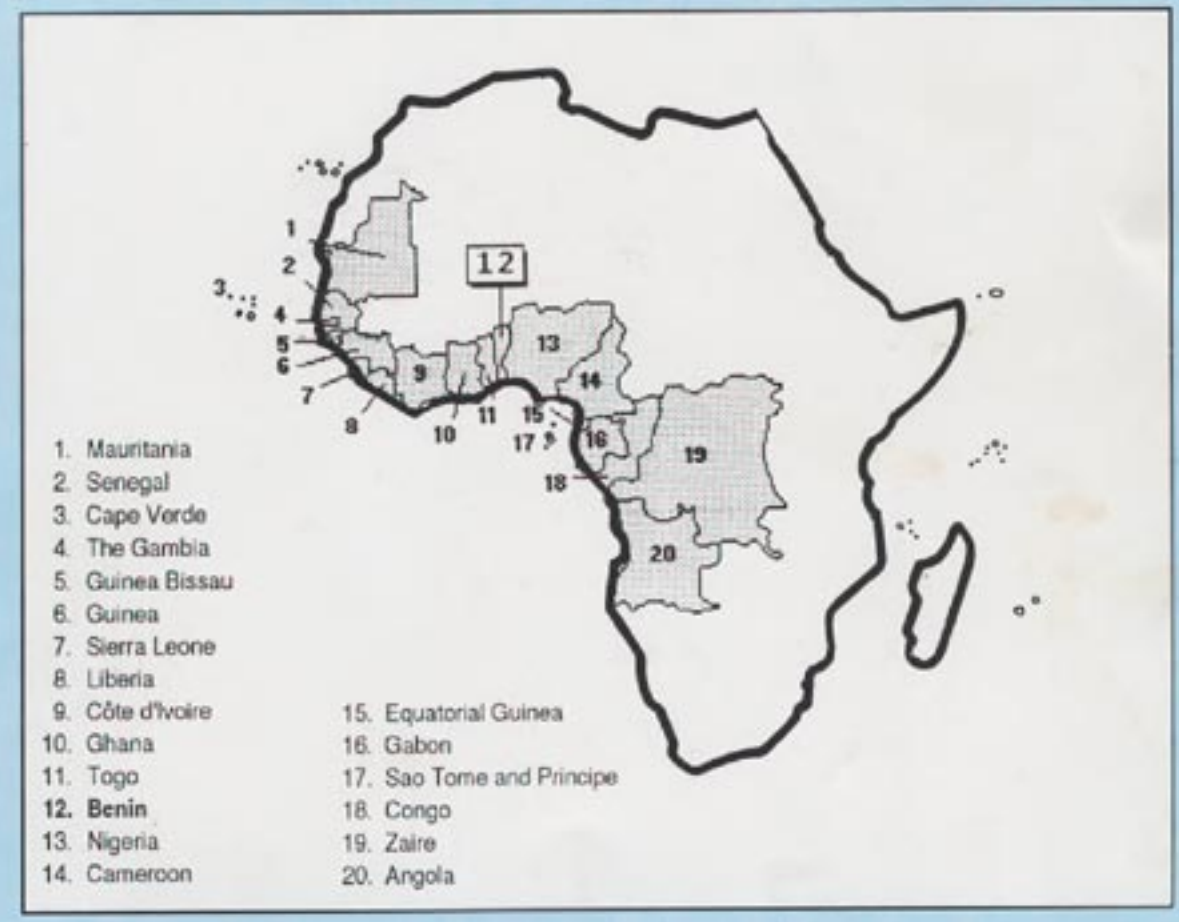
DIPA

IDAF

PROGRAMME FOR INTEGRATED DEVELOPMENT OF ARTISANAL FISHERIES IN WEST AFRICA

IDAF PROGRAMME



DANIDA

DEPARTMENT OF INTERNATIONAL DEVELOPMENT COOPERATION OF DENMARK

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Technical Report N° 57 June 1994

Sustainability of Development and Management Actions in Two Community Fisheries Centres in The Gambia

by

B.P. Satia
IDAF Programme Coordinator

and

L. S. Hansen
APO Monitoring and Evaluation

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Cotonou, June 1994

For bibliographic purposes this document
should be citted as follows:

Satia, B.P., and Hansen, L.S., Sustainability of Development and Management Actions in
1994 Two Community Fisheries Centres in The Gambia. Cotonou, IDAF Project, 48p.,
IDAF/WP/57.

IDAF Project
FAO
P.O. Box 1369
Cotonou, Republic of Benin

Telex: 5291 FOODAGRI Fax: (229) 33.05.19 Tel: (229) 33.09.25

EXECUTIVE SUMMARY

This report summarizes findings on the sustainability of development and management actions in the Gunjur and Tanji Community Fisheries Centres (CFC) in The Gambia. The study was undertaken in March 1994 by a multidisciplinary team, but preliminary work started one year earlier. The principles of Participatory Rapid Appraisal (PRA) and an assortment of tools drawn from PRA were applied in the study to collect information on a number of parameters involved in the sustainable management and development of artisanal fisheries, the evolution of the CFC's and activities undertaken at the centres.

Gunjur and Tanji are two of the seven major coastal artisanal fishing communities in the Gambia. Over the past 15 years, these sites have undergone profound changes through the aegis of the Artisanal Fisheries Development Project (AFDP) with support from the EU. In 1979 when AFDP was being contemplated it was envisaged that economic growth through the promotion of the private sector, the reduction of poverty and the tackling of environmental problems would be key elements in the development initiatives at the various fisheries centres to be established. A number of facilities were therefore provided within the framework of CFC with the clear understanding that these facilities and the CFCs would eventually be operated by the private sector. Initially, management responsibilities of the centres were assumed by the Department of Fisheries.

Gunjur village was the first fishing community to benefit from AFDP assistance in 1980. Interventions in Tanji started much later in 1987. Both centres have facilities for handling, fish processing, equipment maintenance and repairs, storage of equipment and fishing gear, as well as for saving petty cash. There are at least five major user groups in each of the Centres. These are: boat owners, men fish smokers, women fish smokers, fish driers and fish mongers or Banabanas. These user groups and in particular the Men Fish Smokers Associations are examples of informal sector micro-enterprises in fishing communities. Major activities at the centres are fishing, fish smoking, fish drying and vegetable gardening.

In 1988, Fisheries Centre Management Committees (FCMC) were officially created. The management of the CFC was the joint effort of FCMC and the Department of Fisheries. In 1992 the FCMC assumed full autonomy with two designated fisheries assistants serving as facilitators. The FCMC is composed of representatives of all the different user groups and if necessary, resource persons. At FCMC meetings, held at least once a month, incomes and expenditures as well as future development of the centres are discussed.

Artisanal fisheries activities in Gunjur and Tanji CFCs are competitive productive enterprises, as well as crucial sources of relatively cheap animal protein, employment and incomes for both women and men. Both centres are relatively well organized and maintained and the facilities on the whole, fully exploited on rental basis by individuals of centre user groups, and others in the community. However, a few facilities such as the creche, altona ovens and ice-plant in Gunjur as well as the landing jetty in Tanji are reminders of misplaced priorities and investment failures. The CFCs have become bustling poles of attraction for a variety of spin-off activities. Private entrepreneurs operate premix fuel stations and outboard engines mechanic workshops, restaurants and canteens and many petty traders are selling primary and basic

household supplies. The intensity of most activities is so high that operators are seeking opportunities for expansion. A large part of incremental employment has accrued to the local population.

Active beneficiary involvement in the planning and implementation of centre affairs, continuing donor agency support to the centres during the critical start-up period, the acceptance of the Fisheries Department to assume the challenging role of "Development Facilitator" rather than hang on its aprons of "Development Implementator", and the dynamism and foresight of the Centre Management Committees have contributed to the success of the centres.

In many respects the activities at the centres are technically appropriate, socio-culturally compatible, financially and economically viable, socio-politically acceptable and environmentally sound. However, the probable reduction of the natural resource base of fish stocks and fuelwood for smoking fish, and inadequate business management skills at the level of the centre management and individual operators might compromise the sustainability of actions and initiatives at the centres.

Thus, it is essential to know more about the fisheries resource base and its exploitation. An expansion of fishing effort should go hand in hand with both the development of a viable catch assessment system and more accurate understanding of the resource size. Emphasis should equally be placed on developing and managing "Community Forestry" initiatives to redress the potential fuelwood shortages and an enabling environment should also be created for the strengthening of the informal micro-enterprises in these fishing communities. Finally the FCMCs should adopt a conservative and consolidating management strategy, increase the base of active participants particularly women in the decision making process, and also strengthen the user groups by decentralizing responsibilities and budgeting.

ABBREVIATIONS

A.F.D.P.	Artisanal Fisheries Development Project. An EU funded Project in The Gambia
C.E.C.A.F.	Fisheries Committee for the Eastern Central Atlantic.
C.F.C.	Community Fishery Centre
C.I.F.A.	Committee for Inland Fisheries of Africa
DANIDA	Danish International Development Agency.
E.D.F.	European Development Fund.
E.U.	European Union.
E.R.P.	Economic Recovery Programme
FAO	Food and Agriculture Organisation of the United Nations.
F.C.M.C.	Fisheries Centre Management Committee.
F.D.U.	Fishery Development Unit.
G.O.G.	Government of The Gambia.
G.N.P.	Gross National Product
I.B.A.S.	Indigenous Business Advisory Services
IDAF	Integrated Development of Artisanal Fisheries.
I.D.R.C.	International Development Research Centre (of Canada)
I.M.M.	Integrated Marine Management Ltd.
P.S.Y.	Potential Sustainable Yield.
N.G.O.	Non-Governmental Organization.
N.P.E.	National Partnership Enterprises Company
P.R.A.	Participatory Rapid Appraisal.
U.N.D.P.	United Nations Development Programme
V.D.C.	Village Development Council.

DEFINITIONS OF KEY WORDS AND TERMS

Artisanal or Small-scale Fisheries (SSF): generally a labour-intensive fishing sub-sector whose operators use simple and practical technology, work in decentralized coastal areas, experience fluctuating production and low incomes, live in isolated areas usually under difficult conditions and occupy a relatively low social status in many countries. It is composed of private sector entrepreneurs operating at different organisational levels from single person operations, through informal micro-enterprises to formal sector business. It represents a mix of several entrepreneurs in the fish capture, processing and marketing areas and also in ancillary industries such as boat building, engine supply and repairs, ice plants, net manufacturing, fuel and fuelwood supplies and money lending each contributing especially to food self-sufficiency and the creation of numerous jobs for both women and men.

Critical Start-up Phase: that period when beneficiaries or the target group have a feel for what they are able to do but lack the skills and experience to manage the activities and/or initiatives themselves. Unfortunately in many projects this period tends to coincide with the end of technical assistance or project life.

Community Fishery Centre (CFC): as an infrastructure, a CFC refers to a complex of facilities and services tailored to meet local needs. A CFC is made up of a series of modules ranging from the provision of workshops for repair and maintenance of boats, engines and gear, through landing facilities such as jetties and winches to the provision of community services. As a concept, it represents a functional integration strategy involving a mix of the different elements in the production process and the supply of goods and services.

Fisheries Centre Management Committee (FCMC): a management structure that identifies, prioritises and coordinates activities at all levels in a CFC to fit them into an overall strategy or plan of work so that they are complementary and do not work against one another. It is composed of representatives of all different user groups and resources persons if necessary. Also the lynchpin for the mobilisation of human and material resources for community activities. It also liaises between FDU and the community and between them and institutions. In the long run, after project life, the FCMC replaces the FDU.

Fishery Development Unit (FDU): an integrated multidisciplinary team of specialist technicians and general extensionists responsible for providing technical and managerial backstopping for a fisherfolk community.

Integrated Approach: a systematic process of development which takes into account the technical, socio-economic and organizational needs of fishing communities. It involves two prongs. The first deals with the process of transforming fish into a meal on the table, that is fisheries related activities: stock assessment, management, capture, post harvest technology, transport, marketing, consumption. This is termed vertical integration. The other prong deals with the development of the physical production in the context of other needs of the fishing village society. Emphasis is placed on the development of the fishing community and not just the fishing sector. This development prong of the approach is referred to as horizontal integration.

Micro-Enterprises: Small business oriented undertakings in the informal sector owned by individuals or groups

Participatory Approach: the people concerned are actively involved in the decision making process, have a major say in the prioritisation of activities, participate in the implementation and evaluation of programmes, and share the benefits of development programmes. The primary purpose of participation is to encourage community self-determination and thus foster sustainable development.

Sustainability: etymologically, the word sustainable comes from the Latin *sustenere* meaning to hold up or keep elevated. In the context of resources such as fisheries, to sustain would literally mean to maintain or prolong the productive use of resources and the integrity of the resource base. Fishery resources or the activities associated with them do not however exist in isolation. There is interaction between the resource, man and the environment, hence we need to adopt a social-physical-economic paradigm when we talk of sustainability. Extending the concept to include both ecocentric and anthropocentric viewpoints, will while stressing the resource-ecological parameters, emphasize the need to provide all the members of a society both now and in the future with an acceptable standard of living, that is, some sustained increase in the level of society and individual welfare. Hence briefly, sustainability represents the continuance, by the people themselves of development activities after the majority of inputs from outsiders (project, FDU etc.) have ceased.

User Groups: groups of individuals of the same trade or activity within the fishing profession or fishing community: fish processors, boat owners, out-board mechanics etc. and who mutually use their cohesion to promote the cause of their trade.

TABLE OF CONTENTS

1. Introduction

1.1 Conceptual definition of sustainability

The concept of **sustainability** has become an essential issue in development cooperation. The term is found in government policy pronouncements, the professional literature, the popular media and publications of international aid agencies. Although there is near unanimity on its desirability, sustainability and sustainable development have proven especially difficult to define. The concept has become more popular than understood, more fashion than practised, more slogan than a guide for action (UNDP 1992, Brown et al 1988, Clark and Munn 1987).

Definitions of sustainability range from fairly narrow and precise ones to a broader and more nebulous concept. Pezzey (1989) lists more than 27 separate definitions from several sources. The term is used to describe a goal which superficially at least is indisputably desirable but as O'Riodan (1988) has insinuated, "sustainability appears to be accepted as the mediating term designed to bridge the gap between developers and environmentalists, each using the concept to justify their proposed actions"

Etymologically, the word sustainable comes from the Latin *sustenere* meaning to hold up or keep elevated. In the context of resources such as fisheries, to sustain would literally mean to maintain or prolong the productive use of resources and the integrity of the resource base. Fishery resources, or the activities associated with them, do not however exist in isolation. There is interaction between the resource, man and the environment, hence we need to adopt a social-physical-economic paradigm when we talk of sustainability. Extending the concept to include both ecocentric and anthropocentric viewpoints, will while stressing the resource - ecological parameters emphasize the need to provide all the members of a society both now and in the future with an acceptable standard of living, that is, some sustained increase in the level of society and individual welfare.

Sustainability is a dynamic and evolving process hence the introduction of the concept of **sustainable development** which implies the ability to meet the needs of the present, without compromising the ability of future generations (which will be larger) to meet their own needs. FAO (1991) has formulated the following working definition for sustainable development:

> *Sustainable development is the management and conservation of the natural resource base, and the orientation of technological and institutional change to ensure the attainment and continued satisfaction of human needs for present and future generations. Such sustainable development conserves land, water and genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable*

The nature and complexity of the interaction among components of the ecosystem introduces the notion of trade-offs to be associated with development alternatives, while the concept of sustainable development does imply limits - not absolute limits though but limitations imposed by the present state of technology and social organization on environmental resources

and by the ability of the biosphere to absorb the effects of human activities. Furthermore, sustainable development is dynamic and does not require that any particular economic activity continue indefinitely. In fact it will usually require that structural changes occur in an economy and new economic activities replace old ones. This implies as well that for development to be sustainable, an adequate portion of any excess profits collected from current economic activities be reinvested in other productive activities, rather than being consumed. In addition, the sustainability concept should be visionary and every effort has to be made to avoid the creation of "environmental, financial and social debt" in the process of promoting development.

