PD-AAR-420

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete) — Amendment Number: _____ — DOCUMENT CODE: 3

2. COUNTRY/ENTITY: Africa Regional

3. PROJECT NUMBER: 698-0454

4. BUREAU/OFFICE: AFR 06

5. PROJECT TITLE (maximum 40 characters): Support to the CECAF* Project

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 06 DD 30 YY 88

7. ESTIMATED DATE OF OBLIGATION (Under "B." below, enter 1, 2, 3, or 4): A. Initial FY 85 B. Quarter 4 C. Final FY 85

8. COSTS ($000 OR EQUIVALENT $1 =)

A. FUNDING SOURCE	FIRST FY 85 B. FX	C. L/C	D. Total	LIFE OF PROJECT E. FX	F. L/C	G. Total
AID Appropriated Total	960	–	960	960	–	960
(Grant)	(960)	(–)	(960)	(960)	(–)	(960)
(Loan)	(–)	(–)	(–)	(–)	(–)	(–)
Other U.S. 1.						
Other U.S. 2.						
Host Country	–	50	–	–	150	150
Other Donor(s)	–	500	–	–	1,000	1,000
TOTALS	960	550	960	960	1,150	2,110

9. SCHEDULE OF AID FUNDING ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	2. Loan	D. OBLIGATIONS TO DATE 1. Grant	2. Loan	E. AMOUNT APPROVED THIS ACTION 1. Grant	2. Loan	F. LIFE OF PROJECT 1. Grant	2. Loan
(1) ARDN	771	877		960	–	960	–	960	–
(2)									
(3)									
(4)									
TOTALS				960	–	960	–	960	–

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each): 090 310 740 910 960

11. SECONDARY PURPOSE CODE:

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code	BRW						
B. Amount	960						

13. PROJECT PURPOSE (maximum 480 characters)

To sustain and build upon progress to date by the CECAF Project in bringing improved management to the endangered marine fisheries of West Africa.

*Fisheries Committee of Eastern Central Atlantic (CECAF)

14. SCHEDULED EVALUATIONS: Interim MM 09 YY 86 — Final MM 09 YY 87

15. SOURCE/ORIGIN OF GOODS AND SERVICES: ☐ 000 ☐ 941 ☒ Local ☐ Other (Specify) _____

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment)

Concurrence on methods of implementation and financing

AFR/CONT

17. APPROVED BY — Signature: Walter Sherwin — Title: Walter Sherwin, Acting Director, AFR/RA — Date Signed: MM 07 DD 31 YY 85

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM 07 DD 31 YY 85

AID 1330-4 (8-79)

ACTION MEMORANDUM, AUTHORIZATION

SUPPORT TO THE CECAF PROJECT

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Annexes

Chart I

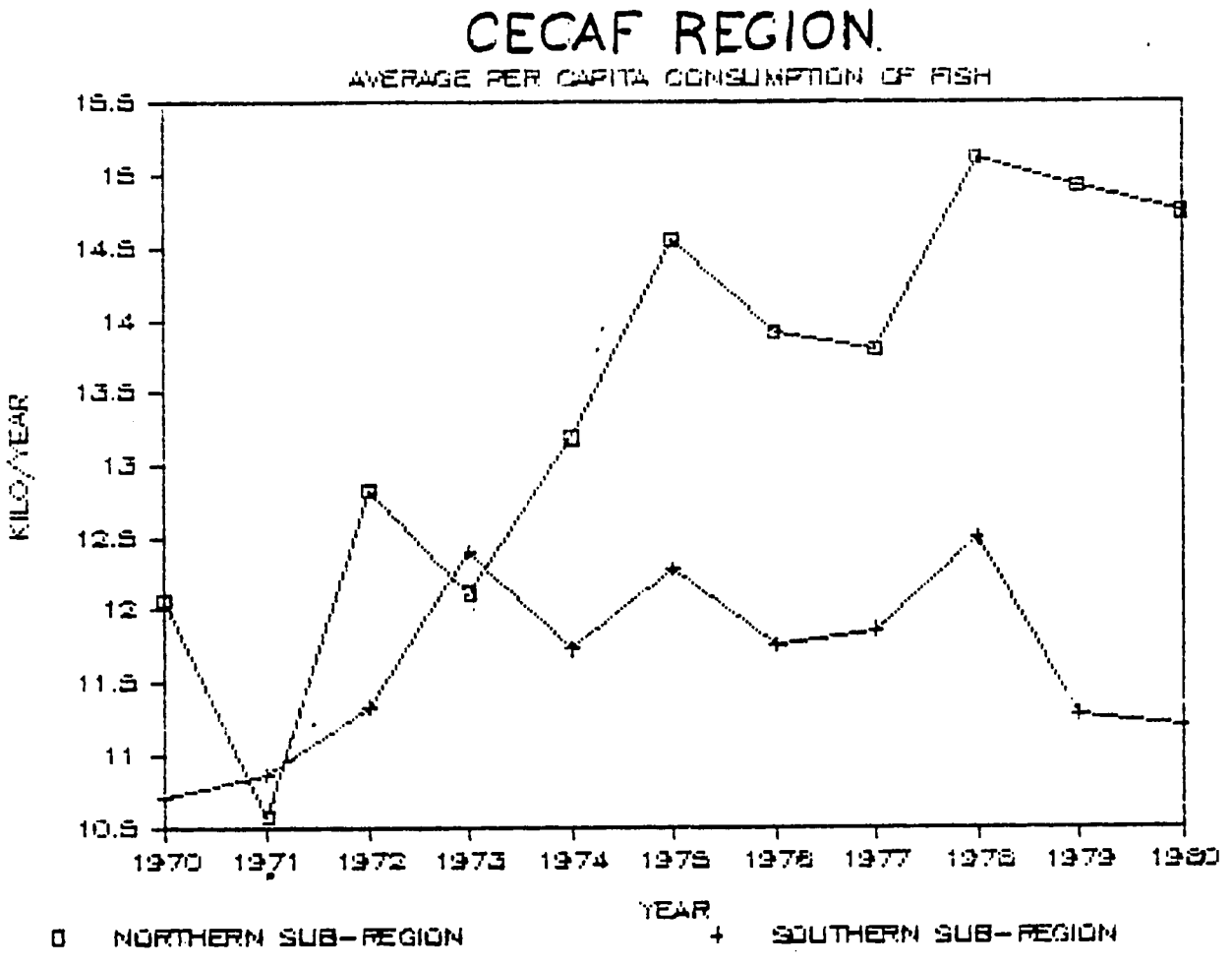

CECAF REGION
AVERAGE PER CAPITA CONSUMPTION OF FISH
KILO/YEAR
15.5
15
14.5
14
13.5
13
12.5
12
11.5
11
10.5
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
YEAR
NORTHERN SUB-REGION
SOUTHERN SUB-REGION

Chart 2

Catch Shares for 1982

32 Million Metric Tons Total

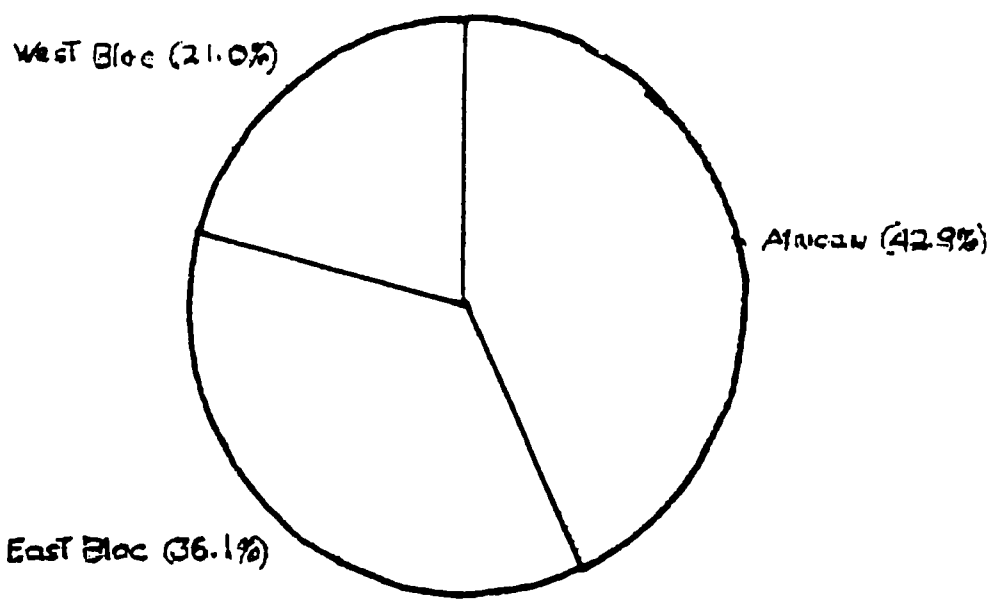
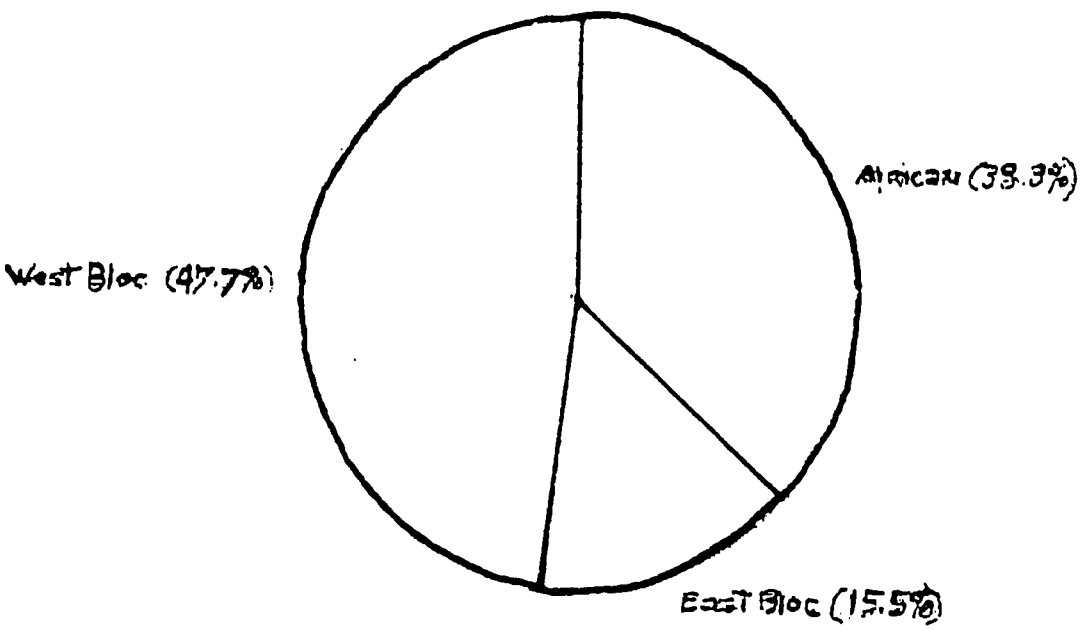


Chart 3

Value Shares for 1982 Catches

US $13 billion Total



Support to the CECAF Project

I. Project Summary and Rationale

The Fisheries Committee on the Eastern Central Atlantic (CECAF) was organized by FAO in 1965. Recognizing the need for improved management of marine resources and training, the CECAF Project was designed by FAO, and funded by the UNDP in 1975 to provide technical services and operational support for research, information and training. The UNDP discontinued its grant funding effectively at the end of 1984, with provision for phase out of the Project by mid-1985 unless resources were identified to permit it to continue its important work. The purpose of the AID grant to FAO is to provide bridge funding for a 3-year period while FAO seeks to organize other donor and UNDP support to the Project. During this 3-year period FAO will take the necessary steps to ensure that the CECAF Committee will have, on a continuing basis, the necessary technical and administrative support to carry the Project forward following the AID assistance.

The planned, one-time AID grant of $960,000 will permit the Project to continue its activities for a 3-year period (FY 85-87). Planned activities include:

1) Statistics: From improvement of data collection to maintenance of data base and regional collection and analysis;

2) Stock assessments: From monitoring and remote sensing of stocks to evaluation of specific resources;

3) Fisheries economics: Meetings and analyses of management alternatives, and economic and investment appraisals of fisheries operations; and

4) Training: Short regional group training and short training sessions in any or all of the above topics and related factors:

A. Project Background

1. General

Africa, the second largest continent, is beset by problems of drought, famine, poor quality soils, limited highways and railroads, and a population of 350 million people reproducing at a steadily increasing rate. Experts acknowledge that the sub-Saharan drought of 1972 really never went awav and so rain-fed agriculture is an inadequate source of food. The

Asian green revolution can not be transported easily, if at all, to Africa because of soil, climate, labor, and infrastructure characteristics. Fish can provide more high quality animal protein than any other type of meat for a given level of investment. The only readily available, ecologically sound sources of additional protein are the fisheries of Africa. In West Africa alone FAO judges that the present annual production of 5,467,300 tons of fish can be expanded to 8,186,000 tons, an increase of 50 per cent. For all this to occur, West African fisheries must become better managed, and quickly, lest overfishing destroy this resource. This proposal for an AID grant to ensure the continuity of the CECAF Project is a powerful move in the direction of proper management and development.

The north and west coastal waters of Africa have some of the richest fishing grounds in the world. Corresponding to the upwelling of cold, nutrient-laden waters in the northern zone, most of the largest catch, by volume, is there.

The coastal members of CECAF stretch from Morocco to Zaire. Although over 75 percent of the human population lives in the south (nations fronting on the Gulf of Guinea), over two-thirds of the fish resource is in the north, from Morocco to Liberia. The northern zone countries possess about two thirds of the total territorial waters. This zone has a particularly heavy concentration of fish because of the upwelling of cold water rich in nutrients.

The coastal African countries risk losing the benefits of these rich fishery resources in the Eastern Central Atlantic because of:

1) overfishing;

2) insufficient generation of return for less valuable species;

3) underdeveloped and insufficient distribution and marketing systems that lead to high post-harvest losses and fail to absorb a significant proportion of the catch;

4) abnormally low revenues to the West African countries from the operations of industrial fleets, both foreign and domestic;

5) productivity and incomes in artisanal fishing, processing and marketing that remain low; and

6) contribution of fish to food supply which stays much below its potential.

If measures are not taken by the coastal countries, assisted by the CECAF Project, some fishery stocks may be exhausted as has already occurred off the coasts of California, Angola and Namibia where similar upwellings occur.

While the Eastern bloc distant water fleet catch by weight represents more than one-third of the total catch, it represents only 15 per cent of the dollar value (Chart 2 and Chart 3); the Western bloc distant water fleets catch less than one third by weight, but in dollars this catch is almost one half.

These fishing resources can be harvested at a rate of over 3 million metric tons per year, valued in excess of $2 billion plus at first sale. Most of the benefits of the fisheries accrue to non-coastal countries. Direct employment is estimated at 600,000 fishermen with many more people working in processing and marketing. Fish products constitute a very important part of the animal protein consumed in these nations (Chart 1). They also play an important role in the trade balances of coastal states, as sizable export revenues in the north and as part of the food import bills in the south.

Coastal nations support the principle of the 200-mile Extended Economic Zone (EEZ), which gives them proprietary control over these areas. Foreign long-distance fleets, exploiting some stocks heavily, capture well over half of the total off-take (Chart 2). Some coastal West African governments emphasize extracting what they can from the resource at minimal short-term cost. These local governments often "license" to foreign fleets specific fishing rights for fees much below what the market value of the fish caught would justify. Lack of adequate surveillance and inability to enforce such licenses further compound the fishing pressure on the resource. West African institutions associated with marine fisheries receive variable support within their governments.

Only one third of the total catch is caught by coastal fishermen; only two thirds of that catch is caught by artisanal fishermen. However, more support from the political and government administrations should be given to the artisanal fisheries. Their fishing is hampered by the unchecked activities of industrial vessels, and they lack access to credit, foreign exchange, inputs and product markets. In addition, many governments attempt to keep consumer fish prices at artificially low levels, forcing the private sector to face unfavorable price and investment policies as well as productivity constraints.

Post-harvest losses at sea and on shore add up to 40 percent or more of the catch. If the post harvest loss could be reduced through improved handling at seas and better marketing, processing and distribution, there would be a substantial increase in fish for consumption stressing the fish further the resource.

2. Organizational Structure

CECAF has functioned since 1965 and consists of (See Annex K):

- The Committee, on which all 21 North and West African coastal states from Morocco to Zaire, including Spain, are represented, plus ten non-regional countries and six observers (the later two categories comprising the homes of foreign, distant-water fishing fleets);

- A permanent secretariat (one person) of the Committee who performs the support functions for the Committee and the sub-groups and also is the Director of the CECAF Project;

- Two subcomittees, Management of Resources within the Limits of National Jurisdiction and Fisheries Development, plus two working parties: Resource Evaluation and Fishery Statistics which meet as needed; and

- The CECAF Project, which provides separate funding of an interdisciplinary team of marine resource technical specialists resident in the region (Dakar).

3. Description of the CECAF Project, 1975 - 1984

The Project began operations in January 1975 with the following objectives:

- To improve fisheries statistics and biological data, compose data on stocks and strengthen data-gathering mechanisms in the area.

- To develop a system for monitoring resources and evaluating fish stocks.

- To strengthen the capacity of participating countries for management of the resources and coordinated development planning.

- To train personnel required for the above functions.

- To promote, coordinate and assist in programs of research.

- To promote and assist in the development of aquaculture.

- To promote and assist in the development of individual country programs and projects of significance for regional and sub-regional development.

The Project had a staff of 6:

- Program Leader (Marine Biologist)

- Management Coordinator (and CECAF Secretary)

- Management Economist

- Fisheries Biologist

- Fisheries Statistician

- Program Analyst

Because of reduction in project funding levels, this staff has been cut back to 2, plus 2 FAO Associate Experts (ending shortly). Two additional positions will be funded from the AID grant beginning in 1986. Experience has shown that this core group has the capacity to maintain the viability of the Project although at a lower level than previously.

Accomplishments to date include:

- 40 research projects and ad hoc meetings

- 125+ technical and scholarly reports

- 600 regional trainees including artisanal fishermen, marine biologists, resource economists, government administrators, planners

- Training programs and seminars in joint ventures, negotiation of fisheries agreements between coastal and non-coastal countries, law of the sea, etc.

- An independent evaluation (Annex D).

B. Conformity with Recipient Country Strategy/Programs

West African nations uniformly give priority in their policy statements to:

- feeding their populations;

- expanding their productive sectors, especially agriculture and renewable resources;

- increasing value obtained and value added for productive sectors;

- generating sustainable employment; and

- increasing exports while becoming less externally reliant for food.

There is increasing support for the CECAF Project by its coastal members. During the CECAF Committee biannual meeting in Banjul, the Gambia, October 1984, coastal members presented and passed a resolution calling on their governments and non-regional members to support the Project. At the conclusion of the ECOWAS-hosted meeting on fisheries in Dakar during March 1985, a recommendation to the Council of Ministers of ECOWAS was passed calling for increased support to the CECAF Project and for more marine biology and socioeconomic research into the fisheries sector.

A principal objective of the CECAF Committee, using data prepared and analyzed by the Project, is to:

- encourage policy dialogues on specific issues such as catch sharing;

- harmonize national agreements among coastal countries and non-regional fleets;

- standardize national legislation relative to marine fisheries management (net mesh size, licensing agreements, etc.); and

- provide training opportunities at all levels to improve knowledge of the resource, its management and exploitation.

The coastal members and non-regional governments of the CECAF Committee support the Project strongly and passed a resolution to that effect during the bi-annual meeting in Banjul, October 1984. The coastal governments provide in-kind services to the extent they can. The non-regional members also support the Project by the provision of goods and services in-kind, by participating in technical meetings, and by attending the bi-annual meetings. Donors have indicated to FAO that they propose to make cash contributions to the Project beginning even before 1988.

At the political level, the Economic Community of West African States (ECOWAS) hosted a meeting in Dakar, March 1985, on fisheries for which the Project provided technical backup. The resulting recommendations called for recognition by the members of ECOWAS of the technical role the Project plays in providing data for policy discussion on a series of issues as well as resource management, and calling upon its membership to support the Project.

C. Relationship to the CDSS and to Africa Bureau Development Strategies

By making this grant to permit the continuation of the CECAF Project, the Africa Bureau supports its broad strategies to:

- increase high protein food production,
- expand employment,
- enlarge market activities in the food chain, and
- improve host country pricing and investment policies and develop and strengthen sustainable institutions.

This Project will contribute to these objectives through the CECAF Project by assistance to national institutions, including facilitating other donor assistance. Also, the Project will help improve the environment for local private investment to improve productivity of marine fisheries.

II. The Project

A. Project Description

The CECAF Project (the Project) refers to the totality of the activity including personnel, research, training and meetings using the AID grant fund and in-kind services provided by FAO and other donors. AID's proposed assistance is a one-time grant of $960,000 to ensure the continuation of the Project over a 3-year period (FY 85-87). Project activities are more fully described in Annex F.

The CECAF Project's activities fall into four general categories:

- Statistics
- Stock assessments
- Fisheries management and economics
- Training

The AID assistance will provide the means to assure that a core staff will continue and have the means to continue project activity. The scope of work in these areas will be dependent upon how much support will be forthcoming from other donors. With the assistance of NOAA's National Environmental Satellite Data and Information Service, Assessment and Information Services Center, the Project will do field work and design of an activity utilizing the existing polar-orbiting satellite system for identifying probable locations of fish aggregations (or conversely, where fish are unlikely to be found) and predicating persistence of such aggregations and fisheries vessels surveillance (see Annex N).

The core group consists of four positions plus short-term consultants that will be funded from this Project. These core positions are:

- Technical coordinator
- Biologist/Statistician
- Economist
- Administrative Assistant

One of the principal objectives of the CECAF Project is the strengthening of national institutions to serve individual countries through training and research. AID assistance will permit this to continue. There will be other donor support through provision of in-kind services. See Annex E for a more detailed description. The value of these in-kind services have been averaging $500,000 plus a year and these include researchers to staff the Project, use of oceanographic vessels, specific research projects, seminars and training.

B. Goal

To assist the CECAF Project to promote, coordinate and assist national and regional programs of research and development, leading to the rational utilization of the West African marine fisheries to the benefit of the coastal countries.

C. Purpose

To sustain and build upon progress to date by the CECAF Project in bringing improved management to the endangered marine fisheries of West Africa.

D. Inputs

Inputs of AID will be limited to a one-time grant to FAO of $960,000. $900,000 is to bridge a three-year gap from FY 85 through FY 87; $60,000 is to cover the costs of a PASA between AID and NOAA for the later - in conjunction with the Project - to prepare a design of a project utilizing the polar-orbiting satellite. FAO has expressed its commitment to seek direct, cash assistance from other donors and the UNDP.

The grant will meet the costs of services described in more detail below in Section III.

Non-AID inputs include 1 FAO professional for CY 1985 and services of short-term FAO personnel during the LOP as well as a part of telephone and telex costs. Spain provides in-kind services of professionals for research and training; France is seconding a marine biologist to the Project headquarters in Dakar.

Senegal provides office space, water and electricity (about $20,000 annually); Cameroon and Nigeria are currently processing a cash grant to the project. Other coastal states host training sessions and support the Project by participating in research activities and sending personnel for training (See Annex E).

E. Outputs

During the LOP the CECAF Project will organize and coordinate a variety of national, sub-regional and international activities including (illustrative):

- 6 statistical projects;
- 6 stock assessments;
- 6 ad hoc working groups on specific species; and
- 4 socio-economic analyses.

While the above activities include elements of training, the Project will organize formal training sessions usually assisted by other donors who meet some or all of the costs of the activities. The following seminars or hands-on activities will be organized by the Project during the next three years (illustrative):

No.of Courses	Subject
2	Statistics
2	Fish and Gear Technology
3	Artisanal
2	Shared Stocks
2	Management and Resource Planning
1	Harmonization of Legal Regimes
2	Drafting of new Fishery Legislation

III. Cost Estimates and Financial Plan

Requirements from A.I.D. to CECAF Core Budget

	Item	1985	1986	1987	Total
1.	Personal Services	$ 24,000	$275,000	$299,000	$598,000
2.	Travel	$ 10,000	$ 45,000	$ 45,000	$100,000
3.	In-service Training	-o-	$ 15,000	$ 18,000	$ 33,000
4.	Operating Exp.	$14,000	$ 30,000	$ 25,000	$ 69,000
5.	Design of Satellite System	$ 60,000	-o-	-o-	$ 60,000
6.	Support Costs	$ 10,000	$ 40,000	$ 50,000	$100,000
	Total	$ 118,000	$405,000	$437,000	$960,000

Following is a description of each line item:

Personal services: This line item includes the salaries, allowances, travel to/from post and support costs for the four core professionals.

Travel: Work related travel and related expenses for the four core professionals, and travel for short-term advisors for the Project that may be made available at no cost by by U. S. Agencies (U.S. AID, National Marine Fisheries Services) and by other donors.

In-service Training: All costs relating to in-service training including translators and translations, secretarial assistance, conference facilities rentals, travel, preparation of training materials, etc.

Operating Expenses: Overhead costs relating to the CECAF Project headquarters such as office supplies, equipment maintenance, printing, automobile operation and maintenance, telephone and telex (a portion of which is paid by FAO). Office rental, water and utilities are provided by Senegal.

Design of Satellite System: PASA with NOAA for a team to assess and evaluate the possible use of polar-orbiting satellite to monitor ocean water surface temperatures and other remotely-sensed parameters in support of resource management, assessment, and surveillance, and prepare a cost/benefit analysis of any proposal to implement the system.

IV. Project Implementation Plan

A. Obligation/Disbursement of Funds

Funds for the Project will be obligated by a letter grant agreement to FAO for the CECAF Project. The grant will provide operating support and will cover the costs of specific services.

Following signature of the letter grant agreement, the Office of the Director of Fisheries, FAO/Rome, will transmit to AFR/RA a three-year budget showing planned expenditures for six month periods. AID/W will make an advance equal to the amount requested for the first six month period; advances will be made at six month intervals following receipt from FAO/Rome of a report on disbursements.

The design of satellite system will be the subject of a PIO/T prepared by AFR/RA for a PASA between AID and NOAA (E/AI).

B. Project Implementation

The CECAF Project's activities fall into four general categories:

- statistics,
- stock assessments,
- fisheries management and economics, and
- training.

The CECAF Project personnel will carry out these operational components. To the extent possible, these will be reinforced or enlarged through contributions of other donors.

The CECAF Project now is an organization with only two resident staff and two limited-term Associate Experts. Beginning in CY 86, two additional full-time professionals with be in place. FAO will provide short-term consultants for service needs for which the resident staff will require outside assistance.

According to FAO standard operating procedures, the CECAF Project will submit an annual work plan for approval to the Director of Operations, Fisheries Department, FAO/Rome, before the first of each year. Following its approval the Project activities will be authorized for implementation. Before June of each year, the Project Director submits a report to the Director of Operations, Fisheries Department, covering the first half of the year showing Project achievements, delays and problems accompanied by a revised work plan, with a copy to AFR/RA. AFR/RA will transmit copies of the reports to AFR/RA for distribution to interested offices (AFR/PD/CCWAP, S&T/AGR, NMFS) with a request for their comments. If there are comments, AFR/RA will consolidate them and transmit them to the Director of Operations, Fisheries Department, FAO/Rome.

V. Summary of Analyses

A. Financial Management

The cost of the CECAF Project was met by grants from UNDP to FAO from 1975-84, for a total of $8 million, or averaging just under $1.0 million annually. The Project was not designed to be self-sustaining; in fact according to FAO administrative rules and practices, the Project could not charge for publications or services. Thus the Project could not recover even a part of its costs. In order to ensure the Project's

continuation, the Project has been reduced in scope particularly with reference to personnel and training activities. The AID grant for the first year is $108,000, of which $60,000 is for the proposed satellite activity design, and the balance of $48,000 is for the core project budget support. The core project budget is low because FAO was able to reprogram funds and cover most costs during FY 85. The two subsequent years the demand against the AID grant will increase sharply to cover the salaries and related costs of four professionals whose services will be complemented by professionals seconded to the Project for short- or long-term assignments from FAO and other donors.

