was found resulted in long lasting hulls, resistant to marine borers and giving necessary longitudinal rigidity needed to keep the inboard engines and shafts aligned.
6. It must be finally stated that all fisheries projects in Sierra Leone are made up of other programmes/sections contributing immensely to the general development of Artisanal (small scale) fisheries such as:

Co-operative Societies which are usually male dominated (Fishermen and boatbuilders) special efforts are given to ensure more women's participation on equal terms and in female dominated cooperatives (Fishmongers and Fishprocessors) ensure that women's needs and interests well taken care of.

Environmental controls are also carried out, including the efficient utilisation of forest and mangrove resources.

Improved health conditions such as clean drinking water and improved public and medical care

Retail store for the ready purchase of fishing equipment's and others etc. (spare parts, netting materials, boatbuilding requirements etc).

Recommendation

It is recommended that any request for information on any aspect of any of the above stated projects be made through the Department of Fisheries and Marine Resources.

**Paper by the National Director of Maritime Artisanal
Fisheries in the Republic of Guinea at the 9th Session of
IDAF Liaison Officers**

by

Ibrahim Sory Touré
National Director of Maritime Artisanal Fisheries
in the Republic of Guinea.

VENUE: CONAKRY

Experiments

With the promotion of artisanal fisheries activities on the Kaback island in mind, the Guinean Government, in collaboration with FAO, initiated a pilot Project to foster the Participatory Approach development strategy. The project which started in 1989 has the following objectives:

- assist 600 fisherfolk from three villages;
- improve canoe artisanal fisheries production and other sources of income-generating activities;
- identify, plan and implement mini projects of community interest.

To achieve these objectives, the project recruited competent national officers grouped together in village community structures on the island. The task of this team, called Fisheries Development Units (FDU), is to encourage the creation of autonomous local structures and assist fisherfolk in the management of their activities.

With assistance from FDU, fisherfolk formed 5-member basic groups in credit system. Each of the basic groups is managed by a leader.

Economic Unit Committees (EUC) consisting exclusively of basic group leaders have been taken over by a village office or village development council or VDC.

With such a procedure, the project for integrated development of artisanal fisheries in Kaback has had an important socio-economic impact on the region.

Among other achievements are the following:

- fish production effort in the three villages involved in the project have risen from 1,500 tons per year in 1989 to 7,000 tons in 1991, that is a 330% increase.

- the value of fresh fish sold which was estimated at 191,000,000 FG in 1989 reached 320,000,000 FG in 1991.
- creation of 255 maritime employments and widening of the canoe harbour.
- As a result of these conclusive results obtained in the first implementation phase, the project, at the beginning of 1994, obtained another financial assistance from UNDP to consolidate achievements and ensure the sustainability of the approach.

We expect that this community development approach, as developed on this island, is a successful experiment which should be popularised in our countries.

The second experiment is the implantation of the "pilot project on the artisanal fisherfolk and canoe transporters' security at sea and on land" which helped in reducing many accidents at sea.

A great effort was made by the project to sensitise and train more than 1,811 fisherfolk on 25 landing sites on the coast.

It must be admitted that the implemented programme was well-received in the area. In the targeted landing sites which benefitted from these discussion sessions, accident cases decreased from 225 cases in 1992 to 25 cases by the end of the first phase of the project in March 1995. The Guinean experience was to have been popularised in other coastal countries in the sub-region because of the high number of accidents recorded due to numerous movements of the fisherfolk in the fishing zones in the neighbouring countries.

This example justifies the need for the creation of a sub-regional Project on Safety at Sea.

Initial results Fish Concentration Devices (FCD) at Sao Tome and Principe

by

Mr. Olavio Anibal
IDAF Liaison Officer

For long, fisherfolk in tropical areas have noticed the phenomenon of fish concentration under flotsam (tree trunk, palm leaf, buoy ...). From these observations, some got the idea of artificially reproducing these flotsams which led to the creation of Fish Concentration Devices, frequently designated as FCD. It consists of a float, generally on the surface, fixed to the bottom to an anchor (cf picture 1).

The functions of these FCDs are to attract and concentrate various pelagic species, like bees with honey, vultures with dead animals, and maritime birds with schools of fish.

