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Support Policies to Senegalese Fisheries

Paper prepared by
Karim Dahou, Enda Tiers Monde and M. Dème, CRODT
(*Centre de recherches océanographiques de Dakar-Thiaroye*)
with the collaboration of A. Dioum, CBAO
(West African Trade Bank)

1. Introduction

The history of State support to Senegalese fisheries divides into several main periods with differing impacts on the fisheries' economic, social and environmental sustainability. In the first of these periods, lasting approximately from Independence to the end of the 1970s, government policy was one of active support to the sector, taking the form of projects designed to promote industrial fishing. This policy failed for

reasons relating essentially to the dynamics of small-scale fishing, but in a context of financial crisis precipitated by indebtedness it could not have been continued in any case. Paradoxically, these subsidies, whose impact on the environment should have been extremely negative, proved in the end to have had but little effect. In theory, support to the capture component of fisheries through aids to boat construction should normally have a direct effect on the equilibrium of stocks. The resulting higher capitalization is not a consequence of general measures of support but, rather, the goal that the interventionist projects directly seek to attain. But in order for the risk of imbalance to become clearly pronounced, the principal effect sought—improved profitability of equipment that otherwise could not stand up to national and international competition—must first have been attained. This clearly did not happen because small-scale fishing, while receiving proportionally far less support, remained competitive enough to slow down the industrial sub-sector's development. Projects implemented under this policy were not sufficiently long-lived to bring about social or environmental changes of any importance. If anything, their main impact, albeit negative, was an economic one, the repeated failures of government interventionism leading to inappropriate allocation of investments at the national level.

In the second period, starting around the early 1980s, government support was at first reduced for reasons of structural adjustment and then switched from direct interventionism focused on the capture component to support mechanisms intended to encourage exports. Free-trade zone and duty-free export company status, the Lomé Convention, export subsidies, fisheries agreements and devaluation all contributed significantly towards tying the sector more and more firmly to foreign markets. While reducing its interventions and modifying their nature, the State also gave greater attention to the sector's development and to channeling support in a direction more favourable to small-scale fishing, the sector's main driving force. A number of mechanisms were set up in support of the modernization of small-scale fishing, until then in the hands of the fishermen themselves. Subsidies for motorisation and for the adoption of new fishing equipment (purse seine) were introduced in this context.

The consequences of these policies in terms of the fisheries' sustainability are ambiguous. On the one hand, small scale fishing has the built-in advantage of employing a larger workforce as well as of supplying the population with the animal proteins it requires and of selling the bulk of its output waste-free. While it is not easy to distinguish between the respective impacts of the growth of foreign demand, innovations introduced by the fishermen themselves and those resulting from government

intervention, all in all the 1980s and 1990s were undoubtedly a period of maximum growth of small-scale fishing. On the other hand, closer analysis reveals that the boom in small-scale fishing did not necessarily achieve all the anticipated results in terms of the fisheries' sustainability.

While small-scale fishing, by employing nearly 15 per cent of the working population, clearly contributed significantly to reducing unemployment, it did not offset the main problems arising from the increase in exports of sea products—the threat of biological depletion of the species exported and of a breakdown in the supply of cheap protein to the population. Many small-scale fishermen have, in fact, switched their activities to species of high market value, with the result that today they account for about 60 per cent of the raw material supply of the country's exports units.

The Senegalese fisheries sector plays a significant role in foreign trade, food security and employment, three areas that are crucial national issues. The importance of all three places a constraint upon any approach to subsidies that would focus exclusively on their environmental consequences and ignore their contribution to certain strategic areas of national development. On the other hand, the threat that certain support mechanisms represent to these or other equally strategic areas seems propitious to the adoption of sustainable compromises. *Mutatis mutandis*, the study of subsidies to Senegalese fisheries does not confine itself to analysing their environmental consequences but also addresses their positive or negative contribution towards the sector's sustainable growth within the set of constraints determined by its social functions.

2. Until the 1980s: direct support to production, at first industrial, then small-scale

In its implementation programmes the State developed a policy of gradual substitution of industrial vessels for small-scale fishing. This policy was articulated around attempts to build a national tuna fleet and the introduction of new forms of coastal pelagic and demersal fishing. So far as the tuna-fishing industry was concerned, the *Société sénégalaise d'armement à la pêche (SOSAP)* was set up in 1962, becoming operational from 1965. After a number of setbacks, due partly to inappropriate technical choices and poor management as well as to the stepping up of international competition and the subsidising of their own fisheries by developed countries, this company was liquidated in 1976, having swal-

lowed up most of the State funds earmarked for the fisheries sector. To this should be added some difficulties met with in connection with demersal fishing, the implementation of a trawl-fishing project forming part of the policy of replacement of traditional pirogues by semi-industrial boats (Kebe, 1991). This attempt likewise failed, the trawlers proving unable to compete with small-scale fishing³⁶. The authorities then tried to align small-scale fishing upon the industrial model, as attested by the project of modernization of coastal pelagic fishing aimed at replacing small-scale boats by industrial-type sardine boats. This again proved unsuccessful. While it can be argued that lack of experience on the part of managers and crews (recruited from among traditional fishermen) was partly responsible for this failure, the main cause would seem to have been the inability of industrial fishing to compete economically with the small-scale sub-sector.

Despite the interest in small-scale fishing shown by the Government of newly independent Senegal, the fact remains that the chief beneficiary of successive plans for the sector's development was industrial fishing. The first two four-year plans were devoted principally to building a tuna fleet; the third clearly favoured industrial fishing; the fourth (Domingo, 1982), in allocating to the small-scale sub-sector a mere 14 per cent of funds earmarked for the fisheries sector, represented an increase in the latter's share of State funds.

While industrial projects thus succeeded one another, pirogue fishing nevertheless underwent considerable change, the small-scale fishermen adjusting rapidly to the new operating conditions. These successive adjustments enabled small-scale fishing to achieve significantly better output rates and consequently to increase its output. Production rose exponentially from some tens of thousand tonnes in the 1970s to almost 350 000 tonnes in 1997 (as compared with industrial fishing, which peaked at 130 000 tonnes). This success was naturally taken into consideration by the authorities, which switched their interventions to the small-fishing sub-sector and, in particular, to equipment and marketing.