Financial management of the Project will follow FAO accounting procedures which are fully satisfactory to AID and include provision for an external audit.

B. Economic

The Project has been on-going for 10 years. The AID grant will permit the Project to continue at a reduced level of operation until FAO can make alternative arrangements for the core funding.

A formal cost/benefit or internal rate of return has not been made, however the UNDP (and associated Trust Funds) expenditures have been highly effective.

Cost effectiveness is implied when the low cost of the CECAF Project ($ 8.0 million from UNDP over 10 year period) is set against:

1) The high value of the catch ($10.0 billion at first sale, 1973/82);

2) The influence of project activities on fishery staff (through training and education);

3) The increasing participation of coastal developing countries in fisheries (investment/management measures);

4) Our advances in knowledge of the fisheries;

5) The high productivity of the Project as measured by research, training, publications and reflected by policy and legislative change by coastal member governments.

Thus, relating the results to the objectives, it is apparent that the Project has achieved, and is achieving, what it set out to do.

C. Institutional Development

Why does AID want to make a grant to FAO to ensure that the CECAF Project continues? The Project performs well and provides essential information to interested countries concerning the fisheries resources of West Africa. The countries and their relevant institutions look to the Project for assistance in monitoring these resources through technical assistance, training and coordination of other donor assistance. A UNDP-funded, independent evaluation gave the Project high marks for performance (Annex D).

Support to the Project by its members has been strong. Senegal provides office space and Cameroon is preparing to make a cash grant. All coastal countries have participated fully in the bi-annual committee meetings. Coastal countries have provided institutional support through the provision of individuals and services for project activities and hosted meetings. Non-regional members and non-members have made grants of in-kind services (see Annex E) through provision of experts and research vessels estimated at $500,000 plus annually.

The Project personnel have been working closely with coastal countries to help their related institutions to improve the quality of their research and training. This has been done by the CECAF Project organizing seminars and meetings, usually assisted by other donors on specific topics. The quality of results of national institutions has improved in terms of more accurate research based on field work.

The Project is now nearing maturity and its technical activities should now become available to the CECAF Committee on a continuing basis upon the termination of AID support. The Director of Operations, Fisheries Department, will report on progress made in this direction at the October 1986 meeting of the CECAF Committee and outline what remains to be done.

D. Special Concerns

1. Human Rights

This Project has received clearance to proceed, See Annex H 1.

2. Initial Environmental Analysis

A negative determination has been made and a categorical exclusion approved (Annex H 2)

3. Women in Development

As discussed in Annex H 3., in coastal West Africa women are an integral and important part of fisheries activities. The only aspect of marine fisheries in which they do not participate is the actual catching. They play a pivotal part in the processing, marketing and distribution of the catch. They are frequently boat owners or money lenders to fishermen to assist them in upgrading their equipment and technology. The role of women in fisheries needs to be analyzed carefully in any project design to ensure the traditional relationships between the women involved in fishery related activities is not threatened to the detriment of all.

VI. Conditions Precedents and Covenants

A. Conditions Precedents

There are no conditions precedents to disbursements.

B. Covenants

The Director of Operations, Fisheries Department, FAO/Rome, has begun the process leading to making the technical and administrative activities of the CECAF Project a part of the continuing functioning of the CECAF Committee.

The process involves negotiations between FAO and each member government of the CECAF Committee. A proposal will be presented to the members of the Committee for consideration and approval at the bi-annual meeting of the CECAF, Las Palmas, October 1986.

VII. Assessment and Project Termination Report

A. Assessments

1. Given the high level of demonstrated professional competence, and the oversight provisions of the Fisheries Department, FAO/Rome, AFR/RA will not request semi-annual work plans in advance of disbursement. AFR/RA will require, however, in the letter grant agreement that the FAO Director of Operations, Fisheries Department provide to AFR/RA a detailed semi-annual and annual report of project activities and disbursement. These reports will describe project accomplishments, coastal country and other donor participation (in-kind services to be costed out) and contributions and a statement of disbursements against advances. They will also include information from the Director of Operations, Fisheries

Department, on progress in securing other donor assistance to ensure the continuation of the Project upon completion of the AID grant in 1988.

FAO has developed a standard format for reporting to AID disbursements against advances.

The USDEL to the bi-annual CECAF meeting normally includes one or two AID officiers. On the occasion of the next meeting in Las Palmas, October 1986, the Director of the Project will give a detailed report on project activities, accomplishments, delays, problems, etc. Both during the formal meeting and informally, the USDEL will have an opportunity to review and comment on the Project with senior FAO officers present, project officers, and members of delegations.

B. Project Termination Report

At the conclusion of the Project there will be a tripartite termination review consisting of officers from FAO/Rome, AID, and the Project. It is to be anticipated that the evaluation will be published by the CECAF project for distribution.

4576Y

ANNEX A

PID Approval

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523

10 JUL

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR FOR AFRICA

FROM: AFR/RA, Walter Sherwin - Acting Director

SUBJECT: Support to the Committee of Eastern and Central Atlantic, the (CECAF) project of the West African Fisheries Initiative, 698-0454

Problem: Your agreement in principle is requested to proceed with the PP design for a three-year, $960,000 grant to the CECAF Project.

Discussion: The CECAF project was initiated by FAO, with UNDP funding, in 1976. UNDP is unable to continue its support. A.I.D. has received a request from FAO to provide minimal-level bridge funding for the FY 1985-87 period to enable the CECAF project to continue the core activities summarized in Annex A. The proposed budget is outlined in Annex B. By FY 1988, FAO is confident it can obtain sufficient funding from UNDP and other donors to ensure the continuation of the CECAF Project. At the same time a plan will be developed to institutionalize project support largely through assessments of coastal and non-coastal members.

The CECAF project has established a reputation for the quality of the research it directs and coordinates, its international meetings on specific stocks, and a wide variety of scholarly and technical publications. The CECAF project has played a key role in strengthening national institutions of its coastal members in training and research. As a result the project has had an identifiable impact on fisheries management. In large part due to CECAF influence, governments have begun to implement policies and projects aimed at harmonizing national legislation, improving statistical reports on stocks, training of artisanal fishermen and coordination of catch sharing of pelagic species.

The core staff of the project are FAO contract personnel and consists of a technical coordinator/project director, biologist/statistician, economist, and administrative assistant. The small core professional staff is augmented by in-kind services of individuals from coastal, non-coastal members and non-member countries. The Government of Senegal supplies office space and utilities (electricity and water).

The proposed project will be implemented through a one-time grant of $960,000 to FAO by a letter grant agreement requiring the CECAF project to account for expenditures and to provide a semi-annual report of activities funded by A.I.D.

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The U. S. Ambassador to FAO, Millicent Fenwick, addressed a telegram to you reporting on the visit of an African delegation and seeking A.I.D assistance to ensure the continuation of the project. The delegation stressed the importance and relevancy of the project and the positive benefits to be derived from it in terms of training, protection of the marine resources, increased supplies for domestic consumption, and their countries' support and commitment to it.

A brief project description of the CECAF project is attached.

On the basis of information at hand we can draft a PP for circulation and clearance in July and an obligation will be possible by early August. A condition precedent to disbursements will provide that the CECAF Project/FAO submit an annual implementation plan to AFR/RA for its approval. The annual review of the implementation plan would take place in Dakar. The detailed requirements for the implementation plan will be included in the PP.

Recommendation: That you agree in principle to proceed with the design.

Approved: Mark L. Edelman

Disapproved: _____

Date: 7-23-85

Attachments: Annex A, Description of the CECAF Project
Annex B, Requirements from A.I.D. to CECAF Core Budget
Annex C, Other Donor In-Kind Contributions, 1984/85
Annex D, Other Donor In-Kind Contributions, 1986

cl.:AFR/PD/CCWAP:HHelman (subs.)
AFR/DP:GCauvin (subs.)
GC/AFR:BBryant (info.)
S&T/AGR:RNeal (subs.)
DAA/AFR:ARLove

AFR/RA:CSGordon:4509Y:6/16/85

ANNEX A

Description of the CECAF Project

The Project commenced in January 1975 with the following objectives:

- To improve fisheries statistics and biological data, compose data on stocks and strengthen data-gathering mechanisms in the area.

- To develop a system for monitoring resources and evaluating fish stocks.

- To strengthen the capacity of participating countries for management of the resources and coordinated development planning.

- To train personnel required for the above functions.

- To promote, coordinate and assist in programs of research.

- To promote and assist in the development of aquaculture.

- To promote and assist in the development of individual country programs and projects of significance for regional and sub-regional development.

The CECAF project core staff includes:

- Technical Coordinator/Project Director

- Biologist/Statistician

- Economist

- Administrative Assistant

Accomplishments to date include:

- 40 research projects and ad hoc meetings

- 125+ technical and scholarly reports

- 600 regional personnel trained including artisanal fishermen, marine biologists, resource economists, government administrators, planners

- Training programs and seminars in joint ventures, negotiation of fisheries agreements between coastal and non-coastal countries, law of the sea, etc.

ANNEX B

Requirements from A.I.D. to

CECAF Core Budget

	1985	1986	1987	Total
1. Personal Services Technical coordinator Biologist/statistician Economist Admin. Assist.				
Sub-total	$24,000	$275,000	$299,000	$598,000
2. Travel	$10,000	$45,000	$45,000	$100,000
3. In-service Training (seminars, field work, ad hoc meetings on specific species, etc.)	$0	$15,000	$18,000	$33,000
4. Operating Exp. (office expenses, supplies, publications, misc.	$14,000	$30,000	$25,000	$69,000
5. Design of Satellite System	$60,000	$0	$0	$60,000
6. Support Costs (2 secretaries, 1 clerk, 1 driver)	$10,000	$40,000	$50,000	$100,000
Total	$118,000	$405,000	$437,000	$960,000

Other Donor In-Kind Contributions. 1985/86

Activity	man months	source of funding	US equiv.	Sub-Total	Total Total
A. Statistics					
1. Data collection in Las Palmas	12	Spain	$5,000		
2. Handling of data in Dakar	3	FAO/RP*	$20,000		
3. Assistance to Sierre Leone and Liberia	2	FAO/RP	$12,000		
4. Training in Statistics collection, Gabon, Cameroon	2	FAO/RP	$12,000		
5. Collection of fish trade information, Gabon, Cameroon, Congo	1	FAO/RP	$6,000		
†Sub-total	20			$55,000	
B. Resource Evaluation					
1. Stock assessment of hake and other demersal stocks in southern CEC	1	FAO/RP	$7,000		
2. Country reviews on fish stocks					
a) Sierra Leone, Liberia (shrim	3	FAO/RP	$18,000		
b) Benin, Togo, Ghana	3	FAO/Norway	$18,000		
c) Mauritania	1	FAO/Norway	$6,000		
d) Gabon, Cameroon, Eq. Guinea	3	FAO/RP	$18,000		
3. Surveys					
a) Consultant to assist with data analysis	1	FAO/RP.	$10,000		
b) Maintenance acoustic equipment Morocco	1	FAO/Norway	$3,000		
4. Working party on resource evaluation May, Tenerife	1	FAO/RP	$6,000		
5. Ad hoc working group on resource evaluation for hake and deep-water shrimp	5	FAO/RP	$3,000		
6. Ad hoc working group on cephalopods, tenerife, Sept. 1985	2	Spain	$10,000		
7. Ad hoc working group on seabream, Oct. 1985	2	Spain	$10,000		
8. Ad hoc working group on resource evaluation (sardines for northern CECAF)	6	FAO/RP	$15,000		
9. Fishery biologist	6	France	$20,000		
Sub-total	33			$146,000	
C. Socio-economic activities					

1. Study on future prospects, characteristics and conditions for distant-water fishing effort	2	FAO/RP	$12,000	
2. Review of artisanal fisheries in Mano River Countries	1.5	FAO/RP	$10,000	
Sub-total	3.5			$22,000

D. Fishing and fish technology

1. Training course on fishing technology	0.5	FAO/RP	$3,000	
2. Expert consultation on fish technology in Africa		FAO/RP	$60,000	
Sub-Total	0.5			$63,000

E. Resources management

1. Evaluation of workshop on management techniques	0.5	FAO/Denmark	$3,000	
2. Bio-economic analysis of Shrimp trawl fishery for the Sherbro statistical Division (Sierra Leone, Liberia	2	FAO/RP	$12,000	
3. Workshop on management techniques in artisanal fisheries (Nov/Dec 85)		FAO/RP	$50,000	
4. Workshop on practicial management techniques for shared stocks		FAO/Norway	$50,000	
5. Training course in fisheries management and development planning, Poland (Sept. 1985)		Nor./Poland	$10,000	
Sub-Total	2.5			$127,000

F. Legal Activities

1. Seminar on harmonization of legal regimes.		FAO/Norway	$20,000	
2. Assistance in drafting new fishery legislation (Gabon, Zaire, Angola, Morocco)		FAO/Norway	$40,000	
Sub-Total				$60,000

G. Monitoring, Control and Surveillance

1. Interregional study tours		FAO/Norway	$5,000	
2. Provision of advice to Mauritania Senegal, Sierra Leone	2	FAO/Norway	$10,000	
Sub-Total	2			$15,000

H. CECAF Working Groups

1. Interpretation	FAO/RP	$74,000		
2. Ad hoc session of the steering committee	FAO/RP	$12,000		
3. Staff travel				
Sub-Total			$86,000	
TOTAL				$514,000

* RP - Regular Program

NB 1. Please note that cost of activities financed by Spain and France are only estimates.
2. We estimate support to CECAF from the above sources to continue at about the same level in 1986 without UNDP.
2. In addition several coastal countries have indicated they are prepared in principle to make modest cash contribution to support cecaf activities from 1986.
3. Minimum contribution from AID to permit the CECAF Project to continue operation is $250,000 a year.

Source: FAO telex, 5/1/85
CSGordon, 5/2/85

ANNEX D

Other Donor In-Kind Contributions, CY 1986

1. Spain, Las Palmas survey, system analyst/data programmer, 3m.m, working party on demersal species in central and western Gulf of Guinea, accoustic surveys in selected areas, publications ($5,000
2. France, one fulltime biologist one year, renewable
3. FAO, thru Norway, funding regional fish marketing information services for CECAF countries based in Abidjan,
   -EEZ planning advisory missions including fishery law and legislation,
   -training course on monitoring control and surveillance,
   -nutritional studies of fishing communities;
4. FAO, thru Denmark, regional small-scale fishery development project for CECAF countries based in Benin,
   -workshop on food technology for French speaking countries,
   -seminar on stock assessment for selected participants.
5. FAO, thru UNDP, regional aquaculture training and research project based in Nigeria,
   -acoustic survey of West Africa coast utilizing F. Nansen provided by Norway.
6. FAO, thru Regular Program, servicing of CECAF Committee,
   -expert consultation on project identification and investment planning,
   -working party on fisheries statistics,
   -advisory missions on fisheries statistics,
   -working group on hakes and deep-sea shrimps,
   -preparation of national fishery resources reviews for selected countries,
   -case studies on effort regulation/tacs (?),
   -studies on improved beach landing craft,
   -fuel survey and energysaving proposals for fishing fleet,
   -development of sail assistance to small fishing craft
   -preparation of fishermens manual
   -regional cooperative research program on fish technology which includes comparative studies on artisanal smoking kilns
   -improved handling of catch onboard vessels,
   -introduction of insulated containers for improved handling and marketing

NB The above do not include a number of direct country activities.

COPY

Department of State

INCOMING TELEGRAM

PAGE 01 ROME 10804 291707Z /351 030412 AID3984
ACTION AID-00

ACTION OFFICE AAAF-03
INFO AFDP-06 FPA-02 AFOR-05 STAG-02 STFN-01 GACT-01 AFDA-01
AGRI-01 RELO-01 MACT-01 /024 A4

INFO LOG-00 EUR-00 IO-16 /016 W
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AIDAC

AID/W FOR AA/AFR/EDELMAN FROM AMBASSADOR FENWICK

E.O. 12356: N/A
TAGS: EAID

SUBJECT: REQUEST FOR ASSISTANCE TO WEST AFRICAN COUNTRIES AND CECAF

1. NORMALLY I HESITATE TO INTERFERE IN OTHER PEOPLE'S RESPONSIBILITIES. HOWEVER, I HOPE YOU WILL UNDERSTAND MY CONCERN AND INTEREST IN URGING YOUR SUPPORT FOR ASSISTANCE TO THE WEST AFRICAN COUNTRIES AND THEIR ORGANIZATION FOR REGIONAL FISHING PROGRAMS (CECAF). I UNDERSTAND FROM A CONVERSATION WITH MR. FURMAN OF MY STAFF THAT YOU ARE CONSIDERING PROSPECTIVE ASSISTANCE TO CECAF BUT MAY HAVE SERIOUS DOUBTS ABOUT THE EFFICACY OF THIS PROJECT.

2. I WAS ASKED TO MEET WITH REPRESENTATIVES OF SEVERAL WEST AFRICAN COUNTRIES AT LUNCH YESTERDAY, THURSDAY, APRIL 25, TO DISCUSS THEIR STRONG FEELINGS ABOUT NEED FOR AMERICAN SUPPORT FOR THE REGIONAL ORGANIZATION.

- THE CHAIRMAN OF THE GROUP, CHERNO OMAR JOOF, SAID THAT ALL MEMBERS OF CECAF UNANIMOUSLY SUPPORT ITS PROGRAM WHICH HAS BEEN GOING ON FOR NEARLY TEN YEARS WITH FUNDS FROM UNDP, FAO AND OTHERS. THEY DESCRIBED THE WORK OF CECAF AS THREEFOLD:

FIRST: ASSESSMENT OF FISH STOCKS TO AVOID DEPLETION BY OVERFISHING WHILE TAKING ADVANTAGE OF NEEDED SUPPLIES;

SECOND: PLANNING AND DEVELOPMENT OF THE FISHERIES MARKETS IN THEIR COUNTRIES; AND
FINALLY: TRAINING TO MAKE THESE TWO ACTIVITIES EFFICIENT AND SUCCESSFUL.

3. WE HAVE LEARNED THAT
RANCE, SPAIN, ITALY, KOREA,
POLAND AND CAMEROON ARE CURRENTLY PROVIDING ASSISTANCE TO CECAF AND WILL C NTI LIMITED ASSISTANCE IN THE FUTURE. THE AFRICAN MEMBERS ARE PROVIDING WHAT LITTLE SUPPORT THEY CAN AFFORD, SUCH AS OFFICE SPACE AND T E LIKE. HOWEVER, SOMETHING NEEDS TO BE DONE TO BRING ALL OF THIS TOGETHER. THAT IS WHERE I THINK YOUR BUREAU IN A.I.D. CAN BE MOST HELPFUL. I AM CONVINCED THAT SOME LIMITED AMOUNT OF MONEY FROM A.I.D., PERHAPS 250,000 TO 300,000 DOLLARS A YEAR FOR THE NEXT THREE YEARS, WOULD BE SUFFICIENT TO PROVIDE SOME FOCUS TO CECAF'S FUTURE SUPPORT TO ITS MEMBER GOVERNMENTS IN WEST AFRICA AND TO ENCOURAGE OTHER DONORS TO TAKE A MORE ACTIVE ROLE.

4. I PLAN TO APPEAL TO FAO DIRECTOR-GENERAL SAOUMA AND ASK THEM TO PROVIDE FUNDS THROUGH THEIR TCP PROGRAM FOR A

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SPECIALIST TO WORK WITH CECAF DURING THE NEXT THREE YEARS. HOWEVER, I WOULD LIKE TO MAKE THAT CONDITIONAL ON ASSISTANCE FROM THE UNITED STATES AND OTHER DONORS AS WELL.

5. I HOPE MY VIEWS WILL ENCOURAGE YOU TO PROVIDE SOME FUNDING FOR CECAF AND THAT YOU WILL AGREE THAT OUR WEST
A
F ICAN COLLEAGUES ARE WORTHY OF OUR SUPPORT AT THIS CRITICAL TIME. FENWICK

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ANNEX B

Statutory Check List

5C(2) PROJECT CHECKLIST

Listed below are statutory criteria applicable to projects. This section is divided into two parts. Part A. includes criteria applicable to all projects. Part B. applies to projects funded from specific sources only: B.1. applies to all projects funded with Development Assistance loans, and B.3. applies to projects funded from ESF.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE? HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?

A. GENERAL CRITERIA FOR PROJECT

1. FY 1985 Continuing Resolution Sec. 525; FAA Sec. 634A; Sec. 653(b).

   (a) Describe how authorizing and appropriations committees of Senate and House have been or will be notified concerning the projct; (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or nor more than $1 million over that amount)?

   Congressional Notification

   No

2. FAA Sec. 611(a)(1). Prior to obligation in excess of $100,000, will there be (a) engineering, financial or other plans necessary to carry out the assistance and (b) a reasonably firm estimte of the cost to the U.S. of the assistance?

   No

3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?	Not applicable
4. FAA Sec. 611(b); FY 1985 Continuing Resolution Sec. 501. If for water or water-related land resource construction, has project met the standards and criteria as set forth in the Principles and Standards for Planning Water and Related Land Resources, dated October 25, 1973, or the Water Resources Planning Act (42 U.S.C. 1962, et seq.)? (See AID Handbook 3 for new guidelines.)	Not applicable
5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed $1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?	Not applicable
6. FAA Sec. 209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.	Yes The grant is in support of regional institutional development.

7.	FAA Sec. 601(a). Information and conclusions whether projects will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; and (c) encourage development and use of cooperatives, and credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.	Yes Yes Yes Yes Yes Not applicable
8.	FAA Sec. 601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).	Project will help foster private sector relationships between the U.S. and West African fisheries sectors.
9.	FAA Sec. 612(b), 636(h); FY 1985 Continuing Resolution Sec. 507. Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.	The host country, Senegal, provides office space and uttilities, other member countries provide in-kind services of individuals and services.
10.	FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?	No

11.	FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?	Yes
12.	FY 1985 Continuing Resolution Sec. 522. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity?	Not applicable
13.	FAA 118(c) and (d). Does the project comply with the environomental procedures set forth in AID Regulation 16. Does the project or prograam taken into consideration the problem of the destruction of tropical forests?	Yes Not applicable
14.	FAA 121(d). If a Sahel project, has a determination been made that the host government has an adequate sysem for accounting for and controlling receipt and expenditure of project funds (dollars or local currency generated therefrom)?	Not applicable

15. FY 1985 Continuing Resolution Sec. 536. Is disbursement of the assistance conditioned solely on the basis of the policies of any multilateral institution? — No

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

a. FAA Sec. 102(b), 111, 113, 281(a). Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote — See Annex G

Not applicable

Yes

Yes

the participation of women in the national economies of developing countries and the improvement of women's status, (e) utilize and encourage regional cooperation by developing countries?	Yes
b. FAA Sec. 103, 103A, 104, 105, 106. Does the project fit the criteria for the type of funds (functional account) being used?	Yes
c. FAA Sec. 107. Is emphasis on use of appropriate technology (relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)?	Yes
d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to whch the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed country)?	Yes
e. FAA Sec. 110(b). Will grant capital assistance be disbursed for project for more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing, or is the recipient country	No

"relatively least developed"? (M.O. 1232.1 defined a capital project as "the construction, expansion, equipping or alteration of a physical facility or facilities financed by AID dollar assistance of not less than $100,000, including related advisory, managerial and training services, and not undertaken as part of a project of a predominantly technical assistance character."

f. FAA Sec. 122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth?

Yes

g. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civil education and training in skills required for effective participation in governmental processes essential to self-government.

One purpose of the project is to strengthen national institutions to provide services in support of activities to improve opportunities for the fisheries popoulation to help themselves.

2. Development Assistance Project Criteria (Loans Only)

a. FAA Sec. 122(b). Information an conclusion on capacity of the country to repay the loan, at a reasonable rate of interest. — Not applicable

b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan? — Not applicable

3. Economic Support Fund Project Criteria

a. FAA Sec. 531(a). Will this assistance promote economic and political stability? To the extent possible, does it reflect the policy directions of FAA Section 102? — Not applicable

FAA Sec. 531(c). Will assistance under this chapter be used for military, or paramilitary activities? — Not applicable

c. FAA Sec. 534. Will ESF funds be used to finance the construction of, or the operation or maintenance of, or the supplying of fuel for, a nuclear facility? If so, has the President certified that such use of funds is indispensable to nonproliferation objectives? — Not applicable

d.	FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made?	Not applicable

ANNEX C

FAO Request

The FAO request is being transmitted from Rome.

ANNEX D

UNDP Evaluation of the CECAF Project

REPORT OF THE MISSION TO REPRESENT THE UNDP AT THE DEVELOPMENT OF FISHERIES IN THE EASTERN CENTRAL ATLANTIC

NINTH SESSION
11-19 OCTOBER 1984, BANJUL, THE GAMBIA

AND ASSESS THE UNDP/FAO INT/81/014 CECAF PROJECT

By Wm. Ellis Ripley
Consultant to the Administrator, UNDP

This report has been prepared by the above Consultant as a response to the Terms of Reference for the mission to the CECAF Meeting, 11-19 October 1984 held in Banjul, The Gambia. The Terms of Reference are as follows:

1. To represent UNDP at the Development of Fisheries in the Eastern Central Atlantic (CECAF) Meeting, 11-19 October 1984.

2. Undertake an assessment of the INT/81/014 CECAF project including the following activities:

   (a) assess the concept and strategy of the present project and determine its appropriateness to the needs of the CECAF region;

   (b) evaluate the project's implementation and the degree to which its 7 objectives and 4 outputs have been achieved;

   (c) determine the effectiveness of the training component, bearing in mind the overall goal of having local fishery staff manage CECAF affairs within their countries and play an effective role in interregional cooperation;

   (d) assess the nature and scope of external support - both coastal and non-coastal - stimulated by the programme.

3. In view of the above, make recommendations for future activities and initiatives to be undertaken by:

   (a) the countries of the region;

   (b) international organizations;

   (c) other donors.

THE REPORT

This report is presented in two parts in conformity to the Terms of Reference given above. The second part of the Terms of Reference which specified the conditions of the assessment was assisted greatly by the

attendance of the CECAF meetings, since each of the conditions of the Terms of Reference were discussed or covered by the formal meeting itself or in discussions with the several delegations to the meetings.

1. To represent UNDP at the Development of Fisheries in the Eastern Central Atlantic (CECAF) Meeting, 11-19 October 1984

Item 1 of the Terms of Reference involved representation of the UNDP at the meetings. The activities and proceedings of the meetings have been submitted separately as individual supplements to this report. In summary, those meetings were characterized by an avowed high dependence upon the project for fisheries development in the region.

The second obligation specified that an assessment be made of the CECAF Project (INT/81/014). That assessment, which was made concurrently with the above-mentioned representation, is presented here in summary form and is based upon the review and assessment of the results of project literature and documents, proceedings of the meeting and discussions, observations and conclusions reached during the mission.

2. Undertake an assessment of the INT/81/014 CECAF project including the following activities:

Introduction

This portion of the report on the assessment of the project and its related reporting on the proceedings of the Sixth Session of the CECAF Sub-committee on Fishery Development and the Ninth Session of the Committee on Development of Fisheries in the Eastern Central Atlantic (CECAF), must necessarily be concentrated on the substance of the project, its impact and the reflection of the CECAF community on its effectiveness. There is so much adequate documentation and testimony to the project's productivity that even a listing of the sources in itself creates a volume of material that stretches the limited resources of this assessment. This report, therefore, is a summary report based on the direct observations and investigation of the author during the mission to The Gambia and the past experience in administering, monitoring and reviewing the CECAF project back to its inception, combined with the integrated distillation of its literature, reports and evolution to a mature "factoré majore" in the instigation of fisheries development in the Western Central Atlantic. That this overall judgment does not stand alone, there are many independent statements and observations pronounced by governments, individuals, as well as the media that support this view. Only one is needed for reference to substantiate the valuable impact of the project, since the prestigious Fishing News International July 1984 issue is devoted to the project alone, its work and its magnum effect in the CECAF region. Annex 1.