1.2 **Statement of the problem**

Marine artisanal fisheries play very important socio-economic roles in many countries along the West African coast from Mauritania to Angola. However, rising demand for fish as a result of the rapid growth of population, together with the improvement of fishing technology have brought forth increased pressure on renewable but limited fishery resources. Other factors contributing to reduced availability of fishery resources include, uncontrolled practices of fishing and degradation of the aquatic environment.

In addition, many West African countries are under severe stress from Structural Adjustment Programmes and devaluation of national currencies. Many governments are unable to maintain adequately national funded projects or even run and maintain infrastructure at village level. Structural Adjustments have tended to have immediate negative effects on the poor, while most positive effects are uncertain and have long gestation periods. Similarly devaluation of local currencies favours exports and discourages imports. As in many countries artisanal fisheries are mainly suppliers to the domestic markets or to regional markets not dealing in hard currencies, they are disadvantaged because most inputs (fuel and oil, nets, engines etc) to the catching of fish are imported. Devaluation may, however, favour industrial operators who are exporting and if the industrial and artisanal operators target the same species, the possibilities of competition and conflicts between the two sub-sectors may be heightened.

Artisanal fishworkers have been identified as one of the poorest groups in Africa (Jazairy et al 1992). The term poor or more rightly "Poverty" is used here in the broad sense as defined by Jazairy et al (1992). "Poverty is more than material deprivation. It has social and psychological effects which prevent people from realising their potential". Hence it is important to lay emphasis on an empowering process through which the people create a space for themselves and build up material assets to support their own self-reliant development on the basis of resources generated within the society. Fishing communities are also undergoing and will continue to undergo profound changes due to factors inherent and external to the milieu. These factors include population pressure, decreasing rainfall, increasing competition for the fish resource and probably decreasing fish stock due to overfishing and degradation of the environment.

Conservation of fishery resources and enhancement of the contribution to peoples welfare needs to be based on a strategy for action which aims at preventing uncontrolled exploitation of resources and their destruction and degradation. Consequently over the past 15 years, a number of artisanal fisheries projects, many of them with support from external donors, have been undertaken. In the recent past however, the artisanal fisheries sector has received a poor

investment profile with donor agencies and with governments. This profile may indeed be unjustifiable and in any case is detrimental to the needs of one of the poorest groups of people in the IDAF region. If the effects of past interventions are positive, the recipient target groups should sustain development efforts after technical assistance is terminated. Unfortunately this may not be the case in some circumstances. In either case, there is a need to document the situation.

1.3 **Purpose and objective of the study**

IDAF has therefore initiated a series of studies with a view to synthesizing lessons learned on the elements and mechanisms of sustainable development in a number of fishing communities. The studies are concerned with forming a judgement on processes which are qualitative and not results which are quantitative, and to provide simple criteria for understanding the nature of sustainability in small scale fisheries development activities.It is hoped that the results of these studies would improve the viability and sustainability of interventions in the sector concerning the rational exploitation of the resource base and the betterment of the living conditions of present and future generations of fisherfolk, and hopefully provide a more positive profile to the sector.

In this respect these studies will lay emphasis on among other things: the economic viability, technical effectiveness, socio-cultural compatibility and equity, socio-political appropriateness and ecological soundness of activities and initiatives undertaken in these projects. Conventional wisdom is that it is more difficult to say ex-ante what would be a sustainable activity - but it is far easier to show ex-post what was not. Hence the projects chosen will be long term projects and/or projects in which technical assistance is terminated.

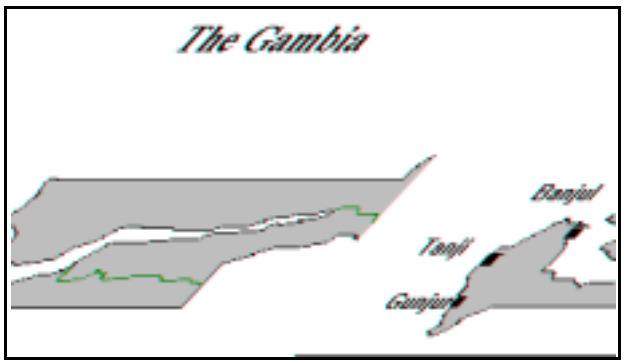
With the above objectives in view, the present report summarizes findings from two Community Fisheries Centres (CFC) Gunjur and Tanji in the Gambia.

2. Background information

2.1 The Gambia in brief

2.1.1 Geographical information

Anglophone Gambia, which attained independence in 1965, is entirely surrounded inland by French speaking Senegal. The River Gambia flows through the country, and the estuarine ecology is found up to 200km inland from the mouth. In figures, The Gambia has a coast line of 48km, a continental shelf of 3855km², a total land area of 10.689km², a population of about 1.0 million with an annual population growth rate of 4.1 percent (GOG, 1993)



2.1.2 Demographic and socio-economic information

The Gambia practices multi-party democracy under republican constitution. Politically the country has been relatively stable since independence in 1965. After independence, The Gambia experienced 10 years of prosperity and the GNP rose almost threefold. However, during the late 70's and early 80's The Gambia experienced deteriorating economic conditions with a low growth rate, high unemployment, rapid increase in consumer prices, uneven distribution of income and deteriorating balance of payment accompanied by increased external debt. In response to this development, an Economic Recovery Programme (ERP) was launched in 1985 which resulted in some improvement in the overall economic performance up to 1989/90. However, the recent economic development is showing a decline.

The annual population growth rate of the last 10 years is 4.1% with a natural population growth rate of 2.9% (GOG, 1993). The last population census was conducted in April 1993 and data processing is on-going. The decreasing rainfall in the Sahel seems to compel migration from upland and surrounding countries to the coastal areas which is less affected by the drought and offers better alternative employment opportunities especially in the Greater Banjul area. For these and other reasons, the population of the Greater Banjul area has doubled in the last 10 years. In 1993 it exceeded 500.000 inhabitants, representing half the total population of The Gambia (GOG, 1993). In general, the urban growth rate is estimated to be 8.0 percent per year as compared to an estimated rural growth of 1.3 percent per year. The level of education is low with only 35 percent of children estimated to complete primary education and an adult literacy rate estimated at 25% only. (UNDP, 1992, b).

The main occupation in the coastal villages is farming. The most important crops are groundnuts, millet, sorghum, maize, vegetable and fruits (Callerholm and Jallow, 1991). Agricultural production is constrained by several factors; among them: decreasing rainfall,

increasing population pressure with its attendant shorter fallow periods, reduced soil fertility, overgrazing and potential land degradation (AGLF, 1993).

The natural forest resources are overexploited due to the increasing demand for fuelwood from Greater Banjul, increased demand for agricultural land and rampant bush fires. In 1972, the forest cover was 333.000ha (31% of total area) but in 1988 only 68000ha (6.5% of total area) remained. This represents a reduction of 80% of the forest cover in 16 years (AGLF 1993). Measures taken by the Government to regulate deforestation include promotion of community forestry and improved control of forest exploitation by issuing of yearly licences at the rate of D1000 per professional wood cutter supplying the urban areas. Furthermore, the beach zone is reserved for the tourist industry which implies strict regulation of construction work and urban development activities. To limit encroachment in these areas, forest reserves have been established along the beaches. Therefore, fishing villages are restricted from developing into towns at the beach side.

The economy of the country is dominated by agriculture, re-export trade, and tourism. Agriculture employs 70-80 percent of the workforce. Agricultural export depends on groundnut production which used to account for 65 percent of the export. The revenue, however, fluctuates with the international commodity market and annual production which is influenced by climatic conditions. The Gambia teeters on the southern edge of the Sahel. Food import amounts to about 40 percent of the total import and has been increasing since 1980. The reexport trade is uncertain due to changes in the economic policy of neighbouring countries. The macroeconomic situation of the country is characterized by a fluctuating GNP US$340 in 1990, as opposed to US$390 in 1992, negative balance of payment and external debt, reaching 2 times the annual GNP with a population growth rate that is higher than the increase in GNP. The Gambia received, in 1990, development assistance amounting to approximately 47 percent of its GNP (UNDP, 1993).

2.1.3 **Fisheries in The Gambia**

Gambia`s continental shelf of 3855Km² is very rich on small pelagics such as sardinellas and mackerels which migrate along the coast of West Africa. Bonga, *Ethmalosa fimbriata* which is a more localized stock is caught mainly by artisanal fishermen. In the coastal waters is also found high value species such as Grouper and Sea Bream. The potential sustainable yield is estimated at 50-60.000MT of small pelagics and 15.000MT for the demersal species. Apparently some pelagic species could be further exploited but the demersal stock is thought to be fully or over-exploited.

Estuarine areas are surrounded by mangroves which provide breeding and nursery grounds for commercial fish species that spend much of their life in coastal marine waters. The mangroves covering an area of about 67,000ha are a source of fuelwood, poles and construction timber. Oysters and other shellfish are partners in the ecosystem. Shrimps are caught mainly in the estuary.

Sea temperatures are 15° to 20°C form November till June, when days are sunny and warm and evenings cool. From July to October the climate is hot and humid, with some rain, and sea temperatures are about 27° C.

The catches from the artisanal fisheries are important as indicated in table 1. The bonga

accounts for 85% of total artisanal catch. From a nutritional point of view the artisanal fisheries are essential as it supplies 95 percent of the local fish consumption (N'jie, 1993 b). Fish consumption in the Gambia was estimated at 20.4kg per caput per year in 1990 which accounted for 46% of the animal protein in a standard human nutrition (Heinbuch & Saydee, unpublished 1993). The artisanal fisheries sector is therefore of vital importance to the food security of the Gambia, as fish is a relatively cheap source of animal protein. The artisanal fisheries sector also provides employment for both men and women, is a stimulus for other rural private activities and generates export earnings. Fish and fisheries products export was 1.060MT in 1992 amounting to a value of D17.6 million.

Table 1. Fish production in The Gambia in MT from 1987 to 1992

	1987	1988	1989	1990	1991	1992
Artisanal	5 139	7 224	10 942	11 573	20 270	14 035
Industrial	22 421	11 864	11 534	26 401	23 175	25 462
Total	27 560	19 088	22 476	37 974	43 445	39 497

Source: (Department of Fisheries, 1994). *The catches up till 1992 seem overestimated.*

The artisanal fleet in 1992 was estimated at 1065 non-motorized and 436 motorized canoes of which 252 were of foreign nationality (Department of Fisheries, 1994). The number of fishing canoes landing in Brufut, one of seven coastal fishing communities in The Gambia, has increased from 108 in 1992 to 175 in 1993 due to civil disturbances in Casamance, Senegal. There is generally intense migration of fishing boats and operators between the Gambia and Senegal.

In 1992, the industrial fishery consisted of 87 licensed trawlers, long liners and purse seiners. Most of the catch is landed in Dakar, Senegal, where better service and processing facilities exist. Industrial fishing is prohibited within a zone 7 nautical miles from the coast. The zone is relatively well respected especially after the introduction of a Monitoring, Control and Surveillance Unit (SMC) in 1990. (N`jie, 1993b)

Aquaculture is not practised to any noticeable extent. Trials were undertaken with oysters in mangrove areas through a project between 1986 and 1991 supported by International Development Research Centre (IDRC) of Canada but no interest was shown to continue the work with private sector funds. From 1984 to 1990 trials were undertaken with shrimp farming, on the initiative of Scandinavian investors. However, it was necessary to use the imported species *Penaeus monodon*, and it was found that salinity and sea temperatures showed too great a fluctuation to allow optimum productivity throughout the year, Thus the high costs involved led to cessation of activity.

2.1.4 **Government initiatives to improve coastal artisanal fisheries**

In the effort to improve the living conditions of fisherfolk, the Government with assistance from EU began in 1979 to implement the first phase of the (Coastal) Artisanal Fisheries Development Project (AFDP). This first phase ran from 1979 - 1985 with EU input of about ECU 1.5 million. AFDP I applied a top-down development approach and emphasis was placed on the construction of Community Fisheries Centres (CFC) at Gunjur, Batokunku and Tujereng. The first phase was followed by AFDP II which ran from 1988 - 1992 with EU support estimated at ECU 3.2, million. During this phase a participatory development approach was adopted. The project's sphere of action was also extended to cover four other coastal villages: Tanji, Brufut, Kartong and Sanyang. (IMM, 1992).

The general objectives of AFDP were:

- to raise the incomes of fishworkers through increased catches,
- to increase the consumption of fish by improving the marketing and distribution of fish,
- to increase rural job opportunities,
- to develop the industrial and artisanal fisheries in an integrated manner,
- to diversity the economy and intensify economic activities in the fisheries sector,
- to improve national socio-economic standards.

A seventh coastal CFC was put into operation in July 1993 at Bakau through a Japanese grant of about US $ 3.5 million.

2.2 **The study sites**

2.2.1 **Description of Tanji and Gunjur fishing communities**

Gunjur and Tanji are two of the seven major coastal artisanal fishing communities of The Gambia. Over the past 15 years, these sites have undergone profound changes through the aegis of the Artisanal Fisheries Development Project (AFDP) with support from the EU (N'jie 1993, Satia 1993)

Gunjur village was the first fishing community to benefit from AFDP assistance. The Centre was handed over to the Fisheries Department early in 1982, and operated under the direction of a fisheries staff member until its Fisheries Centre Management Committee (FCMC) was established in June 1988. After a period of indecision due in great part to lack of direct involvement in implementation, the FCMC began assuming more responsibility for centre management. Fisheries staff was posted to the Centre where he and his assistant serve as facilitators - guiding, monitoring and regulating the activities of the fisheries sector. In 1983, the village had about 7 000 inhabitants as compared to an estimate of 10.000 in 1994. With virtually no infrastructure in 1983, Gunjur has the following infrastructures in 1994: Nursery, primary, secondary, and arabic schools, dispensary, private clinic, pharmacies, youth centre, mosques, petrol station, telephone station and a Community Fisheries Centre located some 3 km away from the village.

Interventions of AFDP in Tanji started much later in 1987. The Centre was completed in early 1990. Like Gunjur the Centre was managed by Fisheries staff members until November 1991 although the FCMC was established in 1988. Since then the FCMC has made significant progress towards management autonomy but as it is still a relatively new institution, two Fisheries staff members serve as facilitators at the Centre. Tanji, in view of the large quantities of bonga produced in the village, is commonly called the Bonga Capital of the Gambia, continuing a tradition that had started in the 1950s. In 1983, the Tanji village had approximately 1.600 inhabitants as compared to an estimate of 2.200 in 1994. The main infrastructures are: Mosque, community fisheries centre, primary school; two pre-mixed fuel station, and premix fuel station. The Tanji CFC is located about 1 km away from the village centre. The historical development of Gunjur and Tanji in the context of AFDP is given in table 2.

In both Gunjur and Tanji, the main ethnic groups are: Mandinka, Wollof, Jola, Serrere and Fula. The Serrere are the traditional fishermen and boat owners. The fisherfolk live in compounds consisting typically of 20-40 persons, usually composed of the head of the family, a couple of brothers with each a couple of wives and several children.