As regards equipment, the State initially sought to generalize the use of boat engines by making its loans conditional upon the fishermen's forming co-operatives, which were supposed to manage the funds received. The debt repayment crisis of the late 1960s precipitated the

failure of the earliest of these co-operatives. This first stage ended with the cancellation of non-reimbursed debts, undoubtedly the largest subsidy ever granted to small-scale fishing (or programmed in its respect). The second stage of motorisation involved the setting up of the *Centre d'Assistance à la motorisation des pirogues* (CAMP) in 1972. This body, established thanks to Japanese co-operation, was more fully equipped to achieve financial equilibrium. The fishermen, long convinced of the usefulness of engines, proceeded to generalize their use. The spread of the new technology was due to the availability of new resources rather than to reorganization of the cooperative system. Intervention at State level continued with the introduction of the purse seine. Following a successful demonstration by FAO in 1973, the number of purse seine units rose rapidly from 120 in 1977 to 230 in 1981, 265 in 1983 and 303 in 1989.

As regards support to marketing, the 1962 project to establish the sales cooperative of Dakar-Marée was a repetition of the Coopmer venture of 1954. Once again, the project failed to organize the fish and seafood wholesalers, who found it more advantageous to operate outside a State-administered system. The CAPAS (*Centre d'assistance à la pêche artisanale du Sénégal*) project was launched in 1978 with the aim of marketing fish through fishermen's cooperatives. Because of its limited size, however, the project could not hope to handle more than 10 per cent of landings and therefore could not exercise an appreciable influence on prices. Another part of the project (supplying the interior of the country from three centres, Joal, Kayar and Rufisque) was hampered by the high maintenance costs of the refrigeration chain. The project as a whole ran into the same difficulties as its predecessors: that of persuading the fishermen to join an organization "imposed from outside", that of relations between the organization and the wholesalers, and that of the low level of prices offered to the fishermen (Chauveau, 1984). The CAPAS marketing operation was finally abandoned in 1987. After a period of joint management, the centres were to be handed back to the fishermen's cooperatives. The State is currently evaluating the assets before effecting the transfer.

State action was then oriented towards the construction of secondary ports and roads, but expansion continues to be fuelled by endogenous changes such as restructuring of the wholesale fish trade towards greater marketing flexibility, the boom in traditional processing, technical innovations, etc.

³⁶ It should be noted that the labour productivity of small-scale fishing is as high as that of semi-industrial fishing although its capitalisation is lower.

3. The present: support to small-scale fishing and mechanisms in support of exports

After a period in which advantages were offered to industrial production, the State gradually turned to policies of support to the small-scale sub-sector, first by means of direct interventions in favour of the capture component and later through mechanisms in support of marketing, particularly for export. Today, the State's financial assistance to fisheries, both direct and indirect, can be summed up as follows:

- Modernisation assistance through the creation of infrastructures (fishing wharves, Central Fish Market), a policy of tax reductions on fishing equipment (motorisation), fuel subsidy, setting up of structures to finance the sector);
- Assistance to marketing (support to the fish and seafood trade, export subsidy, devaluation, Lomé Convention, alignment with international standards, duty-free export companies, fishing agreements) aimed at achieving greater competitiveness and a stronger penetration of foreign markets by Senegalese sea products;
- Assistance to small-scale processing.

A. Support to modernisation

Policy of tax reductions on engines and fishing equipment

The spread of the use of outboard engines in small-scale fishing, which began in the 1950s, reached its peak in 1965 when CAMP was selling engines tax-free and on easy terms. The impact of motorisation was considerable from both the technical and the economic points of view. The use of engines appreciably extended the capacity of small-scale fishing vessels by enabling them to reach previously inaccessible distant fishing areas. It greatly reduced travel times and substantially extended the time available for actual fishing operations. It encouraged migration of Senegalese small-scale fishermen along the coasts of the West African sub-region and the development of distant fishing. There can be no doubt that the introduction of the engine in small-scale fishing has been the main factor in promoting the enlargement of pirogues, thereby facilitating their adaptation of new fishing techniques such as purse seine.

Today it is safe to say that motorisation is close to 90 per cent and includes all pirogues that could be motorized with a reasonable degree of profitability. The cumulated amount granted by the Government in annual tax reductions for the purchase of outboard engines is CFA francs (CFAF)³⁷ 2.01 billion.

Despite the adjustment measures taken, motor fuel remains by far the most important item of intermediate consumption by motorized fishing units, accounting for about 50 per cent of their total costs. In the interests of energy-saving, the public authorities invited Japan to design diesel engines suitable for the operating conditions of Senegalese small-scale fisheries. The dieselisation project was launched in 1994 as part of Japanese non-refundable financial cooperation. CAMP received 100 27 HP diesel engines to be sold to fishermen. This project suffered from major constraints due essentially to technical shortcomings—low engine power, shortage and high cost of spare parts, difficulties with the supply of tax-reduced diesel oil, lack of specialized repairs mechanics and poor after-sales service.

Large resources of small coastal pelagics (sardinella, scad, *pelon*) in coastal waters, hitherto little exploited by small-scale fishing, strong demand for cheap fish and the successful introduction of encircling nets in the 1960s encouraged the Government to promote the use of purse seine. Following conclusive tests conducted in the early 1970s with the assistance of FAO, the new technique became widespread from 1973 onwards. This was, after motorisation, the second major technical breakthrough in pirogue fishing since 1960. Its consequences are enormous, as follows:

- Unprecedented growth of landings, resulting in the development of fresh fish marketing and of the small-scale braising industry (*kéthiakh*), particularly on the *Petite Côte*;
- Technological effects of the construction of large pirogues capable of carrying large catches (up to 20 tonnes).

Annual tax reductions granted in connection with the replacement and/or purchase of purse seine nets amount to CFAF 0.6 billion.

³⁷ On 10 January 2002, CFAF 1 billion equals EUR 1,524,490 as well as US\$ 1,354,055.

Fuel subsidy

This subsidy has been a decisive factor in the modernization of fishing equipment, facilitating the use of more powerful engines, contributing towards the enlargement of pirogues and helping to prolong sea trips and to open up new fishing areas. It considerably reduces the working costs of fishing units, thereby (in theory) keeping the price of fish caught by small-scale methods at levels compatible with the purchasing power of the Senegalese population. However, the orientation of the small-scale sub-sector's activities towards the export market makes it legitimate to wonder whether the ultimate beneficiaries of this form of government support are not a handful of industrialists and the foreign consumer.

The fuel subsidy to small-scale fishing alone rose from less than CFAF 2 billion in 1986 to over CFAF 6 billion in 1998 (see Table 1 in Annex).

Policy of funding activities

1. Small-scale fishing: Caisse Nationale de Crédit agricole du Sénégal (CNCAS)

As a development bank—the role for which it was originally intended—CNCAS plays a preponderant part in funding all rural activities and functions, including fishing.