The importance of fisheries development in the CECAF (Morocco to Zaire), is emphasized by the $1.4 billion or 3.4 million tons contribution that this sector makes to the economy of the region.

(a) Assess the concept and strategy of the present project and determine its appropriateness to the needs of the CECAF region

The CECAF project was given an exhaustive review and evaluation by the 1977 UNDP/FAO mission. The project was found to be poorly executed, not too effective and with a number of deficiencies. The mission recommended a number of changes in the orientation and execution of the project. They were adopted by the project and a new, but experienced Project Manager, was appointed to give direction to its activities. During the ensuing years to the present, the project has made a most substantial impact on fisheries development in the region.

In an area where economic and administrative efficiency varies widely - but on the whole is characterized by less efficient and technically supported governmental mechanisms, the administration and implementation of fisheries is gaining a slow but upward momentum. Considering that the West Coast of Africa is beset by many formidable development deterrents, not the least of which is the economic and social dislocations caused by a long term drought - the continuing interest and support of fisheries by the CECAF coastal states is a testimony to the importance of the sectors to the governments of the region. It is obvious that the CECAF project is oriented to supply the maximum support to the several governments' efforts. The types of seminars, meetings and training sessions over the whole gamut of the project's development objectives testifies to this. The fact that increasing utilization of national fish stocks by the coastal states is occurring and foreign fishing utilization of those same stocks is decreasing, is proof of the success of this orientation.

An indication of the effectiveness of the project to marhsall assistance for this region is given in the list of associated projects in Info 8 of the CECAF Commission Document. These projects, although not specifically administered by the CECAF project, were nevertheless stimulated, assisted or sponsored by it.

(b) Evaluate the project and the degree to which its 7 objectives (immediate) and 4 outputs have been achieved

The Project Document, Development of Fisheries in the Eastern Central Atlantic (INT/81/014) quantifies the activities as follows:

Immediate Objectives

(i) Improve national, sub-regional and regional arrangements for the collection, analysis and dissemination of basic data on fishery fleets and shared stocks (statistics).

(ii) Promote and facilitate joint assessment of resources and proper levels of harvest (resource assessment).

(i) and (ii) - Statistics and Resource Assessment

These two objectives are joined since they both go hand in hand. Statistics are required for resource assessment and the assessment is made by statistical treatment of the data on the stocks.

Prior to the advent of the project on the scene - even the basic level of the catch of the region and its component parts was little known. One of the first tasks of the project set to was to assist the countries to gather statistics on catches, a basic function, the results of which are required before analysis can be made to determine the size of the resources and their component stocks. During the terms of the project, 35 resource assessment meetings have been held, all orchestrated or monitored by the projects. Over 15 species are represented in the considerations for assessment. That all environmental and political aspects affecting these diverse stocks must be considered - it is a remarkable performance by the project. Nearly all management commissions in the world are directed to the consideration of a single group of species. The performance of the project to deliver concrete advice and move governments to take action based on the progress engendered by these contributions on these multi-species assessments is remarkable indeed.

Among the various resource assessment initiatives by the project, a particular endeavour should be brought to focus. The Dr. Fridtjof Nansen, a sophisticated research vessel was deployed in the region in support of research development in the region. It quantified the thousands of tons of trigger fish population for one, and as a result, development is now progressing on this species.

On its own authority, the CECAF Committee has spoken its word on the effectiveness of the project within the Committee's collective judgment. In the report of the Sixth Session, almost every page reveals a tie-in with the project's work, advice or counsel. Even the mention of most of the species referred to in the documents is built on the project's assistance to the region. In the case of the quotation of quantities, the CECAF project has, through guidance, training, statistics and recommendation of methods, made the very figures presented by the national representatives possible.

Resolution No. 2 on the Report of the CECAF Commission states in concert voice the value placed upon the project's contribution to the region by the collective governments represented at the session.

Annex 2 gives a list of 48 reports covering the development of resource assessment activities of the project.

(iii) Conduct economic analysis in order to identify optimum patterns of fishing effort and to be able to propose alternative options for fisheries development (Management and Planning)

This objective of the project has been largely satisfied by the many special reports of investigations carried out for individual fisheries or stocks. Since the application of the results are location or government specific, Annex 3 (Notes on the CECAF Project) - pages 14 to 24 - relates to the application of the report and recommendation of the project in the individual countries in the CECAF region. It is not always possible to trace the direct results of the project's effort under this objective, since the project's data and studies used by private industry often are not quoted or acknowledged in their private endeavour.

(iv) Promote and assist in the formulation and implementation of proper management mechanisms, especially to assist in the development of joint arrangements for the allocation of agreed levels of fishing effort or fish catch among countries sharing common stocks (Management and Coordination)

The actual application of international fisheries management measures since the inception of the CECAF project has not been spectacular. The enactment of multi-state conservation measures has been limited to species limitations and mesh regulations. As indicated above, the progress of multinational management of fisheries resources even in the developed world is a slow and deliberate process. So it is in the CECAF region where even greater difficulties lie - even to the extent that Exclusive Economic Zones and international boundaries between some of the coastal states are still in the process of resolution.

This obligation of the project as related above is one of the most difficult of the objectives to implement. In the degree to which management measures could have been taken, the delivery of management measures sponsored by the project itself has been less than excellent. The paper, CECAF/IX/84/3 presented coordinated options for national and regional management. The total source of these proposals were the direct result of the project's work over the past several years. An examination of the listing of seminars, training sessions and biological workshops demonstrate the issues covered. These have led to a compilation and a consolidation of the known information about the resources and preparation of the suggested rational approaches for the implementation of management measures in the CECAF area.

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The fact that all possible effective measures have not yet been taken in the region cannot be laid at the doorstep of the project. Mesh regulations and catch limitations are being enforced in the North, particularly in Morocco and Senegal. Other governments have not been as active because of national decision - not because the means and methods have not been made available to them.

The paper, Coastal States Requirements for Foreign Fishing in the CECAF Region (Annex 4) summarizing the laws and regulations regarding fishing in national waters exemplifies the problems involved in implementing regulations in the CECAF region. There is no common base for laws since each country has its own EEZ and has established variable basic conditions for fishing in its waters.

A basic problem of management is that of competition between the Artisanal fishery and the industrial or motorized fisheries. The effect of regulation of one has a reciprocal effect on the other and since money and social effect are big factors in regulation, sometimes the regulations are deferred because of such conflict.

A basic concept of the international management of fisheries must be perceived in order to assess the effect of the project in implementing resource management. The administration and management of fisheries resources within the limits of national jurisdiction is a very jealously guarded prerogative. It is normally not an area of assignment that any national state will share with another and particularly without a great deal of thought and preparation. Normally, states protect their national prerogatives from interference by international agencies. Yet, in the CECAF area, the national states all understand the deficiencies in the management of their stocks, their interdependence on shared stocks and the need for collateral management. The project's capacity and leadership in preparing the countries obtain data on their fisheries, share the information with their neighbors and move them to enact or take parallel management measures to collectively protect their resources is a hallmark of delicate influence and persuasion. I remember an earlier session of the CECAF Commission where just the mention that management action should be taken by the coastal states brought forth vituperative accusations of interference by the project in the sovereign affairs of governments. The spokesmen for some of those states which are now following the suggestions and guidelines of the CECAF project in management of resources, now laud the project for its work in this field and berate it because it does not do more.

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An example of management action: Several of the states have restricted the catch of several species and initiated standard mesh and mechanized limitations. In the case of one state, it has reduced the foreign fishing component in its waters of a non-coastal state by 40%.

In summary, no fault can be placed on the project for the limited management measures presently in force in the region. Those presently operative in the North have been directly stimulated by the project.

The eventual evolution of the committee is to become an international regulatory agency with authority conferred upon it by the several national governments. This type of organization usually comes after many years of growth and acceptance by the several countries. At this time, CECAF has not reached that stage.

(v) Promote interregional trade and economic collaboration (ECDC) - (Trade and Marketing)

Similar to item (iii) above, the reciprocal effects of this type of initiative are related to the specific governments involved in the trade actions. Many of these activities are listed under the notes on project activities in each country (page 14-24, Annex 3) - Notes on the CECAF Project.

As can be seen, the effect of the project in this area has been significant.

A further stimulus imparted by the project has been the initiation of a region-wide marketing service project (Infopeche) by FAO with financial support from Norway.

(vi) Promote, assist and organize training activities in various fields and at various levels, through the preparation and running of training courses and seminars, the provision of in-service training facilities and fellowships, etc. and facilitate the transfer of fishery skills (executive, administrative, technical, scientific) to the states of the region (Training)

For an insight on the complex elements involved in the application of training in the African coastal states, the resumé of "An Indication of the Scale of Needs for Fishery Training and the Practical Difficulties Involved" is attached as Annex 5.

The project gave courses and training sessions which covered the following subject matters:

Acoustic and Trawling Methods
Gear and Vessel Technology
Sub-regional Management
Sub-committee on Management
Resource Evaluation
Pelogic Fishing Effort Indices
Joint Venture in Fisheries
Working Party Statistics and Resources
CEphalopods
Fishery Planning
Fish Processing
Hake
Fishery Management and Development
Monitoring, Control and Surveillance
Artisanal Fisheries
Research
Sardine Aging
Sardine
Senegal/Mauritania Stocks
Aerial Surveillance
Law of the Sea
Resource Survey (Various Vessels)
*Many other sessions covering several species of the region, specialized research and statistical processes, fishing activities

In the course of the project, 690 individual training sessions were executed directly by the staff of the project itself or by consultants recruited for the purpose in venues located throughout the region. For a comprehensive over-look of the subject matter and other details of the training activity, the schedule of training activities is attached to this report as Annex 6.

Considering the scope of the subject matter covered in the many courses given, the gross performance of the training portion was adequately covered.

The quality of training itself can be judged to be good to excellent. Several of the delegates attending the CECAF meetings in Banjul had completed one or more of the training sessions in various areas of subject matters including biology, assessment, management, administrative matters, etc. In the technical and policy discussions of the meeting, nearly all performed to an adequate standard for participation in international meetings, joined in the technical debates and gave evidence of an understanding of what they were about. This was in direct comparison of the meetings held in 1974, 1977 and 1979 where the performance by the members of CECAF was very spotty. Few of the delegates then joined in the session debates and the meetings were dominated by a few

participants. The technical moderators and the chairmen of the early meetings had difficulty in getting many of the delegates to intervene in the proceedings.

A CIDA investigation this last June 1984 of the deployment of personnel trained in the CIDA training component of the CECAF project, revealed that almost 90% of the government officials so trained were presently employed in fisheries in their national agencies.

(vii) Provide (a) technical and other support to the existing regional fishery bodies, the Committee for Eastern Central Atlantic Fisheries (CECAF) and its subsidiaries concerned, (b) strengthened focal points in the Fisheries Directorates of participating coastal countries from which viable TCDC arrangements can be initiated, developed and coordinated, (c) close collaboration with existing local institutions such as CEAO, ECOWAS, CILSS, etc. (Support the CECAF in Regional Fisheries Development)

(a) Technical Support to Regional Fisheries Bodies and CECAF - Probably the most telling of the activities used to fulfill this objective has been the basing of the CECAF Secretariat with the project in Dakar. Admittedly, this has placed a workload on the project which has in some cases required a reorganization of the project's priorities. In gross effect, however, this has been beneficial because the national and inter-governmental activities of the Secretary (Mr. Ansa Amin) have brough reciprocal benefits to the project staff. The project, of course, is under continuing strain to deliver its technical outputs which, however, are under continual use by the Secretariat and the government.

Dozens of CECAF formal meetings and hundreds of technical and training meetings have been conducted in the region. All of the technical reports and papers for these meetings have been prepared by the project - a volume of material having to be researched, compiled and written down amounting to thousands of pages. That the meetings have been adequately researched, prepared and back-stopped effectively, is supported by the fact that all these meetings came off well and in many cases, brilliantly.

(b) Strengthened Focal Points in the Fisheries Directorates - The same benefits outlined in Section (a) above prevail here also. There is one additional benefit - in that the Secretariat serves the good office of seconding the election of various government representatives. The training component of the project has done the most to strengthen the national directorates through exposure to the skills and experience

given in all the several specialized fishery courses (see Training Activities, CECAF, Annex 6) - sometimes several courses to the same trainee. They have been given the opportunity of becoming aware of most of the options available that might be used in their country programmes. Six hundred ninety such training courses have been taken by national personnel covering all countries in the CECAF region.

(c) Close Collaboration with Existing Local Institutions -

1. CEAO (Economic Committee of West Africa) - This Committee embraces Mauritania, Senegal, Ivory Coast, Mali, Upper Volta and Niger. It has two fisheries people in its service and has set up a fisheries school in Nouakniban, Mauritania and an aquaculture center in Viovake, Ivory Coast. The CECAF project has been involved in helping prepare the project, supplying the basic data and advising in implementation in the marine fisheries project portion. The project guided the Consultant chosen to prepare the recommendations for the CEAO. The syllabus for the training center was prepared by the project with the assistance of the FAO. The UNDP/FAO Aquaculture Management and Development Project has done likewise for the Aquaculture component.

2. ECOWAS (Economic Commission of West African States) - This covers the coastal states from Mauritania to Nigeria. The Consultant who was hired by ECOWAS to prepare their position paper obtained all his information from the project. In the executive session of the Commission, the delegates deleted fisheries responsibilities from its obligation because they did not want duplication of effort. It was their decision that the CECAF project covered the fisheries sector adequately.

3. CILSS - There is no fisheries activity in this agency.

4. EEC (European Economic Council) - The project supplies the EEC with such data as required for their activities. EEC is not yet active in fisheries support in the region.

5. Others - The project has supplied most of the technical, economic and basic information used by USAID, World Bank, ADB, IFC, etc. in their assessments and development of regional and national programmes.

Outputs

(a) Development of sub-regional or regional mechanisms for the formulation of concerted arrangements for the rational exploitation of shared fish stocks and eventual implementation through mutual collaboration in the context of technical cooperation between developing countries. (Management)

Much of the requirement of this section has been covered in Sections (iii) and (iv) of the Intermediate Objectives. However, the main mechanism for formal application of management measures in the region is the Sub-committee on Fishery Development of CECAF itself. It is the most effective sub-regional mechanism developed in CECAF for stimulating co-operation in shared management responsibilities among the several coastal states. This committee met in Banjul 11-13 October 1984 and very ably demonstrated its competence in fielding the technical and management initiatives for the region. Bearing in mind that the sub-committee technical working party meetings have been sponsored and led by the CECAF project, the results of this committee meeting are essentially derived from the project. The basis for the action taken by the sub-committee stems from the consultations and workshops on regional and sub-regional management organized and sponsored by the project. The perspective of this coverage can be seen in Annex 6 (Training Activities CECAF) and paragraph 5.6 in Annex 3 (Notes on the CECAF Project).

(b) Improved knowledge of the state of stocks, including identification of opportunities for development and needs for management. (Statistics)

Under Annex 7 (List of CECAF Reports), over 36 studies on various species and trawl stocks have been completed by the project. These studies were all new contributions to the understanding of the fish resources of the region. The information includes references to stock abundance and problems relating to the use of those stocks. In the technical reports listed on the above-mentioned annex are several dozens of other reports relating to this output.

(c) Increased competence of the participating countries in the various fields of fisheries statistics, stock assessment, economics, fishing and fish processing technologies, fisheries administration and training. (Application of Projects Assistance)

This output is self evident from the performance of the delegates to the sub-committee and full committee meetings. The discussions that ensued during the meetings indicated

technical competence on the part of nearly all the representatives present. All of the representatives and many of their back-up staff had participated in the training sessions and technical workshop series of the project. The many technical and scientific reports in Annex 7 (List of CECAF Reports) were prepared by government employees with the cooperation of project scientists. There is still a considerable degree of improvement in personal competence, statistics, etc. that needs to be done in the region but the present capability that presently exists has largely been created through the project.

(d) Periodic reports of the current fisheries situation in the sub-region indicating the opportunities for fisheries development and requirements for more effective management by coastal countries of their marine resources and fishing fleets. Elaboration of fisheries development strategies including specific reports on management options and techniques appropriate to member states. (See Annex 7 - List of CECAF Reports)

The project has a diverse audience and to reach the various segments of the audience, it must use different vehicles.

For the scientific, management and government community of both CECAF and the world fishery peers who stand in judgment of every movement of the project, a CECAF/ECAF series is published in Rome, to provide extensive information on resources and their utilization in the fishing industry.

A technical report series is published in Dakar for distribution of technical data, to assist the coastal states government personnel of the CECAF Commission.

A working paper series is circulated for useful notes and incomplete data on current information.

Travel reports, usually restricted, quantify and record details of travel missions by project staff and justify their travel activities. Often, these reports are very informative as historical documentation of development activities. They also give an indication of the spin-off development impetus that is created by, and in the wake of the field contacts of the traveller.

Semi-annual reports are required by the UNDP to inform itself and FAO how the project is progressing.

Newsletters are produced intermittently to inform governments and others of project activities.

Numerous other documents are prepared for scientific meeting, training courses, expense accounts, headquarter reports, periodic activity reports, special requests from headquarters for information for FAO programme needs, conference papers, COFI meetings and answers for information and complaints from the public, governments, FAO, the UNDP, the U.N. and anybody else who wants to know something from the project.

(c) Determine the effectiveness of the training component, bearing in mind the goal of having local fishery staff manage CECAF affairs within their countries and play an effective role in interregional cooperation

Training Component

This output has been assessed in several of the previous sections. However, Section 2(b)(vi) is particularly germain. They do not need to be repeated here.

Play an Important Role in Regional Cooperation

The performance of the CECAF Commission meeting in executive session 15 to 19 October in Banjul, was an excellent example of the development of the governmental representatives over the past several years. Even when the turnover of personnel is taken into account, the very improved performance of the coastal states representatives in discussions of the technical, management and political issues discussed during the proceedings of the CECAF was obvious. Complicated negotiations and parliamentary performance was demonstrated by most of the participants. When it is taken into consideration that all of the government representatives have had several training sessions in both technical matters as well as in the administrative and management sectors, it speaks well for the personal growth of the participants. A comparison of the performance of the individuals at previous sessions of the CECAF clearly highlights the greatly improved operation of the Committee itself as well as that of the government representatives.

External Support

In addition to the support supplied by the UNDP over the course of the three CECAF projects, the projects have attracted or furnished the basis for investment by other donors such as the World Bank and the Arab Development Fund. Multilateral and bilateral assistance agencies have used CECAF project identification and formulation initiatives in Cape Verde, Congo, Gabon, Guinea, Guinea-Bissau, Mauritania and Sierra Leone. The mobilization of investment assistance from external sources can be totalled at not less than $151 million, invested mainly in the last few years. The stimulus and subsequent investment in the CECAF regions for fisheries from unreported

action taken by those who have used the project's advice, counsel and data, is unknown. But there is not a single bilateral participant in fisheries development in the region that has not contacted the project and used its data.

In addition to the above-mentioned multilateral investment in the region, Canada, Norway, Denmark and Spain have contributed support to the region of over $2.70 million for training, enforcement and statistics. See paragraph 5.8 of Annex 3 (Notes on the CECAF Project) for additional detail.

A great number of other sources of external support for the region's development has been generated over the period of time that the project has been in existence. CECAF/IX/4 pointed out some of these donors and their interests. A list given in the Project Manager's Report quantifies the contribution. The culminating demonstration of the marhsalling effect of the project is summarized in the fact that external aid to fisheries in the region has increased during the term of the project from $5 million per year to $40 million per year during the last quantified year.

3. Recommendations for future activities and initiatives to be undertaken

(a) By countries of the region

The major action that the countries of the region can take is to participate in the active support of the project. This support should generate, over a period of five years, adequate funding so that the Commission and its required technical secretariat may fend on its own. Eventually, the Commission may wish to become an international body capable of directing its own political and technical affairs in an international forum and even capable of receiving contributions to its work and administrating them on its own.

National Participation

At the Ninth Session of CECAF, the members recommended that all coastal states should contribute within their means to the project in cash or in kind. Some of the states are very poor and any contribution they might be able to make will be a significant effort on their part. However, as a preparation for the future support for the project by the participants, the UNDP and FAO should follow up on the agreement of the meeting and arrange for such support that each government might provide.

(b) By international organizations

The major international organization involved in the project is the UNDP.

Project Evaluation

The present work and methods of the CECAF project is a distillation of the effective techniques which evolved during the implementation of INT/72/074, INT/79/019 and INT/81/014. The delivery and application of these precursor projects were the subject of an intensive and highly critical UNDP/FAO mission fielded in 1977. The 1977 mission, in its assessment of the project, noted deficiencies in the basic concepts and strategy of the project's operation and suggested remedial steps and a concentration of efforts of the project's activities to those which it opined would be most productive in the region. These recommendations were adopted by FAO and the UNDP and the objectives and work outputs were modified to reflect the new direction. The present objectives and outputs represent a responsive format for the operation of the project in as effective manner as can be expected in such a region of diverse resource abundance, population density and sectoral capability.

A single criterion is given as a measure of whether or not the project is doing a good job in carrying out its objectives in the region. The first several committee meetings were often characterized by bitter exchanges among the participants and the project with particularly rancourous criticism directed to the Project Leader. The change of reaction by the members and the committee as a whole is a significant measure of the harmonious relationship created by the project personnel and of the appreciation of the work of the project.

Project Manager

Mr. Lammar Trott of USAID has characterized this relationship as uniquely effective and Mr. Everett, the Project Director, as a Father Figure in the region. In the social setting of West Africa, the designation of "Father Figure" is testimony indeed.

The Project Manager has developed a rapport with the government and national personnel that few Project Managers share. The unparallel success of the project since Mr. Everett was appointed Manager proves this point. Much of the delivery of the project has been made with less than a full complement of project personnel - usually two, in addition to Everett. A very large portion of the technical work, in addition to directing the project, has been done by Mr. Everett himself. Any continuation of the project should use his exceptional experience and proven talents for accomplishing the work of the project.

Project Continuance

The project is slated for termination of UNDP funding in 1985. In view of the very considerable remaining fishery development needs

of the West African Coastal region, termination will cause a serious setback in both management and development. There are possibilities to attract funding to a UNDP project that does not exist under a bilateral project. The examples given during the session of the CECAF Committee at the Banjul meeting is cited (see Session papers and Report). Since the CECAF project is one of the few African U.N. activities that supports an economically valid return in the form of collateral financing from other donors and in turn contributes to the production of 3.4 million tons of protein food annually for the coastal population, I cannot recommend more strongly that UNDP continue to maintain core support to the project until the African countries are able to develop their own support.

Training

The Project Manager has had considerable experience in using the national personnel in work activities at project headquarters. The level of competence attained to date indicates a serious shortfall in technical competence for national governments' staff to handle complex matters of international fisheries development and management at this stage of their technical evolution. Staffs are often inadequate to handle the scientific jobs of stock assessment, mathematical model building and multi-species fisheries dynamics.

Provision should be made to continue the types of training for the foreseeable future that will upgrade the technical capabilities of the region's fisheries workers.

(c) By other donors

Exhortations can be made to other donors to assist the CECAF regions through direct aid to governments to that of picking a sector of the project's programme and supporting that through direct or parallel contributions. The possible participation of all the many potential donors is circumscribed by the technical, administrative and political conditions that that donor must meet to extend aid. Since the project itself knows the type of assistance that is needed in both time and space, it should be involved in the preparation of other donors to participate in the fishery development activities of the region. The project has done an excellent job in this regard in the past and it should be supported in its efforts to continue.

ANNEX E

Donor Country and Multilateral Organizations

Contributions and Commitments

Other Donor In-Kind Contributions, 1985/86

Activity	man months	source of funding	US equiv.	Sub-Total	Total
A. Statistics					
1. Data collection in Las Palmas	12	Spain	$5,000		
2. Handling of data in Dakar	3	FAO/RP*	$20,000		
3. Assistance to Sierre Leone and Liberia	2	FAO/RP	$12,000		
4. Training in Statistics collection, Gabon, Cameroon	2	FAO/RP	$12,000		
5. Collection of fish trade information, Gabon, Cameroon, Congo	1	FAO/RP	$6,000		
†Sub-total	20			$55,000	
B. Resource Evaluation					
1. Stock assessment of hake and other demersal stocks in southern CECAF	1	FAO/RP	$7,000		
2. Country reviews on fish stocks					
a) Sierra Leone, Liberia (shrim	3	FAO/RP	$18,000		
b) Benin, Togo, Ghana	3	FAO/Norway	$18,000		
c) Mauritania	1	FAO/Norway	$6,000		
d) Gabon, Cameroon, Eq. Guinea	3	FAO/RP	$18,000		
3. Surveys					
a) Consultant to assist with data analysis	1	FAO/RP.	$10,000		
b) Maintenance acoustic equipment Morocco	1	FAO/Norway	$5,000		
4. Working party on resource evaluation May, Tenerife	1	FAO/RP	$6,000		
5. Ad hoc working group on resource evaluation for hake and deep-water shrimp	5	FAO/RP	$3,000		
6. Ad hoc working group on cephalopods, tenerife, Sept. 1985	2	Spain	$10,000		
7. Ad hoc working group on seabream, Oct. 1985	2	Spain	$10,000		
8. Ad hoc working group on resource evaluation (sardines for northern CECAF)	6	FAO/RP	$15,000		
9. Fishery biologist	6	France	$20,000		
Sub-total	33			$146,000	
C. Socio-economic activities					

1. Study on future prospects, characteristics and conditions for distant-water fishing effort	2	FAO/RP	$12,000	
2. Review of artisanal fisheries in Mano River Countries	1.5	FAO/RP	$10,000	
Sub-total	3.5			$22,000

D. Fishing and fish technology

1. Training course on fishing technology	0.5	FAO/RP	$3,000	
2. Expert consultation on fish technology in Africa		FAO/RP	$60,000	
Sub-Total	0.5			$63,000

E. Resources management

1. Evaluation of workshop on management techniques	0.5	FAO/Denmark	$5,000	
2. Bio-economic analysis of Shrimp trawl fishery for the Sherbro statistical Division (Sierra Leone, Liberia	2	FAO/RP	$12,000	
3. Workshop on management techniques in artisanal fisheries (Nov/Dec 85)		FAO/RP	$30,000	
4. Workshop on practicial management techniques for shared stocks		FAO/Norway	$50,000	
5. Training course in fisheries management and development planning, Poland (Sept. 1985)		Nor./Poland	$10,000	
Sub-Total	2.5			$127,000

F. Legal Activities

1. Seminar on harmonization of legal regimes		FAO/Norway	$20,000	
2. Assistance in drafting new fishery legislation (Gabon, Zaire, Angola, Morocco)		FAO/Norway	$40,000	
Sub-Total				$60,000

G. Monitoring, Control and Surveillance

1. Interregional study tours		FAO/Norway	$5,000	
2. Provision of advice to Mauritania Senegal, Sierra Leone	2	FAO/Norway	$10,000	
Sub-Total	2			$15,000

4. CECAF Working Groups				
1. Interpretation	FAO/RP	$74,000		
2. Ad hoc session of the steering committee	FAO/RP	$12,000		
3. Staff travel				
Sub-Total			$86,000	
TOTAL				$514,000

* RP - Regular Program

NB 1. Please note that cost of activities financed by Spain and France are only estimates.
2. We estimate support to CECAF from the above sources to continue at about the same level in 1986 without UNDP.
3. In addition several coastal countries have indicated they are prepared in principle to make modest cash contribution to support cecaf activities from 1986.
4. Minimum contribution from AID to permit the CECAF Project to continue operation is $250.000 a year.