The determinism of the conglomeration is not clearly explained, and generally, many reasons are used to explain the phenomenon:

- search for shelter against predators especially with regard to initial colonising species (small pelagics);
- search for a prop for attaching eggs during reproduction (especially for flying fish);
- formation of a feeding chain under the debris and colonisation by increasingly bigger species;
- hearing and visual links: FCD representing a reference mark in the ocean uniformity and by its peculiar structure;
- olfactory link: attraction of predators by smaller fish excreta products.

As a matter of fact, it is probable that a combination of interacting factors explains the attraction around the FCDs.

Generally, fish do not permanently remain around devices but stay away at certain times of the day, except smaller pelagias which permanently remain close to the screen.

Some time after the implantation of a FCD (two weeks at the least), certain species will permanently remain around the device, enabling fishermen to have easy and regular catches.

At Sao Tome and Principe, 18 FCDs have already been established. First, many acts of sabotage were noticed since many fisherfolk did not understand the utility of the devices. Today, we can

say that the fisherfolk have completely understood the numerous advantages of FCDs. Their collaboration and solicitations for the acquisition of new ones are proof of their effectiveness(cf Figure 2).

The use of FCDs by artisan fisherfolk, enabling them to break away from the time given to the search for fish, hence a reduction in their fishing trip, in a month's work, a reduction in fuel consumption (low production cost). Similarly, with the reduction of the duration of the fishing trip, the fisherfolk can give more time to either the practice of other fishing techniques (for example, fishing of benthic species), or the maintenance of boats or fishing engines.

As for the species captured and outputs, the initial results obtained around FCDs show that:

The main species captured near FCDs are:

- * Tunas
- * Balistidae
- * Carangidae
- * Coryphaenida
- * Sharks
- * Atlantic sailfish/Flying fish

During the rainy season (November to April), results are poor: at least 60 to 70% trips are futile and for positive trips, the average weight captured is between 20 and 30 kg/trip/fisherman (as for outputs, the total weight captured by a canoe is divided by the number of persons embarked). During the dry season and some months after (from May to October), concentration observed around FCDs is high at the beginning of the dry season with large catches in tunnies, then from September, an increase in catches in coryphene, comets, thazards and barracudas. In May and June, the proportion of futile trips is about 10-30% and for positive trips, the average weight captured is near 30 kg/trip/fisherman.

Ocean deep FCD

List of materials needed for the construction of a 1000-metre deep FCD

A pavillon buoy made of a 4-metre bamboo and a 20-litre float.

80 4-litre dragnet buoys, 200 metres depth resistance

40 metres of galvanized and lubricated cable, 11 mm in diameter

30 metres of PVC tube, 14 mm in diameter

100 metres of PA rope, 18mm in diameter

1400 metres of PE rope, 18mm in diameter

20 metres of HR 13 chains

2 anchors

Weight of 750 to 1000 kg

5 galvanized swivel of 17

2 HR shackles of 15

5 HR shackles of 17

4 eyelets for a 18 mm rope

Ornamental materials: either 20 to 30 palm leaves or 200 metres of unbraided PE orange rope in diameter 13

NB: the floating part is tested experimentally and can be replaced by any floating object having a buoyancy of between 300 and 500 litres.

The use of ball strings increases the life span of the device. In fact, the raft fits the swell perfectly, thereby reducing its wear and tear.

