



PROGRAMME FOR INTEGRATED DEVELOPMENT OF ARTISANAL FISHERIES IN WEST AFRICA

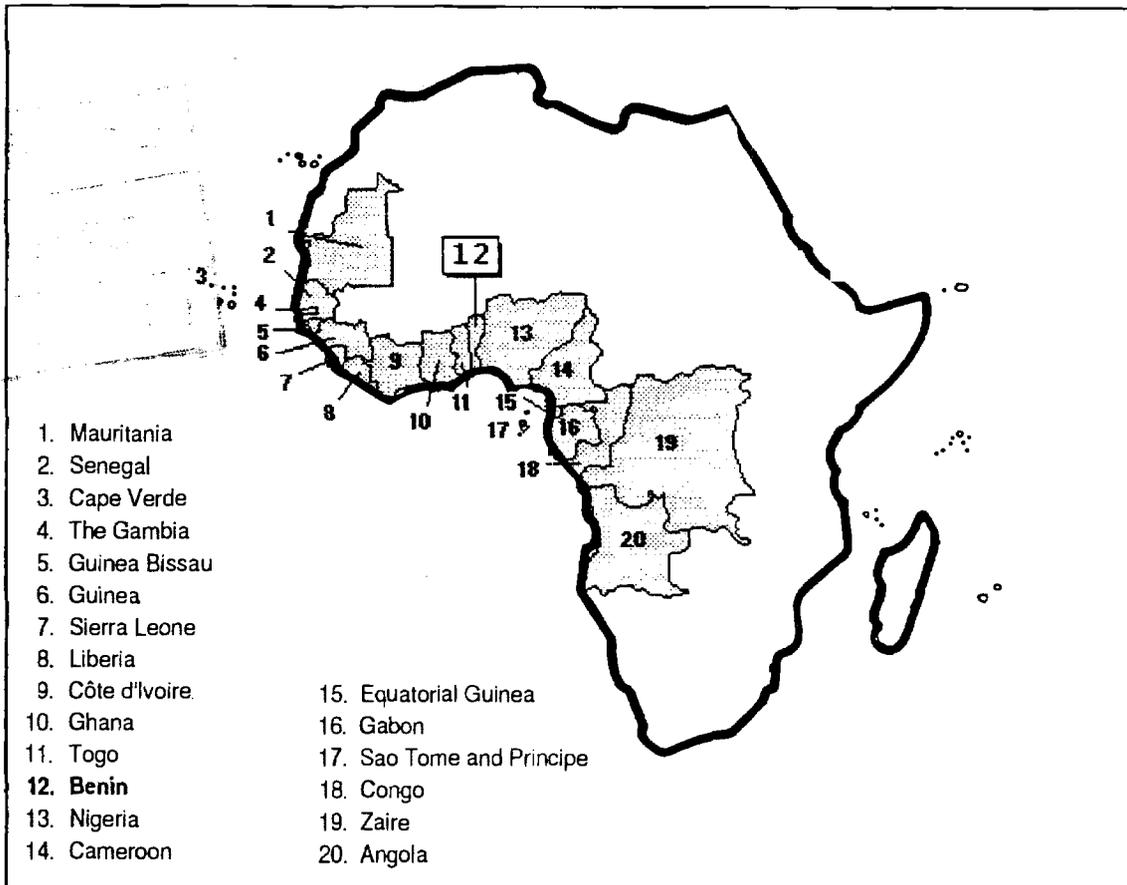
IDAF PROGRAMME

Technical Report N° 104

June 1997

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Present State and Perspectives of Marine Fisheries Resources Co-Management in West Africa



DEPARTMENT OF INTERNATIONAL DEVELOPMENT COOPERATION OF DENMARK



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS



# **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.



Technical Report N° 104

June 1997

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**Present State and Perspectives of Marine Fisheries  
Resources Co-Management in West Africa**

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For bibliographic purposes this document  
should be cited as follows:

Horemans B. and Jallow A.M; Present State and Perspectives of Marine Fisheries Resources Co-  
1997 Management in West Africa, Programme for the Integrated Development of  
Artisanal Fisheries in West Africa, Cotonou, 22p., IDAF/WP/104.

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## FOREWORD

The paper on "Present State and Perspectives of Marine Fisheries Resources Co-management in West Africa" was prepared for and presented at the second African Regional Workshop on Fisheries Co-management. The workshop was organized by the Fisheries Co-management Research Project financed by DANIDA and executed jointly by ICLARM (International Centre for Living Aquatic Resources Management, Manila), IFM (Institute of Fisheries Management, Denmark) and National Aquatic Resource Systems (NARS). The workshop took place from 18 to 20 March 1997 in Mangochi, Malawi.

The IDAF Programme collaborates with this project whose Director had been invited to the IDAF organized workshop in Conakry in November 1995 on the Participatory Approaches and Fisheries Traditional Management Practices in West Africa (IDAF/WP/74).

## EXECUTIVE SUMMARY

The paper provides an analysis of existing and potential co-management arrangements in marine fisheries. After a brief description of the sector, it reviews the existing management approaches, both conventional and traditional, and presents a preliminary assessment. Section 3 describes some co-management arrangements in inland fisheries in the region and examines why the same approach is difficult to set up in marine fisheries. In section 4 the most recent participatory approaches used in West African fisheries, which could serve as a basis for marine resources co-management, are reviewed. Finally, the last section discusses the constraints and perspectives in marine fisheries co-management in West Africa.

In almost all countries in the region, marine fisheries resources are classified as state property, but in practice access is often left unregulated, although rules and regulations exist and the resource is held in open access. In this context, the main approaches and measures in force in the region are: direct regulation of the exploitation rate, indirect control of fishing effort, regulation of catches by quotas, and seasonal closure of fisheries.

Despite the efforts deployed in the preparation and adoption of these approaches and measures, they remain mostly unenforced or at best badly enforced. There is an absence of planned management, especially of issues related to the regulation of fishing effort. Moreover, the dominant principle of open access to artisanal fisheries resources, as well as subsidised fishing equipment and fuel, soft loans, and other incentive policies implemented by many countries of the region have resulted in a very quick increase in fishing effort.

Some results have been produced in the management of inland fisheries bodies by the users. Local structures have been set up around lagoons and rivers. These are now involved in joint government and users management initiatives, which are now referred to as the co-management approach. This approach mixes the top-down and bottom-up approaches in the development of fishing communities. It has so far given positive results in the management of some inland fisheries bodies.

Similar initiatives are now being developed in the marine artisanal fisheries sub-sector. The resource users are being encouraged by public authorities to take up the responsibility of managing stocks, fishing effort, and infrastructure. The activities and structures being utilized show that some fishing communities and fisherfolk organizations are now ready to effectively participate in the management of the resources they exploit.

The fisherfolk organizations involved in the consolidation of the participation of users in co-management need incentives, especially the means and authority to apply and enforce enacted rules and regulations. It has been proved that these incentives can be provided from fishing agreement compensations and state or bilateral material assistance. The incentives will restore confidence between the state and the fisherfolk, who had always considered fisheries resources as common property. The open access encourages migrant fishermen who are found all over the region. This group should therefore be involved in the management to deal with whole fishing communities rather than only nationals who are a weak minority in some countries in the region. Their involvement will give them a sense of belonging which will encourage them to conserve the resources for sustainable use.

Sustainable use of the resources requires current scientific information which can be an effective tool to defend the sometimes drastic management measures. This gives researchers a key role in co-management, especially in the more complex marine artisanal fisheries. The current approach in the empowerment of fisherfolk in handling their own development will give them confidence that will make them release reliable information on the sector, which can help researchers and policy makers design and implement coherent co-management plans.