Source: FAO Telex, 5/1/85
CSCarson, 5/2/85

ANNEX E

Other Donor In-Kind Contributions, CY 1986

1. Spain, Las Palmas survey, system analyst/data programmer,
   3m.m, working party on demersal species in central and western
   Gulf of Guinea, accoustic surveys in selected areas, publications
2. France, one fulltime biologist one year, renewable
3. FAO, thru Norway, funding regional fish marketing information
   services for CECAF countries based in Abidjan,
   -EEZ planning advisory missions including fishery law and legis-
   lation,
   -training course on monitoring control and surveillance,
   -nutritional studies of fishing communities;
4. FAO, thru Denmark, regional small-scale fishery development pro-
   ject for CECAF countries based in Benin,
   -workshop on food technology for French speaking countries,
   -seminar on stock assessment for selected participants.
5. FAO, thru UNDP, regional aquaculture training and research project
   based in Nigeria,
   -acoustic survey of West Africa coast utilizing F. Nansen pro-
   vided by Norway.
6. FAO, thru Regular Program, servicing of CECAF Committee,
   -expert consultation on project identification and investment
   planning,
   -working party on fisheries statistics,
   -advisory missions on fisheries statistics,
   -working group on hakes and deep-sea shrimps,
   -preparation of national fishery resources reviews for selected
   countries,
   -case studies on effort regulation/tacs (?),
   -studies on improved beach landing craft,
   -fuel survey and energysaving proposals for fishing fleet,
   -development of sail assistance to small fishing craft
   -preparation of fishermens manual
   -regional cooperative research program on fish technology which
   includes comparative studies on artisanal smoking kilns
   -improved handling of catch onboard vessels,
   -introduction of insulated containers for improved handling and ma

NB The above do not include a number of direct country activities.

ANNEX F

Summary, 3-Year Illustrative Work Plan

Illustrative Work Plan, the CECAF Project

1985-87

Statistics:

1. Assistance to coastal countries in upgrading their statistical networks and data processing.

2. Compilation of statistical data on regional basis for preparation of regional statistical bulletin.

3. Special liaison with Spain for collection of statistics, Las Palmas.

4. Maintenance data bank for subsequent detailed analyses.

Stock Assessment:

1. Preparation, running and publication ad hoc working parties on evaluation specific resources especially shared stocks. New focus and attention on littoral and localized stock supporting important artisanal fisheries.

2. Advice and support for coordination of stocks monitoring by trawl or acoustic surveys by member countries.

Fisheries Economics:

1. Assistance in expanding statistical data collection to include bio-economic parameters.

2. Analysis of economic aspects of exploitation and management.

Fisheries Management:

1. Analysis of status of stocks and exploitation, identification of management techniques and options.

2. Organization of ad hoc meetings to discuss/familiarize officers with management opportunities and constraints needs for regional harmonization and cooperation.

Training:

Short study tours less than eight weeks duration each to CECAF project headquarters and/or other institutions in Africa to undertake specific study assignments alongside senior experienced experts. Fields envisaged: Fish stock assessment/fisheries catch and effort statistics collection processing/bio-economic statistics for fisheries/fisheries management/fisheries control and surveillance, etc. Short regional group training on selected topics.

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ANNEX G

Methods of Implementation and Payment

Methods of Implementation and Payment

Following the signing of the letter grant agreement, the Director of Fishery Operations will send to AFR/RA a disbursement schedule for the life of project and the name and address of the bank to which payments should be made. Upon its receipt, AFR/RA will instruct the AID controller to transmit the first installment advance covering the last six months of CY 1985.

Subsequent advances will be made following the receipt of FAO's disbursements for the previous period for the amount stipulated in the disbursement schedule less any undisbursed amounts from the previous advance.

FAO may make adjustments between line items of the project budget as shown in the letter grant agreement (Attachment D) in amounts not to exceed 15% of the line item concerned without prior approval from AFR/RA. Changes in excess of that amount should be approved by AFR/RA.

Services of NOAA will be procured by PIO/T, initiated by AFR/RA, through SER/CM.

Payment Policies and Procedures

Methods of Implementation	Method of Payment	Amount
The CECAF Project	FAO, semi-annual advances; replenishments against disbursement reports	$ 900,000
Design of Satellite Pro-	AID/W to NOAA PASA	$ 60,000
	TOTAL	$ 960,000

BUDGET

Item	1985	1986	1987	Total
1. Technical Assistance	$ 24,000	$275,000	$299,000	$598,000
2. Duty Travel	$ 10,000	$ 45,000	$ 45,000$	$100,000
3. Operating Exp.	$ 5,000	$ 10,000	$ 10,000	$ 25,000
4. Office Supplies	$ 5,000	$ 10,000	$10,000	$ 25,000
5. Furniture & Equip.	$ 4,000	$ 10,000	$ 5,000	$ 19,000
6. In-service Training	-0-	$ 15,000	$ 18,000	$ 33,000
7. Design of Satellite	$ 60,000	-o-	-o-	$ 60,000
Total	$108,000	$365,000	$487,000	$960,000

ANNEX H

Special Concerns

1. Human Rights

2. Initial Environmental Examination

3. Women in Development

Special Concerns

1. Human Rights
2. Initial Environmental Examination
3. Women-in-Development

MEMORANDUM

DATE : July 9, 1985

TO : HA/MA, Mr. Fred Ashley

FROM : AFR/RA, Chas. S. Gordon
Telephone Number: 632-8337

SUBJECT: Human Rights Clearance

The following project, to be authorized in AID/W [ ]/ in the field [ ], is being submitted for clearance by the HR Committee (appropriate materials are attached):

Title : West African Marine Fisheries Initiative, CECAF Project Support
Number : 698-0454
Country : Africa Regional
LOP Amount : $960,000

The above project was [ ]/ was not [x] not one of those reviewed by the Working Group in , 1985.

HA concurrence is requested. If we are not notified within 15 days, we will assume concurrence.

TO : AFR/RA, Chas. S. Gordon
Room No.:

FROM : HA/MA,

[✓] Proceed with authorization

[ ] Request hold authorization pending further review

Frederick C. Ashley
Signature

July 9 1985
Date

cc: PPC/PDPR, Marilyn Zak
Room 3894 NS

AFR/RA:MLS:3149Y

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OR

CATEGORICAL EXCLUSION

Project Country: Africa Regional

Project Title: West African Marine Fisheries Initiative, CECAF Project Support (698-0454)

Funding: FY (s) 85 $ 960,000

IEE Prepared by: AFR/RA, Chas. S. Gordon

Environmental Action Recommended:

Positive Determination _____
Negative Determination x

Categorical Exclusion:

This activity meets the criteria for Categorical Exclusion in accordance with Section 216.2 (C) and is excluded from further review because:

The Project finances only technical assistance, training, studies, office equipment and evaluations.

APPROVED [signature]

DISAPPROVED _____

DATE 7/29/85

Concurrence:
Bureau Environmental Officer (acting)
Weston A. Fisher

Clearance: GC/AFR _____ Date _____

H. 3.

Women-in-Development

Throughout most of Africa, the women control the markets in the informal, private sector. This is particularly true in marine fisheries. In many cases, successful female primary buyers assume the additional role of money lenders thereby increasing their control over the fishermen and ensuring themselves a steady supply of fish.

The general method for marketing the artisanal catch in almost all West African countries is that upon landing, the fish are sold to middlemen, usually a woman who is either the fisherman's wife, kin, or an unrelated entrepreneur. These women are frequently referred to as 'fish mammies'. Akerele (1979) writes that there is one fish mammy for every two fishermen, roughly the same ratio reported for Ghana. Unrelated female entrepreneurs are beginning to dominate the wholesale and retail trade as a result of their role in financing the more expensive motorized technology that is beginning to dominate the small-scale fishery.

As discussed above, in West African fishing communities males generally fish and females process and distribute the product. Some authors (e.g. Christensen 1982) suggest that the female role of fish trade results in their being the primary element of economic stability in some fishing societies. Males fish intermittently while females work year-round. Lawson (1980) notes that the pivotal role of women in the functioning of many artisanal fisheries in West Africa is due to the fact that they are so involved in the industry not only at the wholesale, retail, and processing levels, but are also the main financiers of fishermen and other traders. She further notes that women play a crucial socially cohesive role in many fishing communities - a role that is particularly important in societies where the fishermen are migratory and absent from home for extended periods of time.

Kotnik (1982) emphasizes the important role played by women in the small-scale fishery of Tombo, Sierra Leone. Programs which maintain this division of labor will probably encounter less resistance than programs which reduce the economic role of females. In many countries female processors and distributors have adapted to the industrialized fisheries by purchasing frozen fish, smoking them and distributing them through the traditional network. In part, this was made possible by the fact that cold stores are not as wide spread as the traditional trade networks. Perhaps a larger contribution to this adaption, however, was made by the fact that smoked fish plays a large role in traditional diets. Changes in traditional diets and/or increasing efficiency in the distribution of industrial catches may displace these women in the future. One very real threat to their future, however, is the fishermen's cooperative.

The fishermen's cooperative is given an important role in small-scale

fishery development by most West African governments (Larming & Hotta 1980). The fishermen's cooperative is often viewed as a technique for eliminating exploitation by middlemen. If this becomes the goal of the cooperative movement in West Africa, female fish processors and vendors could be displaced. In areas where fishermen are related to the middlemen, the movement would probably be resisted; but in other areas, the effects on a relatively large, economically productive sector of the population would be disastrous.

Some development programs (e.g., in Senegal and Sierra Leone) are coping with this potential problem by encouraging the establishment of women's marketing and processing cooperatives. In Sierra Leone the Tombo Women's Cooperative Society, founded in 1981, has increasing membership, significant savings, and is involved in the introduction of improved processing and marketing techniques (Kotnik 1982). One can only speculate concerning the disaster that would have followed an attempt to introduce a male-centered fishermen's marketing cooperative into this area. Such foolish attempts have been made in development programs in other areas in the past, and they still occasionally occur.

Source: Pollnac, Richard B., "Sociocultural Aspects of Small-scale Fisheries Development in West Africa. See Annex M for the complete paper.

ANNEX I

Congressional Notification

CONGRESSIONAL NOTIFICATIONS TRANSMITTAL SHEET

DATE: July 17, 1985

We wish to inform you of proposed actions in the Agency's programs during Fiscal Year 1985:

Jamaica: Various PVO Projects
Worldwide: Program Development and Support
Technical Notification: Jamaica
El Salvador: Population Dynamics
Technical Notification: Africa Regional
Indonesia: Indonesia Rural Credit Diversification
Guinea Bissau: Food Crop Protection III
Africa Regional: Support to the CECAF Project
Caribbean Regional: Regional Youth Skills Training
South Pacific: South Pacific Commission Multiproject Support
Central America Regional: Regional Agricultural Higher Education
Grenada: Infrastructure Revitalization
Centrally Funded: UNICEF Child Survival Grant
Technical Notification: Centrally Funded
Technical Notification: Near East Regional
Peru: Private Sector Management Improvement
Yemen Arab Republic: Agriculture Development Support

The attached notification was sent to the Hill on July 17, 1985. Obligation may be incurred on August 1, 1985.

Bette Cook
Program Presentation Division
Office of Legislative Affairs

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17 JUL 1985

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AGENCY FOR INTERNATIONAL DEVELOPMENT

ADVICE OF PROGRAM CHANGE

Date

Country	:	Africa Regional
Project Title	:	Support to the CECAF Project
Project Number	:	698-0454
FY 85 CP Reference	:	Annex I, Africa Program, p. 597
Appropriation Category	:	Agriculture, Rural Development and Nutrition (ARDN)
Life-of-Project Cost	:	$960,000 (grant)
Intended FY 85 Obligation:		$960,000

This is to advise that A.I.D. intends to authorize a grant of $960,000 for Support to the CECAF Project. This is a new project which was cited in the FY85 CP as the West African Fisheries Initiative.

The purpose of the A.I.D. core grant is to provide the Committee for Eastern and Central Atlantic Fisheries Project (the CECAF project) with funding for the FY 85-87 period to continue its functions of coordinating research on the marine fisheries of the West African coastal countries.

See attached Activity Data Sheet for additional information.

PROGRAM: AFRICA REGIONAL

AGENCY FOR INTERNATIONAL DEVELOPMENT
ACTIVITY DATA SHEET

CP 81-05 (4-85)

TITLE	FUNDING SOURCE	PROPOSED OBLIGATION (In thousands of dollars)	
Support to the CECAF Project	ARDN	FY 85 960	LIFE OF PROJECT (Auth.) 960
NUMBER 698-0454 GRANT [X] LOAN [ ] NEW [X] CONTINUING [ ]	PRIOR REFERENCE Annex I Africa Program, Page 597, FY 85 CP	INITIAL OBLIGATION FY 85	ESTIMATED FINAL OBLIGATION FY 85 / ESTIMATED COMPLETION DATE OF PROJECT FY 87

Purpose: To sustain and build upon progress to date by the CECAF Project in bringing improved management to the endangered marine fisheries of West Africa.

Background: The Committee of Eastern and Central Atlantic Fisheries (CECAF) has 21 coastal and 10 non-regional members (including the U.S.A.) and 6 observers. The CECAF region stretches from Morocco to Angola. The CECAF project was initiated by FAO, with UNDP funding, in 1975; the UNDP is unable to continue its support. A.I.D. has received a request from the regional members to provide minimal-level support until sufficient funding may be obtained from other donors to ensure the continuation of the project. At the same time a plan will be developed to institutionalize project support largely through assessment of coastal and non-coastal members. The project has established a reputation for the quality of the research it directs and coordinates, its international meetings on specific stocks and a wide variety of scholarly and technical publications. The project has played an important role in strengthening national institutions of its coastal members in marine research and training. As a result the project has had an identifiable impact on fisheries management. In large part due to CECAF influence, governments have begun to implement policies and projects harmonizing national legislation, improving statistical reports on stocks, and training of artisanal fishermen. Without A.I.D. support these efforts will have to be abandoned.

Project Description: The project provides a grant to the CECAF project through FAO to enable the project to continue its operations from FY 85 through FY 87. The project will continue its program of training at all levels, coordinating biological and resource research, organizing and chairing technical meetings, and publication of reports, articles and newsletters. The project will continue to assist member coastal states to improve management of their resources, standardize fishing laws and practices, and to negotiate more favorable agreements with non-regional members. The A.I.D. grant will permit the project to continue core staffing of a technical coordinator/project director, biologist/statistician, economist, and administrative assistant. The core staff is augmented by in-kind services of individuals from coastal, non-coastal member and non-member countries, the FAO and other multilateral agencies.

Relationship of the Project to A.I.D. Regional Strategy: The project addresses directly A.I.D.'s policy of strengthening sub-regional and regional organizations that promote regional development, and regional andnational training and educational institutions, increasing food supplies and improving sub-regional marketing systems.

Host Country and Other Donors: The project is based in Senegal which provides office space and utilities; the other coastal countries provide cash grants and in-kind services to host training courses and seminars in their national institutions; non-regional members and fishing countries (Spain, France, Norway, Denmark, Holland, Korea, Japan), in addition to FAO, provide technical assistance for research and training activities and individuals equivalent to more than $500,000 annually.

Beneficiaries: The immediate beneficiaries include the coastal and non-coastal members of the project who are dependent upon the project for training, statistical data, resource analysis, and assistance in resource management planning. Ultimately the beneficiaries include the artisanal and commercial fishermen whose catch increases because of better information, technology and processing; the consumers on the coast and the interior of Africa who will have access to a better and more assured supply of animal protein better preserved and at a more reasonable cost. The individual countries should realize increasing foreign exchange earnings as a result of more favorably negotiated fishing agreements with non-coastal countries, licensing fees, etc.

Major Outputs:	All Years
Stock assessments completed (5 per year)	15
Ad hoc meetings on specific species (5 per year)	15
Publications (15 per year)	75
Persons trained	200

A.I.D. Financed Inputs:	LIFE OF PROJECT ($000)
Technical Assistance	$[illegible]
Other Cost	$125
Commodities	$ 44
Training	$ 33
Design of satellite project	$ 60
TOTAL	$960

4548Y

U.S. FINANCING (In thousands of dollars)	Obligations	Expenditures	Unliquidated
Through September 30 1983	–	–	–
Estimated Fiscal Year 1984	–	–	–
Estimated Through September 30 1984	–	–	–
Proposed Fiscal Year 1985	960	Future Year Obligations –	Estimated Total Cost 960

PRINCIPAL CONTRACTORS OR AGENCIES

Committee for Eastern and Central Atlantic Fisheries Project (CECAF)

ANNEX J

Draft Letter Grant Agreement

(LETTER HEAD)

Mr. C. Beringer
Director,
Field Program Development Division (DDF)
Food and Agriculture Organization
of the United Nations
Rome, Italy

Subject: Grant No. 698-0454
Appropriation No.
Allotment No.
Obligation No.

1. I have the honor to refer to your request relating to grant assistance to the CECAF Project.

2. I am pleased to inform you that, pursuant to the authority contained in the Foreign Assistance Act of 1961, as amended, the Government of the United States of America, acting through the Agency for International Development (hereinafter referred to as AID) hereby grants to the Food and Agriculture Organizations (hereinafter referred to as FAO), the sum of nine hundred and sixty thousand United States Dollars ($960,000), to be used for support of the CECAF Project, as more fully described in Attachment A.

3. This Grant is effective as of the date of this letter and is applicable to commitments made by FAO in support of the program during the period July 1, 1985, through December 31, 1987. Funds disbursed by AID but uncommitted by FAO at the expiration of this period shall be refunded to AID.

4. It is understood that financial records, including documentation to support entries on accounting records and to substantiate changes within this Grant shall be maintained in accordance with the FAO's usual accounting procedures, which shall follow generally accepted accounting practices. All such financial records shall be maintained for at least 3 years after final disbursement of funds under this Grant.

5. FAO confirms that expenditures for activities under this agreement will be made and audited in accordance with FAO's usual accounting procedures, which shall follow generally accepted accounting practices. All such financial records shall be maintained for at least three (3) years after final disbursement of funds under this Grant.

6. It is understood that the funds granted hereunder shall be disbursed as set forth in Attachment B, hereto entitled Payment Provisions.

7. The parties agree that this grant and the activities financed therewith, shall be managed by FAO in accordance with its established policies and procedures. The proposed budget for this Grant is provided in Attachment B.

8. If the use of the Grant funds results in the accrual of interest to the FAO or to any other person to whom FAO makes such funds available in carrying out the purposes of this Grant, FAO shall refund to AID any amount of interest earned.

9. The FAO shall prepare and submit to AID the required financial and technical reports in accordance with the schedule set forth in Attachment B.

10. This agreement, in whole or in part, may be terminated by either party at any time upon 30 days written notice. This agreement may be revised only by the written mutual consent of the parties hereto.

11. Please indicate your acceptance of this Grant by signing the original and six (6) copies of this letter in the space provided below and returning the original and four (4) copies to the Grant Officer. Two copies may be retained for your files.

12. The AID office responsible for monitoring this Grant is the Office of Regional Affairs, Bureau for Africa.

ACCEPTED

THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS	THE UNITED STATES OF AMERICA AGENCY FOR INTERNATIONAL DEVELOPMENT
By:_____	By:_____
Title	Title: U. S. Ambassador to the Food and Agriculture Organization
Date:	Date:

Attachments:
A. Purpose and Implementation Plan
B. Payment and Reporting Provisions
C. Budget
D. Reporting Requirements

4026Y

ATTACHMENT A

PURPOSE AND IMPLEMENTATION PLAN

A. Background

The Government of the United States of America, acting through the Agency for International Development (AID), has proposed to make this grant to the Food and Agriculture Organization of the United Nations (FAO) for the purpose of implementing activities of the nature set forth in Attachment B. The Director-General of FAO may, under FAO Financial Regulation 6.7, accept voluntary contributions and establish a trust fund to cover them, provided the purposes of such contributions are consistent with the policies, aims and activities of FAO. The Government of the United States and FAO are interested in supporting the CECAF Project to ensure that it continues to operate while FAO undertakes to organize other donor and regional members to meet its core operating costs beginning in October 1, 1987, the beginning of the U.S. fiscal year.

B. Purpose

The purpose of this grant is to sustain and build upon progress to date by the CECAF Project in bringing improved management to the endangered marine fisheries of West Africa.

C. Specific Objectives

The specific objectives of this Grant are:

1. To provide funds to FAO to meet the core costs of the CECAF Project over a three-year period encompassing FY 85-87. This will ensure the continuity of the CECAF Project at a reduced scale (see Attachment D)

2. To permit FAO to organize other donor contributions to the core CECAF Project beginning by October 1, 1987, the beginning of U. S. fiscal year FY 88.

D. Conditions of Employment

Specialists will be recruited or assigned by FAO in accordance with the terms and conditions of service applicable to FAO personnel. They will in all respects be treated as FAO staff members and will be directly responsible to FAO for the conduct of their duties.

E. Assessment and Evaluation

A mid-point assessment will be held during the CECAF Committee meeting in

Las Palmas, October 1986. This will involve a formal presentation by the CECAF Project director on project performance over a two-year period. It will offer the opportunity for both formal and informal assessment and review among FAO/Rome senior officers of the Directorate of Fisheries, the AID members of the USDEL and the project personnel.

A tripartite (FAO/AID/CECAF Project) termination review will be schedule approximately three months before the conclusion of the Project. The results of this review will be published by FAO.

ATTACHMENT B

PAYMENT AND REPORTING PROVISIONS

A. Except as AID and FAO may otherwise agree in writing, the funds made available under this agreement shall be used to finance costs incurred by FAO for the payment of salaries, allowances, travel, transportation and subsistence allowance, miscellaneous costs, and a fourteen percent (14%) project servicing charge partially covering FAO's technical and administrative costs (the remainder of these costs will be borne by FAO as its contribution to this Project from its Regular Budget).

B. FAO shall administer and account for these funds in accordance with its Financial Regulations and shall be responsible for payment of all mandatory staff costs to be borne by the trust fund.

C. Upon signature of this agreement, and at the end of semi-annual financial period, FAO shall indicate how much of a cash advance is required to fund activities in the following six month period.

D. Financial Reports:

1. The monthly financial statements summarize expenditures and commitments to date (available monthly with a delay of some weeks).

2. Annual financial reports summarizing all expenditures and commitments (available after final closure of the annual accounts in April of the following year).

E. Progress and Technical Reports:

1. The Project's work program and subsequent updates will be prepared on a semi-annual basis.

2. The Project's semi-annual progress reports will be for the periods November-April and May-October. They will include a progress report from the Director of Operations, Fisheries Department, on mobilizing resources from donors and multilateral agencies to ensure the necessary technical and administrative support to carry the Project forward following AID assistance.

3. The CECAF Technical Reports and CECAF publications are published as required.

Note: The reports of the FAO Fishery Committee for the Committee for the Eastern and Central Atlantic Fisheries (CECAF) will be distributed separately to the U. S. Government as a member of the CECAF Committee.

ATTACHMENT C

BUDGET

Item	1985	1986	1987	Total
1. Technical Assistance	$ 24,000	$275,000	$299,000	$598,000
2. Duty Travel	$ 10,000	$ 45,000	$ 45,000$	$100,000
3. Operating Exp.	$ 14,000	$ 30,000	$ 25,000	$ 69,000
4. In-service Training	-0-	$ 15,000	$ 18,000	$ 33,000
5. Design of Satellite	$ 60,000	-o-	-o-	$ 60,000
6. Support Costs	$ 10,000	$ 40,000	$ 50,000	$100,000
Total	$118,000	$405,000	$437,000	$960,000

ANNEX K

Aide Memoire on CECAF

ORGANISATION DES NATIONS UNIES POUR L'ALIMENTATION ET L'AGRICULTURE
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

COMITE DES PECHES POUR L'ATLANTIQUE CENTRE-EST (COPACE)
FISHERY COMMITTEE FOR THE EASTERN CENTRAL ATLANTIC (CECAF)

AIDE-MEMOIRE ON CECAF

The Statutes of the Fishery Committee for the Eastern Central Atlantic (CECAF) were promulgated by the Director-General of FAO on 19 September 1967.

They stipulate that the Committee shall be composed of FAO Member Nations selected by the Director-General of the Organization from among those Nations whose territory borders the Atlantic Ocean from Cape Spartel (Morocco) to the mouth of the Zaire (ex Congo) river and those Nations fishing or carrying out research in the area concerned.

The present composition of the Committee is the following:

21 coastal states, namely: Benin, Camercon, Cape Verde, Congo, Gabon, Eq. Guinea, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Liberia, Mauritania, Morocco, Nigeria, Sao Tomé and Principe, Senegal, Sierra Leone, Spain, Togo, Zaire.

10 non-coastal states which are: Cuba, France, Greece, Italy, Japan, Korea (Republic of), Norway, Poland, Romania, United States of America.

The essential mission of the Committee is to promote, coordinate and assist national and regional programmes of research and development, leading to the rational utilization of the marine fishery resources of the area, and assist in their implementation through sources of international aid. It enables member countries to analyse and monitor the state of their shared stocks and the fisheries fed by these stocks to exchange their experiences and points of view on fishery development problems and study programmes for co-management of the resources.

Until recently the Committee held its plenary sessions every two years; it was decided at its Sixth session held in Agadir in December 1979 to step up this pace in order to be in a better position to study the varied and acute problems encountered in the region with the desirable speed. These have in fact multiplied since the extension of the exclusive economic zones which, while giving the coastal countries new development possibilities, have also created tricky exploitation and management problems.

CECAF is assisted in its task by specialized working parties on fishery statistics and resource evaluation and by two sub-committees; the first deals with resource management within the limits of national jurisdiction; it is open only to coastal Member Nations which are thus provided with a framework within which they can discuss problems specific to their exclusive economic zones, such as, for example, the management of shared stocks. The second sub-committee deals with fishery development; it ensures liaison between CECAF and the project referred to hereunder.

Since its establishment, CECAF has devoted special attention to improving the regional statistical system and to stock assessment. In 1978 it adopted a recommendation fixing a minimum mesh size for sole and seabream trawl fishing.

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At its Sixth session (Agadir, Morocco, December 1979) it decided in addition to impose the utilization of a single mesh with an opening size of at least 60 mm for the exploitation of all demersal resources. At the same time, it was agreed that fish handling, processing and marketing activities should be intensified.

In order to assist developing Member Nations to implement the programme of work defined by CECAF and, in particular, to enable them to acquire the necessary technical knowledge to manage and develop their fisheries rationally on a national and regional scale, a mechanism entitled "Project for the Development of Fisheries in the Eastern Central Atlantic" was set up at the end of 1974. It is financed by the United Nations Development Programme and donor countries and is executed by FAO. Since its establishment, it has countributed towards strengthening substantially the capacities of the member countries in fields such as statistics, resource appraisal and management and staff training.

ANNEX L

The West African Marine Fisheries

The West African Marine Fisheries

Jon Sutinen, Ph.D.

The nature and extent of the problem. Most fish stocks in the region are fully or over exploited, which indicates increases in production are not likely without some form of effective management. In addition, non-African fishing fleets regularly have taken over 50 percent of weight and 75 percent of the value of the total catches in African waters. Management and control of the foreign fleets by West African coastal nations is needed to ensure these nations benefit fully from the exploitation of their valuable fish resources.

There are five major groups of species in the region: coastal pelagics (sardines, sardinella, mackerel, etc.), oceanic pelagics (tunas), demersals (hake, sea bream, etc.), cephalopods (octopus, cuttlefish, squid), and crustacea (shrimp). Since tuna require special management procedures, oceanic pelagics are not considered here.

Cephalopods accounted for the largest value share of these species groups in 1982 (36 percent of the total value). The stocks are overexploited, or nearly so, and bioeconomic analyses have demonstrated substantial benefits can be realized from effectively managing these stocks (Greboval, 1982) A regional management program would be best involving Morocco, Mauritania and Senegal. The largest producer of cephalopods is Spain, followed by Japan and other West Bloc countries. Since they are marketed in Europe and Japan, cephalopods directly contribute little to West African food supplies. However, there is considerable potential to add to foreign exchange reserves if the coastal states act to appropriate the resource rents generated.