CNCAS has been closely involved in funding the fisheries sector, first from its own equity and later through managing the credit lines of certain development projects involving small-scale fisheries, including the credit components of the Petite Côte small-scale fishing development project (PAPEC), the Ziguinchor small-scale fishing development project (PAMEZ) which later became the project for the support of small-scale fishing professionals of Casamance (PROPAC), the project for the support of mutual savings and credit companies in Senegal (PAM-ECAS), and funds generated under the recent fishing agreement in support of the small-scale sub-sector concluded with the European Union.

We must point out, however, that despite corrective measures taken, interventions by CNCAS on behalf of small-scale fisheries have suffered from the outset from serious shortcomings. This inappropriateness is reflected in the smallness of the fund's portfolio, which has not risen above CFAF 3.2 billion in ten years of intervention in the sector. The difficulties encountered include the following:

Conditions of access to credit, considered restrictive. The introduction of a self-financing requirement for borrowers is perceived as discriminatory and the 12.5 per cent annual interest rate is thought excessive considering that CNCAS pays less than 4 per cent interest on its credit line;

Difficulties of loan recovery due to producers' insolvency; lack of permanent guarantees; after-effects of the co-operative credit system which preceded the CNCAS intervention; fund releases at unsuitable moments (off-season); and the fact that many of the fishermen do not have bank accounts.

2. Industrial fisheries

The *Fonds de Promotion Economique (FPE)*, set up in 1991 as part of the national policy of encouragement of the private sector, is organised on the basis of three funds:

- An "economic advancement" fund, which is a credit line of CFAF 39 billion made available to the Senegalese Government by the African Development Bank (ADB) for the re-financing of banks for small and medium-sized enterprises (SME) (loans corresponding to 70 per cent or less of project cost; maximum rate of interest 13 per cent; opening fee 1 per cent; maximum loan repayment period, 15 years with possibility of extension by a further 5 years);
- A guarantee fund (to cover risks involved in lending to SME);
- A "participatory loans" fund of CFAF 3 billion set up by the State to offset inadequate equity of entrepreneurs.

Compared with other sectors of economic activity, FPE funding of industrial fishing projects is relatively limited (a little under 8 per cent of CFAF 3.5 billion between 1991 and 1995). That this funding corresponds to approximately 40 per cent of all investment programmes executed under this head reflects the high level of self-financing (60 per cent) and clearly demonstrates the difficulties experienced by fishing companies in financing their investment needs.

Construction of fishing wharves

Except at Hann, Joal and Rufisque, hygienic conditions at landing areas in Senegal's major small-scale fishing centres are far from satisfactory. Catches are deposited on the sand to await buyers, so that the risk

of contamination is very great. No parking lots or packaging areas are available to wholesalers.

Faced with these constraints, the public authorities embarked upon a programme of construction of landing wharves in the main sea-fishing centres (Saint-Louis, Kayar, Yoff, Soumbédioune, Toubab Dialao, Yenne and others). The construction of concreted selling areas is seen as a first step towards the creation of proper auction markets, while the construction of parking lots for wholesalers' vehicles is expected to improve the hygienic conditions of fish freezing and packaging operations.

Central Fish Market

The Central Fish Market *Marché central au Poisson* (MCP) was built in 1992 and became operational in 1993, its cost of CFAF 3 117 billion being financed jointly by Japan (90 per cent), the Government of Senegal (7 per cent) and what used to be known as the Urban Community of Dakar (3 per cent). Its construction was prompted by the need to improve the quality of marketed products. With its three refrigeration plants, three warehouses and three cold-rooms, the MCP ensures the preservation of unsold products and provides ice to fish traders at competitive prices. As the country's central fish market it facilitates deliveries to secondary markets and helps to regulate the fish supply in the Dakar area.

The CFM was enlarged in 1998 at a total cost of over CFAF 3 billion, financed by Japan (99 per cent) and the Government of Senegal (1 per cent).

B. Support to domestic and external marketing

Fish trading centres and refrigeration chain

Until the mid-1970s investments in small-scale fishing went principally to the development of "upstream" activities. The early 1980s saw the funding of some large-scale projects aimed at improving marketing conditions. The argument advanced in favour of this change was that fresh fish marketing in Senegal suffers from a number of shortcomings, *viz.*:

The absence of preservation infrastructures on the beaches puts fishermen in a weak position vis-a-vis the traders and affects fish quality at

the very beginning of the marketing cycle. This was the rationale of the CAPAS (*Centre d'Aide à la Pêche Artisanale Sénégalaise*) project.

Inadequate guarantees offered by small-scale fish and seafood traders as regards the quality and regularity of fish supplies. This was the argument in favour of the refrigeration chain project.

Duty-free export companies

Duty-free export company status was instituted by Act No. 95-34 of 29 December 1995. The main object was to boost the development of Senegalese exports with a view to reducing the gap in the balance of trade through foreign exchange earnings and the creation of local value added. Other objectives were to encourage paid employment and, to speed up the country's industrialization.

The duty-free export company is an export-oriented industrial or agricultural enterprise. The fisheries sector is included under agricultural activities. The duty-free export company, instituted for a renewable 20-year period, may be located anywhere in the national territory. Advantages arising from this status are essentially the following:

- Exemption from all duties and taxes levied on capital goods, equipment, commodities and finished or semi-finished goods entering or leaving the country;
- Exemption from VAT, customs stamps, registration and stamp duties, licences, etc.

The main conditions are: export activities corresponding to not less than 80 per cent of turnover and payment of an industrial and commercial profits tax (BIC) at a rate of 15 per cent (instead of 33 per cent).

Export subsidy

The granting of an export subsidy was a political step in line with the national policy of encouraging the penetration of international markets by domestic products. Together with the value added already created by companies, this subsidy helped to pay for production factors. It enabled the exporter to offer products at competitive prices without relaying any surcharges connected with domestic factors. The social and economic benefits of this method of protecting certain areas of activity were deemed to be at least equivalent to its cost to the public purse.

The subsidy, first instituted for agricultural products in 1980, was extended to tuna in 1983 and raised from 10 per cent to 15 per cent. A further adjustment in 1986 introduced the criterion of industrial value added into the system of determining the amount of the subsidy, extended the subsidy to all sea products and raised the rate to 25 per cent. By way of example, export subsidies to the trawler fishing industry in the fiscal year 1991/1992 amounted to CFAF 12 billion.

Following the devaluation of the CFA franc and in view of emerging possibilities of recovery of the sea fishing industry, the export subsidy was abolished by presidential decree at the end of March 1994.

Devaluation of the CFA franc

The efficacy of the CFA countries' structural adjustment policies (SAP) was very limited. This was found to be the case as far back as 1989 both by the IMF, which suspended its loans, and by France, which refused to continue to support structural adjustment in the absence of an agreement between the CFA countries and the Bretton Woods institutions. The decision to devalue the CFA francs was taken in 11 January 1994.