The majority of the fisherfolk live in houses made of mud bricks with locally available roofing materials. However, these are gradually being replaced by cement blocks and corrugated roofs. Potable water by public wells is quite limited. The CFCs, however, have running water supplied by windmills. The villages are not supplied by public electricity.

Health care is provided to the villagers at health centres. The services offered at these centres include basic curative and preventive medicine, mother and child health care, and - in Gunjur, also family planning. Population pressure is very acute and will apparently continue for some years, as a study in indicated that the people in general desired large families, despite the awareness of health implications for the women and the burden for the family budget. School enrolment is rather high (about 95% of school aged children) indicating the importance given to education of both boys and girls (Heinbuch and Saydee 1992, unpublished). This is in contrast to the general picture of The Gambia where school enrolment was estimated at 57 % in 1988 and an adult literacy rate at 25 per cent (UNDP 1992). Usually most of the children attend the regular primary school but at least one of the children in any given moslem family goes to arabic school in order to correctly read the Koran and continue the islamic traditions in the family.

Tradition is highly revered in the Gambian society. The "Alkalo" is the village head and he is normally the descendant of the founder of the village, or more unusually he may be elected by the elders of the village. Traditionally, the Alkalo is the primary contact person for both government and non government agents. He is responsible for the direction and coordination of all village matters in association with a few village elders, appointed at his own discretion. He allocates land to outsiders and acts as the judge in settling disagreements and disputes at the village level. While the powers of the Alkalo are still extensive, this has however been tempered by Government's desire to implement democratic principles in the villages.

Table 2: The historical development of the Gunjur and Tanji CFCs.

Year	Gunjur	Tanji
1979	Project AFDP I approved	
1980	Construction of CFC buildings	
1981		
1982		
1983	The management of CFC by the Fish Marketing Corporation collapsed. The management was resumed by Fisheries Department Construction of Brikama iceplant	
1984	Road connection to Banjul completed	Road connection to Banjul completed
1985	Project AFDP I terminated	
1986		
1987	Project AFDP II approved	Project AFDP II approved A steering committee was created to assist in the project design
1988	Smoke huts constructed FCMC and user groups created.	Creation of user groups and FCMC
1989	CFC management was a joint affair between FCMC and the Department of Fisheries	Construction of the CFC
1990		CFC management was a joint affair between FCMC and the Department of Fisheries
1991		
1992	Project AFDP II Terminated The FCMC became fully responsible for the management of the CFC with administrative support from Fisheries Ass.	Project AFDP II Terminated The FCMC became fully responsible for the management of the CFC with administrative support from Fisheries Ass.
1993		
1994		

In this light, the concept of Village Development Committee (VDC) was implemented on a national scale in order to coordinate and initiate development at village level. VDCs originated from the Government`s five year plan of 1975-80, in which emphasis was placed on the facilitation of popular participation in the planning and implementation of development activities. The concept was rooted in the philosophy of "TESITO" meaning "self help" or "self reliance" through self determination. The TESITO became canonized as the Gambian strategy for development (N'jie, 1993). Nevertheless, village development committees in Tanji and Gunjur are not effective.

2.2.2 **User groups in Gunjur and Tanji Community Fisheries Centres**

Fisherfolk operate in a complex environment in which relationships are relatively strong but open to changes, and the web of relationships between fisherfolk is both cause and effect of that change. The communities are often over-aggregated. Therefore, it is usual to find in addition to a main central coordinating body such as FCMC, discrete common interest groups who mutually use their cohesion to promote their affairs. Known as "Users Groups"

they serve as a basis for economic take-off which tends to enhance the prospects of participation and the sustainability of activities. They also play other vital roles in fishing communities such as: helping in facilitating the decision making process; work in partnership with FCMC and disseminate simple but appropriate techniques and contribute in the empowerment of fisherfolk.

The user groups in Gunjur CFC include: male smokers, fish traders and boat owners, and two women groups (fish driers and smokers). In Tanji there are two associations of male driers and smokers respectively, fish traders and boatowners. There are also four women associations that are not divided along activity lines but by ethnic affinity in which factors such as trust, discipline and solidarity seem to be the guiding principles. The main activities within each women group are fish smoking and drying as well as vegetable gardening. However, not all fisherfolk in Gunjur and Tanji belong to user groups.

2.2.3 **Description of some important user groups**

Gunjur Men Smokers Association (MSA)

The Association started about 16 years ago. It has 36 members who in the past purchased fish in common but processed and sold the final product separately. This practice however was abandoned when a few individuals duped the Association. The Association was strengthened during the life of AFDP.

The entrance fee when the Association was formed was 40kg of smoked bonga. Presently, it amounts to D350 based on the past efforts of the members. The chairman, secretary and three members form the committee. They organise a meeting every month with all its members, during which matters of interest to the Association such as strategies to deal with fish price fluctuations, repair and utilisation of smoke huts, as well as the payment of the rent for the smoking huts and the Association`s Credit Scheme are discussed.

The sale of the smoked bonga, contributed as entrance fee, is put in a loan fund together with regular savings of the members. Loans are given to members for buying fish. Loan duration is 4 months at an interest rate of 33% p.a.. The standing capital of the Association is about D17000. The Association has received training in basic management during which they learned to use a calculator among other things. The Association seems pretty solid and has acquired significant experience in loans to the members. However, the access for new members seems limited due to the high enrolment fee.

Gunjur Women Smokers Association (WSA)

This Association has 52 members. The Association organises the use of the ovens in the two women smoking huts. The Women Smokers Association has an elected president and operates a rotating savings and loans scheme (osusu). The savings and loans schemes cover three main functions: they are sources of initial capital for economic activities, for example they could serve for the purchase of pans or baskets for selling fish; they allow members to make big purchases such as clothing for children or the payment of school fees; and they are a form of social security in the sense that they may be used as emergency fund. The president

invites members to the monthly meetings of the Kafo (self-help association). Unfortunately, few members attend the meetings regularly. The women have received training in fish processing, on business management and attended adult literacy and numeracy programmes.

Gunjur Association of Banabanas

The banabanas are fresh fish traders. They transport the fish on their bicycles from the landing site to the smaller markets. This association has 16 members and exists since 1989. They meet regularly to discuss their problems and prepare the FCMC meetings. They also organise some cultural activities. The banabanas complained that most of the Senegalese fishermen have supply contracts with enterprises and charge higher prices for their fish than when selling to Senegalese buyers.

Tanji Men Smokers Association

This Association was started in the late 1970s but strengthened during the life of AFDP. It has 40 members who hold meetings to discuss issues of common interests. The frequency of the meetings depends on the issues to be discussed. The smokers are the most active group in Tanji. Like in Gunjur, the Tanji men smokers credit scheme is paralysed due to lack of reimbursement.

Tanji Women Associations

The women organised themselves in 1989 with the assistance of AFDP which established smoking and drying facilities which are separately located from the men`s' activities. The project also prepared land available for vegetable growing. The women run their own activities economically independent and apart from their husbands' or male operations. The ethnic break down of the four women associations is given in table 3.

Table 3: Ethnic composition of Tanji women organisations.

Ethnic groupings	Members	Characteristics
Jola	10	Weak, credit scheme collapsed
Jola	29	Strong, credit scheme with D5 weekly contribution to establish a fund
Mandinka	15	Weak
Serrere	32	Strong, credit scheme with D5 weekly contribution to establish a fund

In those associations with a strong credit scheme, the turn over of loaned funds is high. A loan of D600 is repaid by D650 four months later. The reimbursement seems to function well. One of the groups has gradually built a loan fund of over D13000. The Kafo system has enabled the women to build up confidence in each other.

Tanji Fish Mongers Association

This Association was created in November 1991. It is composed of three Senegalese and one Guinean who take fresh fish to nearby markets (by taxi) or sell sole fish to the National Partnership Enterprises Company (NPE) trucks who come to the beach regularly. The lack of ice is their main problem.

Fishermen "Associations" in Gunjur and Tanji

Most fishermen at Gunjur and Tanji are members of "NYODEMA" Fish Producers Marketing Cooperative, which is a national organisation for purchase of fishing equipment. The inadequacy and some irregularities in the supply of fishing inputs has pushed some fishermen to surmise that "NYODEMA" does not work in improving their wellbeing. Some fishermen have therefore stopped paying their dues as they reckon that they do not benefit from the Cooperative. Recently however initiatives have been taken to revitalize "NYODEMA". This not withstanding, the high mobility of fishermen, helps in dispersing their interests on several landing-sites and some fishermen while having a wife in their home fishing village may have a second or third wives on another landing sites. These factors tend to object attendance at meetings which further weakens the Organization. Indeed the fishermen associations in Tanji and Gunjur do not exist in practise. Fishermen purported to represent these Associations in the FCMC are to be regarded more as individuals than representatives for the associations.

3. The methodology of the study

3.1 Approach

The multi-dimensional nature of sustainability implies that the study seeks many different views and angles on the topic. Thus, the study team was multidisciplinary, a mixture of locals and outsiders, males and females in order to provide a good overall understanding of the milieu and mitigate against some biases. The principles of Participatory Rapid Appraisal (PRA) and an assortment of tools drawn from PRA were applied in the study in order to promote the process of fisherfolk participation which is regarded as an important output of the study.

The study was launched by a 2 days identification mission in September 1993 followed up by a 5 days workshop on autonomous management of the 7 coastal CFC in November 1993. The task of the workshop was to identify management constraints, prioritise and come up with strategies to tackle the problems. At the workshop, participants from each of the CFC's elaborated a proposed workplan for 1994. The proposals were discussed and adopted later by each Centre Management Committee in plenary. The information and insight gained during the workshop was used in the preparation of the field study. In addition, the workshop sensitized participants on management issues which were further pursued during the field study.

The 3 weeks field study was initiated in February 1994 by individual semi-structured

interviews of users of the CFC-facilities. The interviews were rather qualitatively oriented with the purpose of achieving understanding by the study team, collect information and sensitize the interviewees. It was surmised that this would prepare the respondents for a more qualified contribution in the User Groups and Fisheries Centre Management Committee (FCMC) meetings at which the findings of the study were interpreted, and strategies for dealing with identified constraints addressed.

Several parameters are involved in the sustainable management and development of artisanal fisheries, but only a few key factors were selected to be enlightened for extrapolation into a global picture as appropriate.

The findings of common interest were also presented and discussed during a two day follow-up workshop for representatives from the 7 coastal CFCs.

3.1.2 **Schematic representation of evolution of activities during the study**

The FCMC, and the following groups: Men and Women Smokers, outboard mechanics and vegetable growers as well as selected fishermen constituted the target group for the study.

The sample size of these User Groups and the activities undertaken during the study are summarized in table 4.

3.1.3 **Limitations of the study**

The multi-dimensional character of sustainability made it clear already in the planning phase that the study could not cover all relevant issues related to sustainability. It was therefore opted to concentrate on economic viability of some CFC activities, the organisation and management of the CFC.

Naturally, decisions had to be taken on which activities were considered important and feasible to analyze on the basis of available information. In this regard, it is regrettable that the influence of the natural resource base on long term sustainability was only superficially analyzed. In the same vein, it was considered that the evaluation and quantification of post-harvest losses (physical and economic) is an extremely time and money consuming affair yielding results which are hardly operational. This aspect of ancillary fisheries activities together with the marketing of fish and fishery products was therefore not covered.

The interviews were conducted in Wollof or Mandinka and the essence and conclusions translated into English. It is possible that some details were left out and nuances introduced during transcription.

Most of the interviewees were from the privileged members of the community - those able to communicate easily the knowledge to the interviewers and bold enough to speak, if not dominate the discussions at meetings. Although, every effort was made to speak with less communicable persons, it is possible that some problems dear to this class of fisherfolk were not properly elucidated. Tied to this is the timidity with which women expressed their opinions at meetings, and although specific sessions were organized for women, the majority of the interviewers were men.

Table 4: Target groups and activities during the study.

Activities during the study	Level/People involved	Tanji Number of involved people	Gunjur Number of involved people	Purpose
Workshop 5 days	7 coastal Fisheries Centre Management Committees	24		Identification, prioritizing of CFC management constraints. Formulation of strategies to deal with prioritized problems. Preparation of CFC workplan 1994. Exchange of experience.
Informal interviews	Petty traders	3	2	To find indicators on the commercial activity in the CFC
	Canteens and shops		4	
Semi-structured interviews (60-90 min.)	Women vegetable gardens	5		to analyze alternative income generating activity for women
	Female fish smokers	5	5	to analyze sustainability aspect of fish smoking and the organization of user groups
	Male fish smokers	5	5	to analyze the experience with service facilities in the CFC
	Fishermen	5	5	
	Mechanic workshop		2	to analyze their need for CFC facilities and their involvement in CFC management
	Fisheries assistants	2	2	To analyses the role of external assistance to the centre management
Meetings approx. 2 hours	Women associations (smokers, driers, gardeners)	20	20	
	Male smokers Association	10	12	To extract the concept of user groups organization. Feed back on findings from the interviews.To sensitize the user groups
	Fishermen Association	7	12	
Meetings approx. 2 hours	Fisheries Centre Management Committee	12	15	To present and discuss major management issues revealed during the study in order to sensitized FCMC and get feed back on findings and interpretations
Follow up workshop 2 days	7 coastal Fisheries Centre Management Committees	23		To present and discuss major management related issues revealed during the study in order to sensitized and get feed back from the FCMC representatives Facilitate exchange of experience between centres and finalization of CFC workplans 1994 To sensitize DOF on CFC management issues

Finally, socio-cultural obligations and norms such as ceremonies, social pressures, taboos etc., and their relationship to the elements of sustainability were not analyzed. However, Cook (1985) has insinuated that the clearest statement of the socio-cultural compatibility of a new technology or initiative is its outright adoption by the intended target group.

Apart from these shortcomings, the care taken in developing, and administering the interviews as well as the various discussions and information workshops for interviewers and FCMC probably helped to maintain a low margin of error.

4. Fishing and major related activities in Gunjur and Tanji

4.1 Fishing

Fishing is done by both sedentary and migrant fishermen, the latter come mainly from Senegal. Gambian fishermen with bigger boats also migrate to Senegal and Guinea Bissau. Therefore, the figures concerning boat and fishing gear inventory may change depending on the migratory nature of the fishermen.

There are two major fishing seasons - the high (July-February) and the lean season (March - June). While fishing in Tanji is based predominantly on Bonga with an average annual production of over 4.500MT, Gunjur has a more diversified fishery with an annual production of about 500MT of white fish plus over 3.500MT of bonga (Table 5, Figure 1). The white fish is value wise more important than bonga.

Table 5: Annual fish production in the Gambia and Gunjur and Tanji landing sites in 1992.