Crustacea (largely pink shrimp) have the highest unit value of the species groups, but accounted for less than 15 percent of the total value in 1982. Shrimp stocks in both northern and southern zones are fully exploited. As an export product, shrimp have the potential of adding modestly to foreign exchange earnings through effective management. A principal management problem is the conflict between inshore artisanal fishermen and offshore industrial fishermen. A bioeconomic analysis of the Ivory Coast shrimp fishery (Griffin and Grant, 1982) shows significant gains to be realized from reducing artisanal fishing effort on shrimp. Controlling artisanal fishing operations likely will be difficult in the near term, which makes shrimp an unattractive candidate for an initial management program. Foreign vessels produce about half the shrimp caught in the region, with Spain the single largest producer.

Coastal pelagics acquainted for over half of the fisn production in weight terms, and 16 percent of the total value of production in 1982. The stocks of coastal pelagics in the northern zone are heavily to fully exploited; in the southern zone the sardinella stocks off the Ivory Coast to Togo are fully exploited, while others are not known or underexploited (biologically). Coastal pelagics are caught predominately in the northern zone, and foreign vessels accounted for nearly 60 percent of the total catch in 1982.

The East Bloc flag vessels (primarily the USSR) are the major foreign operations fishing the coastal pelagics. Coastal pelagics accounted for 80 percent by weight and 45 percent by value of the East Bloc's catches in 1982. The West Bloc's catches of coastal pelagics are minor. African fishing operations are heavily dependent on coastal pelagics, which are caught by artisanal, semi-industrial and industrial vessels all along the coast. Effective management of foreign vessels fishing these pelagics appears to have the potential of adding significantly to African fish supplies. A principal drawback of initially attempting to manage coastal pelagics is the migratory nature of the stocks (and fleets), which makes them difficult to locate, study and manage.

Demersal finfish accounted for about one-sixth of the weight and over one-fifth to the value of total production in 1982. These stocks in the northern zone are fully to overexploited, and underexploited in the southern zone. About half the demersals are caught in the northern zone, and nearly half are produced by foreign vessels (two-thirds of this by East Bloc vessels, one-third by West Bloc vessels). African production of demersals in the southern zone is greater than African production in the northern zone. In the northern zone, where potential benefits from demersal management appear to be the greatest, there is little artisanal fishing for demersals.

As of 1983, sixteen coastal countries had a proclaimed jurisdiction over their fisheries resources out to 200 miles, and two otner coastal states to 50 and 100 miles. According to a recent FAO legislative study, the laws of these countries state the objectives of fisheries management in very general terms (e.g., optimal, exploitation, conservation of marine stocks, maintenance of sustained yields). Nearly all coastal states require motorized fishing vessels to be licensed (except in Mauritania and the Ivory Coast where fishing is free to all nationals). Most artisanal fishing operations (presumably those without motors) are exempt from licensing. Only Gabon, Benin, Ghana, and Sierra Leone attempt to control the total number of licensed vessels. A few countries limit the size of vessels, and a number of countries prohibit the use of certain gear in specified areas (to protect spawning grounds, and to reduce conflicts between trawlers and artisanal operations). The laws allow mesh size restrictions in all countries except Equatorial Guinea. In 1979, CECAF recommended all states adopt a single mesh size of at least 60 mm for all demersal species (bottom fishes, shrimp and cephalopods). As of June 1982, nine of the twenty countries in the region (including Spain) had adopted, or were expected to adopt, the CECAF recommendation. Weight or size limits are used for selected species in nine countries. Most countries make it possible for foreign fishing vessels to operate in their EEZs.

The institutional structure (i.e., policy making bodies) for fisheries management in the coastal countries is not well documented. The available information suggests that in many countries fisheries management policies and regulations are legislated. That is, there appear to be no entities which are continuously concerned with developing and modifying management policy and regulations.

There are several entities authorized to enforce fisheries laws. Fisheries departments, police, customs and naval services are common examples. The legislation in most countries authorizes inspections, boardings, arrests, etc. Fines for illegal fishing by foreign fishing vessels, as set by law, range from U.S. $540 to over U. S. $2 million (for factory ships in Mauritania). Proceeds normally go to the state and are often used for promoting fisheries development.

According to a variety of sources, most coastal states lack the capability to enforce effectively existing fisheries laws and regulations. Clearly, more equipment and training for fishing surveillance and enforcement are needed. There also is a need to harmonize regulations in the region in order to facilitate the enforcement task. For example, two different minimum mesh size regulations for adjacent zones make effective enforcement almost impossible in areas near the dividing boundary. Eliminating these differences will make enforcement efforts easier and more effective. There also is a need for cooperative arrangements in enforcement among coastal states (e.g., allowing enforcement authorities in one states to pursue a suspected offended into the waters of another state).

In short, conditions in West Africa clearly call for management of the marine fisheries. The fisheries - nearly all of which are fully to overexploited - are stressed by foreign fleets taking over half of the landings. Proper, effective management offers excellent potential for increasing food supplies, foreign exchange, incomes, and other benefits to West African coastal states.

ANNEX M

Sociocultural Aspects of Small-scale Fisheries

Development in West Africa

Anthropology Working Paper No. 43

Sociocultural Aspects of Small-scale Fisheries Development in West Africa

by

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PREFACE

This report is a revision of the social and cultural section of The Fisheries of West Africa and Prospects for Development (Sutinen, Pollnac, and Josserand 1981). A version of this paper was presented in a panel on "West African Maritime Fishing Societies: History, Technology, and Development" at the Annual Meeting of the African Studies Association, Boston, Mass., December 1983.

Sociocultural Aspects of Small-scale Fisheries Development in West Africa

by

Richard B. Pollnac

INTRODUCTION The focus of this paper is on the role of social and cultural variables in the development of the small-scale fishery in West Africa. The small-scale marine fisheries of West Africa provide approximately 70 percent of the total marine production of West Africa (Lawson and Robinson 1983 a,b), ranging from a low of about 30 percent in Ivory Coast to 99 percent in Guinea (Table 1.). Practically all of the small-scale fishermen's catch is consumed locally, thus providing an important, high quality protein input to a population where the overall per-capita consumption of fish is about twice as much as that for red meat (Sutinen, Pollnac, and Josserand 1981). Further, the small-scale fishery provides employment for about one-quarter of a million fishermen[1] not including the many women and men involved in processing, distribution, and retailing of the catch.

Although the present availability of reliable data on the small-scale fishermen of West Africa does not permit one to provide definitive statements about their economic status, some (e.g., Lawson and Robinson 1983a,b) have written that preliminary information suggests that they are not at present suffering from economic difficulties--a conclusion that is both hard to

[1] As will be seen further on in this report, statistics regarding the numbers of fishermen involved in the small-scale fishery are of varying quality.

support or criticize given the present state of information concerning this sector. Despite this relatively positive evaluation, there appears to be much room for improvement in the fishery of West Africa. Changes in the small-scale sector are ongoing and are being planned. Many of these changes involve social and cultural considerations -- the topic of this paper. Among these changes are; (1) proposed improvements in harvesting and processing technologies, (2) exploitation of new or under-utilized species, (3) management of the fishery, including small-scale/industrial conflicts, and (4) institutional changes proposed to facilitate other "improvements" in the small-scale fishing sector.

BACKGROUND

The Harvesting Sector Small-scale fishing vessels vary a great deal in both size and complexity. Many are dugout canoes constructed from a single log, ranging in length from about 20 to 30 feet. Larger canoes (35-40 feet), most of which are patterned after the famous Ghanaian (Fanti) canoes, are traditionally constructed of a single log with sides extended upward by the addition of planks. In areas where large trees are becoming scarce, the canoes are constructed entirely from planks. Many of these small-scale vessels are powered by oar and sail, but an increasing number were motorized during the late 1960's and early 1970's.(Table 1). For example, in Togo the percentage of motorized small-scale fishing vessels increased from 16 to 79 percent during the ten year period from 1967 to 1977 (CECAF 1979). There are some indications of a reversal in this trend, however. Statistics published in 1979 (Everett 1979) indicate higher levels of motorization than Table 1. In the six cases where comparable data are available, five show decreases in

Table 1: Artisanal fisheries sector[1]

	Marine artisanal Landings '000t 2/	Percent of total Production	Percent of marine production	No. of canoes	% of motorisation	No. of fishermen
Mauritania	21.0	65	75	300	50	1,750
Senegal	194.0	75	80	4,104	55	24,900
Gambia	11.0	80	100	1,044	..	2,362
Cape Verde	8.0	75	75	980	20	2,670
Guinea Bissau	1.0	15	15	650	25	3,000
Guinea	18.0	90	100	1,700	20	7,500
Sierra Leone	32.5	65	95	(3,000)	10	(5,000)
Liberia	5.0	40	60	800	20	4,200
Ivory Coast	21.0	30	35	3,000	..	(15,000)
Ghana	142.0	60	75	7,000	50	84,000
Togo	5.0	50	85	235	70	2,300 4/
Benin	4.0	15	90	339	20	2,500
Nigeria 3/	95.0	60	85	(10,000)		(50,000)
Cameroon	20.	35	50	3,500	..	12,000

1/ Adapted from Lawson and Robinson 1983b.

Figures in parenthesis CECAF estimates

2/ Artisanal landings include also semi-industrial fisheries, canoes and fishermen exclude data for semi-industrial sector.

3/ Only the numbers of powered canoes is indicated, because the unpowered canoes (amounting to some 100,000 according to official estimates) include a very large number of small canoes used only for occasional subsistence fishing in brackishwater areas. The rate of motorisation for fishing canoes is however believed to be high.

4/ out of which 1,500 Ghanaian fishermen.

percent motorized. In some cases the decrease is minor (e.g., Guinea where percent motorized dropped from 23 to 20 percent), but in others it is major (e.g. Ghana where percent motorized dropped from 87 to 58 percent). The average decrease is 12 percent (see Table 2). Lawson and Robinson (1983a,b) attribute the changes in Ghana to a lack of foreign exchange which has resulted in a lack of spare parts and replacement motors. At present this type of information is not available for other countries manifesting apparent decreases in motorization; thus, it is difficult to determine whether the observed changes are real or the result of changes in data collection techniques. Nevertheless, no matter what the cause of the apparent changes, the trend should not be ignored.

The small-scale fishery in some countries (e.g., Ghana) is beginning to merge with the industrial fishery in a way not seen in other West African countries. This is due to the introduction of small (10 meter and under) trawlers. This small trawler fishery contrasts with the traditional small-scale fishery in that the trawlers are too large to land their catches at most of the coastal fishing villages and towns, a fact that is of considerable importance with respect to plans to increase the size of this fleet.

Number of crew in the various vessels used in West Africa varies according to vessel size and fishing gear. For example, small non-motorized vessels fishing with lines operate with an average of three fishermen. The traditional, unmotorized Ghanaian canoe, which is operated all along the West African coast, carries a crew of from five to seven when net fishing. The larger, motorized canoes carry crews as large as 14 (12 is the average) for net fishing. Some fishermen (e.g., the Anglo (Ewe) of Ghana and Togo) fish principally with beach seines which are operated by about 30 adult men (Nukunya 1969).

Table 2. Apparent changes in percent of artisanal fleet motorized as reflected in statistics published in 1979 and 1983.

COUNTRY	% MOTORIZED TIME ONE*	% MOTORIZED TIME TWO**	CHANGE
Senegal	63	55	-08%
Guinea	23	20	-03%
Sierra Leone	22	10	-12%
Ghana	87	58	-29%
Togo	79[a]	70	-09%
Benin	20	20	00

*From Everett (1979).

**From Lawson and Robinson (1983b).

[a]From "La peche au Togo et la planification de son developpment" in CECAF/TECH/79/14 (1979).

Available data suggest that in many West African countries fishing is a seasonal occupation for many fishermen. For example, in Guinea Bissau the majority of the fishermen are also farmers, and the planting and harvesting seasons affect the timing of fishing (Hochet 1979). In some areas of Sierra Leone men fish during the peak period and engage in other activities such as farming and petty trading during the off-season. Some recently published statistics from Sierra Leone may serve to indicate the magnitude of this phenomena. During the peak fishing season of 1981, Tombo (one of the largest fishing villages in the country) had more than 7000 inhabitants. This population fell to about 5300 during the off season (Kotnik 1982). It is important to note that about 90 percent of the inhabitants of Tombo are

engaged in the fishery. This seasonality of fishing makes it difficult to arrive at accurate estimates of numbers of fishermen. The most recent unpublished FAO statistics, where available, allow one to estimate that approximately one-third of the fishermen are part-time, ranging from only eight percent in the Gambia (1977) to a full 45 percent in Sierra Leone (1979). Ghanaian fishermen are difficult to enumerate because of the traditionally high number of fishermen who migrate to the shores of other countries to fish. The author has encountered Ghanaian fishermen as far north as the Gambia (January 1982), and others report them as far south as the Congo (Lawson and Robinson 1983b). In many cases they return to Ghana (Berron 1977; Nukunya 1969), but some settle in their adopted country (Lawson and Robinson 1983). It is important to note that some of these "Ghanaian" fishermen are Ewe who reside in southern Togo as well as southeastern Ghana. Sierra Leone forced the Ghanaian fishermen to leave their country in the early 1970s to open up opportunities for their own people.

The fishermen of Sierra Leone also migrate. This has resulted in problems determining the exact number of active artisanal fishermen. Some fishermen establish a home with a wife in each fishing area, but the majority maintain only one home and live with friends while fishing away from home. Senegalese fishermen seasonally migrate to both Mauritania and Guinea Bissau (Hochet 1979; Epler 1983).

Throughout West Africa the small-scale fishing fleet is characterized by owner-operators. These owner-operated vessels are often crewed by a group of kinsmen. Cost of small-scale vessels, motors, and gear is such that individual fishermen can realistically expect that with proper planning they will be able to own a vessel of their own some day. As the boats, motors, and

gear become more sophisticated, however, moneylenders play an increasingly important role in financing the fishermen. In many cases, successful female primary buyers assume the additional role of moneylender; thus, increasing their control over the fishermen and insuring themselves a steady supply of fish. It is reported that in some areas, especially close to major towns, the incidence of non-fishermen owners is increasing. This is to be expected as profits as well as costs of equipment increase. This phenomena was clearly evident in the Ghanaian semi-industrial, small-trawler fleet (10 meters and under) during the 1970s where it was reported that the majority of vessels were not owned by fishermen (Christensen 1977). There has been a reversal of this trend in Ghana, however. As the industrial and semi-industrial fishery was hurt by a lack of imported inputs, a sellers' market for fish emerged resulting in improved economic status among the artisanal fishermen and a concurrent decrease in the status of the middleman/financier (Lawson and Robinson 1983b).

In other West African countries however, the increase of non-fishermen owners as seen in Ghana in the 1970s continues. For example, in Sierra Leone, especially in the more urban area close to Freetown, a system of ownership is developing which is referred to as the "sleeping fisherman". "Sleeping fishermen" are owners who do not fish--they hire crews. As fishing grows more profitable, it is expected that these non-fishermen owners will increase in number resulting in a "new class" of person in the fishing industry as well as increasing social stratification in the fishing communities. Kotnik (1982) writes that in the herring and bonga fishing sector in Tombo, boat owners possess between one and five vessels. Some 14 percent of these owners are mostly widowed women, over 50 years of age, who own one or two boats (Kotnik 1981).

Distribution of catch among fishermen varies somewhat from society to society, but the primary determinant of the lay system appears to be the scale of the technology. With respect to the simpler, unmotorized canoes, the shares are divided equally with one share going to the boat, one to the net (if used), and one each to the crew of fishermen. As the technology becomes more costly, larger shares are allocated for equipment replacement and repair. For example, the Fanti using the large motorized canoes first deduct expenses (Petrol, etc.), give one share to each of the 9 to 14 crew members, one-half to one share to non-fishermen owners, one to two shares to the boat, two to three to the net, and three to four to the motor. The larger shares for equipment are from the most recent report (Christensen 1982), suggesting that equipment shares are increasing. There are, however, some deviations from this type of share system. For example, Epler (1983) reports that the most prevalent system in Guinea Bissau is payment of a monthly wage. Kotnik (1982) describes an unusual variation on the share system for Tombo (Sierra Leone). There she reports that owners are responsible for feeding and lodging the workers and that the crew is free to dispose of Saturday's catch. In most areas of West Africa, irregardless of equipment type, a small share of the catch (e.g. several fish for home consumption) is given to women or children who help unload the vessel.

Small-scale Marketing and Distribution CECAF Project estimates indicate that the small-scale fishermen produce some 60 to 70% of the total weight of the fish landed by locally based vessels in West Africa. One of the great problems, however, is the lack of adequate fish handling facilities at small-scale fish landing places. In most areas fish are handled, processed, and marketed at beach locations which frequently lack basic facilities such as hygenic areas

for cleaning, washing, and sorting of fish, as well as running water and ice supplies. It has been estimated that problems in handling due to lack of facilities cause losses as high as 20 to 40% of landings prior to reaching the consumer.

Due to this shortage of adequate landing and processing facilities, most fish landed by the artisanal fleet have been traditionally processed by smoking. Some drying and salting also occurs as well as other infrequently used preservation techniques. In some countries such as Sierra Leone, a raised platform is used which is less effective than the improved smoking ovens with six or seven racks which are used in Nigeria and Ghana (Linsenmeyer 1976). A relatively large number of fish smokers, often family firms composed of fishermen's kin, handle the catches of the isolated small producers. Other middlemen (usually females) collect these small-scale catches and distribute them to inland markets where they are purchased by either retailers for local sale or other [illegible] who will distribute the product to more remote areas. In most areas smoked fish are preferred for their taste and role in traditional recipes.

The general method for marketing the artisanal catch in almost all West African countries is that upon landing, the fish are sold to middlemen, usually a woman who is either the fisherman's wife, kin, or an unrelated entrepreneur. These women are frequently referred to as fish mammies. Akerele (1979) writes that there is one fish mammy for every two fishermen, roughly the same ratio reported for Ghana. Unrelated female entrepreneurs are beginning to dominate the wholesale and retail trade as a result of their

role in financing the more expensive motorized technology that is beginning to dominate the small-scale fishery. In Sierra Leone it is reported that the proportion of male middlemen is beginning to increase. In Liberia, Lebanese merchants gained control of the fish cold storage depots as the industrialized fishery began to supply more frozen fish (Akerele 1979) and in Nigeria men already play a dominant role in fish marketing (Lawson 1980). In Senegal, and to a limited extent in Ghana and Sierra Leone, some buyers are organized into marketing cooperatives.

Little information is available concerning prices paid to fishermen. It is reported that in Ghana each village or town along the coast has a head fish buyer who is elected by the others. She meets the first vessel to reach the beach and bargains with the captain concerning the price to be paid. The price decided upon becomes the base price for the day. The decision is based upon factors such as size of catch, species of fish, and size of catch on previous days (Christensen 1982, Quinn 1978). Price per pan (selling units are tin pans) decreases late in the day due to restricted time for selling and processing. Additionally, if subsequent landings are much larger or smaller than the initial landing, prices can vary as much as 50 percent in either direction. Nevertheless, the base price is usually honored. This pattern of basing prices for the day on initial landings is also practiced in Sierra Leone where drops in prices near the end of the day were also recorded. Other levels of middlemen (e.g., in the wholesale and retail markets) set prices based on an evaluation of the state of the market in the various towns where they sell their fish (see Quinn 1978).

In Senegal the recently organized marketing cooperatives set the prices. Fishermen selling outside the cooperatives are at the mercy of market forces.

It is reported that the Offices des Pêches Maritimes holds a monopoly over wholesale fish marketing in Guinea where the national government sets prices and profit margins (Guinean Country Paper, 1978). One informant, however, reported that traditional middlewomen can still be found buying and selling fish in Guinea. In Benin, the Societe Nationale d'Armement et de Pêche attempts to enforce fish prices set by the Minister of Commerce. It is important to note that as many as seven trading functionaries can be involved in the marketing chain in West Africa (Lawson 1980).

The best available information concerning the distribution and marketing of marine fish at inland locations is from Ghana. There, coastal buyers travel to inland towns where they sell to retailers. In some cases the inland retailers are coastal people who have been set up in the business by the coastal buyer (Schwimmer 1979) and thus form distinct ethnic groups in the inland locations. The introduction of frozen fish technology has not completely eliminated this traditional system. In one town close to an inland terminal for frozen fish distributed by the Ghana Fishing Corporation, the fish wholesalers smoke the thawed frozen fish and sell it through the traditional retailers. Further, the traditional coastal supply system still accounts for a good proportion of the fish distributed to inland locations (Schwimmer 1979). In other West African countries (e.g. Sierra Leone, Togo, and Ivory Coast) frozen fish from the industrial fleet are also bought and smoked by middlemen for further distribution suggesting that the traditional processing industry can readily adapt to the new technology while at the same time provide a product preferred by the consumer. In Liberia, head fish mammies buy fish from depots scattered around the country and distribute it through sub-mammies who retail the fish in local markets. Each

head mammy deals with between 5 and 15 sub-mammies (Akerele 1979).

SOCIAL AND CULTURAL ASPECTS OF DEVELOPMENT

Various aspects of the society and culture of the small-scale fishermen of West Africa are discussed in the previous section. The purpose of this section is to highlight social and cultural factors which may either facilitate or impede development efforts.

Ethnic Diversity The small-scale fishermen in West Africa come from a wide variety of ethnic groups. In each country two, three, or more ethnic groups are involved in the coastal fishery (Sutinen; Pollnac and Josserand 1981). In some cases (e.g. Tombo, Sierra Leone) up to four distinct ethnic groups are involved in the fishery in a single fishing community (Kotnik 1982). An examination of Murdock's map of ethnic groups of Africa (1959) indicates that there are some 47 distinct ethnic groups living along the West African coastline from Mauritania to Cameroon. If we take into consideration all groups living within a fifty-mile wide band along the coast, we could easily double this number. This diversity has many implications for development. Project design is often influenced by intergroup differences, and the identification of these differences during the early stages of planning can help reduce potential problems and make it possible to arrive at more realistic cost estimates (cf. Cochrane 1979).

It has been noted that ethnic factors are related to "...preference for certain species, certain fishing techniques, a certain type of vessel, a certain type of relation among fishermen and between fishermen and traders" (CECAF 1980:3). This type of variability occurs within specific countries as well as throughout the region.

The most important implication of this diversity is that no single, unitary approach to fishery development can be applied with a reasonable chance for success along this coastline--it will not be possible to develop a package that can be applied to all regions. This restriction is valid not only for the region, but also for specific countries, as there is also intra-country ethnic diversity.

COMMUNICATION

Turning to potential project impacts it is important to consider the operationally relevant aspects of ethnic diversity. Of primary concern in a development project is the establishment of communication with the target group as a means of obtaining grass-roots input to project design--a critical factor in project success (Morss, et al 1976; Mickelwait et al 1979). Most ethnic groups along the coast speak mutually unintelligible languages; thus, establishment of communication will be a difficult process. Use of acceptable lingua francas is possible in some areas, but care must be taken due to regional variations in lingua francas and differential attitudes towards available languages. Many studies have indicated that the most effective communications are conducted in the native tongue (cf. Pollnac and Sutinen 1980).

SOCIAL ORGANIZATION

Property Rights The ethnic diversity of the West African coast is also reflected in its variability in social organization. Of primary concern to development project planners are aspects of social organization influencing rights to property or group membership. In general, rights to property or

group membership descend through females (matrilineal), males (patrilineal), or both (bilateral). Along the West African coast there are groups which manifest all three of these patterns in addition to one other: duolineal, where different rights are held by the patrilineage and matrilineage. Several studies (e.g., Poewe 1978; Douglas 1971) have demonstrated the differential receptivity to economic development manifested by societies which vary in terms of inheritance patterns. For example, matrilineal societies are ill-adapted to some conditions of economic development, and the shift to a patrilineal or bilateral system is often accompanied by resistance on the part of the group losing power (the matrilineage). Many West African social groups are matrilineal, but these strains may not develop due to the predominant form of division of labor--another social variable related to ethnic diversity.

Division of Labor As discussed above in the section on the artisinal fishery, in West African fishing communities males generally fish and females process and distribute the product. Some authors (e.g. Christensen 1982) suggest that the female role of fish trader results in their being the primary element of economic stability in some fishing societies. Males fish intermittently while females work year-round. Lawson (1980) notes that the pivotal role of women in the functioning of many artisanal fisheries in West Africa is due to the fact that they are so involved in the industry not only at the wholesale, retail, and processing levels, but are also the main financiers of fishermen and other traders. She further notes that women play a crucial socially cohesive role in many fishing communities--a role that is particularly important in societies where the fishermen are migratory and absent from home for extended periods of time. Kotnik (1982) emphasizes the important

role played by women in the small-scale fishery of Tombo, Sierra Leone. Programs which maintain this division of labor will probably encounter less resistance than programs which reduce the economic role of females. In many countries female processors and distributors have adapted to the industrialized fishery by purchasing frozen fish, smoking them, and distributing them through the traditional network. In part, this was made possible by the fact that cold stores are not as wide spread as the traditional trade networks. Perhaps a larger contribution to this adaptation, however, was made by the fact that smoked fish plays a large role in traditional diets. Changes in traditional diets and/or increasing efficiency in the distribution of industrial catches may displace these women in the future. One very real threat to their future, however, is the fishermen's cooperative.

The fishermen's cooperative is given an important role in small-scale fishery development by most West African governments (Lamming & Hotta 1980). The fishermen's cooperative is often viewed as a technique for eliminating exploitation by middlemen. If this becomes the goal of the cooperative movement in West Africa, female fish processors and vendors could be displaced. In areas where fishermen are related to the middlemen, the movement would probably be resisted; but in other areas, the effects on a relatively large, economically productive sector of the population would be disasterous.

Some development programs (e.g., in Senegal and Sierra Leone) are coping with this potential problem by encouraging the establishment of women's marketing and processing cooperatives. In Sierra Leone the Tombo Women's Cooperative Society, founded in 1981, has increasing membership, significant savings, and is involved in the introduction of improved processing and marketing techniques (Kotnik 1982). One can only speculate concerning the

disaster that would have followed an attempt to introduce a male-centered fishermen's marketing cooperative into this area. Such foolish attempts have been made in development programs in other areas in the past, and they still occasionally occur.

Distribution of Wealth and Power The distribution of wealth and power differs within and between the various ethnic groups along the coast. Some societies are relatively egalitarian with little differences between individuals with respect to wealth and power. Other societies, with a tradition of hierarchical organization and social stratification manifest marked variance with respect to access to wealth and power among individuals. Development programs targeted at helping the poorest of the poor must be differently structured in these different societies. In communities where there is differential access due to tradition, procedures should be developed which will equalize access without arousing resistance on the part of the traditional elite. This is not necessary in the more egalitarian societies.

Development projects may also have an effect on the distribution of wealth between ethnic groups in a single country's coastal region. For example, Lawson and Robinson (1983a) report that in Ghana different ethnic groups use specific gears and nets; e.g., the Ewe use beach seines, the Ga lines, and new entrants, Fanti, and Ga practice poli/ali netting. Epler (1983) reports that in Guinea Bissau, the Manjaco use traps and nets but no boats; the Felupe use cast nets, longlines and dugouts, while the Senegalese migrant fishermen (Nhiominka) use nets and large motorized boats. In Liberia the Fanti migrant fishermen are full-time and use relatively large vessels with motors while the local Kru, Grebo and a few Vai and Bassa are part time fishermen who use small, unmotorized vessels (Akerele 1979).

Finally in Sierra Leone Krabacher (1983) reports that along the Sherbro Coast the modern "Ghanaian style" fishing technology is used almost exclusively by Temne who migrated from other areas of the country while the local Sherbro fishermen use unmotorized dugout canoes which are smaller and employ fewer crew members. The Temne tend to be full time fishermen in contrast to the Sherbro who often practice small-scale farming. In these multi-ethnic settings changes which would improve or restrict the use of specific gears or types of fishing would thus differentially impact different ethnic groups--a result that could lead to or further exacerbate inter-group tensions.