The development partners who recommended this monetary adjustment, aware of the great importance of the issues at stake—revival of exports and restoration of the area's economic credibility—undertook to provide better support to CFA countries in their efforts to promote economic revival and to curb the undesirable effects of devaluation. In practice, this commitment took the form of the adoption of various accompanying measures.

In this context, fisheries received special attention from donors because they were thought to meet the need both for food security and for increased exports. However, one of the most strongly felt effects of devaluation was the imbalance it created between the domestic and the export market, food security being, in practice, overshadowed by the recovery of exports. The prospect of large profits on foreign markets led many operators to concentrate on exports, to the detriment of meeting domestic demand.

The Lomé Convention

Since 1982, duty-free imports of African goods, and in particular of sea products, into Europe have been authorized under various sections of

the Lomé Convention concluded between the European Community and the ACP (African, Caribbean and Pacific) countries. The dependence of these countries on the European market, already considerable, has steadily increased. Senegal is no exception, the more so as its colonial past has meant that most of its exports were in any case reserved for Europe, and more especially for France. Today, over and above the strong presence of European capital in the industrial fisheries sub-sector, over 60 per cent of exported Senegalese sea products end up inside the European Union.

Fishing agreements

Senegal has concluded many fishing agreements with foreign countries, by far the most important among them being those with Japan and the European Union. Those with Japan relate mainly to tuna, while those with the European Union concern coastal demersal and, more recently, pelagic fisheries. These agreements are attracting greater attention because they involve species that are endangered or used locally, i.e. that are strategic from the point of view of food security, as well as greater quantities and larger counterpart funds. All these agreements are, in fact, disguised subsidies, since the major part of the resource access price is borne by the national authorities of the fleet authorised to fish under licence. Dues paid by European ship-owners covered by the agreements thus represent only about 10 per cent of the resource access price, the remainder corresponding to counterpart funds disbursed by the European Commission. This situation allows fleets which otherwise would probably have been forced to withdraw from what is, in Europe, a highly competitive sector to capitalize on their fishing equipment in African waters.

Policy of alignment to international standards

In 1995, as part of the "Support to the Restructuring of the Fishing Industry" project, *Coopération Française* in collaboration with the Senegalese authorities initiated a policy of aligning export companies and industrial fishing vessels (freezer ships) to European standards, the European market being currently the main recipient of Senegalese sea products. A subsidy of CFAF 1.7 billion was granted to some 30 companies as a means of financing up to 30 per cent of their investments.

C. Support to small-scale processing

Despite the economic and social importance of small-scale processing (local marketing of sea products, animal protein supply, employment etc.), the techniques used are still rudimentary and do little by way of upgrading the products. Most processing procedures involving the main products of small-scale fishing, in particular braising, are carried out on the ground, causing—inter alia—production losses and unsatisfactory product quality.

In order to remedy these shortcomings, various government bodies have been experimenting with Chorkor and breezeblock ovens. The goals pursued by all these projects are the same, namely, to improve the quality of the products processed, to extend their period of conservation and to develop new products using non-upgraded species.

The use of the Chorkor oven imposes a number of constraints on the operator. Since products obtained by this technique do not form part of the traditional diet of Senegalese consumers, they are essentially intended for export; in fact, only foreign communities have adopted this technique. The output capacity of these ovens is half of that of traditional ovens only and smoking takes up to three days[§] and requires careful supervision. Construction and maintenance costs are rather high and the hardwood required as fuel is very scarce and relatively expensive. However, these ovens do make it possible to develop new products and of good quality (using non-upgraded species, well-smoked, attractively coloured, less liable to bacterial contamination and with a longer conservation period).

Unlike the Chorkors, breezeblock ovens produce the same products as so-called traditional methods (*Kéthiakh*). Their output capacity exceeds those of traditional and Chorkor ovens by, respectively, 40 and 70 per cent, which amply makes up for the additional investment costs. The relatively short smoking period (2 to 3 hours) makes this processing technique better suited to one-man operation, mostly practised in this trade, as well as being easier to use. Operating costs are reduced owing to the possibility of using various wastes (millet straw, dry foliage, sawdust etc.) as fuel. Another major advantage of the breezeblock oven is that it is suitable for both braising and smoking. Furthermore, breezeblock ovens produce significantly less smoke pollution than the traditional method, causing less negative environmental and health impacts.

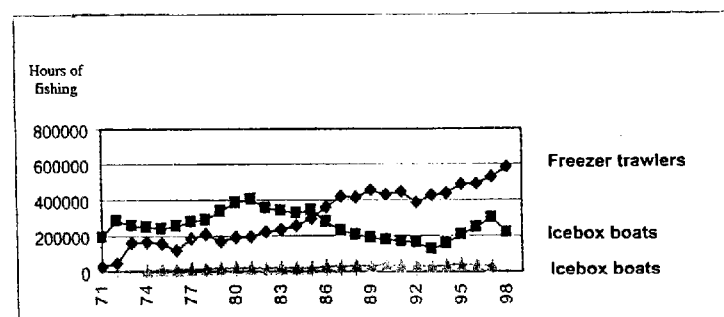
4. Development of stock level indicators for the main export species

Mechanisms of support to fisheries, which since the 1970s and 1980s have been oriented towards small-scale fishing and, at the same time, towards exports, have entailed an increase in the fishing pressure exerted by trawler and small-scale fishing fleets on coastal demersals, the main species exported to markets of the North. A study relating to twenty or so demersal species, based on trawling evaluation campaigns and on fishing statistics and covering the past twenty years, has recently been completed³⁸. It reveals a decline in stock level indicators, and more specifically in catches per unit of effort, for most of the species reviewed.

A. Relative stock levels based on evaluation campaigns

The evaluation campaigns were conducted between 1986 and 1995. The period covered is a highly important point. The diagram below, which shows the development of the fishing effort of Dakar-based demersal trawlers, reveals that all the campaigns took place when considerable fishing pressure was already being exerted on the coastal demersal resources in question.

Figure 1
Evolution of the fishing effort of
the Dakar-based demersal flotilla



³⁸ UNEP. The Socio-Economic and Environmental Impacts of Trade Liberalization on the Senegalese Fisheries Sector, 2001.