English name	Latin name	Annual production in MT in 1992			
		The Gambia		Tanji	Gunjur
		Artisanal sector	Industrial sector		
Shad (Bonga)	Ethmalosa fimbriala	12 018		4 845	3 865
Others		2 017	25 462	53	501
Total		14 035	25 462	4 898	4 366

(Source, Department of Fisheries, 1994)

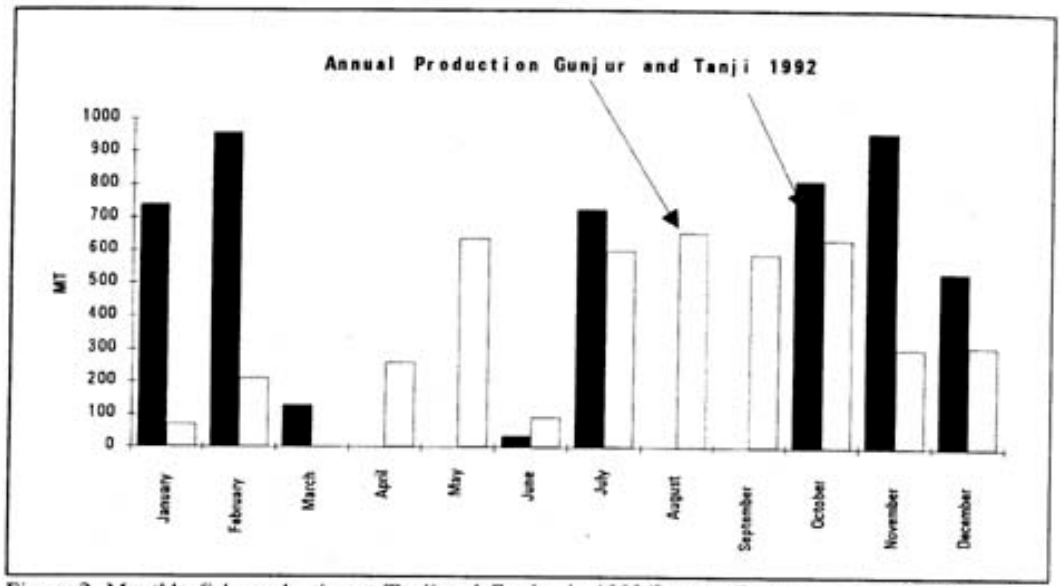


Figure 2. Monthly fish production at Tanji and Gunjur in 1992(Source: Department of Fisheries, 1994)

With the exception of a few small canoes that fish principally inshore, the artisanal fleet in both Gunjur and Tanji is highly motorized (Gunjur 110 motorized, 2 not motorized, Tanji 120 motorized and 6 not motorized). Fishermen have access to subsidized premixed fuel.

Delivery of subsidized premixed fuel has been privatized and privately operated fuel stations exist in both centres. The premixed fuel is only delivered to the fisherman who presents a valid identification card issued by the Department of Fisheries. The amount of fuel allocated is influenced by the horse power of the out board motor. For the most commonly used out board motors, the daily quantities are as follows: 40hp 60 litres, 25Hp 40 l, 15Hp 35 l and 8Hp 30 l. Since March 1994 premixed fuel has increased from D 7,00 to D 8,00 per litre. The fuel supply system seems to work well, although complaints of inadequate fuel allocation and shortages at fuel stations are not uncommon. Recently the 7 coastal centres have agreed that fishermen might obtain supplies at any fuel station when presenting a valid id-card and a voucher issued by the fisheries assistant, stating that the home base is out of subsidized premixed fuel..

Several types of gears are used. The surrounding gill net is mostly used for fishing bonga including by-catches of mackerel, catfish and bobo croakers. The drift gill net is mainly for fishing barracuda, catfish and jacks. The hook and line and bottom gill net are used for demersal high value species such as sole and lobster. Some boat owners have specialized in trading by-catch such as snails from trawlers.

The fishermen's activities are organized in terms of family based (fishing) enterprises. Each family based enterprise consists of groups of kin who combine and coordinate their economic effort. Boats owned by the same family enterprise tend to operate as autonomous units of production while fishing, even though they might cooperate in the domain of resource pooling. However, this social grouping whose primary purpose is economic should not be confused with the family units.

Financing of fishing inputs is a perennial problem for the fishermen. Although government has provided some support, fishermen for the most part rely on non-government sources to finance their investment and daily operating expenses. For many of the fishermen this has meant seeking financing from processors. This type of financing ties the fishermen to processors - and creates a syndrome of dependency, which takes form in a polarizing process in the community, in which the processors tend to get richer and the fishermen poorer. This dependency relationship shows very little sign of weakening.

4.2 **Other major related activities**

Both Gunjur and Tanji CFCs have facilities for handling, fish processing, equipment maintenance and repairs and storage of equipment and materials as well as for saving petty cash. At first sight, these centres are functioning well and booming with activities. They are relatively well organized and maintained. Indeed, the facilities are on the whole fully exploited (Tables 6 and 7). However, a few facilities such as the creche, altona ovens and ice-plant in Gunjur as well as the landing jetty in Tanji are reminders of misplaced priorities and investment failures.

4.2.1 **Fish smoking by men**

Fish smoking activities are very well developed in The Gambia especially along the Atlantic coast. Gunjur and Tanji are large scale fish smoking villages. There are 20 huts in Gunjur and 15 in Tanji each hut holding 4 improved chokor smoking ovens 7,68m long, 1.0m high and 1.50m wide with a metal grill top. Each oven has 12 fuelwood openings of 45cm wide. The oven walls are made of burnt brick or mud blocks. The introduction of the improved chorkor ovens has been successful because of its high fuelwood consumption efficiency, relatively low investments and high quality products. Fuelwood consumption of traditional ovens is $0.5m^3$/ton compared to $0.35m^3$/ton for improved chorkor ovens (Jallow 1992).

The main species smoked is bonga both for local consumption, which is mainly a female smokers activity, and for exports to the sub-region and inland towns and villages which is the men smokers speciality. The final product for export markets has to be fairly dry, reduced to about 30 percent of its initial fresh weight, to assure a longs shelf life. Other species smoked are the marine catfishes, sharks, skates and rays.

The associations of smokers is broken down on the basis of gender: Males and female smokers. Male smokers are in essence running micro-enterprises in which each smoker recruits 5 - 10 employees, and produce 10 - 40 boxes (500-2000kg) of bonga a week, mainly for inland markets and exports particularly to Guinea. They specialise therefore in 4 - 5 fires dry smoking of bonga, but it is not uncommon to smoke at 3 fires and then sun dry.

A variety of fuelwood types of different density, burning and smoke production rates (table 8) are used. Of these fuelwood types, *Pterocapus erinaceus* is the most dense species but also the most rare because of its high demand in domestic cooking. *Daniellia Olliveri* is the least dense and the type with the highest burning rates, while the rest are in between the above mentioned (Jallow, 1992). *Rhizophora spp* a fuelwood that is extensively used in other countries for the impressive colour it imparts to smoke fish product is little used in the Gambia especially by male smokers.

Table 6: Inventory of Gunjur CFC (April 1994)

Facilities	Beneficiaries	Day to day management	Rent	Utilisation rate	Observations
Creche	Mothers/ children			Not in use	The building has been constructed but not in use due to lack of funding for inventory and operation
4 Offices	Fish Ass. FCMC	Fisheries Ass.			Function to satisfaction
Roofed veranda	Fish mongers Fishermen mending net	Fisheries Ass.	D 30 daily Free	used one or twice a week Little	The dried fish traders pack and load the fish at he veranda.
6 Cleaning tables	Banabanas	Fisheries Ass.	D 1 daily	well used	The fresh water supply is not functioning, but is highly prioritized by FCMC to repair it.
400 Fish boxes	Banabanas	Fisheries Ass.	D 0.50 daily		The administration of the boxes is too time consuming. Therefore, it is proposed to sell the majority of the boxes to users and only retain a few for the CFC
31 sun drying racks	Women driers	Fisheries Ass.	D 15 monthly	100 %	Function to satisfaction
Non CFC drying racks	male/ women driers	Private owners	D 5 Monthly		
Gear stores	Fishermen	Fisheries Ass.	D 30 monthly	100 %	Fully used and demand for more. Extending the stores is projected .
11 stores for processed fish	Fish driers	Fisheries Ass.	D 30 monthly	100 %	
10 altona ovens				Not in use	Out of order, since the last couple of years. Requires major renovation
4 chorkor ovens				Not in use	Condemned for use after experimentation exercise
Insulated boxes	Fresh fish banabanas	Fisheries Ass.	D 60 monthly	100 %	Function to satisfaction, however the supply of ice is not reliable
Private mechanic workshops	Fishermen	Private			Client satisfied with service. Finding spare parts is difficult
CFC mechanic workshop	Fishermen	Mechanic	Free	well used	Fishermen content with the service received. Spareparts might be difficult to find
Fuelstation	Fishermen	Privatized Nyodema society	D 100 monthly		Function to satisfaction Two new fuel station under construction
Water supply	all Fishermen Carwash		Free in smaller quantities D 5 per barrel D 10 per wash		Water supply relatively reliable. Many water taps are out of order. Charges on bigger quantities of water introduced January 94
Market place	Petty traders	Fisheries Ass.	D 1 daily		Lively trading activity during the day
Ice plant				Not in use	The solar powered iceplant was build as a test plant which could produce 160 kg of ice daily. The last couple years it has been out of order. No initiative has been taken to repair it as the capacity is too small to make it profitable

Table 7: Inventory of Tanji CFC

Facilities	Beneficiaries	Day to day management	Rent	Utilisation	Output/Indicator/Observations
Vegetable garden	60 women	Women Ass	D 30 yearly	100 %	Well function and demand for a dry area to extend the gardening during the dry season
Wind water pump	all	FCMC	Water is free	100 %	Water supply reliable. The FCMC has subscribed a service firm to do the maintenance. Water is free.
1 Office	Fisheries Ass. and FCMC	Fisheries Ass.		Fully used	Functioning well, centrally located.
Saves	all	Fisheries Ass.			
Roofed veranda	Fishermen mending net	Fisheries Ass.	Free	Well used	Quite some fishermen are mending their nets at the beach in order to avoid to carry the nets to the veranda.
6 Cleaning tables	Banabanas	Fisheries Ass.	Free of charge		
Fish boxes	Banabanas	Fisheries Ass.	D 30 monthly	65 %	
38 sun drying racks	Women driers	Fisheries Ass.	D 15 monthly	100 %	Well functioning
8 stores for processed fish	Women driers	Fisheries Ass.	D 40 monthly	100 %	
4 Smoking huts chorkor ovens	Women smokers	Fisheries Ass.	D 50 monthly	100 %	Excessive smoke due to poor ventilation. The excessive smoke is a health hazard for the smokers
11 Smoking huts (chorkor owns)	Male smokers	Fisheries Ass.	D 100 monthly	100 %	Functioning to satisfaction
Private mechanic workshops	Fishermen	Private			
1 CFC Mechanic workshop	Fishermen	Mechanics	Free		Fishermen might get their boat engines repaired and maintained for the cost of spareparts.
2 Fuelstation	Fishermen	Privatized			
12 Canteens and shops	Shop keepers/all	Fisheries Ass.	Rent not decided		The shops and canteen facilities are newly constructed and not yet inaugurated. Interested have paid a deposit on D 500 before the construction started.
Market place	Banabanas Petty traders		Free D 0.50 Daily		The activity is increasing as it seems that some of the market activities are moving from the village to the CFC
Landing jetty	Open for all		Free	Little	The jetty is almost not used for landing fish. Occasionally cargo boats are embarking from the jetty. The jetty is mainly used for mending nets. It is a "white elephant". Maintenance in the future will be very expensive and probably not profitable.

Table 8: The major fuelwood types for smoking of bonga

Local name	English	Latin	Characteristics of the wood
Mampato	"Grey Plum"	Pariroiari excelsa	Hardwood, high burning value
Fara		Bauhinia thoningii	Good for smoking
Netto	"African locust bean"	Parkia Biglobosa	Soft wood
Keno	"African rosewood"	Pterocapus erinaceus	Hard wood - attractive firewood for cooking which makes it expensive for smokers
Bukung	Red flowered silk cotton tree	Bombax buonopozense	
Wolo		Terminalia albrida	High burning value
Jalo	"African mahogony"	Khaya senegalensis	Hard wood - good for charcoal production and fuelwood
Mankwo	Red Mangrove	Rhizophora racemosa	Gives a good colour to smoked product - little used in the Gambia

Since the fuelwood requirements for bonga smoking are high, approximately 6kg of wood for 10 kg of fresh fish, a total of about 3000MT of fuelwood a year will be required for processing the approximately 5000MT of bonga in both Gunjur and Tanji yearly. The fuelwood is bought from wood traders. Delivered in front of the smoking hut it costs D190-210 for a tractor trailer load or D420 for a 5 ton lorry truck load. These prices which reflect mainly collection and not social costs also include transport costs of D60 for tractor trailer and D120 for a truck. While some wood is trucked from up-country, the majority of the fuelwood used consist of dead branches gathered in the bush and forest in the coastal region. The price of fuelwood and transportation generally also increases by about 30 to 40 percent during the rainy season which happens to be the period of peak bonga production. Male smokers, thus, arrange to have stock piles of fuelwood during the dry season.

Generally, links with fishermen determine in part, processors' access to fish and thus the size and type of their operation. Men fish smokers obtain supplies from individual fishermen, but would usually make purchases only when there is a glut in the market. Men smokers provoke such gluts by abstaining to buy until the banabanas (fresh fish traders) and women smokers have bought their requirements. As the quantities bought by banabanas and women smokers are relatively small in comparison to total landings, fishermen find themselves with a product they are unable to handle. It is at this stage that male smokers step in. A syndrome of asymmetrical dependency between the smokers and fishermen is easily created when men smokers lending money to fishermen, financing fishing operations and at times charging usurious interest rates, etc. Smokers, thus, have the power to bring about a crisis of very immediate survival for the fishermen by denying them or withholding them credits, inputs, services or a reasonable amount for the fish supplied.

4.2.2 **Men smokers associations - example of micro-enterprises**

The Men Smokers Associations of Gunjur and Tanji are examples of informal sector micro-enterprises in fishing communities. They work outside the government framework of taxation and regulations.

The Gunjur Association has 36 members, while Tanji has 40 members. Both associations started in the late 1970s. In Gunjur for example, the members purchased fish in common but processed and sold the final product as individuals. This system was, however, abandoned when a few individuals duped the association. Both associations were strengthened during the life of AFDP. This strengthening included the creation of a Revolving Loan Scheme, training in improved processing techniques and business management training from local NGOs, GAMTALK and Indigenous Business Advisory Service (IBAS). These and many other capacity building inputs are very much appreciated by the members. These associations have developed into relatively well organized bodies with strong leaders who are also the functional chairpersons in the FCMCs. The associations are not officially recognized by financial institutions. Therefore, it is difficult for them to get financial assistance to start up or improve their activities. Bonga smoking as practised in Gunjur and Tanji is a capital intensive operation characterized by large quantities of initial and final products, low profit margins, variable turnover periods, and high fuelwood consumption.

The turnover period might be a few days when demand is high but could be as long as a month for example during Ramadan season, when consumers divert their purchases to other items or reduce their total consumption of fishery products. Prices of both fresh fish and final product is season/production related. The quantities of fresh fish bought is influenced by season, capital outlay and turnover periods. The profitability of the enterprise is very variable due to weather conditions which affect the fishermen, seasonality and unpredictability as well as, inadequate business management skills. When supplies are high the profit margin is about D50 per box of smoked bonga but could drop to a low of D20 per box when supplies are low. The risks are high and profits are for the most part invested outside the sector, and asset holdings are low and communal.

Male smokers experience the same problems like most micro-entrepreneurs: inability to reap economies of scale, weak management, problems external to the enterprise such as inadequate access to capital and inputs and monopolistic buyers. The inadequacy of capital outlay places fish smokers at the mercy of fish traders, who on identifying a smoker in dire need of money will make very low price offers. Once this is accepted, the solidarity in maintaining a fixed price is broken and many smokers are likely to sustain losses.