The experiences have shown that the users of the artisanal fisheries resources often have the will and sometimes the structures to take up co-management responsibility to conserve the reducing or depleting resources. However, to strengthen their resolve and their awareness of the issues involved, such as fishing effort and population pressure, they need training, technical assistance, more sensitization, and better organization. These elements will make their empowerment more meaningful and will also facilitate their role in the implementation of the FAO Code of Conduct on Responsible Fisheries, which is the challenge ahead.

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## INTRODUCTION

Until recently, the fisheries sector in West Africa was characterized by abundant or seemingly adequate fishery resources with moderate population pressure. The situation is now changing (and very fast for that matter) and one would soon face the triple constraints of reduced or depleting fish stocks, degrading environment and increasing population pressure.

This scenario calls for a continuation of the integrated and participatory approach promoted by the Programme for Integrated Development of Artisanal Fisheries in West Africa (IDAF) which remains relevant to the development of artisanal fisheries in the region. The strategy places emphasis on the elements and mechanisms that favour sustainable fisheries: responsible fishing, fishing communities empowerment, strengthening of human and institutional capacities, and monitoring and consolidation of achievements.

During the 8th IDAF Liaison Officers Meeting held in Point Noire, Congo, in November 1994, several countries expressed concern with the need to restrict fishing pressure on their limited resources, a particularly difficult problem in artisanal fisheries. It was then accepted that the participation of local users in resources management could be one way of approaching the goal.

In this context, the IDAF Programme organized, in conjunction with its 9th Liaison Officers Meeting, a regional Workshop on "Participatory and Traditional Management Practices in Artisanal Fisheries of West Africa" in Conakry, Guinea, from 13 to 15 November 1995. At this occasion reports of case studies in mainly inland and lagoon fisheries in seven countries of the region, and a conceptual framework for further research, were presented and discussed. The workshop recommended that IDAF collaborates with the International Centre for Living Aquatic Resources Management (ICLARM) in Philippines and the Institute for Fisheries Management (IFM) in Denmark to organize a regional training workshop on the concepts of participative fisheries management (co-management), to assist partners in the region to catalogue experiences of participatory approaches and traditional fishery management practices, and to evaluate the impact of on-going experiences in the Tchouvi fishing community in Benin and Aby Lagoon in Cote d'Ivoire.

This paper provides an analysis of existing and potential co-management arrangements in marine fisheries. After a brief description of the sector, it reviews the existing management approaches, both conventional and traditional, and presents a preliminary assessment. Section 3 describes some co-management arrangements in inland fisheries in the region and examines why the same approach is difficult to set up in marine fisheries. In section 4 the most recent participatory approaches used in West African fisheries, which could serve as a basis for marine resources co-management, are reviewed. Finally, the last section discusses the constraints and perspectives in marine fisheries co-management in West Africa.

### **1 Characteristics of marine fisheries resources**

With about 10.000 km of coast and an Exclusive Economic Zone (EEZ) of 3.6 million km<sup>2</sup>, the 20 countries covered by the Programme for Integrated Development of Artisanal Fisheries (IDAF) in West Africa, i. e. from Mauritania to Angola, represent 30% of the whole African continent.

## 1.1 Fisheries potential

Data related to the exploitable potential or Maximum Sustainable Yield (MSY) need to be updated. The estimates presently available amount to 3.2 million tons (t) a year for the whole region. This MSY includes pelagic and demersal resources in a proportion of 73% and 24% respectively. The remaining 3% is for shellfish and cephalopods. This MSY has a great disparity in the geographical distribution. The zone from Mauritania to Sierra Leone has 60% and Angolan waters 11%. As a result only 920,000 t (29% of the total MSY) are shared among the other 12 countries of the region. Countries with the most significant potential are Mauritania (635,000 t), Senegal (383,000 t), Angola (365,000 t), Ghana (291,000 t), Guinea Bissau (245,000 t) and Gabon (176,000 t).

## 1.2 Level of exploitation

Catches of the fleets of the region's countries reached 1,250,000 t. in 1994. They are divided as follows: 962,500 t (77%) for the artisanal fleet and 287,500 t (23%) for the industrial fleet. Catches of the fleets of coastal countries have been growing steadily and doubled between 1970 and 1994. Now the catches registered by the IDAF countries are higher than those of the non-coastal countries (1,000,000 t). Ghana and Senegal combined represent 54% of marine artisanal fishery landings in the region.

The major part of the catches consists of small pelagics (58%): principally sardines, sardinellas, bonga and anchovies. Demersal species represent 20% of the catches, tuna 11%, cephalopods 8% and shellfish 2%.

The low-value small pelagics, which in the past have supported intense fishing effort from both artisanal and industrial fleets, are now moderately exploited after the departure of most of the ex-USSR fleets, whose catches were 85% small pelagics. Catches of these vessels reduced in the region from 1,688,000 t in 1990 to 394,000 t in 1994 (77% decrease). This situation may, however, be temporary as some modern European companies, which continue to benefit from subsidies, started fishing for small pelagics in the framework of the fishing agreement between EU and some coastal countries.

On the other hand, the high-value demersal fisheries are heavily exploited or over-exploited. Fully exploited or over-exploited resources in the region are octopus and demersal fish in the shelf area of Mauritania; coastal demersal resources in Senegal, The Gambia, Guinea, and countries of the Gulf of Guinea; lobster in Cape Verde and Mauritania; and shrimp in Mauritania and the Gulf of Guinea. Therefore, real risk of overexploitation of demersal stocks is foreseeable if some measures of management and conservation of resources are not rapidly implemented.

## 1.3 Means of production

In 1995, there were 557,000 full-time marine artisanal fishermen. Besides these professionals, there are many part-time fishermen who are also engaged in agriculture and other on-shore activities.

Migration within countries and into foreign countries is an essential characteristic of the marine fisheries of the region. For example, in Gabon, Togolese, Beninese and Nigerians (the largest group) represent about 90% of the marine fishermen. In Togo, migrant fishermen represent

65%, and in Benin 55%, mainly Ghanaians. In Cameroon, they represent 80%, mostly Nigerians. In The Gambia, 73% of the fishermen are foreigners, mostly Senegalese. These migrant fishermen are also present in Guinea Bissau where 25% of the fishermen are foreigners. In Congo, there is a community of 500 Popo fishermen from Benin who settled there in the early 1960s. They represent one third of the country's marine fishermen. On the other hand, migrant fishermen are generally not present in insular countries (Cape Verde, Sao Tome and Principe, Equatorial Guinea) and in countries where strong migrating tradition exists: Senegal, Ghana and Nigeria.

There are about 135,000 artisanal fishing boats. These are canoes traditionally built from huge tree trunks. There are dugout canoes sometimes improved with planks on the sides, such as the Senegalese planked canoes that use purse seine gear, measure between 14 and 20 metres, and have a loading capacity of 20 tons. Many countries of the region still use either dugout canoes (Equatorial Guinea, Sao Tome and Principe, Congo) or planked canoes (Guinea, Sierra Leone) of more modest dimensions adapted to less intensive fishing. The Ghanaian type canoes used in many countries are always dugout canoes that can measure up to 14 metres in length. They use heavy and sophisticated fishing gears such as purse seines or large mesh nets.

The average rate of motorization is growing steadily and is estimated at 30%. However, the disparities are important: Mauritania 90%, Senegal 67%, Sierra Leone 16% Ghana 49%, Nigeria 21%. Outboard engine horse power is essentially 8, 15, and 25. The majority use petrol. Fishing gears are similar from one country to the other: gillnets, handlines, longlines, purse seines, beach seines or even cast nets used on small dugout canoes.