Social Organization of Work The traditional social organization of work varies from society to society and has great potential influence on the success of fishery development programs (cf. Pollnac 1982). For example, crew size, which is traditionally large in some West African societies (e.g. Ghana) can be influenced by technological changes. If technological improvements are made which can eliminate some crew members, there may be social forces which will keep the crew at its traditional level; thus, reducing the efficiency of the new technology. This is especially true in areas where crew are usually kinsmen as in much of West Africa. For example, one report notes that the strength of the family structure has resulted in a preference for labor intensive systems in some regions (CECAF 1980). In these regions crews are reported to be about twice as large as necessary with only a little over one-half the crew working on a given day. Participants in these systems note that the procedure supplies an income to a maximum number of men of the "family". Introduction of changes which would reduce the numbers of crewmen in areas of scarce alternative employment would increase unemployment, a phenomena which has other negative implications such as increasing tendencies to move to urban areas..

In some regions (e.g. parts of Ghana and Ivory coast), traditional systems of leadership once served (and in some cases still serve) to control and manage the fishery, even to the extent of controlling entry and setting seasons (CECAF 1980; Lawson 1980; Lawson and Robinson 1983a, b). Although these systems are decreasing in importance, an analysis of their past and present structures may be of use in designing systems of management that would be locally acceptable. In some cases it may be determined that the traditional system can be rejuvenated and used without alteration. It is important to note, however, that the influence of the "Chief Fisherman" declined along with the introduction of motorization due to the fact that motorized vessels can travel farther and land catches at sites where the traditional leader has little or no power. Recent evidence, however, suggests that the "Chief Fisherman" is once again playing an important role (Lawson and Robinson 1983a,b), but not without some problems (Lawson 1980).

Another aspect of the social organization of work which can be influenced by technological change in West Africa is the owner-worker relationship. In most of West Africa's small-scale fishing communities the owner is also a fisherman, and he usually uses kinsmen as crew members. As technology becomes more sophisticated and expensive, small-scale owner-operators are usually not in a position to be able to finance the new technology, and the number of non-fisherman owners increases. These new ownership patterns result in greater social stratification which can result in social unrest. Sometimes the new technology is rejected when fishermen foresee its potentially negative effects. These problems, where present, can be overcome through the use of financing techniques which will allow the industry to stay in the hands of traditional fishermen (e.g., producer cooperatives, subsidized loans from development banks, etc.).

BELIEF SYSTEMS

Ideological systems often determine specific aspects of the types of development opportunities that will be acceptable to the target population (cf. Cochrane 1979). The belief systems vary considerably among the ethnic groups fishing the coast of West Africa, and prior to project development, a preliminary assessment should be made of attitudes, beliefs, and values relevant to project parameters (cf. Pollnac 1976, 1982). Failure to account for these cultural differences can result in the failure of technologically well conceived projects. For example, Lawson and Robinson (1983a) write that in the period from 1952 to 1954 fishermen in a number of communities along the coast believed that motorized fishing vessels were not approved by the sea gods; thus, they feared the consequences of using motors, hindering their introduction for a brief period of time. Statistics show that mechanization overcame this obstacle, but other innovations lacking the immediate and clearly demonstrable economic benefits of mechanization may not be able to cope with this type of opposition.

DISTRIBUTION OF FISHERMEN IN RELATION TO INFRASTRUCTURE

The present distribution of fishing communities along the West African coastline is adapted to existing technology and infrastructure (e.g. landing facilities, processing and distribution networks). Technological improvements, such as increased vessel size, may be restricted to areas with adequate facilities (as with the semi-industrial trawlers in Ghana). If the new technologies are so effective that they can respond more efficiently to demand, they may replace the older, less efficient technologies. Although this is desirable in most situations, these changes may result in under-

employment in rural areas which lack adequate infrastructure (this includes most of the coastline) and stimulate increased rural to urban migration. Rural to urban migration is a factor recognized as having a negative impact on food production in Africa, and development programs should reverse not exacerbate this phenomena. Table 3 indicates that the level of rural to urban migration is already excessive in West Africa.

MOBILITY PATTERNS

Some ethnic groups in West Africa are already well known for the geographic mobility of their fishermen (e.g., the Fanti and the Anglo (Ewe)). Other fishermen are not as extensively mobile, but many do migrate from area to area in response to availability of resources. Some migrate from fishing to farming areas depending on the season. These mobility patterns affect access to fishermen as well as development of adequate data gathering systems (e.g., as basic as determining the number of fishermen); thus, knowledge of the specific mobility patterns of different ethnic groups must be taken into account in designing fishery development programs. These migratory patterns also are important considerations for planning the development of processing and storage methods, as well as the construction of feeder roads. Cold storage facilities, ice plants, and feeder roads may prove uneconomic in settlements where they will be utilized only during a brief fishing season (Brainerd 1983).

Another important aspect of mobility patterns is migration both in and out of the fishery. It has been noted that there is a tendency for people to drift in and out of artisanal fishing depending on the season and profits to be had from other occupations (CECAF 1980). Lawson (1980) reports that throughout the region fishermen tend to move from the artisanal to the

industrial fishery whenever the opportunity to do so arises. She attributes this to either better earnings or the attraction of the urban setting where most industrial fisheries are located. In Ghana, for example, migration of the young out of the artisanal fishery has resulted in a relatively high average age for artisanal fishermen (45 years). This contrasts with Senegal where the more remunerative fishery has attracted the young, resulting in a fishery where most participants are under thirty years of age (CECAF 1980). Studies need to be conducted throughout the region to assess factors contributing to movement in and out of the fishery, especially since this movement appears to be related to the more general problem of urbanization.

COMPETING DEMANDS OF FARMING AND FISHING

Available data suggest that fishing is a seasonal occupation for about one-third of the fishermen in most West African countries. Depending on the region and traditional practices, they either prepare the land and/or plant during the planting season, and fish when the agricultural work is completed. In some areas (e.g. as reported for Sierra Leone) the sowing season quite fortunately coincides with the slack fishing period. In others, such as the Ivory Coast (CECAF 1980), there is an age structure to fishing and farming. Young men fish using gear provided by older men who farm. The catch is shared with the older farmer, and as young fishermen become older, they eventually obtain fishing units of their own and inherit the elder's land. They then allow younger men to use their fishing gear under the same arrangement. Thus, fishing and farming is integrated by an age structured system. It is reported, however, that out-migration of the young to other occupations and urban areas is in the process of destroying this system (CECAF 1980).

Generally, it appears that fishermen from the more rural areas spend more time farming than those near or in more urban areas. Nevertheless, fishermen residing in towns are reported to practice some subsistence agriculture (e.g., in Guinea Bissau, Hochet 1979). There also appears to be a relationship between migrant status, scale of the technology (e.g., level of capital investment), and full-time fishing. In Liberia the Fanti migrants, who use larger scale technology are the full-time fishermen in contrast to the local fishermen (Akerele 1979). Likewise along the Sherbro Coast of Sierra Leone the migrant Temne employ the more capital intensive gear full-time while the local Sherbro use unmotorized dugouts and fish only part-time (Krabacher 1983).

Krabacher (1983) notes that in Sierra Leone full-time fishermen become closely tied to the purchase economy for food; thus, when shortages occur in the marketplace they do not have the farm or household gardens to fall back on that the part-time fishermen frequently rely on. He notes that this could result in a dietary disadvantage in areas subject to shortages--a phenomena that occurs frequently in West Africa. It is also important to note that changes in fishing patterns (e.g., fishing further out at sea) which will alter the seasonality of fishing may have a negative impact on the time devoted to agriculture. Twelve of the thirteen coastal countries (excluding Cape Verde) we are concerned with here had <u>negative</u> average annual growth rates of total agricultural production per capita during the decade 1969-1979 (World Bank 1981). It is therefore suggested that prior to project implementation distributions of fisherman/farmer combinations be determined and analyses conducted to determine national impacts of proposed changes.

SMALL-SCALE VERSUS INDUSTRIAL FISHERY DEVELOPMENT

A question frequently arising in most fishery development programs involves the advisability of developing the small-scale fishery at the expense of the industrial. Everett (1979) presents a comparison of costs and benefits of small-scale and industrial fishing development which was prepared by CIDA. His table is reproduced here (Table 3).

Everett (1979) indicates that the overall benefits of the small-scale fishery in Table 3 are to a certain extent exaggerated, but admits that small-scale fisheries do deserve a high priority in fishery development. In some cases, e.g., fishing great depths or rough waters or supplying large urban areas or processing facilities, the industrial fishery is clearly more efficient. In setting development priorities, however, factors such as those discussed above should be weighed, in a cost benefit analysis, to arrive at the best mixture for the country involved.

Table 3. Subjective Assessment of Benefits to Nation of Small-scale Rather Than Industrial Fisheries

Small-scale	Industrial
creates: employment	unemployment
uses: modest local investment	substantial foreign investment
are: decentralized, in villages	centralized in towns
uses: simple technology	complicated technology
exploits: abundant coastal resources	poor offshore resources
produces: high quality fresh fish	poorer quality stored fish
provides: products for local markets	for export
consumes: little energy	much ~~export~~ energy
causes: little pollution	substantial pollution
affects: beneficially social habits	detrimentally social habits

Source: Everett (1979) adapted from an unpublished CIDA document.

Jarrold and Everett (1978) conducted an economic and socio-political analysis of the returns of unmotorized canoes (handliners), and semi-industrial handliners, purse seiners, and trawlers in Senegal. The analysis indicated that the semi-industrial trawler and purse seiner gave the most favorable returns in terms of overall benefits to the nation. Nevertheless, as Everett (1979) points out, canoe motorization does provide benefits to both the fishermen and the nation. It maintains employment in rural areas with a modest investment and increases both the income of the small fishermen and the supply of fresh fish. Further, semi-industrial vessels often need landing facilities found only in urban areas; thus, resulting either in underemployment in the rural area or the migration of fishermen to urban centers. As noted elsewhere in this report, employment in rural areas is a positive factor due to the problems associated with increasing urbanization in Africa. Further, rural fishermen often grow at least some subsistence crops, thus contributing to the availability of plant food as well as animal protein in an area of the world suffering from food deficits.

KEY SOCIAL INDICATORS

Table 4 was prepared to provide a general summary of important social indicators for West African coastal countries. The table clearly indicates the extreme poverty of the region. A recent calculation of the Physical Quality of Life Index for 150 countries placed all countries in Table 4, except for Ghana and Cape Verde, in the lower 20 percent. Ghana was ranked 39th and Cape Verde 62nd (Morris 1979). This index, which captures the essentials of "basic needs", is based on infant mortality, life expectancy, and basic literacy--three variables related to a host of factors associated with economic development.

Returning to Table 4, although it was determined on the basis of country-wide statistics, it is possible to make some inferences concerning relationships between items in the table and fishery development. First, it is clear that the low literacy rate impacts on fishery development programs. There is some evidence to suggest that fishermen may actually be below the national average with respect to literacy. Gladwin (1970) notes that Ghanaian fishermen tend to be less Westernized than other Ghanaians. Noting that while over 50 percent of the individuals over 15 years of age in Cape Coast can speak English, only one of the 200 fishermen he interviewed could. He suggests that this may be due to the fact that fishing is not considered a suitable occupation for the educated, thus the occupation selects against English speakers. This low literacy rate indicates that communications aimed at fishermen will have to be oral, not written, indicating the need for development of an extensive extension service. Further, it will be necessary to locate credible, literate fishermen to act as record keepers where necessary (e.g. in fishermen's associations).

Road density is another social indicator that will impact development programs. Low road density suggests that there will be relatively isolated fishing villages which will be hard to reach with development programs. Further, road density is an aspect of infrastructure that impacts the distribution of fish. Regions with low densities can probably absorb less product than those with high densities. Projects planned for countries with low densities should therefore make sure that transporatation links to major markets are adequate.

Finally, with respect to Table 4, it is clear that the rate of urbanization is relatively high in most of the countries. This trend has been noted

Table 4: Key Social Indicators in Coastal West Africa

Country	Per Capita GNP 1979 US $[3]	Percent Literate (age 15 and over)[2]	Life Expectancy At Age One (years)[2]	Infant Mortality Rate Per 1000 Live Births[2]	Km of Roads Per Km^2 of Total Land (Percent)[1]	Percent of Total Population Urban (1980)[3]	Percent Avg. Annual Growth Rate of Urban Areas (1970-1980)[3]
Mauritania	320	11	45.7	187	.6	23	8.6
Senegal	430	8	51.3	159	7.1	25	3.3
The Gambia	250	10	51.7	165	-	-	5.0
Cape Verde	180[1]	37	53.3	79	-	-	-
Guinea Bissau	170	5	46.9	208	8.9	-	4.3
Guinea	280	9	48.7	175	3.1	18	5.5
Sierra Leone	250	10	49.9	136	10.3	25	5.6
Liberia	500	10	52.5	159	7.2	33	5.6
Ivory Coast	1,040	20	51.6	164	14.2	38	8.5
Ghana	400	25	55.8	156	13.5	36	5.1
Togo	350	16	45.9	127	12.5	20	6.6
Benin	250	20	49.3	185	2.4	14	3.9
Nigeria	670	25	49.0	180	11.6	20	4.7
Cameroon	560	19	46.5	137	6.1	35	7.5

[1]Source: Food Problems and Prospects in Sub-Saharan Africa: The Decade of the 1980's, U.S.D.A. (1980).

[2]Source: M.S. Morris, Measuring the Condition of the World's Poor, Pergamon Press (1979).

[3]Source: Accelerated Development in Sub-Saharan Africa, The World Bank (1981).

as part of the problem negatively affecting food production in Africa. As noted above, fishery developments which introduce technologies that are restricted to areas with well developed infrastructures (usually urban areas) tend to exacerbate the urbanization problem. Nevertheless, since many of the larger urban areas in West Africa are located in coastal regions, development of the marine fishery could help provide animal protein to the urban dwellers with a minimum of infrastructure for distribution. More careful analyses need to be conducted, however, to determine the relative balance between these conflicting needs.

REFERENCES CITED

Akerele, O.
1979 Women and the Fishing Industry in Liberia. ATRCW/SDD/79/04, United Nations Economic Commission for Africa.

Berron, H.
1977 Ghanaan fishermen in Ivory Coast. Marit. Pol. Mgmt.4:209-214.

Brainerd, Theophilus R.
1983 Some issues in the development of the artisanal fishery in West Africa. Paper prepared for presentation at the 26th Annual Meeting of the African Studies Association, Boston, December 1983.

CECAF
1980 Report of the Ad Hoc Working Group on Artisanal Fisheries. CECAF/TECH/80/28 (En): Dakar.

CECAF
1979 La Peche au Togo et la planification de son development. in Report of the Ad Hoc Working Group on Fishery Planning. CECAF/TECH/79/14 (En), Dakar.

Christensen, J.B.
1982 Problems resulting from technological change; the case of the Fanti Fishermen in Ghana. in J. Maiolo & M. Orbach (eds.) Modernization and Marine Fisheries Policy. Ann Arbor, Mich.: Ann Arbor Science Publishers.

1977 Motor power and woman power: technological and economic change among the Fanti fishermen of Ghana. in M. Estellie Smith (ed.) Those Who Live From the Sea. New York: West Publishing Co.

Cochrane, G.
1979 The Cultural Appraisal of Development Projects. N.Y.: Praeger Publishers.

Douglas M.,
1971 Is Matriliny Doomed in Africa? in Man in Africa (M. Douglas & P. Kaberry, eds.), Garden City: Anchor Books.

Epler, B.
1983 The fisheries of Guinea Bissau. ICMRD Working Paper #7. Kingston, R.I.: ICMRD, URI.

Everett, G.V.
1979 Some observations on small scale fisheries in the CECAF Region. in Report of the Ad Hoc Working Group on Fishery Planning. CECAF/TECH/79/14/(En), Dakar.

Gladwin, H.
1970 Decision making in the Cape Coast (Fante) Fishing and Fish Marketing System. Ph.D. Dissertation, Stanford University.

Hochet, A.
1979 Preliminary Socio-Economic Study for Small-scale Fisheries Project in The Region of CACHEU. (Manuscript, Guinea-Bissau).

Jarrold, R.M. & G.V. Everett
1978 Formulation of alternative strategies for development of the marine fisheries in the CECAF Region. Paper prepared for the CIDA/FAO/CECAF Seminar on Fishery,

Kotnik, A.
1982 Women in Small-Scale Fisheries: The Case of Tombo Village, Sierra Leone. Contribution No. 2, Fisheries Pilot Project Tombo.

1981 A Demographic and Infrastructural Profile of the Tombo Fishing Village in Sierra Leone. Contribution No. 1, Fisheries Pilot Project Tombo.

Krabacher, T.S.
1983 Fish, diet, and change along the Sherbro Coast of Sierra Leone. Paper prepared for presentation at the Annual Meetings of the Association of American Geographers, Denver, Colorado,

Lamming, G.N. and M. Hotta.,
1980 Fishermen's Cooperative in West Africa CECAF/TECH/79/17 (En), Dakar.

Lawson, R.
1980 Proposals to CECAF for enhancing the development of small-scale fisheries in the region. Annex 3, CECAF/TECH/80/28 (En): Dakar.

Lawson, R. and M.A. Robinson
1983a The needs and possibilities for the management of canoe fisheries in the CECAF region. CECAF/TECH/83/47 (En): Dakar.

1983b Artisanal fisheries in West Africa. Marine Policy (October): 279-290.

Linsenmeyer, D.A.
1976 Economic Analysis of Alternative Strategies For the Development of Sierra Leone Marine Fisheries. Working Paper No. 18, Department of Agriculture Economics, Michigan State University.

Mickelwait, D., C. Sweet, and E.R. Morss.
1979. New Directions in Development: a Study of U.S. AID, Boulder: Westview Press.

Morris, M.D.,
1979. Measuring the Condition of the World's Poor. New York: Pergamon Press.

Morss, E.R., et al
1976 Strategies for Small Farmer Development (Two Volumes) Boulder: Westview Press.

Murdock, G.P.
1959 Africa: Its Peoples and Their Culture History. New York: McGraw-Hill Book Co. Inc., 1959.

Nukunya, G.K.
1969 Kinship and Marriage among the Anlo Ewe. London: Athlone Press.

Poewe, K.O.
1978 Religion, Matriliny, and Change: Jehova's Witnesses and Seventh Day Adventists in Luapula, Zambia. American Ethnologist 5: 303-321.

Pollnac, Richard B.
1976 Continuity and Change in Marine Fishing Communities. Anthropology Working Paper No. 10, University of Rhode Island.

Pollnac, Richard B., and Jon Sutinen.
1980 Economic, Social, and Cultural Aspects of Stock Assessment for Tropical Small Scale Fisheries (Saul Saila and Phil Rodel, eds.) International Center for Marine Resource Development, University of Rhode Island.

Quinn, N.
1978 Do Mfantese Fish Sellers Estimate Probabilities in Their Heads? American Ethnologist 5: 206-226,

Schwimmer, B.
1979 Market Structure and Social Organization in a Ghanaian Marketing System. American Ethnologist 6: 682-701.

Simoons, F.J.
1974 Rejection of Fish as Human Food in Africa. Ecology of Food and Nutrition 3: 89-105.

Sutinen, J., R. Pollnac, & H. Josserand
1981 The Fisheries of West Africa and Prospects for Development. ICMRD Working Paper No. 6. Kingston, RI: I.C.M.R.D.

U.S. Department of Agriculture
1980 Food Problems and Prospects in Sub-Saharan Africa.

World Bank
1981 Accelerated Development in Subsaharan Africa. Washington, D.C. The World Bank.

Pollnac, R.
1982 Sociocultural aspects of technological and institutional change among small-scale fishermen. in (J. Maiolo & M. Orbach, eds.) Modernization and Marine Fisheries Policy. Ann Arbor: Ann Arbor Science Publishers.

ANNEX N

A Proposal for Utilizing Satellite Information

in African Resource and Market Development

A Proposal

for

Using Satellite Information

in

African Resource and Market Development

by

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1. Summary

The goal of this project proposal is to help African countries realize and exploit their comparative natural resource advantages, improve their foreign trade positions, and lessen the continent's chronic hunger problems. These gains can be achieved by aggressively exploiting knowledge gained from new applications of satellite information. Satellite sensing - a largely under-utilized resource - can be applied to monitoring natural resource assets at critical stages in natural resource and environmental cycles.

The accurate and timely monitoring of a nation's natural resource assets makes possible early warnings of potential disasters and opportunities. These achievements are essential to the fullest realization of a nation's resource potential. Satellites are especially useful for simultaneously integrating the monitoring and assessment of natural resources on both land and sea. Episodes of sub-Saharan drought appear to be associated with the occurrence of an anomalous sea-surface temperature pattern during the months before the crucial summer rainy season (Kerr, 1985). Thus, timely satellite assessments of drought-related sea-surface temperature changes could be of enormous value in forecasting the likelihood of drought episodes, and minimizing agricultural losses, within the region. Sea-surface temperatures are also useful as indicators of an important African resource, nutrient-rich ocean upwelling, where many valuable marine fisheries congregate and thrive along the coasts of Africa.

Unrealized resources, whether from land or sea, are a waste, and constitute a tragic loss to a continent which is chronically confronted by hunger. But in order for African states to successfully minimize these losses, satellite sensing must also be responsive to the 'privatizing' needs of the African private sector. Free markets are ultimately in the best position to bring about economic growth and determine the most efficient allocation of economic resources, including those for satellite sensing. Markets permit assets and rights to those assets to be traded, and thereby encourage the most direct relationship of responsibilities for monitoring assets with rights to their returns. The achievement of these more efficient resource allocations would help foster African economic growth, increase productivity and incomes, increase foreign exchange earnings, and enhance self-sufficiency in the key food industries: agriculture and marine fisheries. The indispensable condition for society's compassion, and the lessening of poverty, is economic growth. Even under initial conditions of poverty and hunger, the most practical path to making genuine improvements in the distribution of wealth and societal well-being is through the achievement of real economic growth.

The World Bank is taking a leading role in promoting African institutional reforms aimed at encouraging a more active role by the African private sector and free markets in the region's economic development. The current continent-wide economic crisis in agriculture, has been considerably exacerbated by severe droughts in recent years, coupled with a rapidly growing population. These conditions have brought Africa to the forefront of the Bank's development concerns and the search for innovative private enterprise solutions is underway.

To be successful, proposed projects must first win the support of the African governments concerned, which in turn must incorporate them in their loan applications to the World Bank. Indications are that the Bank will look favorably upon remote sensing projects of the sort envisaged in this outline.

2. Project Goals

The overall goals of this project are to identify, select, and develop cost-effective applications of satellite remote-sensed information in specific African agricultural and fishery industries. The end result will be the design of operational products for each of these applications.

Pursuit of these goals will be undertaken as follows:

1. The identification of possible applications will be initiated by the in-house development of an initial prototype product suitable for demonstrating present NOAA series satellite remote sensing and assessment applications.

2. The selection of specific applications will be determined through consultations with industry, African governments, the World Bank, and the Department of State, as well as other elements within NOAA.

3. The development, through specific case study applications, of satellite information products will be designed with an eye to finding the most cost-effective procedures for satellite monitoring, analysis, and assessment of economically important natural resource assets, and environmental factors associated with variations in these assets.

4. The design of applications will be determined in principle by existing opportunities for promoting indigenous African resource development, profitable African markets for satellite information, and a more active role by African private enterprise in the use of this information.

3. Background

The economic crisis in Africa is profound. The region is vast and covers over nine million square miles bordering the Atlantic, Mediterranean, and Indian Oceans and the Red Sea. Africa is the home of more than 400 million people in 45 countries. Despite its enormous diversity and great size, the continent is gripped by a worsening economic crisis. In recent years, this situation has been exacerbated by drought, rapidly expanding population, high energy costs, world recession, inflated debt, high interest rates, and deteriorating terms of trade. Income per capita is declining and food production per capita is falling at an alarming rate. Together, these conditions have a tendency both to stress political relationships amongst nations within the continent, and at the same time increase continent-wide awareness of common environmental interests.

In the two decades since most countries gained their independence, many African economies have tended towards stagnation and lack the necessary resiliency for capitalizing on the opportunities afforded by a dynamic global economic environment.

In 1984 the Department of State introduced an Economic Policy Initiative for sub-Saharan Africa - the region most seriously ravaged by drought - and invited other bilateral and multilateral donors and institutions to join in an effort to promote the kinds of institutional changes which would be necessary to reverse these debilitating trends. The Economic Policy Initiative aims to bring about a more active role in economic development by the African private sector within the context of appropriate public policy reforms in key economic sectors.

One key sector with considerable potential is African marine fisheries. Following international acceptance and recognition in the mid- 1970's of the 200 mile Extended Economic Zones (EEZ's) in ocean coastal areas, the U.S. Agency for International Development has begun to focus developmental attention to the region's West African marine fisheries. The present program is small, but the potential for developing African marine resources appears considerable. African marine fisheries are sustained by oceanographic upwelling conditions generating enormous supplies of nutrient-rich waters upon which many valuable fisheries thrive, and yield over 3 billion dollars a year in total revenue.

Northwest African Fisheries -

Major migrations of species of great economic value are a typical feature of the Northwest African marine fisheries, extending from Morocco in the north to Senegal in the south. Along these migration routes, fish populations cross several Exclusive Economic Zones. The establishment of appropriate institutional arrangements to manage resources common to several countries, and the availability to these arrangements of the best possible information on fishery stock migrations, are therefore essential.

The Canary Current includes important upwelling centers off the Northwest coast of Africa, the most important of which is located in the region between 18 degrees N and 21 degrees N. Lesser centers are located from this region north to Morocco. The nearly continuous influx of nutrient- rich waters sustains a high level of primary production, which is essential to the consistently high fisheries production of the region. Wide fluctuations, however, have been observed in the fronts between the water masses of the Canary Current and those, such as the Guinea Current, originating further south.

Dense communities of commercially valuable coastal pelagics, such as a variety of sardines, range throughout this region from Cape Blanco to Morocco. The largest concentrations of even more valuable cephalopods and crustaceans are located around 25 degrees N and in the vicinity of Cape Blanco. These regions are also well within the 200 mile Exclusive Economic Zones (EEZ's) of coastal states.

The migration routes lie mainly within the northern two-thirds of the Food and Agricultural Organization's CECAF (Fishery Committee of the Eastern Central Atlantic) region. The CECAF region extends from 6 degrees S latitude to 36 degrees N latitude and as far west as 40 degrees W longitude (Figure 1). The membership of the Committee includes all the West African coastal states plus Cuba, France, Greece, Italy, Japan, Republic of Korea, Norway, Poland, Romania, Spain, and the United States. Angola, Canada, German Democratic Republic, USSR, Portugal, United Kingdom, and the European Community attend as observers.

CECAF's Programme for the Development of Fisheries in the Eastern Central Atlantic, established in 1975, is funded by the United Nations Development Programme (UNDP). The objectives of the project are:

- to improve fisheries statistics and biological data;
- to develop a system for monitoring the resource;
- to strengthen the capacity of the coastal states to manage their resources and do development planning;
- to train personnel for the above tasks;
- to promote, coordinate, and assist in research programs related to marine fisheries within the region;
- to promote and assist country programs of significance to regional and sub-regional development.

Of the twenty-one countries of western Africa, those with moderate to good potential for marine science and technology development include: Morocco, Sierra Leone, Ghana, Senegal, Nigeria, Ivory Coast, Guinea, and Angola. Of these, Morocco and Senegal, in the northern part of the region, are especially promising. These countries presently possess the best technical capabilities for agressively developing their fishery resources, increasing production, and promoting private enterprise.