1986, the year of the first evaluation campaign, was also the year in which the fishing effort of freezer trawlers began to exceed that of icebox boats, which had begun to decline in the early 1980s. To anyone familiar with the icebox boats operators' strategy, this decline would seem to suggest a diminution of the stock level of the principal target species (African threadfin, sea bream, grouper and shrimp). Another explanation for the decline in the fishing effort of icebox boats, which cannot stay out at sea as long as freezer trawls, is the steadily increasing competition from freezer and deep-lying trawls. The increase in overall fishing effort has also had a considerable impact on each of the species tapped. Here, a major difficulty arises from the fact that the available data shed no light on specific stock levels prior to 1986. This lacuna can, however, be filled by undertaking an analysis of catches per unit of effort on the basis on fishing statistics.

The increase in fishing effort recorded for all flotillas in 1994 is highly indicative of the strategic adjustments made by boat-owning fishermen following the devaluation of the CFA franc.

The development of stock level indicators for species captured by deep-sea trawls during the evaluation campaigns shows a significant overall decline between the beginning and the end of the period. Almost all species were affected. Total catches (all species) for the whole of Senegal's continental shelf fell from about 1 000 kg per hour in 1986 to 500 kg per hour in 1991, which corresponds to a reduction by 50 per cent.

At the beginning of the period, the *Serranides* group, which includes all groupers (*genus Epinephelus*) showed a relatively low stock level, as the 30 kg of fish caught per hour for all species reflects. At the end of the period, less than 10 kg of fish were caught per hour. The same phenomenon is observed in the case of *Sparides*, especially the species belonging to genus *Pagrus* (*pagres*): while over 40 kg were caught per hour at the beginning of the period, less than 10 kg were caught per hour at the end.

However, the relative stock level of certain species such as octopus (*Octopus vulgaris*) rose over the same period. While less than 5 kg of octopus were caught per hour in 1986, catches reached 10 kg per hour in 1995 and even exceeded 15 kg per hour in 1994. The same is true of other secondary species, such as scorpion fish and hake, found along the edges of the continental shelf and on continental slopes.

B. Relative stock level based on fishing statistics

Capture and fishing effort statistics for the period 1971 to 1998 are available in database form.

Analysis of the development of stock level indicators over that period (28 years) confirms the observations made during trawling evaluation campaigns in that it indicates a sharp fall in catches of all species per unit of effort. Some species, however, are particularly strongly affected. They belong to both *Scianidae* and *Sparidae* and are specially targeted for export.

The relative stock level indicator for *badèche* (*Mycteroperca rubra*) was less than 10 kg/h in 1998 as against 50 kg/h in the 1970s.

The catch per unit of effort of all species of African threadfin (*Pseudolithus spp*) was less than 10 kg/h in 1998; at the end of the 1970s it was over 2 tonnes.

The stock level indicator of red seam bream which exceed 300 kg per hour in 1975, had fallen to 50 kg per hour in 1998. The stock level indicator of pageot (*Pagellus bellottii bellotti*), which was over 1 000 kg per hour in the early 1980s, declined sharply in the second half of that decade. However, that this trade name is used to designate several species of *Sparidae*; in fact, the designation covers both coastal demersals found on the continental shelf, such as *pagre* (*Pagrus caeruleostictus*), and those found on the edge of the continental shelf and on the slopes, commonly known as deep dentex (*Dentex macrophtalmus*, *D. canariensis*). The real decline in the stock level of one species is disguised by an increase in that of another. Gradual domination by deep dentex along the edge of the continental shelf and on the slopes has, however, been observed in the past few years.

The stock level indicator of *pageot* (*Pagellus bellottii bellottii*), which was over 1 000 kg per hour in the early 1980s, declined sharply in the second half of that decade. Since 1990 it has fluctuated between 200 and 400 kg/h, showing a slight upward trend, which may be due to the fact that this trade category also includes species found on the edge of the continental shelf or on the continental slopes.

The stock level indicator of *machoirons* (*Arius spp*) has followed the same pattern as that of *pageot*, falling sharply in the second half of the 1980s (from over 4 000 kg per hour in 1981 to approximately 100 kg per

hour in the early 1990s). Since 1996, the stock level indicator of *machoiron* has risen significantly.

The stock of *Thiékem* (*Galeoides decadactylus*) has declined since the early 1980 (as indicates the fall in the stock level indicator from over 1000 kg per hour in 1981 to around 130 kg per hour in 1995).

The catch per unit of effort of black seam bream (*Plectorhinchus mediterraneus*), which had been over 140 kg per hour in 1977, fell to less than 20 kg per hour in 1998.

The stock level of coastal white shrimp (*Penaeus notialis*) fell to 60 kg per hour from over 800 kg per hour in the early 1970s.

The same is true of *thiof* (*Epinephelus aeneus*), whose stock level indicator was less than 10 kg per hour in 1998 as against 140 kg per hour in the early 1970s.

The relative stock levels of a few species have, however, shown an upward trend, which may be evidence that certain replacement phenomena are taking place. The species concerned are cuttlefish, rock sole, octopus and, to a lesser extent, *brotule*, *sompatt* and red mullet.

The study of fishing statistics suggests that the available campaign-based information was gathered at a time when stock levels for the resource as a whole were already low. The decline in stock levels for a number of species determined on the basis of the evaluation campaigns is far smaller than that recorded over a longer period of nearly 30 years.

C. Explanation of the development trajectories observed

The explanation of the overall decline in stock level indicators for coastal demersals lies both in the increased fishing effort and competition with regard to these species and in the development of harmful practices in response to that decline. Furthermore, the observed decline in catch per unit effort took place during a period of rapid technological upgrading of fishing capacity which, all else equal, should have improved fishing efficiency and led to greater catch per unit of effort.

In the medium term, illegal incursions by demersal trawlers in certain areas very near the coast are causing erosion of biodiversity and deterioration of habitats in the areas concerned. For example, they explain the fact that off the central delta of the Saloum, large grey mullet (*Mugil*

cephalus) measuring 70 cm are nowadays caught only by chance. The aquatic plant habitats this species prefers have been destroyed, scraped away by trawler nets from vessels in search of sole and cuttlefish in an area reserved for small-scale fisheries.

The coastal fraction of stocks exploited further offshore by industrial fishing vessels is fished by small-scale fishing units. This fraction has an essential function in supplying offshore fisheries with full-grown individuals. Coastal areas are breeding grounds for almost all demersal species. Juveniles and young individuals of marketable species are confined to these areas from birth to capture age. Uncontrolled exploitation of these vulnerable resources by small-scale fishermen using destructive non-selective fishing methods causes considerable harm to the renewal of adult stocks tapped by industrial fisheries and consequently to stocks of reproducers needed to supply the coastal breeding grounds with juveniles. The decline in relative stock levels is therefore not due to industrial fishing activities alone. Senegal's small-scale fisheries, access to which is currently free, are exploiting the coastal strip in an intensive and often irresponsible manner. Cases of failure to apply certain regulations, in particular those relating to mesh size, to small-scale operators have been observed. Growing resource scarcity is responsible for competition-induced conflicts between the two types of fishing, ranging from occasionally dramatic incursions by industrial fishing units into areas reserved for small-scale fisheries to the export industries trying to supply their enterprises with the small-scale sub-sector's captures.