#### 1.4 Fish consumption

The annual consumption of fish products in the region was estimated at 9.8 kg *per capita* in 1993. This consumption has decreased compared to that of the early 80s when it reached 15 kg. This is due to the population growth (average of 3%/year) and a fall of imports caused by the economic crisis. In 1993 the trade balance of fish products had a deficit of 600,000 t.

Fish trade on the domestic market is largely conducted by women. The number of persons working in artisanal fish processing and marketing in the region is estimated at 1.8 million.

## **2 Marine fisheries management**

Knowledge of the stocks is variable and, mostly, the respective role of fisheries and of environmental fluctuations on the abundance of stocks are not well understood. Data collection in many countries is inadequate and the rate of updating the assessments of the state of exploitation of principal stocks is low. Moreover, fisheries in the region are very diverse and each would require a particular management approach. For example, the management of the octopus fishery in Mauritania will be different from that of the anchovy fishery in Ghana, from the sardinella fishery in Senegal, from the rich demersal fishery in Angola, and from the bonga fishery in Sierra Leone. Even within the artisanal fisheries in the respective countries there is diversity in species targeted and gears used (passive and active) by the fishermen, whose activities can also vary with base, status, origin, etc.

## 2.1 Present management approaches

In almost all countries in the region, marine fisheries resources are classified as state property, but in practice access is often left unregulated, although rules and regulations exist and the resource is held in open access.

In this context, the main approaches and measures in force in the region are: direct regulation of the exploitation rate, indirect control of fishing effort, regulation of catches by quotas, and seasonal closure of fisheries.

### 2.1.1 *Regulation of exploitation rate*

The region's countries have established an approach to the direct regulation of fishing effort through a licensing system for industrial vessels. It is foreseen in the laws of several countries (such as Senegal, The Gambia, Mauritania, and Guinea) that the acceptable volume of licences is determined by fishery in a fisheries management plan. However, in practice, only Guinea has actually prepared such a plan in the last three years.

In some countries, the system is extended to artisanal fisheries as permit delivery. However, the collected fees are always symbolic in artisanal fisheries.

### 2.1.2 *Indirect control of fishing effort*

The delimitation of reserved fishing zones (zoning) is one of the most common measures used in the region. Narrow reserves of 2-4 nautical miles are recorded for exclusive use of artisanal fishermen in Cameroon, Nigeria, Benin, Gabon, and Togo, and wide ones of 5-8 in Congo, Sierra Leone, Guinea, The Gambia, and Senegal. These zones, which seem to vary according to the size of the continental shelf area, protect the coastal area, including spawning grounds, and intend to separate the activities of artisanal and industrial fisheries operators.

The regulation of the mesh size of artisanal and industrial fishing gear is also commonly found in legislation. Many countries have also adopted minimum commercial sizes for certain species. This measure concerns, according to the countries, cephalopods, crustaceans, oysters, sardinella, horse mackerel, mackerel and tuna.

The use of explosives and toxic substances is prohibited by all countries.

It is not common to prohibit fishing techniques in artisanal fisheries. An exception has, however, been observed in the ban on beach seine use in The Gambia.

### 2.1.3 *Regulation of catches by quotas*

The approach to fisheries management through a quota system is applied in the foreign coastal pelagic fisheries of Mauritania, Senegal, and Guinea-Bissau. Various mechanisms have replaced this system because of the difficulties of control over allowed quotas or to maximize revenues derived from such arrangements.

#### 2.1.4 *Seasonal closure of fisheries*

The approach of management by closed fishing seasons (biological rest) was recently adopted for the demersal fisheries in Mauritania. This is mainly intended to protect the cephalopd fishery. Seasonal fishing bans have been recorded for oysters in Guinea, lobsters in Cape Verde, and marine turtles in Guinea-Bissau.

#### 2.1.5 *Traditional measures*

Social and religious reasons have been used to deter fishermen from fishing on certain days. The days are usually chosen according to the dominant village religion. In Sierra Leone, Sunday is a no fishing day in Goderich (a major coastal sardinella landing site near the capital, Freetown with a dominant Christian population) and Friday observed in Yeliboya, Konakridee, and Mahera (northern coastal Bonga landing sites with dominant Moslem population). In these areas breakers of these bye-laws are punished with compulsory down time or denied landing rights by the Chiefs. These measures are beginning to weaken in the more urban settlement of Goderich, where social control is weaker.

### 2.2 Towards integrated coastal management

Interactions between the fisheries take many forms (biological, technological, spatial, socio-economic) in countries where artisanal fishing is effectively developed. These are often conflicting because of:

- difficulties of access to a resource that is under increasing fishing pressure;
- absence or poor implementation of management measures concerning the allocation of resources, space and seasons for operating fleets and/or gears.

Management of marine coastal area is further complicated by the conflicts between various users. These conflicts arise between users competing for tourism industry, oil exploration, urban expansion, industrial development, etc. Another concern is the rapid degradation of the marine environment, in particular by erosion and pollution. This situation justifies the new approach of Integrated Coastal Fisheries Management (ICFM), which is an essential component of the larger Integrated Coastal Zone Management (ICZM).

### 2.3 Assessment

Despite the efforts deployed in the preparation and adoption of these approaches and measures, they remain mostly unenforced or at best badly enforced. The reasons are related to the characteristic of the fisheries.

There is an absence of planned management, especially of issues related to the regulation of fishing effort. Certain measures have been taken unilaterally on shared stocks without any consultation, which result to failures in enforcement. These are among those having registered the least success with effective application, and there is consensus that the major challenge in marine fisheries management is the regulation or limitation of fishing effort.

In artisanal fisheries the control of mesh sizes is practically non-existent. On one hand because of the enormous means required, and on the other hand because of the socio-cultural specificity of this environment. In addition most fishermen make their own nets.

The dominant principle of open access to artisanal fisheries resources, as well as subsidised fishing equipment and fuel, soft loans, and other incentive policies implemented by many countries of the region have resulted in a very quick increase in fishing effort.

In some countries, the artisanal fishery sector benefits from a policy of fiscal advantages. This applies usually to the fuel for outboard engines, and to imported engines and fishing nets. These measures generally consist of a total or partial duty waiver and are in force in Senegal, Côte d'Ivoire, Mauritania, Gabon, The Gambia and Ghana.

However, the use of these fiscal instruments is often questioned by international financing bodies within the framework of Structural Adjustment Programmes (SAP). Their removal automatically provokes a rise in investment and operation costs difficult to pass on to the consumers integrally. After Nigeria in 1993, it was in the Gambia, Togo and Ghana that fuel subsidy stopped in 1994. However, it resumed in the latter in 1996.

In many countries, no subsidy or tax exemption policy is applied. This is the case of Angola, Benin, Cape Verde, Congo, Guinea, Guinea Bissau, Equatorial Guinea, Sao Tome and Principe, and Zaïre.

Because of the characteristics of the fisheries resources, in particular the migratory pattern of some of them and the fact that many stocks are shared between various countries, the regional collaboration is promoted since 30 years (see Box 1). This collaboration still needs to be reinforced.

Very few of the countries of the region have fisheries management plans. Control of fisheries development is nevertheless necessary in the framework of a participatory fishery planning policy, notably for a better adequacy of investments and available fisheries resources.