STV/PPA II, August 1995

Coastal FCD

List of materials needed for the construction of a 200-metre deep FCD

A pavillon buoy made of a 4-metre bamboo and a 20-litre float

60 4-litre drynet buoys, 200 metres depth resistance

40 metres of galvanized and lubricated cable, 11mm in diameter

25 metres of PVC tube, 14mm in diameter

100 metres of PA tube, 12mm in diameter

200 metres of PE rope, 12mm in diameter

15 metres of HR 13 chain

2 anchors

Weight of 350 to 500 kg

3 galvanized swivel of 17

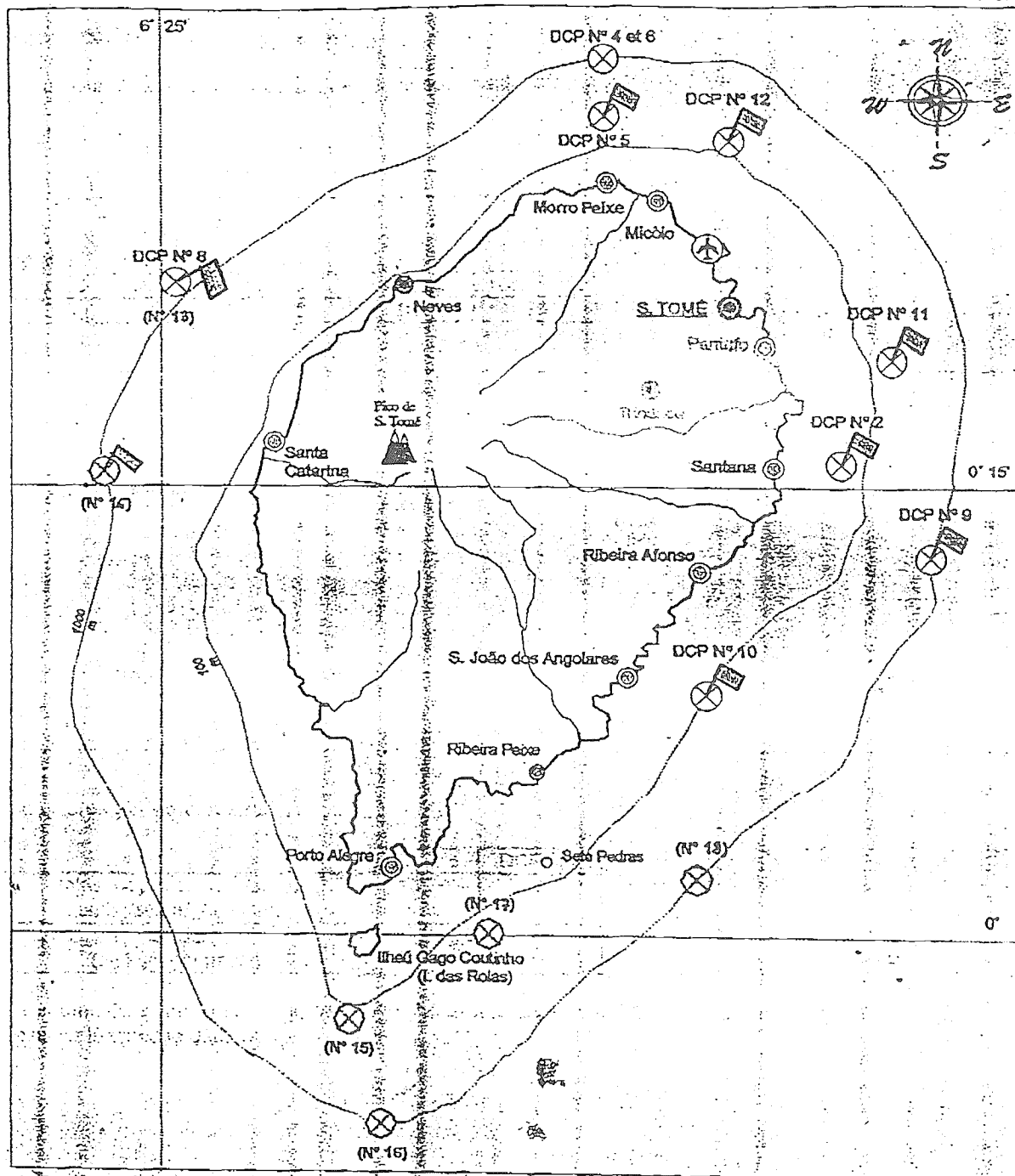
5 HR shackles of 15

2 HR shackles of 17

2 eyelets for a 12mm rope

Ornamental material: 20 to 30 palm leaves

STV/PPA II/August 1995



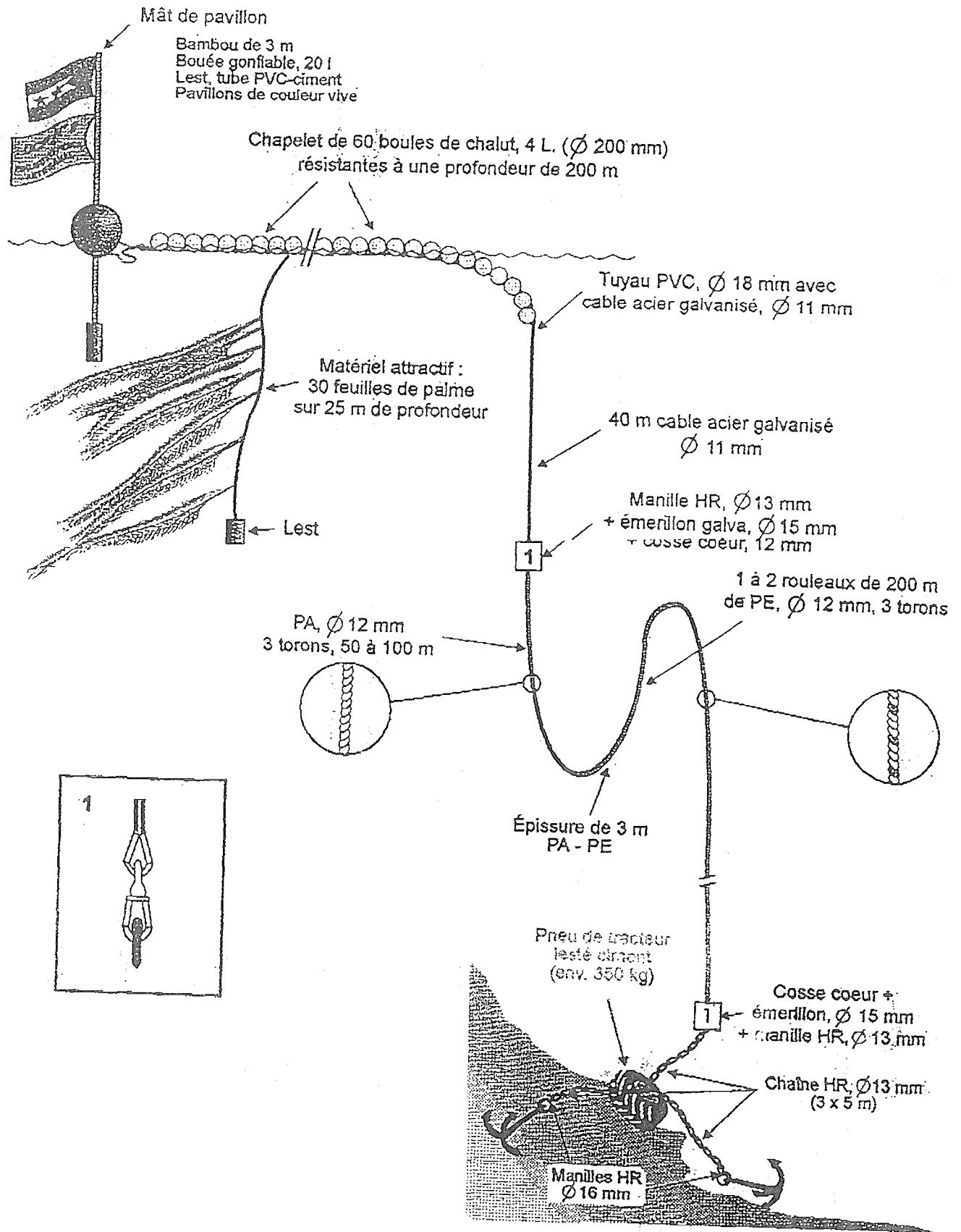
Localisation des Dispositifs de Concentration de Poissons à São Tomé

- ⊗ DCP installés et disparus (le 8 sera remplacé; 4 et 6 si disponibilité de matériel)
- ⊠ DCP opérationnels (12, 5, 9 remplacent respectivement 1, 3, 7 qui ont disparus)
- ⊗ DCP en projet d'installation d'ici mai 1995