Gulf of Guinea Fisheries -

Upwelling is a transitory event in these waters but it does occur from time to time for a few months and the effect on the fishing is substantial. Upwelling in the Gulf of Guinea depends upon the behavior of the equatorial counter current and the degree to which it advances towards the East. The extent to which the counter current advances depends, in large part, upon the interaction of large-scale ocean circulations known as gyres, rotating in opposing circles north and south of the equator.

The distribution patterns of the pelagic fish species of the Sherbro region reflect seasonal changes. During the rainy season (July - November), the estuaries become diluted because of increased river discharge and prevailing onshore winds which keep the low salinity wedge pressed against the coast. In the beginning of the dry season (December - June), in the Sherbro region, the river discharge decreases and the low salinity waters are removed from the coast by the combined effect of offshore winds and the strengthening of the southeast flowing Guinea current along the coast. These waters are then replaced by the up-welling of colder bottom water with higher salinity.

The Distribution of Fish Catches by Major Coastal Regions -

The distribution of fish catches by weight and major coastal regions of the Northwest African coast and the West and Central Gulf of Guinea is presented below (Table 1):

Table 1. Distribution of 1982 fish catches by weight (metric tons) and major coastal regions of Northwest Africa and the West/Central Gulf of Guinea.

Coastal Region	Countries	Location	Catch
Morocco Coastal	Morocco, Western Sahara	21 N - 36 N	327960
Sahara Coastal	Mauritania	16 N - 21 N	704080
Cape Verde Coastal	Senegal, Gambia, Guinea-Bissau, Guinea	9 N - 16 N	481328
Sherbro	Sierra Leone, Liberia	4 N - 9 N	107869
West. Gulf Guinea	Ivory Coast, Ghana, Togo Benin	8 W - 3 E	234561
Cent. Gulf Guinea	Nigeria, Cameroon, Equatorial Guinea	3 E - 9 E	371484

Source: Posner and Sutinen, 1984.

- Other Major African Fisheries -

Southwest African Fisheries -

Another major African fishery is located off the Southwest coast of Africa. It is a region where major upwelling of nutrient-rich water occurs and a variety of high-valued fisheries thrive. During the period of the 1982/1983 El Nino event off the coast of Peru, similar upwelling anomalies were observed off the coast of Southwest Africa. Historically, simultaneous occurrences have been noted in 1963, 1972/73, and 1976/77 (Shannon, 1983), although, this association remains unsettled amongst oceanographers generally.

East African Fisheries -

Upwelling also occurs, although apparently to a somewhat seasonal extent off the coast of East Africa in the region of Kenya, Somalia, and Oman. However, our information on fisheries in this area is not yet in hand.

See the map, showing the locations of major upwelling regions (low sea-temperature anomalies) along the west coast of Africa, in Figure 2.

4. Fisheries Assessment Applications

A number of satellite applications have been identified with which we might begin a dialogue with interested African governments. They include the location and monitoring of upwellings, and possibly plankton densities , through remotely sensed sea-surface temperatures from polar-orbiting satellites such as NOAA-7. Worldwide, only 5 areas of sustained coastal upwelling (i.e., regions where colder, deeper, nutrient-rich water is carried to the surface) occur: off the coasts of California, Peru, Northwest Africa, Central Africa from Gabon to Angola, and Southwest Africa. Note that three of these enriched ocean regimes occur around Africa. Many of the world's most valuable fisheries are dependent upon upwelling, however, there are environmental threats which may destabilize them. The quasi-periodic El Nino off the coast of Peru is a classic reminder that upwelling may abruptly cease for uncertain periods of many months, causing major dislocations in fisheries stocks (and harvesting practices). Although no one has yet shown a similar phenomenon off West Africa, occasional, sustained changes in wind patterns do alter the presence and strength of upwelling there. In contrast with Peru, the geographic location of upwelling off the coast of Morocco is not necessarily consistent from one year or season to the next, and the upwelled water is subject to division into smaller cells of upwelling.

The area of greatest fishery abundance in Northwest African fisheries extends from about 6 degrees N latitude to about 36 degrees N latitude along a bulging coastline which pushes the field of interest from about 6 degrees W at the mouth of the Mediterranean to about 20 degrees W longitude at its furthest point. This region covers an area of about 3300 kilometers by 1500 kilometers or roughly 2000 miles by 1000 miles.

Major upwelling has occurred historically well within this range, although it fluctuates widely and upwelling cells of only a few kilometers may occur or disappear at various points along the coast. It is the periodically shifting location of these dynamic upwelling boundaries which is of greatest interest to the fisheries within the region. Unfortunately, not much is yet known about the temporal dynamics or rates of change in the location of upwelling boundaries because the necessary data have not been available. This uncertainty, however, does mean that sampling should occur at the presumed maximum likely rate of oceanic change, or once per week.

Upwelling phenomena are a valuable natural resource because they force enormous quantities of deep, nutrient-rich waters to the ocean surface where sunlight is plentiful and plankton - the basic building block of the fishery food chain - can thrive.

Not only are upwelling waters rich in nutrients, but they are significantly colder than the surrounding waters as well. This means that the outgoing (longwave) radiation of upwelling waters at the ocean surface is less than that of the surrounding waters.

Satellite imagery from daily orbits of NOAA series platforms can be used to generate color-enhanced pictures of sea-surface temperature patterns which clearly outline the location and movements of upwellings, in time and space; reveal certain characteristics of ocean fronts and currents; display turbidity distributions due to river runoff; and show possible plankton concentrations.

Recent international acceptance of 200 mile Exclusive Economic Zones (EEZ) has meant coastal African nations have first rights to the fishery resources within their region. The actual realization of those rights depends upon their ability to enforce those rights by controlling access to their resources by other nations. Realization of their rights also depends upon their ability to monitor those resources and manage fish stocks in a systematic and comprehensive manner.

Satellite imagery would help African countries realize their rights to marine resources. First of all, the best way to efficiently control foreign access to fishery resources is to know where they are in space and through time. Satellite monitoring of upwelling locations, shifts, and changes can do that. Secondly, by having better, more comprehensive information on variations in the fishery environment - shifts in upwelling locations and the emergence or decay of upwelling cells - African fishery managers will have early warnings of possible threats to fishery survival, opportunities for increasing African catches and allocating resources (boats, etc. to different locations), bargaining advantages when negotiating prices for foreign landings, and will generally avoid the costs of over or under fishing. Common international interests in conserving the world's fishery resources would likewise be advanced. Again, timely satellite assessment information would help considerably.

4.1 Fisheries Management Techniques With Satellite Assessment -

In order for African countries to better manage their fisheries, improve their fishing productivity, or enhance the African return on existing cooperative arrangements with foreign fishing firms, they must be able to obtain management-sensitive environmental information in an efficient and timely manner. Satellite imagery can routinely provide comprehensive coverage of fishery-related environmental information. Cost-effective procedures for establishing the timely flow of environmental information from sensor, to processor, to assessor, to final user is one of the objectives of this proposed effort.

Steps will be taken through consultations with prospective private fishing companies, governments, and regional fishery management authorities such as CECAF (the Fishery Committee for the Eastern Central Atlantic), to identify the most effective and efficient procedures for providing satellite information and assessments to national fisheries management ministries, local fishing industries, and private entrepreneurs.

Likely fishing industry candidates include most of those geared to the profitable, for-export, fast-moving pelagic fish such as tuna, mackerel, sardines, and anchoveta, as well as cephalopods (squid, octopus, cuttlefish). These fish stocks are among the most highly valued fishery resources, and thus are lucrative sources of foreign exchange as well.

4.2 Costs And Benefits Of Fisheries Management -

Directly or indirectly, fisheries management involves restricting catch rates in order to maintain adequate resource stocks. Whether for foreign or domestic fleets, catch rates can be limited by one or more of the following:

- quotas;

- gear restrictions or value maximum;

- weight or size limits;

- closed areas;

- closed seasons limits;

- territorial use rights.

The cost of management includes the cost of monitoring and assessing the status of the fishery (which usually requires substantial, on-going scientific research), the cost of making fisheries management policy (which can involve a complex, bureaucratic structure), and the cost of enforcing management policies (potentially the single, most costly element).

Most African coastal states lack the capability to effectively enforce existing fisheries law and regulations. Nonetheless, the potential benefits of fisheries management exist. Christy (1979) estimated that proper management of the West African cephalopod (octopus, squid, cuttlefish, etc.) fishery alone could generate benefits of $160 - $214 million per year (in 1977 dollars).

Conditions in West Africa, in particular, call for management of the marine fisheries. The fisheries, nearly all of which are fully over-exploited, are stressed by foreign fleets taking over half of the total landings. Proper, effective management offers excellent potential for increasing food supplies, foreign exchange, incomes, and other benefits to West African coastal states.

4.3 Implications of West African Fisheries Management -

In 1981, over 2.9 million metric tons valued at more than 3 billion dollars of fish, crustaceans and molluscs was harvested in waters off West Africa. Of this, 55 percent by weight and 59 percent by value was earned by non-African countries.

The USSR led all other, including African, countries with 47.3 percent of the total catch in the East Central Atlantic region. Indeed, East Bloc countries accounted for 60 percent of all landings, compared to 32 percent for the West Bloc. Species groups harvested by East Bloc countries, however, are generally lower in value than those landed by the European countries. Consequently, the distribution by value in 1981 amongst all countries in the East Central Atlantic was: East Bloc 22.3 percent, European 27.4 percent, Asian 8.8 percent, U.S. 0.3 percent, and African 41.2 percent.

If the coastal west African countries were to effectively regulate foreign fishing and enforce those regulations, the non-African countries would most definitely be affected.

Fourteen non-African countries are active in West African fisheries. Table 2 presents the percent of total catch (by weight) by foreign countries for major species groups in West African fisheries in 1981. As a percentage of foreign fishing, the Soviets are dominant in demersal and coastal pelagic fisheries and Spain dominates the oceanic pelagics and cephalopods.

Table 2. 1981 Percent of total catch (by weight) by country for major species groups.

	- Major Species Groups -				
Country	Demersal	Coastal Pelagics	Ocean Pelagics	Crusta-ceans	Cephal-opods
Non-African					

France	0.0	0.0	24.6	0.0	0.0
Greece	2.6	0.0	0.0	3.4	0.9
Italy	0.3	0.0	0.0	1.7	1.5
Portugal	1.7	0.2	0.2	0.0	0.2
Spain	10.7	7.2	22.4	42.5	50.9
USA	0.0	0.0	1.6	0.0	0.0
Japan	1.7	0.3	6.4	0.0	5.7
Korea Rep.	3.3	0.0	10.1	0.2	22.2
Cuba	0.0	0.0	2.7	0.0	0.0
Bulgaria	0.0	0.5	0.0	0.0	0.0
German Dem. Rep.	0.5	6.2	0.2	0.0	0.0
Poland	0.0	0.1	0.0	0.0	0.0
Romania	0.4	5.1	0.2	0.0	0.0
USSR	28.5	34.7	5.7	1.1	0.6
Total Non-African	49.9	54.3	74.0	48.9	81.9
African	50.1	45.7	26.0	51.1	18.1
Total	100.0	100.0	100.0	100.0	100.0

Source: Lillestolen, 1983.

The distribution of the total value of Northwest African fisheries in 1981 by country region and major species groups is displayed below (Table 3(a) and Table 3(b)):

Table 3(a). 1981 Value of fisheries (in millions $) by region and species group.

Species Group	European	USA	Asian	East Bloc	African	Total
Demersal	114.4	0.0	37.9	219.0	372.9	744.2
Coastal Pelagics	50.7	0.0	1.7	322.0	314.8	689.2
Ocean Pelagics	227.7	7.8	79.6	41.5	125.4	482.0
Crustaceans	74.6	0.0	0.4	1.7	80.0	156.7
Cephalopods	223.1	0.0	116.9	2.3	75.4	417.7
Other	150.6	0.0	32.8	95.6	293.8	572.8
Total	841.1	7.8	269.3	682.1	1262.3	3062.6

Table 3(b). 1981 Value of fisheries (in percent) by region and species group.

Species Group	European	USA	Asian	East Bloc	African	Total
Demersal	3.7	0.0	1.2	7.2	12.2	24.3
Coastal Pelagics	1.7	0.0	0.1	10.5	10.3	22.5
Ocean Pelagics	7.4	0.3	2.6	1.4	4.1	15.7
Crustaceans	2.4	0.0	0.0	0.1	2.6	5.1
Cephalopods	7.3	0.0	3.8	0.1	2.5	13.6
Other	4.9	0.0	1.1	3.1	9.6	18.7
Total	27.5	0.3	8.8	22.3	41.2	100.0

Source: Lillestolen, 1983.

Cephalopods, which yielded only 13.6 percent of total Northwest African fisheries value in 1981, accounted for the largest value share (36 percent of the total value) of these species groups in 1982 (Posner and Sutinen, 1984). The stocks are over-exploited, or nearly so, and bioeconomic analyses have demonstrated substantial benefits can be realized from effectively managing these stocks (Greboval, 1983). The ideal arrangement would be a regional management program involving Morocco, Mauritania, and Senegal. Since cephalopods are primarily marketed in Europe and Japan, they directly contribute little to West African food supplies. However, there is considerable potential to add to foreign exchange reserves if the coastal states act to appropriate the resource rents being generated.

5. A Proposal For African Fisheries Satellite Assessment

We propose to:

(a) evaluate periodic satellite imagery to determine the optimum frequency, resolution, and coverage for monitoring critical marine environmental features of African fisheries, such as upwelling-related phenomena (sea-surface temperature, water color, etc.), upwelling indices (Wooster and Reid, 1963), turbidity, and phytoplankton concentrations in surface waters;

(b) begin with Northwest Africa and establish the best mix of satellite-based assessment products for key fisheries within the Exclusive Economic Zones (EEZ) of coastal countries;

(c) follow later with applications to Southwestern and Eastern Africa, based on in-country interests and availability of funding.

Operational Satellite Monitoring Of Coastal Upwelling -

Satellites offer a wide variety of electromagnetic, spatial, and temporal resolutions from which to select data. The best choice, as always, is a function of the problem at hand. For the reasons discussed earlier, a satellite of the NOAA - 7 type, measuring thermal radiation, on a daily basis, at a resolution of 1 kilometer is appropriate for the task. This satellite would permit operational weekly monitoring of sea-surface temperature gradients (permitting also a choice of least cloudy days) at a spatial resolution sufficient for tracking ocean current boundary fluctuations and upwelling cell developments.

- References -

Bas, C., "Coastal Upwelling Areas Off Western Africa", Intergovernmental Oceanographic Commission, IOCEA ad hoc/7, Paris, France, September 30, 1983.

Bureau of African Affairs, Department of State, "Background On The Economic Policy Initiative For Sub-Saharan Africa", Washington, D.C., January 1984.

Christy, Francis T., "Economic benefits and arrangements with foreign fishing countries in the northern sub-region of CECAF: a preliminary assessment." Rome, FAO, CECAF/ECAF Series/79/19 (En), 1979.

Economist, The, "In Praise Of Peasants", pp. 86 - 87, London, England, February 2, 1985.

Greboval, D., "Bioeconomic analysis of fisheries management, a series of exercises in problem assessment and decision making", Rome, FAO, for the DANIDA/FAO/CECAF Regional Workshop on Fisheries Management and Development, 1-10 June 1983 at Santa Cruz de Tenerife, GCP/RAF/182/DEN (En and Fr).

Kerr, Richard A., "Fifteen Years of African Drought", Science, Vol. 227, March 22, 1985, pp. 1453 - 1454.

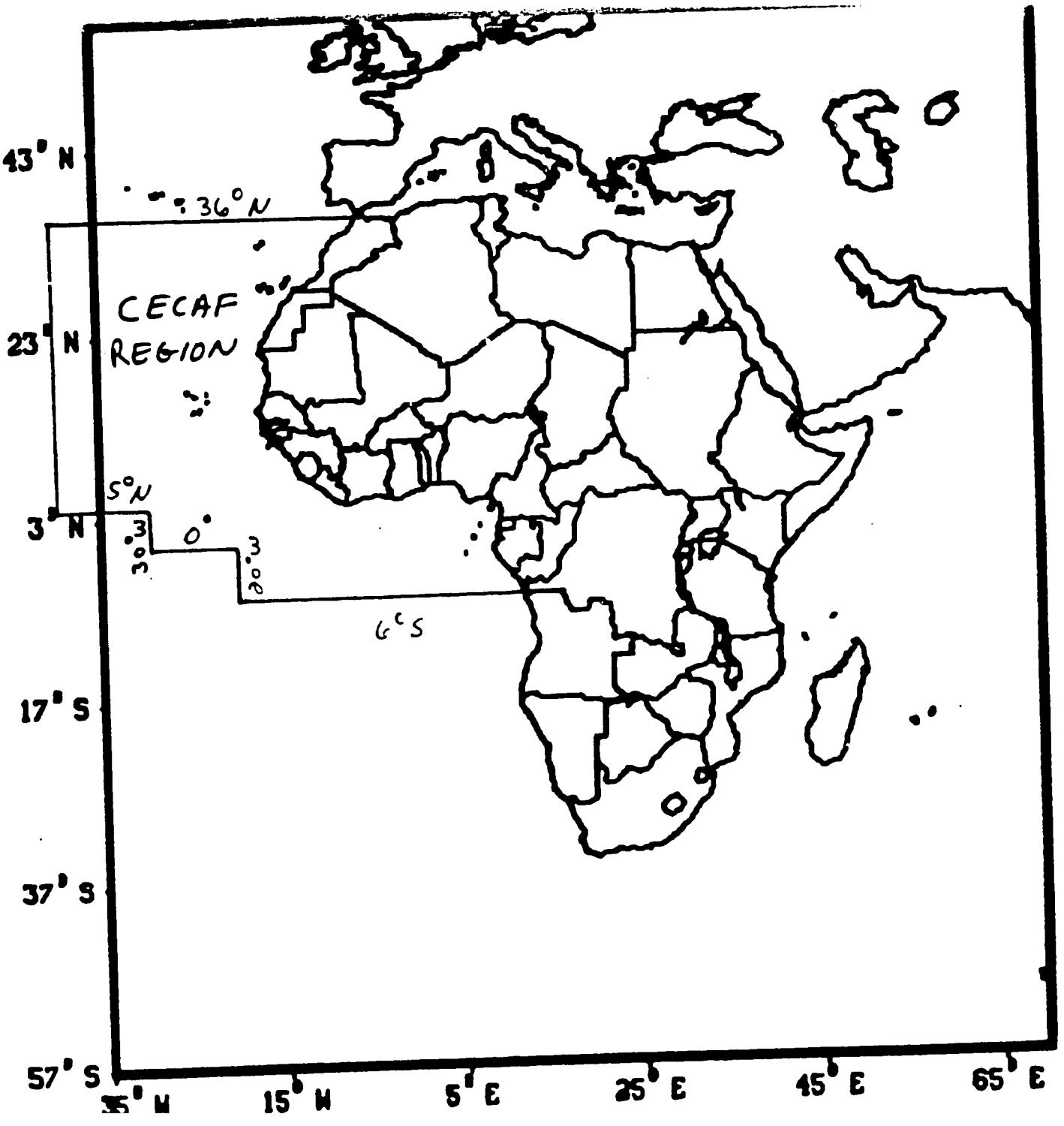
Lillestolen, Ted I., "Impact of Foreign Fishing in East Central Atlantic", internal memorandum, National Marine Fisheries Service, NOAA, DOC, August 24, 1983.

Posner, Gerald S. and Sutinen, Jon, "Overfished Stocks, Undernourished People, And Underbenefited Coastal States of Western Africa", Report to U.S. Agency for International Development, June 1984.

Shannon, Vere, "Boffins report on anomalies, but cannot yet assess impact on stocks", The South African Shipping News and Fishing Industry Review, June 1983, pp. 27 - 29.

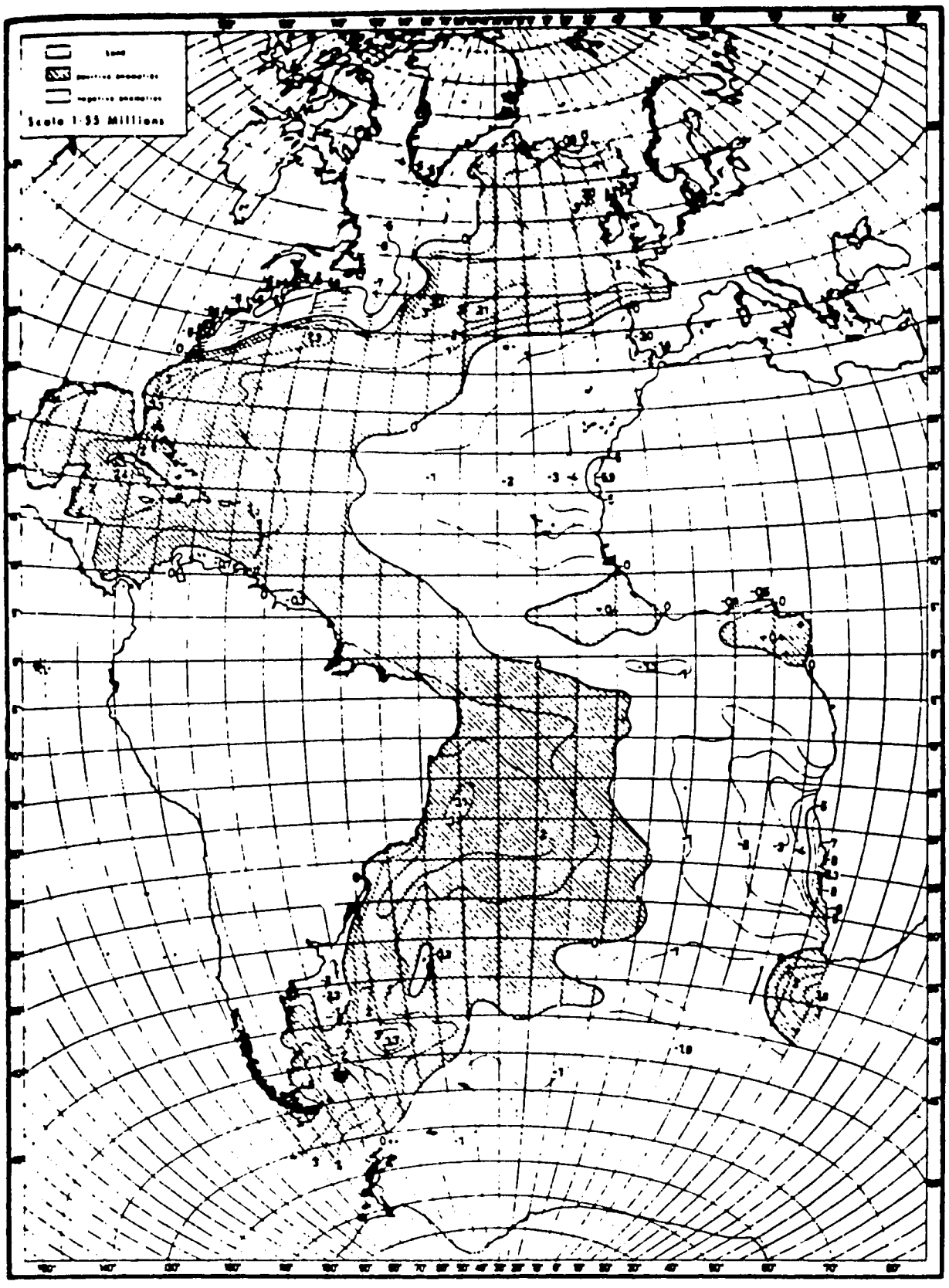
Wooster, Warren S.; Bakun, Andrew; and McLain, Douglas R., "The seasonal upwelling cycle along the eastern boundary of the North Atlantic", Journal Of Marine Research, January 19, 1976, Vol. 34, No. 2, pp 131 - 141.

Wooster, Warren S. and Reid, Joseph L., "Eastern Boundary Currents", in Hill, M. N., ed. The Sea Interscience, New York, Vol 2, 1963, pp. 253-280.



The CECAF Region

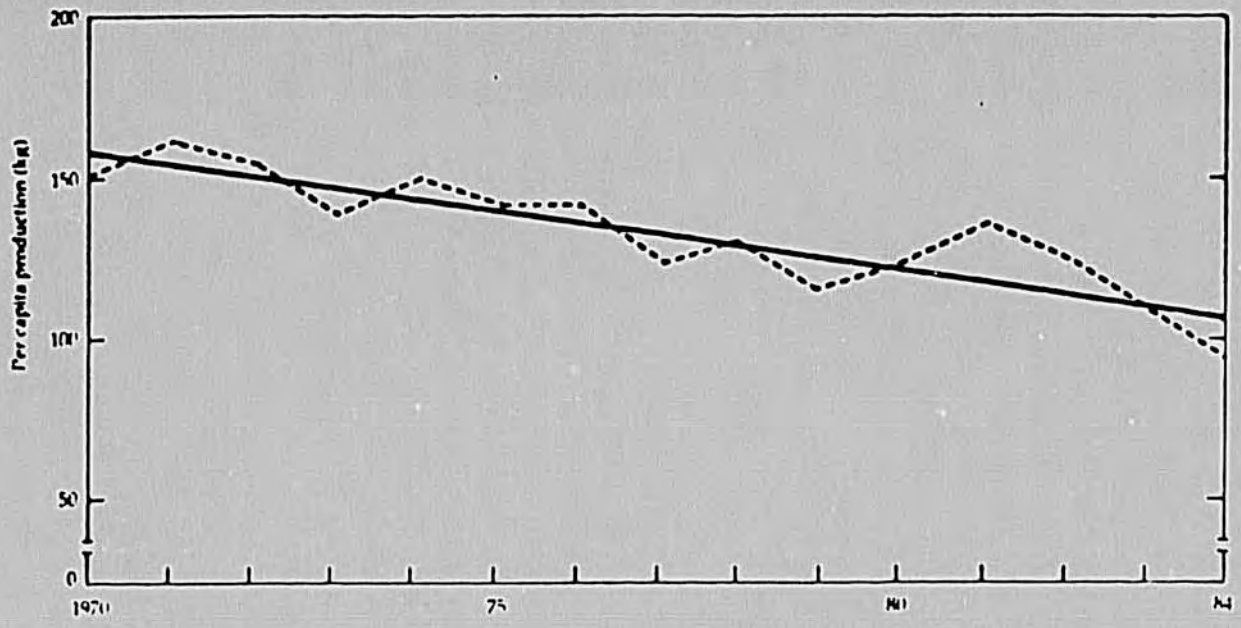
Figure 1.



Sea-surface Temperature Anomalies

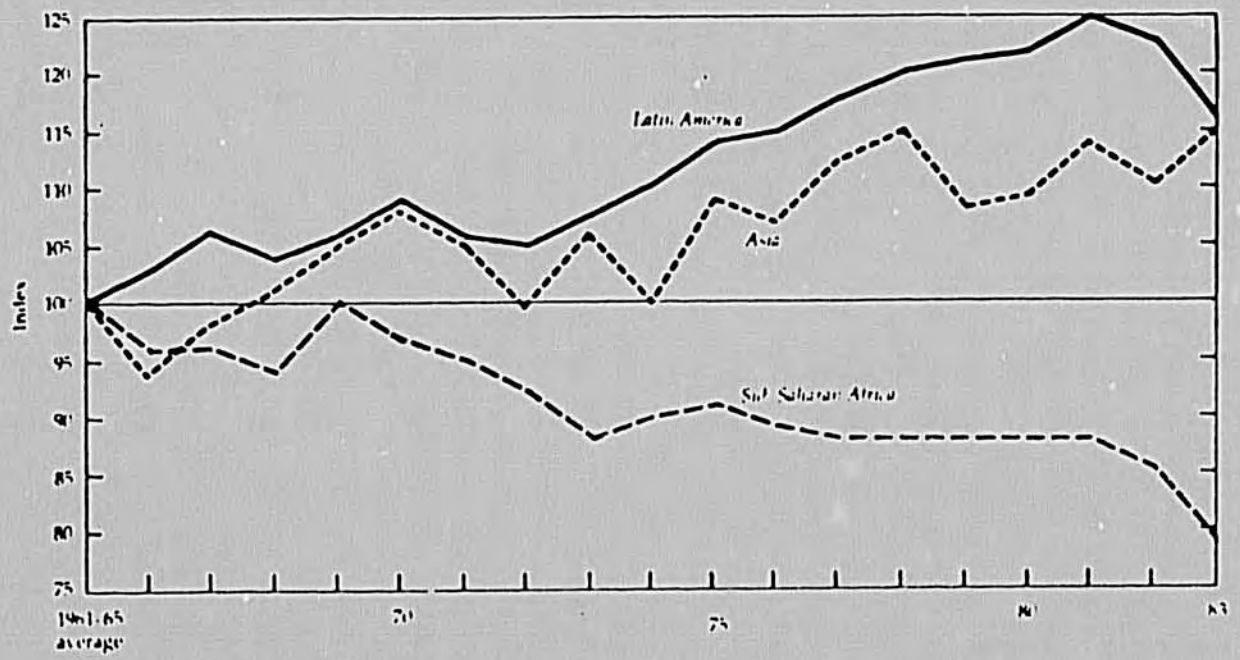
Figure 2.