#### **Box 1. Regional and sub-regional fisheries bodies in West Africa**

Many regional structures specific to the fishery sector have been set up. Apart from CEECAF, they are all recent and do not often have the financial and human means necessary to carry out their duty

- The Fishery Committee for the Eastern Central Atlantic Region (CEECAF) was created in 1967 in accordance with the FAO Constitutive Act and in application of an FAO Council resolution. It includes the coastal countries from Morocco to Zaïre and 10 non African countries operating in the region. The Committee is empowered to give its views to governments of member States to help them define the scientific basis of measures aimed at ensuring the conservation and improvement of marine resources in the area under its authority. [..]
- The Sub-Regional Commission for Fisheries (SRFC) composed of Cape Verde, The Gambia, Guinea, Guinea Bissau, Mauritania and Senegal, was created in 1985 and constitutes a basis for cooperation in the field of fisheries management and development for those countries characterized by a geographical and biological interdependence on fish stocks. It allows, eventually, the elaboration of joint policies and favours cooperation in the field of access to fishing areas between member States. [..]
- The Ministerial Conference on Fishery Cooperation among African States bordering on the Atlantic Ocean whose first meeting took place in Rabat in April 1989 is composed of the states from Morocco to Namibia. On this occasion, the States of the region expressed their common will to

reinforce and develop their cooperation in the fields of resource evaluation and preservation, and in fish production. For that purpose, they insisted on the development of marine scientific research and the reinforcement of professional and technical training [ . ]

- The Regional Fisheries Committee for the Gulf of Guinea (COREP) was created in 1984 by Congo, Gabon, Equatorial Guinea, Sao Tome and Principe and Zaire. This Committee aims at coordinating, harmonizing, and developing the exploitation of the common stocks that are in the Exclusive Economic Zone (EEZ) of member States and managing them. Up to now Equatorial Guinea has not ratified the Convention, which reduces the Committee to four countries. The secretariat is in Libreville, Gabon. For various reasons, the Committee is not yet really functional.
- The International Commission for the Conservation of Atlantic Tunas (ICCAT) was created in 1966. It is composed of 22 members of which 9 are from West Africa. The species the Commission deals with include tunas and related species. Considering that these species are highly migratory, ICCAT is essentially interested in deep sea fisheries.

Mention should be made also of the Lagos Treaty of 28 May 1975 creating the Economic Community of West African States (ECOWAS). This treaty aims at establishing a progressive integration among the signatory countries and the free movement of persons and goods.

(B. Horemans, 1996)

### 3 Management of inland fisheries

Traditional management practices, the strategies of which are similar to contemporary systems, existed (and remnants still exist) in many West African fisheries. Most of the traditional practices were inadvertent strategies, but there were also intentional strategies. Inadvertent strategies with potential consequences on management include water tenure, food taboos, superstition or ritual prohibitions on fishing certain areas, and attitudes averse to fish and fishing. The intentional strategies were gear restrictions, off-days, and habitat modification.

In the traditional systems, elders, fishers and other user groups collectively select who should have the authority or more rightly stewardship to formulate and enforce rules and guidelines for the exploitation of the fisheries resources adjacent to or within their locality for the welfare of all concerned. Everyone was expected to adhere to the rules and guidelines. Such practices seemed to have worked well mostly because of strong group coherence, emphasis on social obligations, consensus based decision making, high degree of social conformity and social sanctions within the group. The supplanting of these traditional systems and the undermining of community level institutional arrangements can be attributed to the need for institutional restructuring, the rise of the nation state and the so-called technological modernization that has swept through the region over the last 40 years.

In the riverine regions of the main water ways of southern Benin, fishing is subjected to many unwritten laws administered by a structured fishery administrative hierarchy. In the southwest, this body, considered as the "Head of the Water", is composed of leading fetishists and headed by the "Zounon" - a traditional chief with strong fetish charisma. The structure in the south is not as strong, but, like in the southwest, every fisherman respects the customary rules and the elders enforce them. These rules protect and conserve the resources and the environment. They became efficient because the authority of the leaders comes through the water divinities, who are recognized and adored by all.

The efficiency of these traditional rules was progressively weakened by colonial order that stripped the traditional chiefs of their political power. The rights to coerce subjects were gradually lost. The fishermen then began to break the bye-laws because of the judicial vacuum created by the weakened social order. By 1963 the supervision of the inland fisheries was entrusted to a Directorate of Fisheries. This Directorate, realising the over-exploitation of certain fisheries resources and the difficulties in controlling the fishermen, decided to involve the fishermen in the management of the resources through fisheries committees. These committees are composed of representatives of the users of the respective resources.

A similar traditional approach through gods is applied in the fishing grounds of the River Senegal. Here it is believed that the land and water are owned by gods that live on them and, therefore, cannot be owned by human beings. So each area of the valley has its own water spirits represented by the "Dialtabe", a traditional leader who enjoys the respect of the fishermen on all matters connected with water. Their rules, among other things, forbid the use of destructive fishing methods and gears and the disorderly siting of landing points on the river.

The first attempt by the government to regulate the inland fisheries of the River Senegal was the enactment of a law in August 1955 to regulate fishing in the lower Senegal river area. In 1963 a law was enacted to regulate the whole inland fisheries of Senegal. This law created fishing zones and fisheries advisory bodies. These bodies are composed of heads of riverine villages and representatives of fishermen who are deliberately selected to outnumber the village heads by 25%. These bodies are responsible for checking that fishermen conform with fishing gear standards for the area, for ensuring that fishermen do not tamper with nursery grounds, and for preventing and settling conflicts. Their role has now been weakened by a lack of dynamism that is a result of the poor organization of the fishermen and problems of financing.

The Aby Lagoon fisheries of the Cote d'Ivoire for a long time experienced disciplined customary management. The controls, however, became weakened with colonialism. By 1980 there was a rapid modernisation of fishing gears and a new generation of fishermen emerged. Collective village fishing was replaced by individual ownership and operations for maximum profit. Foreigners also entered the lagoon fishery. The conditions then undermined the authority of the local leaders who were progressively disregarded by the more liberal new actors. Fishing effort therefore increased and the local authority lost control. Control was then transferred to government.

Government also lost control in 1982 when the first signs of overexploitation appeared. The fishermen appealed to the public authorities for help to manage the fisheries. Fishing with large nets was eventually closed for six months, fishing licences were introduced, mesh sizes for collective gears were increased, and beach seine lengths were reduced. When catches increased, the measures were no longer enforced. The catches dropped again in 1987. By 1990 the situation deteriorated to conflict between the youth and foreign fishermen, accused of being responsible for the overexploitation. The foreigners were barred from the lagoon.

Unsatisfactory success of the measures to the fishermen and the public authorities invoked the participatory or co-management approach. The reasons for this approach, the conditions, and the role of the players were discussed and agreed at a seminar held in 1995. The action plan is now being gradually implemented around the Aby, Tendo, and Ehy lagoons.

#### 4 Participatory approaches in marine fisheries development and management

There seems to be more traditional fisheries management in inland fisheries than in the coastal areas. However, there is a move towards increasing co-management not only in inland fisheries but also in marine fisheries.

Although there are considerable opportunities in the conventional approaches to fisheries development and management, alternate techniques also merit examination. One such alternate technique is the active involvement of fishers and other actors of the sector. Participatory Rapid Appraisal (PRA) Methods have opened new avenues to involve users in the diagnosis, planning, execution and evaluation of their activities. This technique has been used successfully in the search and execution of management strategies for local fisheries infrastructures. However, due to decades long confiscation of local control by national governments and the built-in distrust between government officials and the fisherfolk, the latter's participation in the management of the resource has not received much attention. The attitude is now changing because there is a need to respond to resource over-exploitation and conflicts, which can be addressed through user participation in fisheries management. The high interest of the users for increased participation offers a very good opportunity in marine fisheries development and management.

##### 4.1 Infrastructure management

A new concept of infrastructure management by the users has taken root in the region since 1992. It is the Gambian experience of autonomous management of coastal fisheries infrastructures, known as Community Fisheries Centres (CFCs) (see Box 2). Seven coastal CFCs have been constructed in The Gambia between 1983 and 1993. Between 1983 and 1988 the first centre was managed by the Department of Fisheries. A joint management of the Department and a constituted Fisheries Centre Management Committee (FCMC) of representatives of Users Groups (fishermen, fishmongers, processors, boat-builders, etc.) was tried from 1988 to 1992.