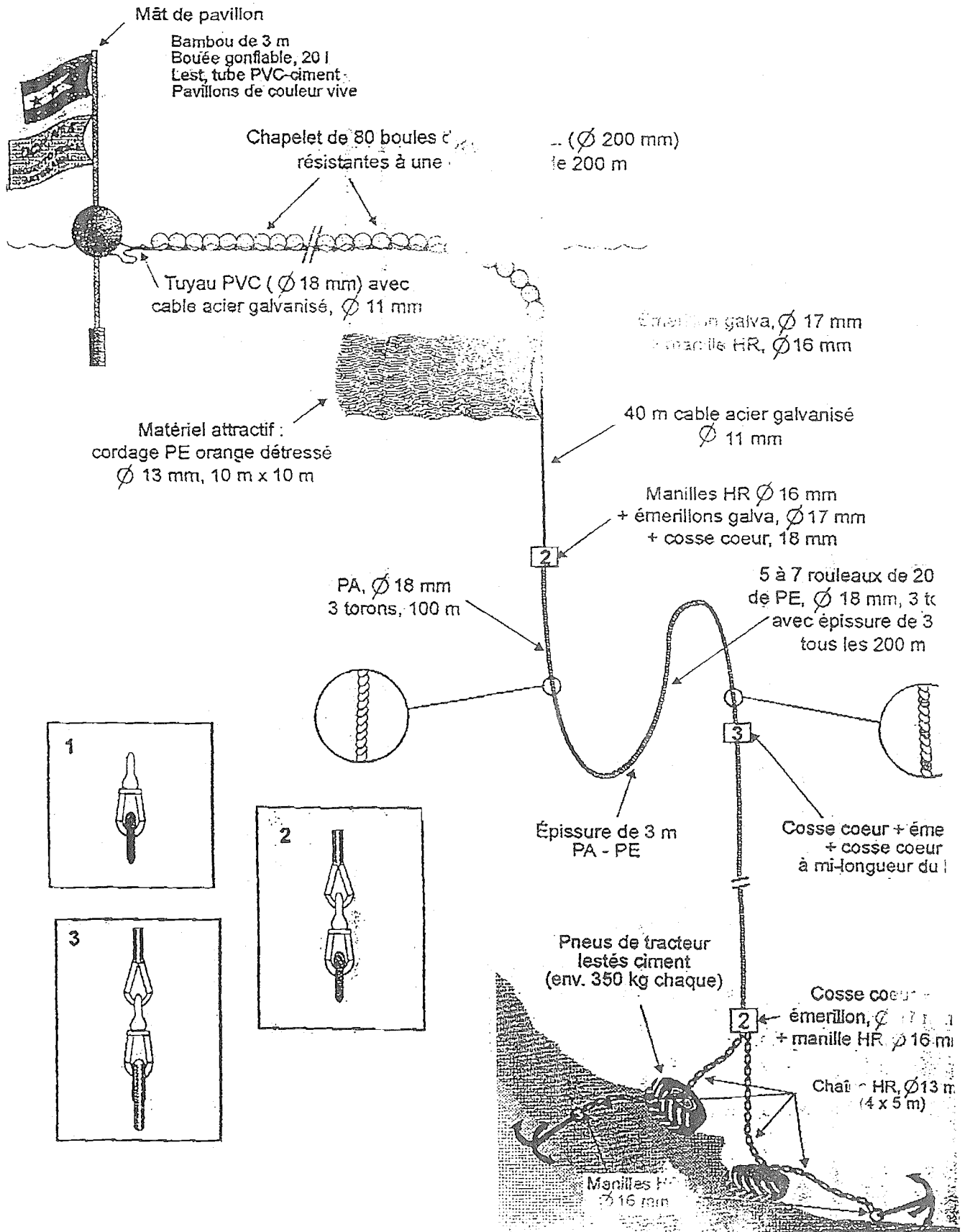
Source : STV/PPA II, 1995

Jean Wormis, P.A.R.H. (V)

DCP de petite profondeur



DCP de grande profondeur



Proposed Programme of Work January - December 1996

The following is the proposed Programme of Work for the period January - December 1996.

The Committee is invited to review and comment on the proposals.

Objective 2. TO IMPROVE THE COMPETENCIES OF NATIONAL FISHERIES DEPARTMENTS STAFF IN DEVELOPMENT AND MANAGEMENT PLANNING OF ARTISANAL FISHERIES