In the fish smoking enterprises every effort is made to reduce losses. When there is a glut in the smoked bonga market, a poultry farmer in Banjul buys 30 boxes a week as protein supplement in poultry feed. When the price of whole bonga is unfavourable this poultry farmer and others substitute the whole bonga with bonga peelings at the rate of D5 for a 15kg bag. Bonga peelings and other crumbs are also used as fertilizers in vegetable gardening.

The men smokers micro enterprises need a host of enabling factors such as access to capital and markets as well as government policy support. Incidentally, both associations operated credit schemes to increase their independence vis-a-vis fish traders. Presently the credit scheme at Tanji is paralysed owing to lack of reimbursement. The smokers realize the importance of revitalizing the scheme with new member contributions, applying stricter reimbursement procedures and eventually embark on the marketing of smoked bonga inland e.g at Basse market in order to generate income for the association. However, without market knowledge, the commitment of funds for such an endeavour takes on a high element of risk.

In contrast to the Tanji MSA, the Gunjur MSA has understood that there can be no revolving loan scheme without reimbursement, and that without adequate savings from within the user group, there can be no sustainable production growth. As such, the Association has built up a strong credit circle with a capital of approximately D17000 of which close to 80 percent is lended to members against an interest rate of 33% p.a. which is at the level of the normal commercial interest rate. The loans are often expected to be repaid within 4 months thus ensuring that a maximum number of members can benefit. The secretary of the MSA does the record keeping. Reimbursement rate is high. Defaulters are first advised by the Association, then taken to the Alkalo and finally to court if they do not settle the loan. Since no commercial banks are operating at the fishing sites the credit schemes are of crucial importance.

The estimated price relation for bonga smoking is given in table 9.

Table 9: Estimated price relation per box of dry smoked bonga

	Price range in Dalasis per box	Average price in Dalasis per box
Market price(box 35 kg dried fish)	120-160	140
Fresh Bonga 1 pan = 90 bonga pieces 1 pan = 25 - 35 kg 1 box = 6 pans	50 - 120	80
Rent of ovens per box		2
Fuel wood (D 120 - 150 a tractor trailer load)	15 - 18	17
Chopping fuelwood	0 - 4	2
Labour for smoking(D 5) (including food)		7
Diverse additional costs water, carrying fish etc.		1
Losses(estimated to 5%)		5
Margin to cover management, risk and capital investment	20 - 50	26

By creating and maintaining a strong and viable savings and loans system, the Gunjur MSA has set in motion a virtuous circle of poverty reduction for its members and their

extended family. This is so because the scheme is likely to lead to growth in both fisheries and non-fisheries sectors, and this in turn may lead to more demand for the products of fisherfolk.

Both Gunjur and Tanji MSAs are strong and have acted as growth poles for other private sector operations such as improved transportation, expanded informal financial institutions and opportunities for the supply of non sectoral services e.g. vending food outlets etc.

4.2.3 **Outboard engines repairs - mechanic workshops**

During AFDP two principal mechanic workshops were constructed and adequately equipped to ensure that maintenance and repairs of outboard engines can be carried out on a timely and relatively inexpensive basis. The workshop at Gunjur was expected to cover in addition to Gunjur, Sanyang and Kartong while the Tanji workshop was to cover also Brufut and Batokunku Centres. The workshops were manned by trained mechanics employed by the Department.

It was envisaged that after the implementation of the project, the workshops will be operated privately by the same team of mechanics who were expected to leave government service. The mechanics were expected to have access to credit facilities from the revolving fund to buy engine spare parts, that were to be used in the workshop and sold to fishermen. The mechanics were in turn expected to pay rental fees to the CFC.

The privatisation of the workshops has not taken place as government considered it a social obligation to continue to help the fishermen in the repair of their outboard engines. However, in addition to the centre - Fisheries Department jointly managed workshops, private workshops working under temporal structures now exist in Tanji and Gunjur. The private workshops are manned by mechanics who have been brought in by migrant fishermen. These workshops are not well equipped and depend on Centre - Fisheries Department workshop for backstopping when the work or operation to be undertaken calls for specialized or specific tools. In principle, fishermen choice between the Centre on private workshop is a matter of trust and to some degree affinity. The costs of maintaining outboard engines is set by the cost of spare parts and the deprivation of not fishing. The labour cost is minimal. For example, the CFC mechanic workshop charges about D10 - 40 depending on the character of the job plus cost of spare-parts while the private mechanics charge a fixed monthly subscription of about D100 for repairs plus varying costs for spareparts.

The fishermen in general are satisfied with the services provided by both CFC and private mechanics but complained about the difficulties of getting spareparts and the high price of same when available. It appears, however, that the complaints about the lack of and the price of spareparts is a smoke screen of the fishermen's inability to organize savings towards the repairs of their outboard engines before they break down. Most spareparts can be purchased in Banjul and Dakar and the Gunjur CFC mechanic workshop has started its own small scale import of spareparts from Great Britain.

4.3 **Women involvement**

The women play a key role for the well being of the family. They have a separate earning from their husbands and in reality women are morally obliged to feed the family and care for the children both materially and emotionally regardless the contributions of their husband. The activities in which they are engaged - fish smoking and drying, vegetable gardening in Tanji and child day care yet to be started in Gunjur, place their participation within the context of the family and social economy. They live in the same harsh conditions of the fishing villages, bear the burden of household management, create value directly on their own and also contribute directly and indirectly to the process of wealth creation by men, but nevertheless, their participation in decision-making is relatively small. While the men suffer from a significant gap between their potential and actual productivity, the productivity gap of the women is much wider.

Constrained by interlinked socio-cultural factors, macro economic policies and development strategies, the women's contribution to the activities in both centres are commendable as exemplified by their involvement in fish smoking and in vegetable gardening.

4.3.1 **Fish smoking by women**

The women smokers are specialized in smoking bonga (1 fire smoking) and catfish (3-4 fires) for the Great Banjul market for immediate consumption. In contrast to the male smokers, the operation is characterized by: a labour intensive operation, small quantities, direct marketing, high profit margin and a fast turnover (2-3 days).

Fresh fish supplies (bonga) are obtained from banabanas or from their husbands if they are fishermen. The preference is to buy the fish on credit from the banabanas, and reimburse after the smoked product has been sold. There are no preferential prices for women.

The women opt to buy fuelwood and concentrate their effort on the smoking. Fuelwood is supplied by retailers who charge D30 for an ox or donkey cart-load of about 40 kg. The prices increase by about 30-40 percent during the rainy season. If orders are made in advance, the fuelwood is usually delivered on time. The most commonly used wood for smoking are Mampato, Fara, Bunkung, Netto and Keno. Unlike the men smokers, women smokers use the mangrove wood Rhizophora to give the finished product an attractive colour. Groundnut shells and coconut husks are only used on a minor scale for smoking.

The fish is smoked on privately owned ovens and CFC improved chorkor ovens. A smoking team of 4-10 women usually buy and smoke 5-10 pans of bonga a day with small quantities of white fish or catfish, for example one pan per week. The team is organized such that 1-2 women sell at least one pan of smoked fish per member each day at the Greater Banjul market (Serrekunda). This represents a daily income of D20 - 30 per woman.

The smoking ovens are technically satisfactory. However, excessive smoke due to inappropriate construction of huts to provide adequate ventilation, is a major problem which makes the smokers' job a health hazard. Some women have stopped smoking owing lung problems. In view of the potential health risks some women would not encourage their

daughters to take up the fish smoking profession. In Tanji, the women smokers plan to initiate modifications to the huts by lowering the walls and remove some roof sheets in order to improve ventilation. They are willing to mobilize human and financial resources for this purpose once the FCMC gives its acceptance.

The market for fish, according to the women is expanding and it is relatively easier to make a living today than it was 5 years ago. Nevertheless, they lack working capital to run their enterprises to their maximum potential. The problem is accentuated when they are caught up in glutted markets where they are forced to liquidate their produce at low prices while at the same time take responsibility for the daily subsistence needs of their families. In the circumstances, their working capital may be reduced very drastically.

The estimated price relation for bonga smoking by women is given in table 10.

Table 10: Estimated price relation on smoked bonga for the consumer market in Greater Banjul.

	Price range in Dalasis a pan	Average price in Dalasis a pan
Market price smoked bonga	40 - 80	60
Fresh Bonga 1 pan = 80 bonga	10 - 20	15
Rent of ovens per pan	1	1
Fuel wood	6 - 10	8
Transport to the market	5 - 15	10
Diverse additional costs		1
Losses		2
Margin to cover work and capital investment		23

4.3.2 **Vegetable gardening**

In 1988, an area of 3600m², some 50m from the women smoke huts, was allocated by the Alkalo (village head) to serve as a vegetable garden for women. The project (AFDP) fenced off the area, provided gates, piping and water points from a $3m^3$ concrete reservoir for irrigation purposes and compost bins. The provision of this alternate employment activity was requested by women engaged in fish smoking and drying activities to produce vegetables for household consumption and supplement their income.

The area of the vegetable garden has since been increased to 6000m². The location is convenient for the women but the soil is water logged during the rainy season, thus, limiting its use for vegetable cultivation during the dry season (December to June). The water logged nature of the soil is a double edged sword in the sense that, it permits the women to be involved in

gardening during the bonga slack period, but also deprives them to grow vegetable during the wet season when prices are high as land for vegetable cultivation in the Greater Banjul area is limited during this period. The women expressed the need to have a portion of land with more permeable soil allotted to them to expand on their activity.

Approximately 60 women are growing vegetables, each working with 20 beds (80m²). The main varieties grown include: egg plant, tomato, onion, hot pepper, bitter tomato, lettuce and kereng - kereng. The irrigation water is basically surplus water from the village well. A wind driven water pump channels the water into a $3m^3$ concrete reservoir from where bucket fulls are drawn to water the vegetable beds. Two stand-by wells are also available to supply water when the wind pump is not operational.

With the exception of labour, other inputs to vegetable growing is minimal. At the beginning of the season, each woman contributes D30 which covers repairs of the fence and the water supply system. Any money left is used to make bulk purchases of vegetable seeds that are shared among the women growers. In the event that the shared seeds are inadequate, the women would supplement this with individual purchases or obtain additional seeds from colleagues. Fish waste is applied as fertilizers. Pesticides are not commonly used and integrated pest control not sufficiently developed.

Vegetable growing is good business but the market tends to be saturated as many other women in the Greater Banjul area are involved in this activity. The Tanji women also are disadvantaged in that they are not as technically competent in vegetable cultivation as most of the other women. This not withstanding, the money earned (D100 per vegetable season) is considered significant for stabilizing the household economy, paying the rent of smoking huts and drying racks, school fees for the children, etc. Indeed the women's work in this integrated system of fish processing and vegetable cultivation contributes to the total joint output of the household and also to the separate output completely managed by the women. In the long run however, access to water and secure land tenure may become key constraints to the further development of vegetable gardening.

5. Management of Community Fisheries Centres

5.1 The concept

In 1979 when AFDP was being contemplated it was envisaged that economic growth through the promotion of the private sector, the reduction of poverty and the tackling of environmental problems would be key elements in the development initiatives at the various fisheries centres to be established. A number of facilities were therefore provided within the framework of Community Fisheries Centres (CFC) with the clear understanding that these facilities and the CFC would eventually be operated by the private sector. However, during the establishment of the first CFC at Gunjur, beneficiary involvement in the planning and implementation of activities was very minimal. Management responsibilities were also assumed by the Department of Fisheries. In short a top-down paternalistic approach had been followed and when the villagers were called upon to take over the CFC and its management, they showed little interest. The project team therefore opted to work very closely with the community and to eventually hand over the management of the Centre to its users.

As a result of the setbacks encountered in the first phase, due consideration was given to the active participation of leaders and the community in the second phase. In Tanji, therefore, the Project and Fisheries Department staff held several meetings with the villagers to explain the raison d'être and possible orientations of the project. A project steering, committee made up of the Alkalo, some village elders and youths was set up. Villagers participation in the conception and implementation was thus requested and actively encouraged. A particular case in point was the use of local artisan builders and locally available materials for the construction of the needed facilities. Collective human investment in the realisation of activities was also a common feature.

At the same time efforts were directed toward strengthening the various User Groups. In 1988, the FCMC were officially created in both Gunjur and Tanji. The Fisheries Department appointed a second fisheries assistant to each of the centres to provide managerial support. The FCMC is the local institutional structure for participation and management that identifies, prioritises and coordinates activities at all levels to fit them into an over all strategy or plan of work so that they are complementary and do not work against one another. It is therefore composed of representatives of all the different User Groups and if necessary resource persons. The long term vision of gradual devolution of the CFC is underway. Of interest is the fact that both Gunjur and Tanji saw the birth of their FCMC at the same time. A lady in Gunjur eloquently expressed the feeling of the community when she said:

> *"In the beginning we thought that the CFC belonged to the government and the FCMC was weak. Now however we know that the centre belongs to us and the FCMC meets regularly and the centre is running well.*"

Between 1988 and 1992, the management of the CFC was the joint effort of FCMC and the Department of Fisheries. In 1992 the FCMC assumed full autonomy with two designated fisheries assistants serving as facilitators.

Initially the Alkalo and representatives of the Village Development Council (VDC) were nominated to the FCMC. Unfortunately these representatives have little interest in the CFC and so did not attend meetings regularly and finally dropped out of the FCMC. In Tanji, the Alkalo is the Honourary Chairman of the FCMC, but in practice it is the elected Vice President who manages the Centre with the help of the fisheries assistants. In Gunjur, the Alkalo usually sends his representative to attend meetings.

The membership composition of the FCMCs as of April 1994 is as follows:

Table 11: Composition of the FCMC in Tanji and Gunjur

Tanji FCMC		Gunjur FCMC	
1	Alkalo	1	Alkalo representative
3	Men Smokers Association	2	Male smokers Association
3	Fish mongers Association	2	Female Smokers Association Fishermen Association
2	Fish Driers Association	2	Fish driers Association
3	Fishermen Association	2	Fish Mongers Association
1	Women Smokers Association	2	Fisheries Assistant
1	Women Gardeners Association	1	
1	Fisheries Assistant		
15	Members	12	Members

5.2 **Operation of Fisheries Centre Management Committees (FCMC)**

The organisational set up is inspired by western democratic values adjusted to the traditional realities of the Gambia, where the Alkalo and elders (men) make decisions. As women do not usually have such decision making privileges, the organisational chart of the FCMC is silent on the role of women. The women have therefore adopted a lobbying strategy to fight for their interests. The basic constitutions of the FCMCs (see boxes) are also silent on economic responsibilities and procedures for election of members and chairperson.

Well functioning user groups are essential to the operation of strong FCMC. They ensure that all shades of opinions are represented and permit free flow of information between management and users. This is so because at FCMC meetings incomes and expenditures and future developments of the centre are discussed. Before each FCMC meeting, user groups are expected to discuss the proposed agenda and give their representatives guidelines and/or mandate to pursue as well as defend the cause of the group at meetings. The representatives are expected to report to the group the major decisions taken at meetings concerning both the operational and financial aspects of the centre. Indeed, user groups submit for approval by the FCMC all proposals involving expenditure. At times this is a long process and might prevent quick action from being taken even on very small expenditures, with possible detrimental effects on the working of the user groups especially women groups. There is therefore a need for FCMC to delegate to user groups the power to take decisions on well specified issues, while maintaining a grip on matters or issues involving large expenditure or with high potential impacts on the centre.