In 1992, after the construction of six centres, the government decided to devolve management authority to the strengthened FCMCs, which included resource persons from the Department as facilitators and liaison channels. The village head, "Alkalo", is the *de facto* chairman of the FCMC, and he nominates representatives of Village Development Councils (VDCs), where they exist, to the Committee. The seventh centre was built in 1993. Each of these CFCs is now entirely managed by a FCMC. The FCMCs collect revenue, draw up annual workplans, allocate budgets, execute development programmes, and manage their own bank accounts. Their management skills have been improved by training workshops and discussion sessions organized for them by the Department with technical assistance from IDAF.

In fusing the PRA techniques and the workshop strategies, the fisherfolk set up frames for sharing experiences through a network of leaders of the seven FCMCs. They set their own agenda and meet once a month in different centres on a rotational basis. This network has now gained *de facto* recognition and the leaders address common issues and problems, and lobby for the collective welfare of their general membership in all the centres. It is now believed that such a structure can serve a very useful purpose in any type of co-management that would be introduced for the management of resources adjacent to these centres.

Unlike in The Gambia, the Village Development Board set up in Tombo, Sierra Leone to work with an artisanal fisheries project was formed five years after the project began. Even then it only received orders from the project staff. Their participation in the development of their fisheries was

encouraged in the 11th year of the project. Despite the late involvement, the leaders got trained and the community was sensitized on their role in participatory development through workshops and information campaigns. The Board has now been transformed into the Tombo Village Development Association, which is ready to participate in any future artisanal fisheries project. This structure can also serve as a pilot co-management structure in Sierra Leone.

A nucleus for participatory development and management of fisheries resources in Ghana is being developed at Yeji, a town on the mid South-West part of the Volta lake in the Brong Ahafo region. Here a Community Fisheries Centre is being built to provide several infrastructure facilities to the fisherfolk. They were involved in the planning of the Centre, and would be responsible, at least as a majority, for the management of the complex.

The other experiences in infrastructure management in the region are found in Guinea (at Kaback and Kamsar) and in Gabon (Owendo, where a privately run centre has been entrusted to representatives of the fisherfolk operating around the Centre).

### **Box 2. Management of onshore fisheries infrastructures in The Gambia**

[...] The implementation of the Community Fisheries Centre (CFC) concept and the integrated approach to the development of artisanal fisheries has materialized in the construction of seven coastal fisheries infrastructures (CFC) in the Gambia between 1983 and 1993. The centres are good examples of community involvement in development

The physical and organisational structures of the centres have evolved piecemeal within the context of the milieu, with no dogmatic prescriptions, no grandiose slogans or plans. Each centre is managed by a Committee: "The Fisheries Centre Management Committee" (FCMC), constituted by elected representatives of local homogeneous trade and/or activity related associations (Users Groups) and resource persons drawn from the Fisheries Department and, when necessary, invitees serving as facilitators. [...]

The FCMCs are moving towards autonomous management of their local fisheries infrastructures. The empowering of fisherfolk is being facilitated by organization and strengthening of Users Groups, the involvement of fisherfolk in community activities, the decentralization of influence, and increased access to resources. [...]

During the last three years, the process has been further accelerated through a self-problem-solving training approach, which involves diagnosis, reflective evaluation and prioritizing abstraction using Participatory Rapid Appraisal (PRA) methods and tools. A series of management skills improvement workshops for FCMC members in particular and for many fisherfolk at fishing community level have been organized by the Department of Fisheries with assistance from IDAF. [...]

By blending PRA techniques and workshops strategies, the fisherfolk were motivated to explore their own resources and to set up frames for experience learning and networking of leaders of the seven FCMCs.

The organisational structures are still young and need support as they endeavour to detach themselves from or reduce considerably their dependence on external assistance and pursue their maturing process towards autonomy. [...]

Autonomous management of CFCs in the Gambia has not yet been formally institutionalized but there is *de facto* recognition. [...]

(B. Satia in IDAF Newsletter N°26)

## 4.2 Participatory development planning

Facilitating participatory decision-making to respond to a community's socio-cultural and economic environment shifts participatory planning towards greater empowerment. Empowerment encourages the beneficiaries of development plans to set their own objectives and action plans. In promoting this process in the region, the IDAF Programme, in 1995, was involved in the preparation of an action plan for fisheries and aquaculture development in Togo (see Box 3). The work was executed by a multidisciplinary team of national and international experts with a very active participation of the various stakeholders of the fisheries sector. On completion of the provisional document, the action plan was reviewed by representatives of the beneficiaries at a national workshop. At the end of this workshop a consensus was reached on the best development policy for the fisheries sector.

In July, 1995 the Programme participated in a national seminar in Cote d'Ivoire on managing the Aby-Tendo-Ehy lagoon for present and future generations. Over 100 representatives of the users of this lagoon actively participated in the discussions on management measures and a plan of action to implement the measures. The result of this seminar and the follow up actions now being implemented shows the level of willingness and dedication created by the direct involvement of the resource users in the lagoon management and development planning. The authorities of the lagoon project that initiated this consultation shared their experience with a similar project at Aguégues in Benin. That project also organized a national seminar in January 1997 on the strategies and mechanisms for sustainable fishing in the water bodies of the area. The participation of the users in this seminar was overwhelming. Another indication of their readiness to be involved in their own development.

National fisheries development plans have been prepared in Cameroon (1991) and Guinea (1996) through some involvement of the direct users of fisheries resources. This positive trend is spreading rapidly in the region. For example, a national seminar is planned for April 1997 in Benin to discuss a comprehensive fisheries management plan and draw up action plans.

To prepare the fisheries extension agents and other rural workers involved in fisheries for facilitating participatory planning and decision-making, the IDAF Programme has conducted PRA training courses in Senegal, Cape Verde, Guinea, Sao Tome and Principe, and Zaire. More are planned in 1997 for Cameroon, Gabon, and Angola. These courses usually involve the fisherfolk because at least one fishing community is selected for practical application of the PRA tools. The trained officials will now provide assistance to the respective stakeholders to identify and use suitable PRA techniques for rural research and project planning.

### Box 3. Participatory fisheries development and management planning in Togo

Assisted by FAO and the IDAF Programme, the Government of Togo in 1995 elaborated an Action Plan for fisheries and aquaculture.

The project was executed by a multidisciplinary team of national and international experts with particular emphasis on the active participation of the sector's stakeholders. Areas covered include: fishery planning and management, fishing and fish technology, marketing and distribution, statistics, aquaculture, institution and legal issues.

In helping to formulate and execute the project, the IDAF Programme's philosophy and approach were guided by several tenets, among them:

- \* sustainability cannot occur without strategies that maintain and enhance natural and human resources,
- \* open dialogue and partnership in problem diagnosis are critical ingredients to sustaining local involvement,
- \* local knowledge and experiences are important for sustaining commitment and ensuring that resource technologies being promoted are consistent with local needs,
- \* a "learning process approach" will among other things reorient the traditional roles of fisheries staff and highlight the value of stakeholders participation as an essential element in achieving successful development.

The project organized study tours and training programmes for representatives of stakeholders and for national experts of the project team. A collaborative mode of operation was adopted in executing activities and several sessions of group discussions and brainstorming were organized for the multidisciplinary team and with the various stakeholders. Major funding agencies and NGOs were sensitized to the problems and opportunities in the sector. The details of the proposed Action Plan were reviewed in a national Workshop attended by 82 participants who reached consensus on the most appropriate development policy for the sector.