| Activities | Associated Project/Country | Output Indicators | Yearly Quarters 1996 | Remarks |
|--|---|--|----------------------|---|
| Output 2.1 a national multidisciplinary working group specialized in sectoral planning techniques set up in 3 countries | | | | |
| 1. Follow-up activities | Togo, Guinea-Bissau, Sao Tome and Principe, Cameroon, Congo | Staff trained National team established | | Follow-up to sector reviews/Development plans in the countries concerned |
| Output 2.2 a thorough review of the artisanal fisheries sector in 3 countries | | | | |
| 1. Conducting Mission in the field | Gambia, Gabon | Report | | |
| Output 2.3 development plans for the sector | | | | |
| 1. Conducting mission in the field | Sao Tome and Principe, Cameroon | | | |
| 2. Monitoring implementation | Mauritania, Togo | | | |
| Output 2.4 a mechanisms for monitoring the sector and adjusting the development policies functioning effectively in 3 countries | | | | |
| 1. Undertake socio-economic Cum. Frame Surveys | Togo and Congo | Staff trained and reports | | Follow up activity on the review of the sector |
| 2. Monitoring Costs and Earnings of fishing units | Senegal, Mauritania, Cape Verde, The Gambia, Guinea, Côte d'Ivoire, Benin, Nigeria, Cameroon, Sao Tome and Principe | Staff trained Reports | | The information gathered should permit the organising of a regional workshop on Costs and Earnings. |
| 3. Monitoring effects of devaluation of CFA Francs 2 years later | Senegal, Côte d'Ivoire, Togo, Benin, Cameroon, Equatorial Guinea, Gabon, Congo | Special IDAF Newsletter | | All the 7 CFA Countries |
| 4. Workshop on ARTFISH | To be identified | Staff trained Competence Improved | | |
| Output 2.5 object documents supporting the sector's development and management prepared and submitted to Governments | | | | |
| To be identified | | | | |
| | | | | |

Objective 3: TO ENHANCE REGIONAL TECHNICAL COMPETENCIES IN THE FISHERIES DISCIPLINES, PARTICULARLY IN FISHING AND FISH TECHNOLOGY

| Activities | Associated Project/Country | Output Indicators | Yearly Quarters 1996 | Remarks |
|---|--|---|----------------------|---|
| Output 3.1 simple fishing techniques with high economic potential are introduced | | | | |
| 1. Conducting missions in the field. | Lagoon Aby (Côte d'Ivoire), Cameroon, Congo. | Trained fishermen in new techniques. Increased earnings, Report. | | On-going |
| 2. Conducting trials on fishing methods in Guinea Bissau and hauling devices in The Gambia | Guinea-Bissau and The Gambia | Trained fishermen increased earnings (Leaflets and Flyers) | | |
| 3. Improvement in traditional boat construction and training of local boat builders | Cameroon | Boat builders trained Boats constructed Reports | | On-going TCP/CMR/4453(T) |
| 4. Review of lessons learned from training programmes of young fishermen | The Gambia, Cameroon, Mauritania, Nigeria, Togo, Guinea-Bissau and others. | Report | | |
| 5. In-the-field activities | To be identified | | | |
| Output 3.2 fishermen and national authorities made aware of the problem of safety at sea | | | | |
| 1. Conducting surveys on accidents at sea. | Countries of the south (Cameroon to Angola) | Catalogue of accidents at sea Reports | | On-going |
| 2. Providing in-the-field support | To be identified | | | |
| 3. Undertaking follow-up action on sub-regional project proposal | Countries of the North (Mauritania to Sierra Leone) | | | |
| Output 3.3 Improved processing and conservation techniques for fisheries products | | | | |
| 1. Organising training workshop on construction and operation of insulated containers | Fish Technologists from the Region | Trained staff Report Field Guide | | Need to correct the shortage of trained manpower in the area. To be undertaken with ITA Dakar |
| Output 3.4 Improved Quality Assurance (Q.A.) in the artisanal fishing industry | | | | |
| 1. Production of simple field guide on Q.A. | Sub-contract to INFOPECHE | Field Guide | | |
| 2. Organising training on Q.A. | Mauritania | Operators in the sector trained | | In collaboration with INFOPECHE |