The banabanas, men smokers, women smokers and dryers associations are relatively well organized and cohesive. The fishermen "associations" on the other hand are weak. It is apparent that within the fishermen associations, there is a hold up or blockage of information which creates distrust and tempers the interest of members in the association. Owing to their individualistic tendencies the fishermen themselves are not in search of information or actively explore ways to influence change. They show a lack of commitment, understanding and responsibility to the CFC and the FCMC. They hardly attend meetings and when they do, their contribution is at best passive.

In both Gunjur and Tanji, records are kept by the fisheries assistants. The recording is simple and appropriate, and Tanji has adopted systematic filing procedures, produces a standardized and clear monthly statement using the outline provided by the Department of Fisheries. However, none of the centres produces yearly statements.

The FCMCs are aware of the need to increase rental fees for CFC facilities in order to generate revenue for maintaining and developing the centres. Accordingly, with the approval of the entire community augmented fees were introduced in January 1994. In addition, Gunjur FCMC introduced new fees for example on water, petty traders and private facilities on CFC land. The increased and newly introduced rental fees have enlarge the budgets of the centres by approximately 30-35 percent. January 1994 financial statements are given in (appendices 1 and 2).

Table 12. Statuts of the Fisheries Centre Management Commitees in Tanji and Gunjur

Responsibilities, Rules and Regulations of Tanji Management Committee

Management committee meeting

The Management Committee should have meetings at least once per month. The Chairman should write letters to all members of the management committee informing them of the date, time and place of the meeting.

Preparation of monthly account sheets

The chairman should make sure that the rent collectors have prepared monthly account sheets before the management committee meetings, so that they can be presented to the Committee

Prepare agenda for the management committee meeting

Prior to the monthly management meeting, the chairman should speak with the president of each of the associations (banabanas, women smokers; male smokers, women dryers, and fishermen) to obtain items that their association want included in the agenda. The agenda should always include the monthly account and the follow up of any things decided at the previous meeting. Consequently, the Chairman should always have a copy of the previous meetings minutes.

Ensuring attendance at meetings

The chairman should write warning letters to those members of the committee who fail to attend meetings. A record should be kept of the warning letters that have been written so that if people fail to come to meetings in future, the Chairman can call a general meeting to ask the body to choose other people to be on the committee.

Controlling management committee meetings

The chairman should make that all items on the agenda are discussed and that every one wants to say anything related to that items is given the change to do so.

Decisions to be carried out

The chairman should ensure that when decisions are made by the management committee, they are carried out as quickly as possible. Tasks should be given to specific people and a record made of their names to ensure that these tasks are carried out.

The role of the FCMC Gunjur

1. Make decisions about expenditures.
2. Make decisions about future development of the centre.
3. To ensure that the revenue is sufficient to cover expenditures and to maintain and develop the Centre.
4. Make sure that the people do not abuse or damage the Centre.
5. Make sure that the Committee represents views of the people using the centre and do not let their personal opinions take priority.
6. Arrange centre management meetings the 15th of each month

Gunjur Management Committee
June 1988

The bulk of the Tanji centre revenue is placed in a bank account, but the Gunjur Management Committee cited Islamic customs as reason for not operating a bank account. The FCMCs as well as CFC members avail themselves of cash saving boxes in the centres to store petty cash.

Revenues collected over the past two years by the management committees have been used judiciously in expanding the Centres but the Centres are still plagued by a number of problems as summarized in (appendices 3 and 4).

The management is strongly influenced by the style and character of the chairman and the principal fisheries assistants - who are involved with the day to day management of the Centres and the preparation of meetings. The concept of community based management is not yet widely internalised and the management has no real opposition to fine tune its decisions and leading role. The FCMCs have realized that for development to be viable and sustainable it is indispensable for them to draw up through a participatory approach annual workplans and Provisional Budget Estimates. Both Centres have prepared workplans for 1994 including new facilities and maintenance work. However, only Gunjur has prepared a tentative budget for its workplan.

At present the economic management of the centres is done on rough estimates and intuition. However, with increasing turnover and huge economic transactions at the centres, there is a need not only to standardize record keeping, but also the production of annual statements, workplans and budgets as well as auditing by an external agency.

6. Sustainability of centre activities

6.1 Effects and impact of AFDP project

Gunjur and Tanji have experienced extra-ordinary improvements in infrastructure and in the living conditions of the inhabitants during the last 10 to 15 years. A large part of these changes represent the effects and potential impact of AFDP in these localities.

The creation of the CFCs and improvement in infrastructure, particularly access roads have helped concentrate the supply and demand for fish and other commodities and this has provided the needed incentives for the existing fishing units. The result is a significant increase in both fishing, fish processing and fish trading. The landing capacity of the units (CFC) and the facilities that have been provided at the centres (gear stores, net repair shed, mechanic workshop, cash saving boxes, smoking huts, drying racks etc.) are more or less fully exploited and fishermen are able to fish professionally.

The CFCs have therefore become bustling poles of attraction for a variety of spin-off activities. Private entrepreneurs now operate premixed fuel filling stations and outboard engines mechanic workshops; restaurants and canteens have been opened, there are fish frying and roasting stands; women are selling fresh produce, and many petty traders are selling primary and basic commodities such as salt, sugar, matches, rice, drinks etc. In almost all instances, a large part of incremental employment has accrued to the local population.

The intensity of activities at these centres is exemplified by the fact that both men and women smokers clamour for more smoking huts, and the women at both centres wish that tap water be installed near the smoking huts to ease fish processing. In addition at Gunjur, the men smokers would like to put lights in the huts in order to work during the night and the women fish processors who opted for a day care child centre instead of a vegetable garden, are actively refurbishing and equipping the creche which should become operational shortly.

The improved chorkor ovens have almost entirely replaced the traditional open ovens and this has led to a reduction of about 30 percent in the requirement of fuelwood. This reduction in fuelwood requirement is accompanied by a substantial reduction in the cost of smoked fish production thus freeing up funds for additional fish purchases. Cognizance has also been taken of the unintended effects of the expansion of fish smoking activities in enhancing deforestation. Reduction in fuelwood use has a secondary environmental impact: reduce pressure on the forests and ease in the burden of collection of wood for household use. At the same time the expansion of the Salagi fuelwood plantation from 80ha to 200ha standing and the commissioning of the said plantation into exploitation late 1994 will also contribute to alleviating fuelwood demand for fish smoking.

There has also been a reduction in the quantity of fish and capital lost as a result of fires within the fish smoking huts. This was a major cost to the industry and could render a fish-smoker bankrupt in a few hours if not minutes. The reduction of these occurrences greatly improves the chances of the smokers being wealthier. Postharvest gains have also been made through the use of the drying racks and dried fish stores which have both reduced fish damage and insect infestation, thus increasing incomes and supplies of fish.

Localised market information, notably on the supply of fish landed at Gunjur and Tanji as well as the other centres, is passed between the centres by radio thus linking producers and traders. In the same vein, training in numeracy, literacy and business management have improved the business performances of individual traders, processors and fishermen; while the (cash) saving boxes and extension on informal savings and credit systems at the centres have increased the communities capacities to establish both individual and group savings and provides a foundation on which future formal credit schemes can build.

Health and hygiene at the centres have improved through the use of fresh water for human consumption and for cleaning fish, thus improving on the quality and value of fish being sold. Water supplies have also contributed to the expansion of the vegetable garden at Tanji and increased the income earning opportunities of the women. The enthusiasm with which these women have taken to this activity is testimony to it's value.

The gear stores have provided a level of security not experienced before and this has reduced loss due to theft. At the same time, the availability of the stores, on the beach, have reduced the time taken to carry nets and engines down to the water on each fishing trip and hence has not only increased fishing time but also incomes. Furthermore, the provision of insulated containers has also increased the quality and value of fresh fish. This has greatly been enhanced by the improvement in roads which have increased the ease of sales and the competition between banabanas/fishmongers thus reportedly increasing beach prices of fish. However the availability of ice remains a serious problem.

6.2 **Factors contributing to effects and impact**

The effects and potential impact and even the chances of sustainability of activities and initiatives in Gunjur and Tanji CFCs can be attributed to a number of interrelated factors.

Beneficiary involvement:

Strong emphasis was given to the participation of the beneficiaries in the planning and implementation of AFDP II and at Gunjur where a top-down approach had been used in AFDP I, steps were taken to bring the beneficiaries in the main stream of the project. The result has been a high degree of acceptability of the facilities and an increasing willingness and ability of their users to consider undertaking the management functions themselves.

Continuing support during critical start-up period:

Artisanal fisheries is both complex and divers and each of its subsectors has its own constraints and prospects for development, which taken as a whole makes the sector one of the most difficult to work in.

Quite often the chances of success in artisanal fisheries projects have been jeopardised by premature interruption of assistance especially during the critical start-up phase. In the present context, the critical start-up phase is defined as "that period when beneficiaries or the target group have a feel for what they are able to do but lack the skills and experience to manage the activities and/or initiatives themselves". Unfortunately in many projects this period tends to coincide with the end of technical assistance or project life.

In the case of Gunjur and Tanji, a decision was taken to provide continued support during the critical start-up period and this over a one year extension past the normal life of the project to enable the infant FCMCs to acquire more skills. In retrospect the nurturing period was too short but was very useful. Centre management performance would probably have benefited from a much longer extension.

The role of fisheries department:

A phenomenon that characterizes small scale fisheries development is the hesitation of development agencies, including the Fisheries Department and development workers to promote empowerment of fisherfolk. This reluctancy retards self-sustaining and self-perpetuating development. Thus, development agencies have to take on a new role, one which implies they relinquish the old role of "development implementor" and adopt a new but even more challenging role of "development facilitator" in line with greater private initiatives within the fisheries sector. Greater involvement of the private sector or target beneficiaries in the sector does not mean that the Fisheries Department for example will become obsolete. The Fisheries Department as a development facilitator would have to ensure that initiatives are planned and guided to complement government policy and to conserve the resource. Briefly, the Department will have to be equipped to take on the roles of planning, management, resource assessment, information, communication, marketing and training - skills which are in short supply in most departments.

This was a challenge that the Gambia Fisheries Department accepted as it deliberately channelled initial assistance towards the technical development of the fisheries, renouncing the temptation to start institution building before it had a viable economic sector to work with. Once the development phase had been properly initiated, the Department diverted its

efforts to strengthening the managerial and business skills of its own staff and those of the FCMC. For the FCMC, this has helped them to lay emphasis on mobilizing their own management resources, to define major problem areas, to prioritize goals and formulate plans and prepare workplans. For the Fisheries Department, at least in the study sites, where private enterprise is the cradle, it now undertakes the role expected of a government institution namely that of guiding, monitoring and regulating the activities of the fisheries sector.

The foresight of the management committees:

An important element contributing to the success of the centres is the fact that the FCMCs used their first two years of revenues to expand their most popular facilities (Gear stores) and add new ones, such as the covered produce market at Gunjur, as well as shops and canteens in both centres.

The original rents of the centre facilities were set by the project just before the critical start-up period. The rents were relatively low, that is, below the level required for repair and replacement. This approach of instituting low rental charges was aimed at overcoming the reluctance of the community to use the facilities. In the endeavour to improve the managerial capacity of the FCMCs as the centres were now accepted by the fisherfolk, the Department of Fisheries with assistance from the IDAF Programme, organized a workshop on self-reliant management of CFCs for the 7 coastal centres in the Gambia.

One of the major outcomes of this workshop was the general consensus that charges for using the CFC facilities were too low to ensure maintenance and development of the CFCs. The participants agreed that in order to ensure the economic viability of the centres, the rental charges for using centre facilities and services would have to be estimated and reasonable charges, at the reach of centre users, proposed and approved by the community. Both Gunjur and Tanji FCMCs updated on the high side their rental charges and Gunjur did create new fees. Users of the centre facilities expressed satisfaction with these new measures and a majority professed that they would be willing to pay even higher fees on condition that revenues continue to be properly used and there are no defaulters abusing the system.

Not all fisherfolk are members of the different user groups nor of the CFC. Some of the user groups have also developed vigorous activities, e.g. savings and credit systems, to the extent that they now tend to exclude outsiders or new entrants. This is beneficial in that it ensures control over joint funds, but there is a need to guard against creating an elite minority group and accentuate the dependency syndrome. Centre management should fight against such tendencies and encourage a wide range of different user groups to become involved in the use and management of the centres. This is particularly important for the women associations and other women not in these associations. Special attention should be paid to assisting the women to break their internal barriers of tradition, family pressures, social expectations etc., and have a stronger voice and greater influence than at present in the centre management.

Centre management seems to have monopolized influence and power. In some circumstances this has been very frustrating to the user groups who have the human and financial

resources to act but must get the green light from centre management. A limited delegation of powers might be very useful.

The centres and their user groups raised a number of issues some of which hinge on policy. The Fisheries Department in its new role of development facilitator should provide the leadership in seeking solutions to these problems, and by creating the enabling environment for the strengthening of the micro-enterprises in these fishing communities.

6.3 Analysis of elements of sustainability

Technical appropriateness and viability

The technical appropriateness and viability of a proposed intervention involves an assessment of the response of the users to a technology and the technical compatibility of the intervention with the resource base. In the context of our study, the technological interventions include the provision of fishing inputs, improvements in fishing techniques and fish technology; capital works including improvements in infrastructure and the provision of equipments as well as community improvement initiatives; while the resource base is represented by the fish stock and available fuelwood for smoking fish, as most of the fish is smoked.

Although the resource base is an issue, the technical viability of most of the facilities and activities undertaken at the centres has been proven by their use and the positive comments by the users at the centres. The reduction of fuelwood consumption in fish smoking and increased safety of the smoking huts has been well demonstrated (Jallow 1992, IMM 1992). Many privately owned ovens are now enclosed by mud block walls and very few traditional open ovens exist. Nevertheless, the smoking huts have suffered from poor ventilation and some of the roof saddles have been removed to allow smoke to escape. The long term sustainability of fish smoking may be constrained by limited fish stock and fuelwood supplies. On the other hand if ice becomes more readily available, fish smoking activities may be jeopardised as the consumption of the cheap fresh bonga has increased significantly over the past 10 years in the Greater Banjul area owing to a doubling of the population.

The centres management have increased the number of some popular facilities (gear stores, smoking huts etc) and recently Tanji management constructed 12 new canteens while Gunjur management is constructing a shaded area for boatbuilders and will soon launch construction of more gear stores. It is note-worthy that part of the funds for these constructions are advance payments or deposits made by potential beneficiaries of the facilities. Users have also requested that more drying racks and smoking huts be constructed and these activities have been included in the workplans of the CFCs. It has been stated that "the clearest statement of the sociocultural compatibility of a new technology (intervention) in a farming system is its outright adoption by the farmer..."(Cook 1985). If this is correct, then most of the interventions made in Gunjur and Tanji are not only technically appropriate but also socioculturally compatible.

A strong request for an iceplant was made at both centres. It was argued that a more adequate supply of ice would increase the market value and probably incomes from the fisheries. The availability of ice would permit fishermen to stay longer at sea and increase the quality of the catch, and also stabilize fish prices as huge landings could be conserved for the next day. The availability of ice would also benefit the women smokers who could store small quantities of fish until enough fish was purchased to run the ovens optimally and also rationalize the work. The provision of an ice plant particularly at Gunjur might also be looked at in the light of the new EU regulations on health and hygiene which stipulate quality controls for countries wishing to export to Europe. The aspect of iceing high value species set a side, the thorny question is whether fisherfolk would be willing to pay the real cost price for ice to handle a low value species like bonga. The CFCs do not have enough money to invest at the moment in such an endeavour and the sentiment is that the iceplant was expected to be funded by external resources.