The Department of Fisheries is ready to provide technical assistance in the implementation of the recommendations. Some stakeholders are prepared to make voluntary contributions for the realisation of some activities. However, the total financial requirement for implementation of the Action Plan is beyond the resources of the Department of Fisheries and the local people concerned. Development in the sector now depends on Government's ability to provide top-down support for initiatives by making the appropriate budgetary allocations and/or rallying external assistance, and bottom-up pressure by stakeholders through the mobilisation of local resources. In both directions, the Department of Fisheries has a key role to play in (IDAF Newsletter N°28).

#### 4.3 Monitoring and surveillance<sup>1</sup>

The sequential, multi-specific, multi-gear, and multi-fleet marine fisheries of Senegal are very complex. Artisanal and industrial fleets exploit up to 60 species of fish. The situation of different vessels and gears catching the same species invoked laws and regulations. Among these

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<sup>1</sup> This section, as well as sections 4.4 and 4.5, are largely based on a report prepared by Dr. M. Kébé from CRODT, Senegal, for the present paper.

is the prominent law that delineates reserved inshore fishing zone for artisanal canoes. Despite the laws and regulations to protect the artisanal fishermen, the trawlers continue to enter the reserved zone and cause mostly irreparable damage to artisanal fishing equipment and loss of human lives.

Conflicts also occur within the same zone and among the same artisanal fishermen all along the coastline. The cause is mainly operational difficulty between passive and active gear operators.

To enforce compliance with the fishing laws and regulations by the operators within Senegalese waters the Fisheries Protection and Surveillance Project (PSPS) was initiated in 1981 with Canadian government funding (see Box 4).

The system established has three components: administrative, scientific and operational. The Oceanographic Research Centre of Dakar-Thiaroye (CRODT) ensures the scientific monitoring by making an inventory of resources and designing fishery management plans. The operational component is supported by the Marine and Air Force equipped with high sea patrol boats, coastal monitoring buildings and one marine patrol aircraft.

In 1991, coastal monitoring intensified with the establishment on the coast of six monitoring centres. Before effectively setting up these centres, PSPS organised information and sensitization sessions for the presidents of Economic Interest Groups (GIEs) of artisanal fishermen living in the areas concerned.

The centres are equipped with radars and radios. PSPS management has a powerful radio station which enables it to maintain permanent coordination. It communicates twice a week with the monitoring structures of the other countries of the Sub-Regional Commission for Fisheries (Cape Verde, Gambia, Guinea Bissau, Guinea and Mauritania). These various means help to efficiently control the coastal zone reserved for fishing and to reduce the risks of accidents and destruction of equipment resulting from boat incursions.

The coastal monitoring component of PSPS is planned in three phases. The first would consist of working closely with artisanal fishermen who would provide a motorized boat for transportation to the place where the radar detects the illegal presence of industrial fishing boats. They would accompany PSPS and local fisheries service agents to sea to see the facts for themselves. Purchase of fast coastal patrol boats is planned for the second phase. The delimitation of the six nautical miles should occur during the last phase. It should be noted that, contrary to forecasts, the first phase is not finished yet.

At least a dozen violations by industrial fishing units, that can be harmful to the conservation of fisheries resources in Senegal, have been reported to PSPS. Among them are: Nonconformity to the legal net mesh size, fishing in prohibited zones, non-boarding of observers, transshipment at sea without authorization, non-possession of fishing licence on board. In five to six years, 180 boats have been arrested and more than US\$ 6 million fine paid.

Results of fishing community involvement in coastal monitoring are mitigated. Mostly, the intervention of artisanal fishermen is limited to the supply of boats and a crew if need be. This involvement might even disappear with the beginning of the second phase of the coastal monitoring component during which PSPS will be equipped with speedy coastal patrol boats.

Involvement of fishing communities in coastal monitoring is particularly important in the monitoring and surveillance programme. That will put up the small local population that is scattered

in geographically remote villages against violators, whose activities have become more frequent and often cause serious accidents. Many trawlers would come and fish regularly near the coast with all their lights out and destroy everything on their way. The population has been mobilized to fight against this calamity, but they failed because of lack of appropriate means. Fishermen massively joined the monitoring centre when it was established. Thus, they were very often in front of the radar screen to monitor the position of fishing boats. Consequently, they are involved in the different decision-making processes related to interventions at sea. It seems that this has greatly contributed to reducing incursions in zones reserved for artisanal fishing.

#### **Box 4. Why participation of fishing communities in MCS in Senegal?**

Fisheries in Senegal are very complex and present four main characteristics: they are sequential, multispecific, multigears and multifleets. Artisanal and industrial fleets exploit about sixty species of diverse age groups, biological and catching characteristics. Thus, ten different gears can catch the same species

Despite the fishery management laws and regulations in Senegal, trawlers make many incursions in the zone reserved to canoes, and thus provoke important destructions of fishing equipment and human losses.

Also, conflicts result from the competition between artisanal fishermen in their intervention zone (Kébé and Ndiaye, 1993). These conflicts that are spreading to the whole of the Senegalese coastline, arise from the difficult cohabitation between passive fishing gears (bottom and surface gillnets, shrimp nets, cases) and active gears (beach seines, purse seines, encircling nets, shrimp filtering nets, castnets, limes, long lines) and fishermen's different perception of the access to fishery resources

The example of Kayar village, one of the most important landing sites of artisanal fisheries, is a good case in point. Fishing is practised mainly during the dry season (from December to May), principally by two communities: the natives and fishermen from Saint-Louis or Guet-Ndar who migrate to Kayar only for the dry season. The two communities of fishermen have had difficulties living together for several decades (since 1953 at least as accounted for by various documents). The situation reached its peak in 1986 with the breaking up of a deadly conflict. Analysis of the problem revealed that the conflict was not exclusively due to the use of fixed nets by fishermen from Saint Louis, though it is true that this fact is undoubtedly, among other factors, one at the origin of the breaking up and perpetuation of hostilities (CRODT, 1986). It appeared clearly that the respective positions of the two fisherfolk communities can be explained by two different conceptions of the access to sea and its resources

Fishermen from Kayar who are mostly fisher-farmers only exploit the fishing zone of their village in a seasonal way. However, they consider this zone as their sole property since they project their "landowner" conception of homeland appropriation onto the marine sector. For these co-dominant fishermen, preserving the local fishery resource is an essential condition to maintain fishing activities for future generations. Moreover, they want to be by themselves in Kayar.

On the other hand, fishermen from Saint-Louis are the only fishermen in Senegal who live only on fishing. For these exclusive fishermen, migration is an important component of their way of life. Therefore, they consider free access to fishing zones as an inalienable right and a vital condition for survival of their traditions and way of organising socioeconomic aspects of life.

It is to guarantee compliance with the Fishing Law by the different operators of waters within the jurisdiction of Senegal and therefore prevent conflicts that the Fisheries Protection and Surveillance Project in Senegal (PSPS) was initiated in 1981 with the assistance of Canada (M. Kébé, 1997)

#### 4.4 Control of fishing effort

The Franc CFA devaluation of 1994 had different consequences for different economic operators. The general belief was that export oriented producers, such as fishermen landing high valued demersals, will increase their earnings because of the higher local value of the foreign currency revenue of the exporters. This opportunity was, unfortunately, hijacked by the fishmongers to decrease the price of the highly demanded demersals; groupers, grunts, seabreams, etc. As a result, the price of, for example, a 12kg crate of seabreams decreased from 4,000 FCFA<sup>1</sup> to 1,800 FCFA.

The angry fishermen at Yoff and Kayar landing sites went on strike to protest against the unscrupulous fishmongers. These strikes forced the Kayar local committee of the National Committee of Artisanal Fishermen of Senegal (CNPS) to set up a commission to control the quality and selling price of the products for export.

The commission comprises about fifty fishermen from Saint-Louis and Kayar. Discussions with Dakar firm-owners at the beginning of operations enabled them take a series of measures aimed at better organising the marketing of the Kayar landed products.