Objective 4. TO IMPROVE INFORMATION AND EXPERIENCE EXCHANGE RELATED TO ARTISANAL FISHERIES WITHIN THE REGION

| Activities | Country/Project | Output Indicators | Yearly Output 1996 | | | | Remarks |
|--|-------------------------------|---|--------------------|---|---|---|---|
| 4.1 A newsletter published four times a year of which one is a thematic issue | Regional | Publication on a timely basis | ■ | ■ | ■ | ■ | |
| 4.2 A Programme Liaison Officers meeting organized yearly | Regional | Report | | | | ■ | |
| 4.3 An annual report about the state of the artisanal fisheries sector in the region | Regional | Report | ■ | | | | In-house activities of a regional nature undertaken basically through out the year in collaboration with IDAFs partners and with administrative and technical backstopping from FAO Headquarters. |
| 4.4 Study tours organised in the region | Regional | Report | | | | | |
| 4.5 Project reports published and widely distributed | Regional | Mailing list | | | | | |
| 4.6 Others | | | | | | | |
| 1. Assistance to setting up the library of Institute for Artisanal Fisheries (IPA) | Angola | Provision of volumes: Librarians (6) trained for IPA, Fisheries School and Fisheries Research Institute | | | | | Participants from other Lusophone countries to be included at their request. |
| 2. Developing Information and Communication strategy | Regional in house activity | Report | | | | | |
| 3. Lessons learned from executing development projects | Shenge project (Sierra Leone) | Report | | | | | |
| 4. Production of Guide on Report Writing | In-house | Guide/Manual | | | | | On-going with INADES |

Objective 5 TO PROMOTE REGIONAL AND SUB-REGIONAL COLLABORATION FOR THE DEVELOPMENT AND MANAGEMENT OF ARTISANAL FISHERIES

| Activities | Country/Project | Output Indicators | Yearly Quarters 1996 | | | Remarks |
|--|--------------------|--|----------------------|---|---|---|
| 5.1 Consultants of the region are hired for short missions in the participating countries to the Programme (IDAF Fellowship) | Regional | IDAF Fellows trained Reports Update list of Fellow | | | | In-house activities of a regional nature undertaken basically through out the year in collaboration with IDAFs partners and with administrative and technical backstopping from FAO Headquarters. |
| 5.2 Linkages established with projects and institutions | Regional | Joint publications | | | | |
| 5.3 Organising a Regional Workshop. | Regional | Reports | | | ■ | The workshop will be held as a follow up to 10th LOM. The theme will be suggested at the 9th LOM. |
| 5.4 Others | | | | | | |
| Organising working Group Meetings on | | | | | | |
| (a) Capital Needs | Members of W/Group | Reports | ■ | | ■ | |
| (b) Costs and Earnings | Members of W/Group | Reports | ■ | ■ | ■ | |
| (c) Role of Women | Members of W/Group | Reports | | ■ | ■ | |
| 2. Organising Manual Production Exercises | | | | | | |
| (i) PRA | | Draft Manual | | | ■ | |
| (ii) Micro-projects | | Draft Manual | | ■ | | |

Other Matters

LISTE DES RAPPORTS DIPA - LIST OF IDAF REPORT

I. Documents techniques / Technical documents

- De Graauw, M.A., Etude de préfactibilité technique de l'aménagement d'abris pour la pêche maritime artisanale au Bénin. Cotonou, Projet DIPA, 55p., DIPA/WP/1
1985
- Black Michaud, M.J., Mission d'identification des communautés littorales de pêcheurs artisans au Bénin. Cotonou, Projet DIPA, 24p., DIPA/WP/2.
1985
- Gulbrandsen, O.A., Preliminary account of attempts to introduce alternative types of small craft into West Africa. Cotonou, IDAF Project, 51p., IDAF/WP/3
1985
- Gulbrandsen, O.A., Un compte-rendu préliminaire sur les tentatives d'introduire des types alternatifs de petites embarcations en Afrique de l'Ouest. Cotonou, Projet DIPA, 53p., DIPA/WP/3.
1985
- Jorion, P.J.M., The influence of socio-economic and cultural structures on small-scale coastal fisheries development in Bénin. Cotonou, IDAF Project, 59p., IDAF/WP/4
1985
- Jorion, P.J.M., L'influence des structures socio-économiques sur le développement des pêches artisanales sur les côtes du Bénin. Cotonou, Projet DIPA, 59p., DIPA/WP/4.
1985
- Tandberg, A., Preliminary assessment of the nutritional situation of subsistence fishermen's families. Cotonou, IDAF Project, 31p., IDAF/WP/5.
1986
- Wijkstrom, O., Recyclage des personnels pêche en gestion et comptabilité Cotonou, Projet DIPA, 25p., DIPA/WP/6.
1986
- Collart, A., Development planning for small-scale fisheries in West Africa, practical and socio-economic aspects of fish production and processing. Cotonou, IDAF Project, 34p., IDAF/WP/7.
1986
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