The technical viability of the centres is also influenced by the development approach as well as the size and location of the centre. Gunjur CFC was set up through the traditional top-down approach and one has the impression that participation has been imposed on the beneficiaries. The buildings are overdimensioned and constructed of industrially produced and/or imported materials. On the other hand, the Tanji centre was implemented by a participatory approach with modest buildings using the services of local artisan craftsmen and appropriate local materials. In terms of long term maintenance perspective, the Gunjur Centre and in particular its administrative block would be too expensive and is even out of the reach of the centre resources. At the same time Gunjur has a good number of inappropriate and abandoned infrastructure and equipment. The unused jetty in Tanji is also a reminder that somewhere along the line something went wrong with the participatory approach adopted at Tanji CFC.

An interesting observation at both centres is that the latest construction works, funded by revenues from the fisherfolk themselves, are characterized by reduced but appropriate dimensions, cost effectiveness and the use of local materials. Unfortunately, in the past fisherfolk had volunteered or placed their services or competence to the CFC, presently as the centres are making money, some fisherfolk particularly in Gunjur are more reluctant to volunteer their services to the CFC.

There appears to be a critical size for a centre to be technically compatible. This critical size is influenced by a variety of factors, among them the proximity of other centres. In comparison to the other coastal centres, Tanji and Gunjur seems to have met that critical size while e.g. Batokunku and Brufut emerge undersized. Tanji, the bonga capital of The Gambia, tends to attract fish mongers and processors away from smaller centres such as Batokunku and Brufut and this in turn attracts vessels to change landing sites. One of the coastal centres Batokunku has been hard hit by this phenomenon. Attempts by Batokunku centre management to raise rental fees have been unsuccessful as the facilities are not fully utilized and revenues are very low owing to small landings.

Financial and economic viability

The centres have the potential to produce benefits in excess of costs and this has been greatly favoured by a number of initiatives undertaken or encoruaged by centre management. Some of these initiatives are: the use of low technology levels and local materials for expanding the centres infrastructures such that future maintenance costs could be reduced; the increase of rental fees through dialogue and concentration with the users, the mobilisation of human resources to undertake centre related activities, the exploration of new avenues for increasing centre revenues and the willingness of the majority of the users of facilities to take up responsibility for maintaining the facilities, as exemplified by women groups involved in vegetable gardening, as well as men and women smokers in Tanji.

In 1992 the annual balance of Gunjur and Tanji was D19440 respectively after deductions of D16800 and D10600 as expenditure from income (IMM 1992). Most of the accumulated capital has since been reinvested into facilities and this seems to pay off (appendices 1 and 2).

The new rental fees in force since January 1994, give Gunjur CFC additionally about D2000 monthly and for both centres represents an increase of 30 to 35 percent in revenue. Rents on smoking huts, gear stores, fees on water and petty trading are the big contributors to centre economy. However, unlike Gunjur water use in Tanji is free, inspite of the costs of maintaining the water pump and the water supply system in general.

An evaluation of AFDP in 1992 indicated that Gunjur and Tanji have the highest income possibilities of the six coastal centres established under AFDP (IMM 1992). Presently both centres have comfortable capital but as the infrastructures are relatively new and maintenance costs low, steps are being taken to ensure centre management can keep up to its financial obligations in the future. In addition, to the initiatives cited above, regular monthly consultations between the management of the seven coastal centres is now a common phenomenon. These meetings and planned workshops provide training in the planning on the future development of the centres so that gradual increase of the infrastructure can be planned and prepared for.

In terms of equity, attempts have been made to bring women in the mainstream of the fisheries activities. Several years ago very few Gambians, not to talk of the women, were involved in fish processing. Today the situation has changed, although unlike in many other countries in West Africa the majority of the processors are men and not women. The women's limited incomes, lack of collateral and social and economic subordination drastically constrain their access to inputs and hence revenues.

At the level of the users, each of the major activities has the potential to afford to the operator and his/her family decent livelihood. In the long run this is what needs to be sustained namely the capacity of the people to support decent livelihoods. AFDP has through a number of initiatives, as shown under technical viability, tried to create the enabling environment for this to occur. The extend to which improvement in living conditions can be sustained, will be greatly influenced by the resource base, and other issues of policy management and availability of capital.

Lack of working capital is a universal phenomenon with many faces which makes it difficult to get a profound understanding of its character. When discussing profitability and credit

possibilities most of the interviewees reported that their undertakings gave a good profit and they were enthusiastic to continue their activity. In the same breath, they were quick to announce lack of working capital was constraining their activity. This could be interpreted as poor liquidity management and insufficient knowledge of long term profitability. Although illiteracy and inadequate business management may be contributory factors one should not loose sight of the fact that in most traditional societies have social virtues and norms which tend to be valued higher than business performance. For both men and women such social obligations may drain their working capital.

The savings and loans schemes operated by the users groups have operated well but of recent owing to defaulters, the lending activities are virtually frozen. Access to credit is a major constraint for obvious reasons but also because the FCMC are not yet recognized by financial institutions. Most of the groups expressed their interest in revamping their savings and lonans schemes by the institution of much stringent rules regarding repayment and to engage in better follow-up of the loans given to their members.

The planned expansion of exports of fresh fish from Tanji and Gunjur has not occurred and this is probably because of a preservation problem. At the same time every effort should be made to escape from the low value added trap in which upstream workers (fishermen) earn far less than those downstream (traders).

Lack of business management skills, working capital and poor access to financial resources, limit fisheries activities and it is likely to jeopardise the sustainability of initiatives underway in Tanji and Gunjur.

Socio-political appropriateness

The fishing centres are run by elected management committees consisting of representatives of each of the users groups and even resource persons if necessary (see Table 11). The Management capacity of the centres has been greatly enhanced recently through training in autonomous management principles and through the voluntary institution of monthly consultation meetings between the seven coastal management committees to review trends in the sector and defend the cause of fisherfolk.

Government policies with regard to the sector also encouraged imporvements in the overall living conditions of small scale fishing communities as outlined previously but it has also enabled the FCMCs to assume a greater responsibility in the centre management with secure forms of benefits reverting to the community, and the Department of Fisheries playing the role of development facilitator. The implementation of such a policy requires fundamental changes in structures, attitudes and training of both fisheries staff and centre management personnel - an activity that is on-going. Such a change which enables fisherfolk to do things for themselves and enlist outside expertise and training when needed, requires time and care in organization, as well as an understanding of group processes, socio-economic conditions and cultureal patterns, especially as the centres are still evolving with influx of people wishing to benefit from the booming fishing and related activities in the centres.

In view of the initiatives taken over the pas two years by the management committees, as well as their planned activities, and taking into the consideration the faith of the community in their collective capacity to define their own needs, goals and priorities and to take a step-by-step process of development through action and reflection, it is surmised that the centres and their

activities are socio-politically appropriate. However, centre management should continue to benefit from training in planning and management and emphasis should be placed on good management and up-grading the financial strength of both FCMC and users groups. User groups are unlikely to function well if the members have no stake in them through financial or other contributions, and the FCMCs can also only work if there is a felt need by members for them. There will be no such need if the members obtain no benefits or have no voice in the running of the centre. At the same time transparency in all the activities of the centre management is a prerequisite for long term broad support of the community.

Ecological soundness

One of the primary objectives of AFDP was to alleviate poverty in coastal fishing communities in The Gambia. The alleviation of poverty, however makes little sense if improvements in the standard of living (a short term effect) threaten the resource base creating an environmental debt. Long term resource conservation and enhancement must be reconciled with short term development programmes and the planning horizons of individuals and governments. AFDP was therefore designed and implemented within the framework of an internally self-sustaining conservation strategy and with the active participation of the communities themselves.

In this light, attempts were made to improve on one of the major resource base for ancillary fisheries industries by increasing the capacity of the Salagi fuelwood plantation from 80 to 200ha standing. AFDP also contributed in providing an enabling environment to government to initiate policies aimed at maintaining the fisheries resource base. In this context, in 1989 the Government prepared a National Fisheries Management and Implementation Plan. A number of proposed activities of the plan have been implemented. These include the revision of the fisheries legislation, improvements to the enforcement of the zoning of artisanal and industrial fisheries, the banning of beach seining and the use of small meshed nets which have a destructive impact on juvenile fish, and research on prawn and white fish resources by the Fisheries Department and the Centre de Recherche Océanographique de Dakar _ Thiaroye in Senegal funded by EU.

The fishery resource base

There is at present no hard evidence of a decline in the stocks of bonga and other small pelagics available to the artisanal fishery. However, there is a noticeable trend of new entrants into this and other fisheries, and average catches per unit effort have fallen. Many of the new entrants in the Gunjur and Tanji communities come from Senegal, who in addition to fishing in The Gambian waters may use the strategic location of The Gambia to exploit the fishery resources in Guinea Bissau. As opposed to the pelagic resources, preliminary assessments of the status of the demersal stocks indicate that catch is possibly as low as one third of potential yields as a result of overfishing (Akinyemi and Everett 1993). A significant reduction in industrial fishing effort is needed to rebuild stocks and improve the economic returns in the demersal

fisheries, but in the absence of detailed and reliable statistics on catches and effort for both the artisanal and the industrial fleet, no rational management plan can be prepared for the fisheries of The Gambia.

Clearly, there is a need to know much more about both the resource and its exploitation, and fishing effort expansion should go hand in hand with both the development of a viable catch assessment system and a more accurate understanding of the resources size.

Chapman (1991) states that much of sustainable development in fisheries depends upon the community's confidence in obtaining future benefits from its resources and the value and importance attributed to the resource by the users. Gunjur and Tanji fisherfolk exhibited both confidence and value for the resource but there is a significant lack of perception that the fishery resource is limited, that in order to ensure benefits from resource exploitation tomorrow they may have to forgo benefits from the resource today. There is also a lack of consensus about the need as well as the means of resource use regulation through the basic components of the mechanisms of access, control and enforcement.

Inadequate knowledge of the resource base coupled with the lack of consensus on the need for regulating its exploitation are likely to compromise the sustainability of development and management actions in Gunjur and Tanji artisanal fishing communities.

Forest resource base

Open access has encouraged the mining of fuelwood taken as a free goods for consumption in rural areas and in cities as well as for smoking fish. When stumpage fees on logging have been imposed, they have been rather low (D1000 per operator per year) and may also have encouraged excessive forest exploitation. Coupled with weak supervision by government forestry services, the result is widespread abusive logging and felling. In a country where fuelwood constitutes the major energy source for household use, consumption rates are likely to be high. However, fish smoking has been identified as a major contributing factor to the country's rapidly shrinking forestry resources particularly along the Atlantic Coast (GOG 1992), this inspite of significant improvements made over the past 10 years to reduce fuelwood consumption in fish smoking and to cater, though timidly, for future fuelwood requirements.

The introduction of improved fuel saving chorkor ovens has meant a 30 percent reduction in fuelwood consumption (Jallow 1992), but it has also contributed to the expansion of smoking activities as exemplified by the high demand for additional smoking huts in Gunjur and Tanji. The problem is also being addressed through the allocation of the Salagi Forest Plantation of Amelina arborea for use in fish smoking. In 1987, the Salagi plantation covered 80ha. Through the auspices of AFDP the surface area has been increased to 200ha standing. The plantation is managed by the Forestry Department. Over the years, the Salagi Plantation has been plagued by a number of problems: drought has had an adverse effect on the plants owing to water shortage; young plants or stumps have been destroyed by cattle, while the survival of the plants have been reduced through bush fires. The incidences of bush fires have been reduced by cutting a 50m cleared area around the edge of the plantation; by the cutting of fire lines through the forest which

allow rapid access of beaters to potential fire sites and by regular fire controls. The Salagi Plantation is now mature enough for rotational harvesting, and it is expected to come into exploitation late in 1994.

Assuming 100 percent survival of the planted stumps, it is estimated that the plantation will produce approximately 7 m^3/ha/year of fuelwood that is 1400 m^3 per year for the entire plantation. However, owing to the mitigating factors alluded to earlier, the survival rate is said to be about 70 percent or a total of 1000 m^3/year. The fuel plantation comes into maturity after 5 years which means only about one-fifth of the surface (about 200 m^3/years) is theoretically exploitable a year. Fuelwood consumption using the improved chorkor ovens is 0.35 m^3/ton of fish. At this rate even if the entire plantation was cropped it would be just enough to smoke 7000 tons of bonga. This is indadequate. Hence, the diminution of forest resources seems to promise a crisis in the fish smoking industry where increasing requirements for fuelwood for a growing population are already taxing forest resources to the limit.

The situation is even more complicated because no experience is yet available on the acceptability of *Amelina arborea* as wood for smoking fish. At present fuelwood supplies close to the fish smoking activities are used they are more easily acquired and are cheaper than those brought in from outside. There is some concern that the Salagi fuelwood may be too expensive for the fish smokers. It is estimated that the breakdown price of fuelwood from Salagi is approximately D53/m3 but this does not take into consideration the depreciation of the transport, overall management, future losses from fire damange, etc.

The Gunjur and Tanji populations expressed a willingness to be involved in community forestry. The increase cost of transporting wood from up country is an incentive to plant fuelwood trees. The Gambian-German Forestry Project has undertaken, with relative success, community foresty operations in other parts of the country.

Other Factors: smoke, liquid and solid wastes

At the micro-level, that is a the CFCs, the possibilities of environmental degradation trhough the emission of wood smoke from the smoking huts into the air are high. Living quarters are well separated from the smoking area (1-3km). However, the emission pollutes the working environment of the processors. Increase in population has also increased the pressure exerted on mangroves and other forest resources with possible negative effects on fishery resources especially in the mangrove wetlands. Furthermore there iss also the possibility of ghost fishing occurring as the nets of artisanal fishermen are cast adrift by trawlers cutting through the marker ropes or by towing the nets away from where they may have been set. Decrease in rainfall associated with deforestation along the coast is likely to affect future groundwater, in quantity and quality through salt intrusion, and extraction costs.

Besides these possible environmental set-backs, the activities at the CFCs can be said to be environmentally sound: fish wastes are properly recycled either as fertilizers in vegetable gardens or as a component in livestock feed; the use of pesticides and insecticides is virtually null; and in no instance was it evident that the centres and their surroundings have lost their amenity, that is, their aesthetic value as related to tourism and recreational fishing.

7. Conclusions and recommendations

Artisanal fisheries activities in Gunjur and Tanji Community Fisheries Centres in The Gambia are competitive productive enterprises, as well as crucial sources of relatively cheap animal protein, employment and incomes for both women and men. Both centres are relatively well organized and maintained and the facilities on the whole, fully exploited on rental basis by individuals of centre user groups. The centres are also bustling poles of attraction for a variety of spin-off activities. The intensity of most activities is so high that operators are seeking opportunities for expansion. Centre management is vested in a management committee with staff of the Fisheries Departments as facilitators.

Active beneficiary involvement in the planning and implementation of Centre affairs, continuing donor agency support to the centres during the critical start-up period, the acceptance of the Fisheries Department to assume the challenging role of "development facilitator" rather than hang on its aprons of "development implementors", and the dynamism and foresight of centre management committees have contributed to the success of the Centres.

In many respects the activities at the centres are technically appropriate, socio-culturally compatible, financially and economically viable, socio-politically acceptable and environmentally sound. However, to keep up the positive development trend, Tanji and Gunjur face some major challenges:

1. The global development of the Gambia is likely to be hampered by the rapid increasing population pressure, stagnant agricultural production and environmental degradation owing to the desertification in the Sahel region. In addition the Gambian economy depends on a fragile re-export trade with its neighbour Senegal who has a lower purchasing power after the devaluation of the FCFA in January 1994. The Gambian Government is undergoing series of adjustment policies which is cutting back funds for development activities. This implies that in the future development increasingly has to come from inside the community. This is likely to be a big change from the last decade where the two communities have benefitted from significant external assistance.