The selling price of high value species is fixed by the commission. This guarantees more regularity and a better utilization of the catch landed. So a 12 kg crate of seabreams can no longer be sold to fishmongers for less than 6,500 FCFA.

In return, the commission commits itself to selling only good quality fish. It is under this condition that fishmongers have accepted to pay the proposed price. This limitation applies to seabreams and dentex. The fishing period of these species coincided with the setting up of the commission that did not take a decision concerning the other species (scorpion fish, soles and groupers) the sales of which remain uncontrolled. In case fishmongers disagree with the prices proposed by the commission, fishermen charter vehicles to sell the catch directly in the central fish market in Dakar or somewhere else.

Every transaction concerning seabreams and dentex has to be carried out through the commission. The consequences are as follows:

- ▶ it is possible to avoid abuses noticed in the past. For instance, a fishmonger arrives in Kayar with an order of 200 crates but says that he/she needs only 20 crates. He/She waits for prices to decrease following a fall in the demand and then purchases the remainder from women to whom the fish was sold owing to the dullness of sales;
- ▶ on the other hand, this measure penalizes fishermen's wives who, according to this regulation, cannot buy the fish cheaper than the price fixed by the commission and therefore, cannot expect to make any profit on eventual transactions;
- ▶ moreover, with the rigidity of the price fixed by the commission, fishmongers *a priori* can no longer continue to finance fishermen as they used to have preferential prices.

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<sup>1</sup> US\$ 1 = 570 FCFA (April 1997)

Another constraint imposed by the commission is the limit imposed on the quantities landed, which represents a real resource management policy. Thus, the catch per trip for each active line fishing unit in Kayar is limited to two crates of seabreams, which is 24 kg. In the past, fishermen could bring back more than 14 crates and the surplus was sold on the local market. From now on, it should be possible to better utilize the catches and to also avoid over-production.

To make sure the rules it has enacted are being complied with, the commission has placed three persons every forty metres on the beach to control the quantity landed and the quality of the fish supplied.

To ensure a good follow-up of this new situation and to solve the problems encountered, the commission meets every evening to analyse the market situation and take necessary measures. The meetings are held at Kayar Fishery Management and Development Centre. It should be noted that the sanctions applied include a fine of 30,000FCFA and the grounding of the canoe.

#### 4.5 Participation in international fishing agreement negotiations

Until recently, artisanal fishermen were not involved in the negotiations of the fishing agreements that Senegal signed with both African and industrialised countries. For a long time the logic underlying the dominant speeches pushed artisanal fisheries compared to industrial fisheries into the background. The former was limited only to its effects as it was considered as "old fashioned", job creating, supplier of the local market; the latter as superior, contributing to the balance of trade.

Also, the fishing agreements represent four major stakes:

- ▶ the creation and development of national fleets result in competition with fleets operating in waters within the jurisdiction of Senegal over well targeted species;
- ▶ the target fish for artisanal fisheries is becoming scarce because boats are overfishing the resources, especially demersals;
- ▶ artisanal fisheries in Senegal is dynamic and this resulted, during these past years, in an increase in the fishing effort for some fishermen (making canoes larger and adapting ice containers for longer fishing trips on ice canoes);
- ▶ foreign boats cause significant damage to fishing communities: fatal accidents of artisanal fishermen following collisions with boats during their incursions into the area reserved for canoes, destruction of fishing gears.

With the creation in 1987 of the CNPS, which benefits from the material and technical assistance of a Senegalese NGO called Research Centre for the Development of Fishery Intermediary Technologies (CREDETIP), fishermen are becoming a real pressure group. Now they defend their rights before the local authorities in charge of fisheries development. So they took advantage of the seminar organised in Dakar in 1991 by the International Collective in Support of Fishworker (ICSF) and CREDETIP to give their point of view on the ways of ensuring the survival of artisanal fisheries in Senegal, and the grassroots development of fisherfolk communities. They had recommended to be involved, just like their colleagues in the

Industrial Shipowners Association, in negotiations concerning fishing agreements, to defend their interests. They claim extension in the zone reserved for artisanal fisheries from 6 to 12 nautical miles, compensation for families in case of accidents, installation of equipment which ease the detection of canoes on board European boats, and sharing of the control of fishing zones between fishing communities and national coastal guards.

It was in 1994 that artisanal fishermen became involved for the first time in the negotiations of international fishing agreements. They were able to participate in the different meetings organised for the last fishing agreement between Senegal and the European Union which covers 1994 to 1996. The CNPS is not satisfied with the agreement though some of its requirements have effectively been taken into account, notably the reduction in the European fishing effort.

The participation of CNPS in the EEC-ACP parity Assembly held in Dakar in 1995 gave fishermen the opportunity to express their concerns about the negative impact of the transfer of European boats to developing countries and the marginalisation of artisanal fisheries despite its importance in the economic and social development of Senegal. The European Parliament voted in September 1995 for a resolution on "Fair Fisheries Agreements" in which it encourages artisanal fisherfolk's involvement in fishing agreement negotiations. Its Fishery Commission invited CNPS to Brussels in February 1996 to express its views about the fishing agreement between Senegal and the European Union. CNPS is also supported by the "Coalition for Fair Fisheries Agreements" which comprises more than 15 NGOs of European origin.

The artisanal fishermen members of CNPS feel that Senegal can only take advantage of these international fishing agreements if the following conditions are fulfilled:

- ▶ authorising access of foreign boats to waters within the jurisdiction of Senegal based on the state of stocks;
- ▶ extending to 12 nautical miles the area reserved for artisanal fisheries;
- ▶ making a regular inventory of the activity of industrial fishing boats;
- ▶ setting up a joint Commission between the state and CNPS for conflict settling and safety at sea;
- ▶ using the financial compensations to develop the sector, to exploit fishery resources in a more rational way for the benefit of the Senegalese population.

As for the Senegal-EU fishing agreement being negotiated in 1997, artisanal fishermen have again been involved. However, they regret that they do not have the texts regulating this type of agreement.

## **5 Perspectives and constraints for marine fisheries co-management in West Africa**

### **5.1 Constraints**

Four main elements have to be considered which differentiate inland and marine fisheries. First, marine resources are often shared between various countries, which means that any management effort can be jeopardized without similar efforts in the other countries. This is even more obvious for highly migrant species like tuna. Second, some fisheries are sequential. Therefore, different operators fish the same species at different stage of maturity, which is a

source of potential conflicts. This is a common issue between estuarine and coastal shrimp fisheries operators. Third, the migrant pattern that characterizes several fishing communities in West Africa may sometimes weaken their feeling of responsibility as far as the sustainability of the resource is concerned. Four, there is an increasing concentration of fishing units in urban areas where they can benefit from services and good outlets, but where the concept of land tenure has generally been eroded.

The fishermen's migration needs to be carefully addressed because it seems that the strength of this social organization can play a role in the limitation of fishing effort like it is observed for the Beninese fishermen in Pointe-Noire, Congo (see Box 5). On the other hand there is no control where these fishermen come from Senegal, Ghana, and Nigeria. It may be related to the level of integration of these communities in the host country and their feeling of security.

The following points also merit attention:

- boundaries are more ill-defined in marine fisheries than in inland fisheries;
- there are many more users in marine fisheries (artisanal, industrial, nationals, foreigners, many fishing techniques, active and passive gear, etc.);
- there is less control over inputs and outputs in marine fisheries.

It is also difficult to find in marine zones an equivalent of the concept of "Customary Marine Tenure" used in some inland fisheries. This is due to the physical shape of the West African coast that is very straight. Exceptions could be the archipelago area in Guinea Bissau and the estuary of some rivers (Gambia, Casamance, Niger, Volta). Another form of "marine tenure" could be associated with Fish Aggregating Devices (FADs) in Cape Verde and Sao Tome and Principe.