The overall fishing effort level is well above that which would be sustainable. The need to make their sea trips profitable by increasing the size of catches is forcing fishermen to react by adopting compensatory adjustment measures, such as fishing in increasingly distant waters or entering into association with industrial trawlers. Catches of noble species by small-scale fishing boats are then purchased and preserved for export on board the trawler, which serves as a refuelling and safety base for the pirogues. Such mutual interest associations contribute towards the further depletion of coastal fishing areas by increasing the small-scale fishing effort. They also lower the quality of fish reaching the domestic market.

So far as industrial fisheries are concerned, the adoption of compensatory adjustment measures by way of reaction is most evident in the case of shrimp trawlers. Because of the smaller mesh size used (40 mm instead of 70 mm for fish) and because the kind of shrimp in demand on the market is scarce, most shrimpers now catch only fish, with an infinitesimal proportion of shrimp in landings following a sea trip. The use of shrimp

nets to catch fish entails the rejection of very large quantities after sorting, which contributes to resource depletion and reduces the stock levels of the species fished. In 1998 the Fisheries Board decided, with the support of the Research Department, to monitor the specific composition of the shrimpers' nominal landings. Several vessels previously in possession of a shrimp fishing licence were "downgraded" to fishing boat status because of the small proportion of shrimp landed following several sea trips.

The latest measure taken by the authorities in charge of fisheries has been to impose a freeze on the industrial fishing effort. While this step may have political significance, it is of little value from the biological point of view. A reduction of fishing effort, rather than a freeze, would have been more appropriate. Moreover, the measure applies only to industrial fishing, ignoring the considerable pressure exerted on the resources of the coastal zone by small-scale fishing. The table below, which shows the comparative development of small-scale and industrial fleets from 1980 to 1998, is highly instructive in that regard.

YEAR	INDUSTRIAL FISHING			SMALL-SCALE FISHING	
	National Fleet	Foreign Fleet	Total	Number of pirogues	Number of fishermen
1980	121	163	284	8 488	30 707
1985	154	85	239	5 100	41 770
1990	132	135	267	10 411	48 122
1994	137	102	239	9 632	52 498
1998	176	75	251	10 707	51 197

Source: MP/DOPM

5. Specific environmental and socio-economic impacts of different categories of subsidies to Senegalese fisheries

A. Support to modernisation

1. The policy of tax reductions on boat engines and fishing equipment reflected the authorities' recognition of the central role played by small-scale fishing in the sector's development. Motorisation

has unquestionably been the decisive factor in modernising the small-scale sub-sector. Larger pirogues, longer sea trips, the opening up of new fishing areas and the introduction of the purse seine are its direct consequences. On the other hand, it is not certain that motorisation was a direct result of the Government's tax reduction policies. It was certainly encouraged by them, but measured against the sector's turnover of CFAF 200 billion, the CFAF 2 billion in annual tax reductions does not amount to a great deal. If this assistance were withdrawn, most of the operators would probably take to self-financing their activities. Only the least profitable enterprises might, at worst, be forced out of the sector. But these are, for the most part, pelagic fishing units, which—considering the production margins for pelagics—do not involve the same environmental problems as demersals. Moreover, the vessels concerned are oriented towards meeting domestic demand and are thus performing an important function as regards the country's food security. Whether there is any justification for maintaining these subsidies in respect of mostly prosperous export-oriented fishing units whose activities do not benefit the Senegalese consumer is an open question.

2. Even where government intervention is confined to subsidising production, it still strengthens fishing capacity by reason of its technological impact. In this category, the fuel subsidy is having the most immediate impact on technological development by encouraging boat owners to acquire more powerful and more fuel-consuming engines. Boats equipped with such engines enable the fishermen to go farther out to sea, to stay at sea longer and to increase their catches. There can be no doubt that the fuel subsidy has had a significant impact in terms of extending the length of sea trips of icebox pirogues and has helped to intensify the demersal fishing effort. Whether it should be maintained in the present context of improved profitability of export-oriented fishing is open to question. A solution that distinguishes between pelagic and demersal fishing should probably be sought.

3. As regards the policy of funding activities, notwithstanding the attractive conditions offered (20 per cent self-financing requirement instead of the usual 33 per cent required by project promoters; subsidised loans, preferential interest rates, etc.), the size of the CNCAS portfolio is too small for such funding to have had a significant social or environmental impact. In any case, the situation of small-scale fishing enterprises varies too greatly, both economically and in terms of their contribution to the national interest, for it to be possible to pass a final judgment. These policies benefit fishing units that would be making a profit even without them, although they (demersal fishing units) contribute only little to food

security, and, moreover, they provide no guarantee of continuing existence to pelagic fishing enterprises. As regards industrial fishing, the *Fonds de Promotion Economique* (Economic Promotion Fund) cannot finance large-scale projects, which explains the underdevelopment of tuna fishing. The chief beneficiary of the FPE is trawler fishing, already sufficiently developed considering the present level of exploitation of stocks of crustaceans, demersals and cephalopods.

4. The construction of fishing wharves, for its part, should have a positive environmental and hygienic impact. In the first place, owing largely to lack of landing infrastructures, the proportion of rejects in small-scale fishing is very large (some 20 per cent of output) and fishing wharves could help to increase landings. Secondly, the fact that landings are performed under highly unsatisfactory hygienic conditions is an argument in favour of the construction of wharves from the public health point of view.

5. Despite the relatively small quantities involved, the central fish market has played a positive role in improving the quality of marketed products and has helped to regulate the fish supply in the Dakar area. Leaving aside the question of its specific importance, the role of the Central Fish Market should be viewed in a national perspective. Local distribution of fishery products is extremely limited. Marketing constraints are such that great inequalities continue to exist between Dakar and the rest of Senegal, between coastal areas and the interior, and between urban centres and the countryside.

Tax reductions on engines and fishing equipment are probably having a greater impact than funding policies, but they suffer from the failure to differentiate between different categories of enterprises operating in the sector. At the same time, the inadequacy of existing infrastructures does not allow small-scale fishing to benefit fully, on the domestic market, from the strong demand generated by a growing population. The need to create conditions for the satisfactory operation of domestic markets is evident. In terms of policies this implies strengthening the material infrastructures of markets in the interior, especially communications and storage facilities. Wholesalers and retailers are confronted with an acute shortage of adequate vehicles and storage facilities. A large proportion of landings are lost altogether and what remains has to be sold very quickly. This reduces the wholesalers' bargaining power and ultimately discourages investment in this activity. Planning and construction of storage facilities by the public authorities for the benefit of the private sector would help to mitigate extreme price fluctuations.