2. Government efforts to revamp the artisanal and industrial fisheries have been generally successful; but most fish species are surmised to be about fully exploited. The open and continuous entry of new operators and more efficient fishing techniques call for enforcement of fisheries regulations in order to preserve the fish resource base.

3. The forestry resource is being depleted by the fuelwood requirement from Greater Banjul and the fish smoking industry. The growing difficulties in finding fuelwood has resulted in higher prices for fuelwood and this is likely to adversely affect the profitability of "hard smoking" of bonga. To preserve the remaining forest for environmental reasons and long term mitigation of the fuelwood deficiency, community forestry should be promoted. Fortunately an explicit awareness of the problem was met.

4. The community based management of the CFC is functioning well but the organisation is still young and needs support in its maturing process. The FCMC should seek to increase the base of active participants; women in particular should be further involved in the decision making process. To achieve this, it is proposed to strengthen the user groups by decentralizing responsibilities and economy which would give a more committing base for operation. The FCMC should concentrate on the overall management. In order to assure a high degree of credibility and transparency the FCMC should prepare a statute stipulating standards for: election procedures of members, management operations, economic responsibilities, record keeping and financial audit.

5. The business management of the micro-enterprises seems inadequate. In many cases they are drained for capital and therefore easily paralysed by smaller unforeseen expenditures. It is therefore proposed to engage NGOs to reinforce numeracy training and basic economic planning. The business activities are also hampered by lack of capital, therefore, credit and saving activities or establishment of a commercial bank should be encouraged. In general terms, the Fisheries Department should create an enabling environment to strengthen the micro-enterprises in the fishing communities.

6. Technically the centres are functioning to satisfaction and there is a demand for more facilities. However, it is proposed to the FCMC's to concentrate on maintaining the existing facilities and only make smaller adjustment extensions and improvements at the centres, in other words on a short term basis, it is recommended that FCMC applies to a conservative and consolidating management strategy.

BIBLIOGRAPHY

AGLF., The Fertilizer Project in The Gambia-constraints, realization and perspectives. Field
1993 Document, GCPF/GAM/014/DEN. FAO, Rome Italy pp. 25.

Akinyemi, O and Everett, G.V., Report prepared for the Government of The Gambia on
1993 Review of the Fisheries Management and Implementation Plan FAO, Rome GCP/INT/466/NOR, Field Report 93/24 214pp.

Brown, B., M.E. Hansen, D.M. Livermon and R.W. Merideth, Jr., Global sustainability:
1988 Toward definition, Environmental Management 11:713-19

Callerholm C.E. and A.M. Jallow. Report of a socio-economic survey of the artisanal fisheries
1991 along the atlantic coast in the Gambia. Cotonou, Benin. IDAF Project. IDAF/WP/41. pp 97.

Chapman, M., Basic Elements in the Sustainable Development of Fisheries: Implications for
1991 Aid Programs in Developing Countries. Resource Management and Optimization, Vol. 9(1) pp. 71-83

Clark, W.C. and R.E. Munn (eds), Sustainable development of the biosphere, Cambridge:
1987 Cambridge University Press.

Cook, R.H., Criteria for Evaluation. In Research Methodology for Livestock on-Farm Trials:
1985 Proceedings of a Workshop held at Aleppo, Syria 25-28 March 1985. Ottawa, Ontananarivo, IDRC 1985 pp 297-301

FAO, Environment and Sustainable Development of Fisheries, Working document COFI/91/3
1991 March 1991.

Government of the Republic of The Gambia., The Gambia Environmental Action Plan 1992-
1992 2001. Vol. 1.

Government of the Republic of The Gambia., Population and Housing Census. Provisional
1993 Report(s) Central statistics Department, Ministry of Finance and Economic Affairs. June 1993, pp. 29.

Heinbuch, U. and S. Howard Saydee., Interrelationships between population growth and
1993 development in coastal communities in The Gambia IDAF unpublished 31 p.

Integrated Marine Management Ltd., EDF Artisanal Fisheries Development in The Gambia.
1992 Evaluation Study, Final Report. IMM Ltd., Southampton, United Kingdom February 1992, 137p.

Jallow, A.M., Fish Smoking in The Gambia: Fuel Efficiency Study. In IDAF Newsletter N°
1992 16 December 1992 p. 6-8.

Jazairy, I., Alamgir, M., and Panuccio, T., The State of World Poverty. An Inquiry into its
1992 Causes and Consequences. IT Publications, London, U.K.

N'jie, M., Village Development Committees and Fisheries Centre Management Committees
1993 in Community Fisheries Centres in The Gambia. In: B. Horemans and B. Satia(s) Report of the Workshop on fisherfolk organisations in West Africa (Banjul, The Gambia, 3-5 February 1993) p. 72-82 IDAF/WP/45, 95p.

N'jie M., Conflicts in Coastal Fisheries in The Gambia Report of the Workshop on Conflicts
1993b in Coastal Fisheries in West Africa (Cotonou, Benin, 24-26 November 1993) p.32-38 IDAF/WP/53, 64 p.

O'Riodan, T., The politics of sustainability. In Sustainable environmental Management:
1988 Principles and practice ed. R. Kerry Turner. London Belhaven Press Boulder West-View Press.

Pezzey J., Economic analysis of sustainable growth and sustainable development. World
1989 Bank Environment Department Working Paper N° 15, Washington D.C. The World Bank.

Satia, B.P., Ten Years of Integrated Development of Artisanal Fisheries in West Africa 1993 (Origin, Evolution and Lessons Learned) IDAF/WP/50, 39 p.

United Nations Development Programme, The Gambia - 1992 Development Co-operation
1992(1) Report, UNDP Banjul. pp. 104.

United Nations Development Programme, Human Development Report, New York, USA.
1992(2)

United Nations Development Programme, Human Development Report, 1993 New York,
1993 USA pp. 255.

Appendix 1:

January 1994 statement from Gunjur CFC

Revenue January 94		Expenses January 94	
Item	Dalasis	Item	Dalasis
Gear stores	1 515	Taught light and batteries	110
Outside drying racks	80	2 Salary watchmen	600
Insulated boxes	120	3 Salary cleaners	900
Sun drying racks	10	Financial transaction from the relief operation of the disaster	370
Water	679	7-CFC centre meeting	100
Canteens	260	Wind pump repair	570
Private buildings	320	Transport of logs	95
Duty tickets (petty traders)	580		
Using of veranda	55		
Women smoking huts	150		
Male smoking huts	(1 850)*		
Grand Total	5 619	Grand Total	2 745
Balance January 1994 Approx 11 000			

* Not payed in January due to no market for dried fish which made the smokers broke.

January 1994 statement from Tanji CFC

Total Balance December 1993	D 10 398

Revenue January 94		Expenses January 94	
Item	Dalasis	Item	Dalasis
Gear stores	1 050	Maintenance	565
Dry fish stores	200	Salaries	625
Smoking facilities	1 500	Equipment	375
Drying racks	135	Transport of sand	25
Private Mechanic	30		
Grand Total	2 915	Grand Total	1 590
January 1994 Balance		D 1 325	
Total Balance January 19 94 (10 398 + (2915-1590))		D 11 723	

Appendix 2:

Summary of Constraints by User Groups in Gunjur CFC

Issue	Cause	Propose Solution	Follow-up Action
WOMEN SMOKERS			
(1) Lack of Working Capital	Inadequate financial management skills; social obligations eat up capital; fluctuating profits and losses; lack of organization	Initiate a revolving internal loan scheme; Fisheries Dept to seek credit facilities	FCMC request Fisheries to study the matter (Women have never benefited from loans in the past and promise not to use funds for family affairs)
(2) Excessive smoke in huts	Architectural defects	Make modifications to huts (Hut N°6 does not have this problem). Link new supplies at Salagi to smokers in a sustainable manner	FCMC should do this for the women. Women should attend meetings and lobby their cause to their husbands who are in the FCMC.
(3) No tap water near smoking hut	Existing taps inappropriately located	FCMC to reactivate tap near the Altona kiln building	Request approval from FCMC for this action stressing fire risks, security and health reasons
(4) No lights in huts	High cost of fuel for generator	GREC has promised to install solar panels at centre; Hurricane lamps (3/hut)	FCMC to follow-up issue of GREC solar panels with Director of Fisheries.
(5) No stores for processed fish	Existing store is grossly inadequate	Repair door of smoking huts to put products out of reach of animals	FCMC to approve this very important and urgent activity
(6) Fuelwood becoming scarce & expensive	Overexploitation of forest	Create Community Forest plantations. Link new supplies at Salagi to smokers in a sustainable manner	However note land tenurial problems. FCMC should follow-up. Explore possibility of using shore areas reserved for tourism
(7) No Ice	The Birkama iceplant was expected to serve all the CFCs	Pay for insulated boxes and get ice from Birkama	FCMC to help women in this endeavour
(8) Unreliable fish supply	Probable overfishing and/or increase effort	Create awareness and request women seek alternate employment eg veg. gardening	FCMC and Fisheries Dept to sensitize fishermen. Request land from Alkalo for vegetable garden.
(9) Inadequate space in Serrekunda Market	No space allocated for fish in the market	Request space to be allocated for sale of fish	Discuss matter at 7 centre coordination meetings and lobby parliamentarians

Appendix 2 Contd.

MEN SMOKERS			
(1) Lack of working Capital	Inadequate financial management skills; social obligations eat up capital; fluctuating profits and losses; lack of organization	Better organization; more financial management training	Centre and Fisheries Dept. staff to continuously help inculcate lessons on organization and business management.
(2) Inadequate smoking ovens	Too few ovens but many potential smokers	Construct others using rental fees	Encourage Smokers and FCMC to incorporate self help inputs
(3) No water tap in Smoking huts	Present taps were inappropriately located	Install tap.	FCMC should look kindly into this matter as Association is willing to pay part of the costs
(4) Insufficient Market for Smoked fish	Inadequate knowledge of possibilities in the interior of the country	Fisheries Dept to explore other markets. Send feature articles in IDAF News Letter etc.	FCMC and IDAF liaison officer to coordinate efforts
No Ice		Study economic feasibility of installing ice plant or cold room	Fisheries Dept to contact potential donors after study is completed
FISHERMEN			
(1) Unreliable supply of gear & equipment	Difficulties of import. No private sector involvement	FCMC to study possibility of getting supplies. Ensure all fishermen have ID Cards. Encourage private sector initiative.	Association to use some of its earnings for this purpose FCMC to sensitize population
(2) Inadequate quantity of pre-mixed fuel		Quota is set by Government. Permit fishermen to obtain supplies at other fuel stations	FCMC should encourage a full census of fishermen, gear type and fuel consumption so that Fisheries Dept. can request increase allotment from Finance
(3) No navigation Light		Explore possibilities to install it/them	FCMC to follow-up possibilities with GREC and GAMTEL Hotel (Fishermen are willing to contribute)
(4) Price fluctuation and related problems	Nature; absence of conservation facilities	Study economic feasibility of installing ice plant and/or cold room	Lobby Department of Fisheries and Aid Organisations
(5) No mooring sites		CFMC and Fisheries Dept. to study possibilities	CFMC to note and follow-up
(6) Trawlers destroying Nets	Encroachment by trawlers within the 7 nm limits and/or artisanal fishermen fishing too far out in sea.	Sensitize authorities on issue and seek appropriate action	Lobby Minister of Fisheries and Parliamentarians. Fisheries staff to brainstorm on the issue
(7) Fuelwood is scarce	Excessive exploitation of forest; high transportation costs	Create Community Forestry plantations, Link new supplies at Salagi with smokers in a sustainable manner	As fisherfolk are willing to mobilize resources for this activity discuss matter at Centres Coordination Meeting, engage procedure for land allocation Seek advice and collaboration with Forestry Dept.

Appendix 3:

Summary of Constraints by User Groups in Tanji CFC

Problem	Cause	Propose Solution	Follow-up Action
TANJI CFC WOMEN SMOKERS			
(1) Excessive smoke in huts	Architectural defects	Women will mobilise human and financial resources to make modifications. Fisheries, IDAF etc to study improvements	IDAF Liaison Officer to Follow-up
(2) No market for smoked fish	Too much fish in local market	Improve quality of fish, make market prospection	Dept. of Fisheries and FCMC to help
(3) Inadequate market space at Serrekunda	No space allocated for fish	Request space be allocated for fish	Discuss issue at 7 centres Coordination Meeting. Lobby through Parliamentarians.
(4) Insufficient Smoking huts	Increased interest in fish smoking	Build new huts and chorkor ovens	Present matter at FCMC. Stress women are prepared to mobilize
(5) No water taps near smoking huts	Water taps were inappropriately located	Extend pipes to huts	Present issue to FCMC stress equity issues, profitability and hygiene
VEGETABLE GARDEN			
(1) Disease, Pests and low quality seed	Inadequate technical assistance and follow up (Extension service)	Seek competent help	Contact FAO horticulture project for assistance and request CFMC to follow up and also contact other organizations.
(2) Damage by stray animals	Existing fence is defective	Repair and reinforce fence with live plants such as malaina	Work already started FCMC to contact Forestry to obtain cuttings of malaina and other fast growing varieties.
(3) Market is saturated	Too many people produce at same time	Grow vegetable in rainy season	Request land at high lying area from Alkalo
MEN SMOKERS			
(1) Lack of Working Capital	Inadequate financial management skills; social obligations eat up capital; fluctuating profits and losses; lack of organization trust.	Better organisation, more financial management training	Centre staff and Fisheries Dept. to, continuously help in inculcating lessons on organisation/business management
(2) Fuelwood is scarce	Excessive exploitation of forest	Create Community Forestry plantations. Link the new supplies at Salagi with smokers in a sustainable manner	As fisherfolk are willing to mobilize resources for this activity discuss matter at Centres Coordination Meeting, engage procedure for land allocation Seek advice and collaboration with Forestry Dept.
(3) Not enough Smoking huts	Too few huts and many potential smokers	Maintain existing huts and build other huts with local inexpensive but durable materials	As smokers are willing to use accumulated rental funds and provide human investment FCMC should encourage the Association
(4) Unreliable market for smoke fish	Inadequate knowledge of market	Smokers to be better organized to get a good deal from traders and transporters	Centre and Fisheries Dept. staff to help and follow-up
FISHERMEN			
(1) Inadequate Working Capital	Inadequate financial management skills; Social obligations eat up capital; fluctuating profits and losses; lack of organization trust.	Better organisation	FCMC and Fisheries Dept to help and follow-up. Contact NGOs
(2) Trawlers destroy nets	Encroachment by trawlers and/or artisanal fishermen fishing too far out in sea.	Sensitization of authorities on the issue and seek appropriate action	Lobby Minister of Fisheries and Parliamentarians Staff of fisheries Dept to brainstorm over the matter
(3) Less fish in sea	Increased effort, Destruction of spawning grounds. Inappropriate fishing techniques and methods	Create awareness among fishermen to prepare them to eventually propose management solutions	Centre and Fisheries personnel to maintain sensitization efforts
(4) No Ice, Cold Room or Ice plant.	The BirKama iceplant was expected to serve all the CFCs.	Undertake feasibility study to Install Ice plant/Cold room	Fisheries Dept to contact donors e.g. Japan for assistance FCMC to make formal request.