In Customary Marine Tenure there is a need for territorial divisions of coastal space, applicable customary laws, and clearly defined ownership or at least control on water. Unfortunately, these conditions are weakened by open access.

The best illustration of open access in marine waters of West Africa is the activities of the migrant fishermen, who have no restriction of movement. Senegalese are found in Mauritania, Gambia, Guinea, Guinea Bissau; Ghanaians in Gambia, Sierra Leone, Liberia, Togo, Benin, Côte d'Ivoire; and the Nigerians in Cameroon, Gabon, and Equatorial Guinea. Migration is, however, almost inexistent in insular countries (Cape Verde, Sao Tome and Principe), and in the southern countries, Zaire and Angola. These migrants may pay some fees or rely on local suppliers for inputs and sell to local fish buyers, but the level of effort they increase, measured in fishing units, is not controlled.

Some negatively influential cultural changes are:

- lower respect towards elders
- less influence of religion and beliefs
- disintegration of the social community in urban centres

Another problem in marine fisheries management is the difficulty of finding alternate employment in coastal settlements. On the contrary, it is often easier to develop small-scale agriculture, animal husbandry, horticulture, and other income generating activities around inland water settlements.

### **Box 5: Organization of the Beninese migrant fishermen in Pointe-Noire, Congo**

A detailed study of 500 Benin fishermen who have operated in the pelagic fishery of Pointe Noire in Congo for the last 30 years (Jul-Larsen 1993), demonstrates that the numbers of both fishermen and of their big canoes have remained stable during the last 10 to 15 years. For several reasons, the Beninese have managed to take the dominant position away from the Ghanaian fishermen of the same origin and from the same villages as those already established only manage to settle with great difficulty, and in small numbers. The study shows that the main reason behind the demographic stability is a very efficient and well-organized internal political institution among the foreign fishermen. They all heavily depend on this institution, which regulates their stay and all important transactions related to their work. It is the Association of Benin Fishermen that supervises credit relations, which arbitrates in economic conflicts, which regulates contracts of labour. The association also ensures their stay in Congo, by assisting in obtaining residence permits for the members from the Congolese authorities. The association may even be involved in importing important fishing equipment when required. This special type of fishery is relatively capital-intensive, and impossible to enter unless one is accepted as a member of the association. Thus it may be said that the association to some extent controls the demographic development of its own community. Other foreigners are not let in, and the local Congolese fishermen are not organized enough to enter the same fishery. Similar organizations to the one in Pointe Noire are observed among most migrant groups of fishermen along the West African coast (Odotei 1989, 1991), and there are good reasons to assume that recruitment to these particular types of migrant fisheries in the different foreign epicentres is strongly controlled by the fishermen themselves. Thus, even in a situation where open access seems to reign, the internal regulation of recruitment to the fisheries function as an important management model. (E. Hviding and E. Jul-Larsen, 1995)

## 5.2 Opportunities

Effective fisheries management is complex, but it can be eased by directly involving the fishing community. The opportunity is being created by the new policies in the region on creating and strengthening fisherfolk organizations. Members of the new and old organizations are benefiting from skills and management training programmes. Their strengthening also includes sensitization on sustainable resource use. These programmes are forums that can be used to create more awareness on the heavy and over-exploitation of the respective fisheries resources.

Many of these organizations are getting better organized and more receptive to the fisheries administrations' new trend of devolution of responsibility to manage and develop artisanal fisheries. Their empowerment in countries like The Gambia, Guinea, Senegal, Gabon, Cote d'Ivoire, and Ghana will give them the confidence to better participate in the design and implementation of fisheries management measures.

Once they take control or begin to show signs of willingness to be directly involved in the management and development of the resources, as in the countries mentioned above, appropriate training programmes can be easily drawn up to improve their individual and collective skills, literacy, and numeracy levels. However, some resource users already have education levels that are adequate to effectively understand the more scientific explanation of management issues. This was demonstrated in the national seminar organized for Aby Lagoon in the Cote d'Ivoire, where the justification for the drastic measures was based on scientific research information. This seminar also utilized the increasingly recognized local knowledge and experience of the users of artisanal fisheries resources.

### 5.3 Strategies

Fisheries administrators and resource users have special interest in removing fisheries from the open access arena. Besides the desirability of removing inefficiencies generated within the sector, there is another strong concern. If the fisheries sector remains open access, it may be difficult to persuade other agencies and resource users to restrict their activities, since any incremental benefits will be dissipated in the same way as resource rent.

Fisheries are not the only open access resource in the coastal area. Often access remains free and open to key resources, such as coastal forest, mangroves and the inshore zone (used to dump waste). As a result, other users of the coastal area may have a significant negative effect, not only on the fisheries sector, but also on, for example, habitat destruction, aquatic pollution, and other valuable functions of the ecosystem.

These features mean that ICZM requires a mix of regulatory and economic methods to allocate resources. The measures to limit access to fisheries resources are direct and indirect. Any strategy should combine some of them.

Management has to be approached as a political rather than an administrative process. Many issues will be considered, e. g. employment, food supply, traditional rights, cultural values, and income fluctuations and distribution. This process needs to be participatory to achieve legitimacy. It needs also to balance interests and to provide a mechanism to reach decisions fairly, if consensus cannot be reached. Policy instruments that may be used in this process include awareness creation, local participation, targeting of benefits, training and education.

## 6 **Conclusion**

The artisanal fisheries sector in West Africa is now threatened by reduced or depleting fish stocks, degrading environment, and an increasing population pressure. One of the solutions to these threats is the organization and sensitization of the users of the fisheries resources to participate in their management.

Some results have been produced in the management of inland fisheries bodies by the users. Local structures have been set up around lagoons and rivers. These are now involved in joint government and users management initiatives, which are now referred to as the co-management approach. This approach mixes the top-down and bottom-up approaches in the development of fishing communities. It has so far given positive results in the management of some inland fisheries bodies.

Similar initiatives are now being developed in the marine artisanal fisheries sub-sector. The resource users are being encouraged by public authorities to take up the responsibility of managing stocks, fishing effort, and infrastructure. The activities and structures being utilized show that some fishing communities and fisherfolk organizations are now ready to effectively participate in the management of the resources they exploit.

The fisherfolk organizations involved in the consolidation of the participation of users in co-management need incentives, especially the means and authority to apply and enforce enacted rules and regulations. It has been proved that these incentives can be provided from fishing

agreement compensations and state or bilateral material assistance. The incentives will restore confidence between the state and the fisherfolk, who had always considered fisheries resources as common property. The open access encourages migrant fishermen who are found all over the region. This group should therefore be involved in the management to deal with whole fishing communities rather than only nationals who are a weak minority in some countries in the region. Their involvement will give them a sense of belonging which will encourage them to conserve the resources for sustainable use.

Sustainable use of the resources requires current scientific information which can be an effective tool to defend the sometimes drastic management measures. This gives researchers a key role in co-management, especially in the more complex marine artisanal fisheries. The current approach in the empowerment of fisherfolk in handling their own development will give them confidence that will make them release reliable information on the sector, which can help researchers and policy makers design and implement coherent co-management plans.

The experiences have shown that the users of the artisanal fisheries resources often have the will and sometimes the structures to take up co-management responsibility to conserve the reducing or depleting resources. However, to strengthen their resolve and their awareness of the issues involved, such as fishing effort and population pressure, they need training, technical assistance, more sensitization, and better organization. These elements will make their empowerment more meaningful and will also facilitate their role in the implementation of the FAO Code of Conduct on Responsible Fisheries, which is the challenge ahead.

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