B. Assistance to internal and external marketing

1. Projects to establish fish trading centres and a refrigeration chain have come to nought, mainly because they proved unable to cope with a substantial portion of the landings, but also because they were based on a conflictual view of the relationship between fishermen and small-scale wholesalers. In reality, wholesalers were prompt to grasp the value of "upstream" investing in the purchase of boats and fishing equipment in order to ensure an abundant and regular supply. In its dealings with an industry where spontaneous dynamics have always prevailed over attempts at State administration, the State should confine itself to providing adequate marketing infrastructures and should leave the development of marketing to the private sector. That being said, the fact remains that, in terms of support to marketing which has consistently focused on export promotion, local marketing of sea products is still receiving poor-relation treatment.

2. Free zone and duty-free export company status bestows considerable advantages on export-oriented processing units. The *Zone Franche Industrielle (ZFI)* (Industrial Free Zone) of Dakar, established in 1974, offers a wide range of attractive tax, social and customs incentives to companies located inside it. The Free Zone Status Act of April 1991 extended these advantages to export industries based outside the ZFI. In 1995 the Act was extended to cover agricultural enterprises (including fishing industries) 80 per cent of whose output is exported. These incentives have attracted sea product packaging/processing companies eager to take advantage of the growing demand for sea products worldwide and especially in the developed countries. The presence of large numbers of such companies is exerting strong pressure on the demand for exportable products and ultimately creates a threat to stocks of demersals, crustaceans and cephalopods.

3. The export subsidy was not originally intended for the fisheries sector. It was instituted in 1980 to boost exports of agricultural products, severely affected by the deterioration of international terms of trade. Initially set at 10 per cent of FOB value, it was raised to 15 per cent in 1983 and extended to tuna at the same time. After a second revision in August 1986 extending it to all sea products, the subsidy peaked at 25 per cent. It was abolished in 1994 following the 50 per cent devaluation of the CFA franc.

In an adverse economic context, this subsidy has undoubtedly had a more negative environmental impact than in other countries where measures of this kind were used. Its introduction coincided with the implementation of structural adjustment programmes that led to the devaluation of the CFA franc. All these programmes were aimed at raising the level of exports, including sea products, and had the effect of steadily increasing the pressure on stocks of the principal export species.

4. **Devaluation** is the cornerstone of the macro-economic reforms advocated by donors, aiming to eliminate the abnormalities affecting the CFAF exchange rate. Its environmental impact is undeniable. The improved profitability of export companies was reflected in an intensification of the fishing effort, which had a harmful effect on stock equilibrium even if increases in the cost of imported inputs did something to restrain that process. Here a distinction must be drawn between export companies and those working for the domestic market. Whereas, in the case of the former, the growth of external demand more than compensated for rising input costs, the operating accounts of most of the latter deteriorated after devaluation, giving rise to fears that domestic demand might have to face serious problems of supply.

Outside the capture component, devaluation also had a major impact on the processing sector. The prospects of better profits attracted many newcomers to the sector, but stocks of exportable goods are not elastic. This situation was reflected in a sharp rise in commodity prices and to difficulties of supply to the processing plants. All other things being equal, the extra demand on the part of export units probably resulted in an intensification of the fishing effort at a time when demersal captures were already clearly on the wane.

5. Inasmuch as European demand is principally focused on noble species of high market value, the trade advantages granted under the **Lomé Convention** (which represent a form of subsidy) probably helped to increase the fishing pressure on endangered stocks of demersals, crustaceans and cephalopods.

6. **Fishing agreements** have also encouraged the growth of export volumes. Notwithstanding financial compensations, experts believe this to be one of the main causes of the overexploitation of maritime resources in African countries. By lowering the production costs of fishing units, fishing agreements encourage them to fish beyond the economic optimum compatible with sustainable resource management. Moreover, since the fisheries concerned are industrial, mono-specific and governed

by quotas, vessels do not hesitate to reject catches that are not of the required species or size in order to maximise the value of their output. Furthermore, in the absence of proper means and equipment, fishing by foreign fleets in Senegal's Exclusive Economic Zone takes place without any control worth speaking of on the part of the Senegalese authorities.

As regards problems arising from fishing agreements and possible solutions to these problems, a distinction must be drawn between deep-sea pelagic resources and coastal demersals. In the case of tuna fishing covered by the agreements, efforts to deal with any stock depletion problems should be made at the international level. Stocks of Atlantic tuna are the common property of all countries bordering that ocean, and Senegal's capture capacity is so small as to be practically non-existent. On the other hand, the national fleet, both industrial and small-scale, has plenty of access to demersal resources, already overexploited, so that it is legitimate to wonder whether the policy of quotas in respect of those resources deserves to be continued. Furthermore, counterpart payments are not large enough to justify the continuance of the policy on the grounds of development goals. Funds disbursed by the European Union under the most recent agreements have reached their highest level at CFAF 32 billion over a four-year period, or CFAF 8 billion a year. This figure has to be set against the total value of exports, which amounts to CFAF 180 billion.

7. Measures in support of **aligning certain export units with international standards** do not necessarily have an adverse environmental impact even when they involve stocks of demersals, crustaceans and cephalopods. The point at issue here is the extent of the advantages enjoyed by all export enterprises without distinction. Having already benefited from free zone and duty-free export company status as well as from the export subsidy, these companies also derive advantages from favourable provisions of the Lomé Convention, from the landing requirements included in the fishing agreements, and from devaluation. This situation has encouraged too many newcomers lacking adequate financial standing or sound technological capacity to enter the sector, especially since devaluation. The resulting shift of export structures towards fresh and frozen products has left but little room for advanced processing (cans, medallions, fish steaks, peeled shrimps, etc.) This state of affairs is unsatisfactory both from the environmental point of view, because exports of unprocessed products mean that volumes are rated higher than margins, and from the angle of economics because the exported products' value added is generally low. This means that measures aimed at favouring companies with the highest value added rates, to the detriment of the speculative motivations that have helped to pull down the processing sec-

tor, are not necessarily negative. In a context of increasingly scarce resources and rising commodity prices, it would surely be advisable in future to adopt selective measures that will reduce the number of companies operating in this sector and encourage more elaborate processing. Such measures would be beneficial from both the environmental and the economic points of view.

The overall environmental and socio-economic impact of measures in support of exports has been negative. They have caused an appreciable shift of fishing effort towards coastal demersal species, which in turn has led to stock depletion. So far as marketed species in this category are concerned, the latest abundance indicators (UNEP 2001) point clearly to a drastic reduction in medium sizes and suggest a risk of biological collapse. A further effect of this shift has been to reduce the quantities reaching the domestic market, thus causing appreciable price increases. Given the importance of fish to the country's food security, the social consequences of these measures are therefore highly negative.

Lastly, from the point of view of economics, while these measures have undoubtedly helped to boost not only the volume but also the gross value of exports, they have probably been too general to guarantee sustainable export growth.

C. Support to small-scale processing

Given the strategic importance of small-scale processing in terms of the regulation of fish supply to the domestic market (small-scale processing absorbs a third of all landings, makes use of products rejected by wholesalers, extends the conservation period, facilitates access to cheap animal proteins, etc.), support to this activity has so far been extremely limited. Technology dissemination programmes designed to increase output and to improve hygiene in this area are a step in the right direction, but in a context of difficulties in supplying the domestic market, more systematic support measures aimed improving handling, packaging and storage would undoubtedly prove worth while. Such measures would help to cut post-capture losses, improve the population's access to animal proteins and reduce potential threats to human health, thus offering obvious social and environmental advantages.

6. Conclusion

Immediately after Independence, the authorities placed the emphasis on direct support to production as such, i.e. to the capture component, initially for the benefit of the industrial sub-sector and, later, for that of small-scale fisheries. The primary objective of these direct support measures was to supply the domestic market with animal proteins. Between the 1970s and the 1980s the emphasis shifted gradually to support to marketing, international rather than domestic. In the meantime the decline of traditional exports (phosphates and groundnuts) had brought fisheries to the forefront of Senegal's foreign trade policies. Since then, the promotion of exports of sea products has been a permanent goal of support policies. Little by little, however, this strategy has become incompatible with the country's national goal of food security. It has been more successful than direct intervention in influencing the practices of small-scale fishermen, but the end result has been to orient their effort towards exports rather than the domestic market. Today, factories derive 60 per cent of their supply from small-scale fishing units. Some industrial units will pre-finance the equipment of a small-scale fishing unit against the promise of being able to purchase its output at a preset price. Thus the effort of small-scale fishing units in respect of demersal resources has been intensified, adding further to the pressure already exerted on those resources by Senegalese and foreign trawler fleets. Most marketed species in this category are now in danger of biological collapse. At the same time, the rapidly growing number of companies operating in the packaging/processing component means that the future of many of them is by no means certain. Additional demand coupled with growing resources scarcity has caused commodity prices to soar, thus endangering long-range foreign trade prospects. The situation seems ripe for the simultaneous pursuit of environmental, social and economic objectives. That is what subsidies should endeavour to achieve in the future.

While development policy has played its role fully with regard to the dissemination of technological advances—evidence of this is the success of motorisation and of the introduction of the purse seine—there are indications that, at least in its current form, this policy has reached its limits. Some types of activity have seen their profits decline sharply in the last few years. Purse seine fishing, which was extremely profitable until 1982, now faces difficulties due apparently to an overfishing phenomenon in the *Petite Côte* area. Like fishing with encircling nets, it has suffered since devaluation from rising input costs, while the price of its output (intended for the domestic market) has not significantly increased.

The overall impact of the policy of generalised assistance in the form of tax reductions on inputs or of fuel subsidies, if continued, will probably be negative. In the first place, this policy has boosted the fishing effort, possibly beyond the economic optimum; secondly, it represents a burden on the State budget in a situation of economic crisis. The Government's annual indirect financial contribution to small-scale fishing is estimated at CFAF 8 billion. Certain illicit practices (a black market in subsidised fuel) are necessitating increased controls over the distribution of tax-reduced inputs. There can be no doubt that, in order to determine who should benefit from such subsidies, some discrimination should gradually be introduced between export-oriented fishing units and those whose output is sold on the home market.

Taking into account the relatively long depreciation period, the construction of landing and marketing infrastructures has been less costly (a little over CFAF 10 billion over approximately ten years for the fishing wharves and the Central Fish Market). This support measure offers advantages both from the environmental point of view, in that it helps to reduce post-capture losses, and socially by improving marketing conditions and thus benefiting the public.

Support to domestic marketing, practically non-existent at present, would likewise facilitate the population's access to fish and fish products. On the other hand, indiscriminate encouragement of exports through measures such as the export subsidy, free zone or duty-free export company status, the Lomé Convention and devaluation has created as many environmental, social and—potentially—economic problems as it has solved in terms of foreign trade. By granting considerable facilities to exporters, it has encouraged speculators and dealers "on the make", thus undoubtedly playing a role in the relatively low level of advanced processing (15 per cent) and attracting too many operators to the sector. While indirect transfers to the sector resulting from the Lomé Convention or devaluation are difficult to quantify, the fact remains that these transfers have been largely responsible for doubling the value of exports between the 1980s and the 1990s (from CFAF 90 billion to 180 billion). Duty-free company status and the export subsidy, when it still existed, accounted for direct or indirect transfers to the sector of approximately CFAF 3 billion. In future, support to exports should be limited to the most efficient companies with the highest industrial value added rates. The CFAF 2.7 billion subsidy for alignment to international standards would seem to meet those conditions.

As regards small-scale processing, on the other hand, it is to be regretted that, notwithstanding the important social functions this activity fulfils (high degree of labour intensity, recovery of unsold products, relatively low access costs, etc.), it is receiving very limited support.

Lastly, the policy of support to small-scale fisheries depends wholly on foreign assistance, with the financial dependence that this implies, for investment financing. The practice of tied aid the preferences of foreign donors often give rise to technological choices that are open to question.

To sum up, the amounts involved in direct or indirect transfers do not in themselves represent the major problem.

Annex

Table 1

Development of annual fuel consumption by small-scale fishing,
commercial value and amount of subsidy

Year	Consumption (litres)	Commercial value (CFAF 1000)	Subsidy (CFAF 1000)
1986	19 246 506	3 310 399	1 688 303
1987	19 506 000	3 355 032	1 711 066
1988	19 713 644	3 390 747	1 729 280
1989	18 381 483	3 161 615	1 612 423
1990	21 191 814	3 644 992	1 858 945
1991	25 374 624	4 364 435	2 225 861
1992	24 504 620	4 219 795	2 152 095
1993	24 934 957	6 483 089	3 306 375
1994	27 662 776	7 192 321	3 452 314
1995	27 963 161	6 572 367	3 154 736
1996	31 871 468	8 278 060	3 973 468
1997	35 605 679	9 128 476	4 381 668
1998	50 441 417	13 114 768	6 295 088

Source: DOPM