Figure 1.1. *Per Capita Grain Production in Twenty-four African Countries Affected by Drought, 1970-84*



Source: Based on Food and Agriculture Organization (FAO) data except that the 1984 figure is a projection using data from FAO, the U.S. Agency for International Development, and the U.S. Department of Agriculture.

Figure 1.2. *Index of Per Capita Food Production, 1961-65 to 1983*
(1961-65 average = 100)



Source: Based on data provided by the U.S. Department of Agriculture.

Figure 3.

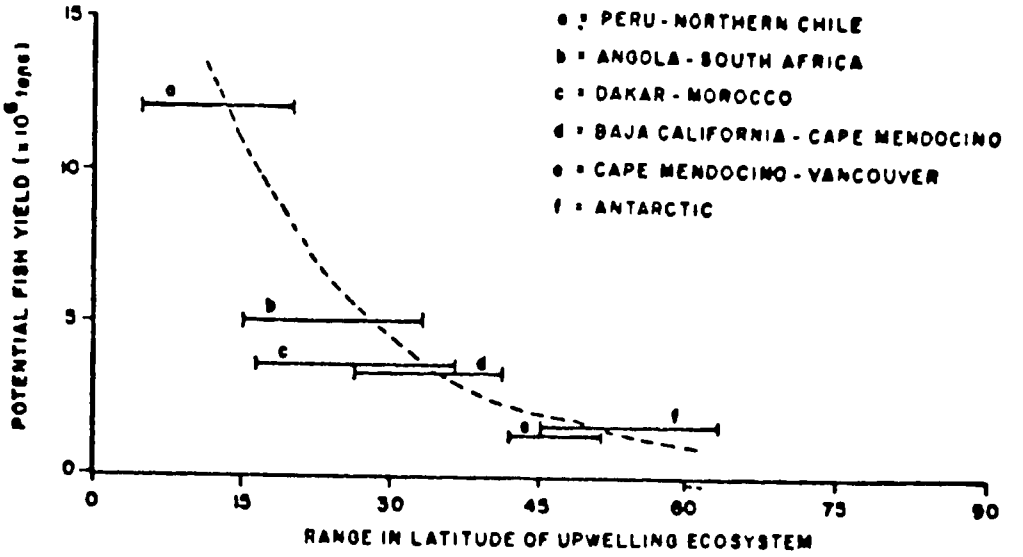


Fig. 1. The potential fish yield of the world's major upwelling regions as a function of latitude (after Walsh, 1974)

Figure 4.

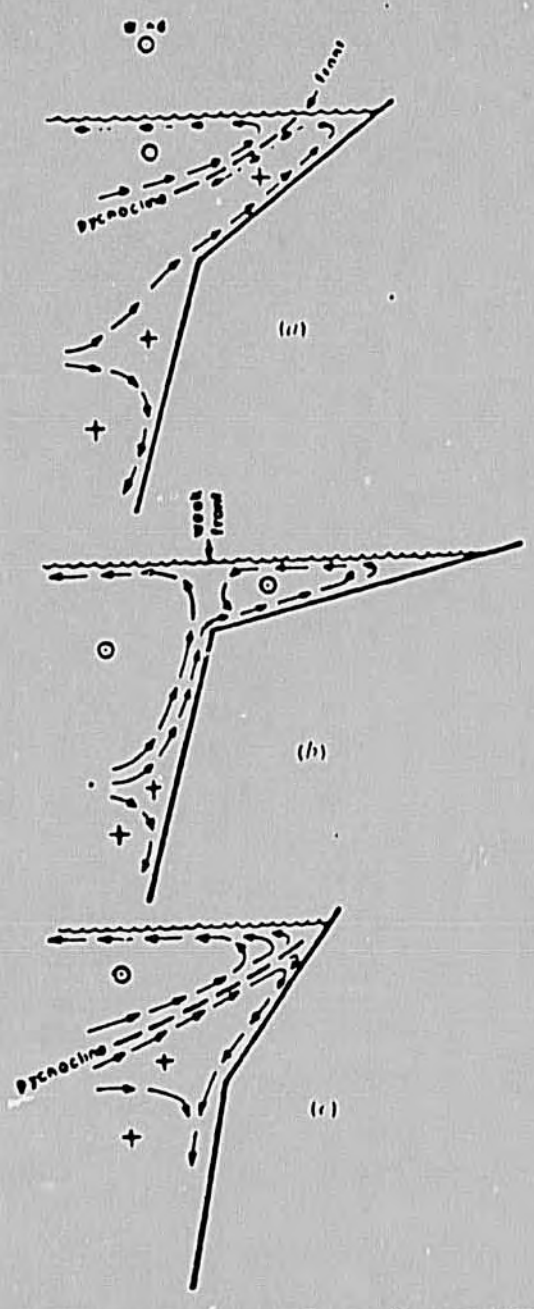


Fig. 6. Alternative cross-stream circulation patterns for upwelling ecosystems: (a) two-cell, possibly observed off Oregon, (b) two-cell, possibly observed off Northwest Africa; and (c) one-cell, possibly observed off Peru. + indicates poleward flow and ⊙ equatorward flow – note the relative widths of continental shelf (after Hagen, 1974, and after Mooers, et al., 1976).

Figure 5.

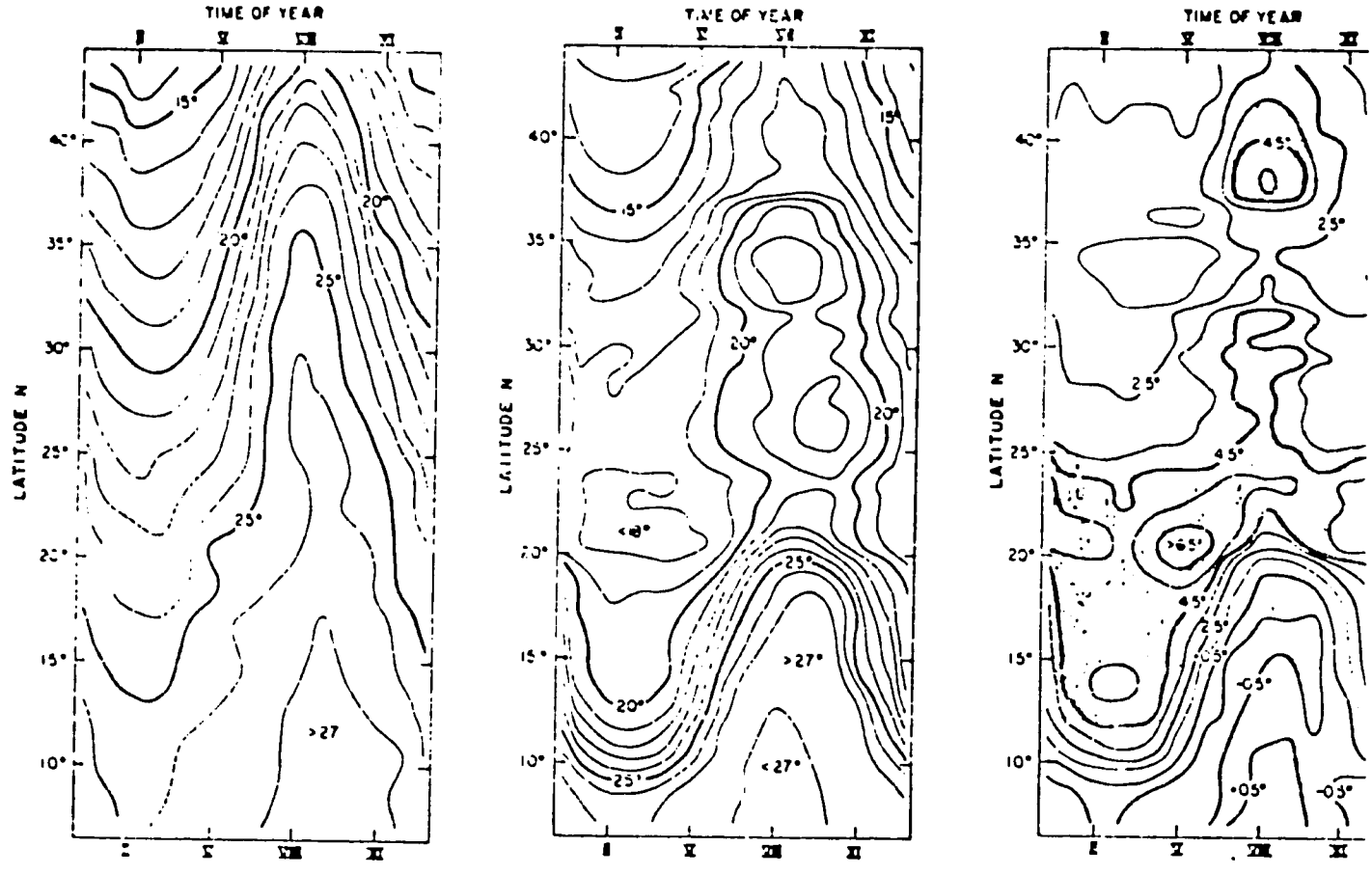


Figure 2. Monthly variation of mid-ocean average sea surface temperature (°C) in nc Atlantic.

Figure 3. Monthly variation of average sea surface temperature (°C) on the eastern shore the north Atlantic.

Figure 4. Monthly variation of coastal temperature deficit (difference between coastal and m ocean temperature, °C). Positive values indicate coastal temperature colder than mid-oce values greater than 3.5° are shaded.

Figure 6.

ANNEX O

Regional Collaboration in the Eastern Central Atlantic,

(Core Technical Support to the Committee)

منظمة الأغذية والزراعة للأمم المتحدة
联合国粮食及农业组织
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
ORGANISATION DES NATIONS UNIES POUR L'ALIMENTATION ET L'AGRICULTURE
ORGANIZACION DE LAS NACIONES UNIDAS PARA LA AGRICULTURA Y LA ALIMENTACION

CECAF: FD/VI/84/2
July 1984

Item 6 of the
Provisional Agenda

FISHERY COMMITTEE FOR THE EASTERN CENTRAL ATLANTIC (CECAF)

SUB-COMMITTEE ON FISHERY DEVELOPMENT

Sixth Session

Banjul, Gambia, 11-13 October 1984

REGIONAL COLLABORATION IN THE EASTERN CENTRAL ATLANTIC

Summary

At its Eighth Session, CECAF emphasized the need for greater collaboration in its area of competence. The UNDP/FAO CECAF Project, the technical support unit of the Committee, will terminate in December 1984. The coastal member countries of CECAF still face a general low level of development, scarcity of capabilities and means, and have difficulties of mobilizing at national level the minimum requirements and expertise to efficiently tackle the problems of fishery management and development. The document reviews the longer technical support requirements in the region.

The Sub-Committee is invited to review the document and to provide guidance and comments it deems appropriate.

W/M 7594

REGIONAL COLLABORATION IN THE EASTERN CENTRAL ATLANTIC

The fisheries

The waters of the Eastern Central Atlantic (the CECAF area), in particular the northern shelf areas from Morocco to Guinea, are among the richest in the world with annual catches of over 3 million tons, with a value at first sale of approximately 2 billion dollars. Apart from the substantial local fisheries, particularly important in terms of protein supply to the densely populated coastal States of the Gulf of Guinea, these resources have attracted large fleets of fishing vessels from northern and eastern Europe, and from Asia. These distant-water fleets currently account for some 60 percent of the total catch. Many of the important stocks, especially those of the highly productive pelagic species (sardinella, mackerel, etc.) migrate up and down the coast, and therefore are shared by several countries. The fleets of the large long-distance vessels and many of the artisanal canoe fishermen are also highly mobile, fishing off the coasts of several different countries during the course of a year. These shared stocks and shared fisheries make regional collaboration a vital matter, without which it would be difficult for any one of the coastal States to determine the best use of its resources. In addition regional collaboration is particularly valuable in assisting individual countries to resolve their own national problems when, as is often the case, different countries face very similar problems.

The form of collaboration

Regional collaboration is a common feature for many fisheries. Examples of collaboration range from groupings of countries establishing fora to discuss mutual fisheries problems in exclusively national fisheries to groupings of countries sharing fish stocks or sharing a fishery. In many areas, there are a number of long-established regional fishery bodies that have a permanent staff. Such bodies: International Council for the Exploration of the Sea (ICES), North-West Atlantic Fisheries Organization (NAFO), International North Pacific Fisheries Commission (INPFC), International Commission for the South-East Atlantic Fisheries (ICSEAF), Inter-American Tropical Tuna Commission (I-ATTC), the former International Commission for North-West Atlantic Fisheries (ICNAF), North-East Atlantic Fisheries Commission (NEAFC), etc., have been particularly important in the areas fished by developed countries with a history of intense exploitation. Their functions have included compilation of statistics, coordination (and in some cases implementation) of research, recommendations for management measures, etc. For several shared fisheries in the Pacific (Fur Seals, Halibut and Salmon), Commissions have been established to undertake the actual management of the fishery based on objectives given to the Commissions by its members.

Under the new Law of the Sea, a greater proportion of the management responsibilities fall directly to individual coastal States, particularly in respect to previously shared fisheries. For shared stocks, the need for bilateral or multilateral arrangements continues.

In the CECAF area, justification for continued regional collaboration exists for all the reasons of other regional bodies, e.g. the presence of a number of shared stocks, the degree of shared fisheries by both distant-water and artisanal fishing vessels, the need for a forum to discuss mutual fisheries problems and the need to coordinate, plan and implement fishery development. FAO established the Fisheries Committee for the Eastern Central Atlantic in 1967 and support for the work of this Committee has been provided by FAO (to a limited financial extent) and, substantially, by UNDP, since 1975, through the UNDP inter-regional CECAF Project. The underlying objective for the Committee is to assist it until it can provide its member States with all or most of the services provided for in regional bodies of developed countries. Within the context of the present food security situation in Africa, a collapse in the abundance of fish stocks for the CECAF region, as experienced by Peru, Namibia, etc. would necessitate drastic management action and remove a large source of protein supply and foreign currency earnings to the region. In addition, with 60 percent of the present total regional catch being taken by distant-water vessels for non-regional consumption, the Committee requires all necessary support to enable it to monitor these catches, to determine means of allocating shared stocks between themselves and between types of fishing fleets, to develop national capabilities to fully harvest stocks according to individual objectives and establish the overall level and rate of harvest to reduce the risks of stock collapse.

The Committee and Project

The objectives of the Committee and of the Project, as given in their basic texts, are given in Appendix 1; in brief they have the broad objective of assisting the members to achieve the optimum utilization of the resource through national and regional programmes of development and management. More specifically they seek to improve the collection and dissemination of statistical and other information, assist in the assessment of the stocks, and the establishment of the scientific basis for management measures, to increase the scientific and technical competence in the member countries, and to promote and coordinate programmes of technical assistance.

The Committee now has 30 member States, including almost the coastal States and the countries whose fishing vessels operate in the region, with the exception of the USSR which, though not a member of FAO, has taken an active part as an observer in the activities of CECAF. The Committee itself has met eight times and, in addition, there have been several meetings of its main subsidiary bodies - the Sub-Committees on Management of Resources within the limits of national jurisdiction, and on Fishery Development, and the Working Parties on Resource Evaluation and on Fishery Statistics. Mention should also be made of the numerous ad hoc working groups (more than 40 since 1976), especially those dealing with the evaluation of individual stocks or groups of stocks, which have been convened under the aegis of CECAF.

Achievements of the Committee

Viewed against the situation when it was established, the Committee has made very considerable progress towards providing its member countries - and especially the developing coastal States - with the same sort of services and support in managing shared stocks or shared fisheries, or in tackling common problems, as is provided by the much longer-established bodies in, say, the North Atlantic, plus additional services not provided by developed countries' Commissions.

Regular regional compilations of catch and other statistics are now available, and there has been a noticeable improvement in most but not all national statistics. The knowledge of the resources, their distribution and migration, and their state of exploitation has been substantially increased, and this information has been made available in a variety of CECAF Project publications. Partly as a result of participation in CECAF activities (meetings of ad hoc working parties, etc.), as well as through various multilateral and bilateral programmes of assistance, the competence of local scientists has been greatly increased, and several coastal States can now take their full share in the scientific work of the Committee. However, full training for staff of whole new national institutions takes a long time, and more assistance will be needed before all countries have adequate scientific capacities, just as there are several countries where more work is needed to improve national statistics.

Progress towards the implementation of management measures has depended on previous progress on statistics and stock assessment, as well as on the level of awareness for the need for management measures. Although it has been slow, it has not, however, been insignificant. The Committee has recommended the use of a larger mesh size in the demersal trawl fisheries. It has also raised, through reports and discussions at seminars, workshops, etc. the awareness of countries of the problems of and benefits from implementation of practical management schemes, such as the regulation of fishing effort, control and surveillance, etc. In many other fisheries bodies, awareness of the need for management only occurred after serious declines in stock abundance had occurred.

Perhaps the most significant measures of the success of the Committee is the extent to which the output from its work, and especially the conclusions of its ad hoc working parties, are being used by member countries in determining their national policies. Several coastal countries, for example, are using the figures of sustainable yield produced by the CECAF stock assessment groups in determining the amount of catch that they will allow to be taken by foreign fleets.

This progress, and the prospects of the continued orderly growth of CECAF towards a regional body capable of fulfilling all its potential responsibilities, is threatened by the cessation of funding for the CECAF Project. This Project, through the work of its technical staff in statistics, stock assessment, etc. and the support given to data processing, meeting of working parties, publications, etc. has given the Committee the backing that comparable regional fishery bodies (ICES, ICNAF/

NAFO, etc.) receive through the direct financial contributions from their member countries (amounting in many cases to around one million dollars annually). In the long-term, similar funding - directly by the member States - may be possible, but for the present - bearing in mind the scarce financial situation of many developing countries - a continuation in support is urgently needed.

Immediate needs

The experience in CECAF during the last few years and of similar bodies elsewhere, can be used to define the support needed to the Committee over the next few years, to enable it to carry out its responsibilities. This support is basically the need for a core group of staff to provide the necessary services to the Committee. The basis of this core is the compilation of statistics in the region for the Committee (catch and effort statistics). Assistance is also required in analysis of the data so that the assessments can be undertaken collectively on the state of the stocks being exploited and the management actions that might be considered.

In addition to the basic core support to the Committee, the coastal States of CECAF require considerable technical assistance in a range of fisheries activities as well as continuation of bilateral and multi-lateral development assistance projects.

CORE TECHNICAL SUPPORT TO THE COMMITTEE

Secretariat

The basic secretariat functions involve a Secretary to the Committee to maintain contact with member States, arrange for meetings and other activities, etc., the direct costs of the main Committee meetings (interpretation, documentation, etc.), correspondence, publication, etc. It provides the essential framework without which the technical activities could not be carried out. Much of this support has in the past come from FAO's Regular Programme. The post of Secretary has been supported in the last few years by the Project - and this support will have to be resumed in the future by FAO. Annual costs amount to about $150,000 for a total cost of $750,000 for the five-year period. Direct costs to FAO of the Committee meetings are $70,000 annually.

Statistics

The compilation of statistics is the principal function necessary to the Committee. The statistical work falls into three parts: (i) compilation of statistical material (catch and effort statistics, etc.) provided by member countries, and its dissemination in the form of a Regional Statistical Bulletin, (ii) direct collection of statistics from vessels landing in Las Palmas, and (iii) assistance to countries in improving their statistical network, preparing their statistical submission to CECAF.

The compilation of regional statistics, including the detailed information needed for working parties, etc., should follow the well-established procedures of other bodies. It requires close contact with both the suppliers and users of data, and is therefore best done in the region. Staff involved include a statistician, a biologist and a programmer/systems analyst (not necessarily all full time), plus clerical assistance; funds for data processing (possible under contract), printing, etc., are also needed.

The landings and transhipments at Las Palmas present a problem, that is, in its importance, unique to CECAF. Fish caught off one (or more) coastal country by a vessel flying the flag of a second country, but owned by interests in a third country may be transferred to a transport vessel owned by a fourth country for sale in a fifth country. No one of the countries - other than the coastal State, which has little direct knowledge - may have a strong interest in providing accurate statistics or ensuring proper stock exploitation, and the best chance of gathering good data is for it to be collected on behalf of the Committee directly at the time of transhipment. This is an exception to the general rule in most regional fisheries bodies where member countries collect the basic data, and the Committee (or Commission) only compiles data reported by countries. Data from Las Palmas have been collected under supervision of the CECAF Project Statistician by Spanish technicians on behalf of the Committee for 6 years. Thus, a similar arrangement needs to be continued; the staff involved is one full-time Technician for data collection and interviews of captains and a part-time Statistician.

The quality of the statistics reported by most fishing nations and coastal countries is now in accordance with the standards given by the Committee but there are still some important quality problems. The countries concerned will continue to provide poor data unless there is some outside input. This can come in some form of training but the most effective way of getting better data, in both the short and long-term, is through visits by statisticians from the Committee to help the countries to put together the data in the form and detail that is required. For the next few years this will require a full-time statistician, plus adequate travel funds. Additional work is also required as the result of a request to the Committee to change its statistics from the previous statistical divisions to statistics by national EEZs.

Annual costs of the statistical element including computer costs are $467,775 for a total cost over 5 years of $2.4 million.

Stock Assessment

The most important elements of the resource evaluation work are the regular meetings of the ad hoc working parties charged with the evaluation of one or more specific resources, especially the major shared stocks. Where all or most of the members of a regional Committee or Commission are developed States, the main burden of this work falls on the members, and the Committee needs to provide only meeting space, some computing facilities, and probably a staff member to act as Technical Secretary and to arrange for processing and distribution of the report. For CECAF, the Committee has, in addition, to cover the direct costs (travel, per diem) of most of the participants from developing countries and (though to a decreasing extent) provide experienced scientists to give technical assistance to the working parties and ensuring that the results have the necessary accurateness and impartiality.

Support to this work by the Project has been a major contribution to the Committee during the past four years but, because of budget limitations, this work has been largely restricted to shared stocks, i.e. mostly the offshore stocks. Attention should also be given to the regular examination of the common problems of the more localized stocks (littoral zones, lagoons), which are the main support of small-scale artisanal fisheries throughout most of the tropical parts of the CECAF region. Greater attention should also be given (as requested by coastal countries) to stocks that are nationally owned, not fished by foreign fleets but for which coastal countries still lack adequate expertise.

The evaluation of the resources has been and would continue to be done through the examination of catch and effort statistics from the fisheries, and biological data of the fish (sizes, ages, growth rates, etc.). However, in the CECAF area, and elsewhere, the value of regular independent surveys such as acoustic surveys (for pelagic fish), and trawl surveys (for demersal fish) is becoming increasingly recognized and undertaken on a more frequent basis (Morocco, Senegal, Ivory Coast). Regional bodies like CECAF rarely can command sufficient resources to undertake directly the expense of running a survey vessel and this is usually done by the individual member countries. A number of CECAF coastal member countries already have survey capacity, and further capacity has been and could again in the future be made available to CECAF countries (jointly or individually) by some bilateral aid agencies. The responsibilities and opportunities of the Committee lie in arranging for the planning and coordination of surveys so that they are done in the most effective way, for the greatest benefit of the coastal countries, and generate the greatest amount of relevant information for the use of the Committee. This will require a part-time scientist to act as coordinator, with perhaps funds to arrange for occasional meetings of the senior national scientists directly responsible for the survey work.

Annual costs for the resource evaluation work, including the arrangements (travel, per diem of participants) for ad hoc stock assessment working groups is $180,500 per year. A total cost over 5 years of $900,000, of which $250,000 is for convening two ad hoc workshops per year. FAO will continue to provide experienced scientific assistance to the working groups, the cost of which is not included in the above figure.

Management

The management activities, which include all deliberate adjustments of fishing patterns, in the light of the conditions of the resource, economic and social factors, etc., and not merely the application of restrictive control measures, lie at the heart of the Committee's work. However, virtually all management actions are taken by countries themselves individually and seldom, if ever, would CECAF or similar Committees or Commissions elsewhere, become directly involved in management implementation. What the Committee can do is to provide, in addition to vital background information, the expertise necessary for discussing common management problems and elaborating solutions for shared stocks, shared fleets, shared problems (e.g., artisanal fishing) and the framework within which the countries, jointly or individually, can decide on the appropriate actions for implementation by each country.

In the long term, the demands on the Committee's resources may be for little more than facilities for meetings of the Committee or appropriate sub-groups (e.g. those countries sharing some resources or some problems), at which the necessary decision can be taken. This will be accomplished within the general secretariat function of the Committee.

In the short term, however, until all countries have developed adequate competence in the various aspects of management, more will be needed. The Committee may need to undertake studies of the effects of different measures and of the practical problems of implementation, including consideration of the possible coordination of policies of coastal States towards foreign fishing and towards the individual rate of development of national fisheries. A particular issue recognized by many of the member States is the need for assistance to improve knowledge on artisanal fisheries. Whereas, most of the member countries consider the development of their fisheries to be the national capability to fully exploit their own fish resources, the speed of development by some nations' artisanal fleets necessitates an improvement in the ability to monitor the activities of these fleets. This is particularly difficult in the region because of the scarcity of information and the traditional high mobility of several artisanal fleets. A major task for the management activities to the Committee will be assistance in improving national understanding on the characteristics of artisanal fisheries (information), the constraints affecting these fisheries and on their management and development. Annual costs for staff time (e.g. management economist) and holding of regional seminars and workshops is $124,000; $620,000 over five years, of which $150,000 is for three ad hoc regional workshops.

Training

Training is carried out in two ways: (i) training courses conducted by the Project staff to improve national competencies in statistics, management of artisanal fisheries, stock assessment, etc., and (ii) the short-term high level workshops in specialized aspects of resource evaluation, fisheries management. Over the period 1976-1983, about 40 ad hoc workshops/seminars were held for the region, an average of 5 a year. This number is considered by FAO to be adequate and necessary for the foreseeable future to continue improving national competencies.

While a large amount of assistance in training is needed in the region, most basic training is best done nationally, and the Committee should be only involved in this activity to a very small extent, if at all. However, there are some types of specialized training that is essential if all member States are to be able to participate fully in, and benefit from, the work of the Committee. This training mostly involves short-term, relatively high-level workshops or training courses in specialized aspects of resource evaluation or management, and is best delivered regionally as part of the direct Committee activities. Costs of this type of training, inclusive of travel, per diem, publication, interpretation, etc. are (average) $50,000 per meeting for a total of $250,000 per year or $1,250,000 over five years. These workshops are divided as follows:

Statistics 1 per year
Stock assessment 2 per year
Management 3 within the five-year period
Training in other related areas 7 within the five-year period.

TECHNICAL ASSISTANCE IN MANAGEMENT AND DEVELOPMENT

Whereas core support is necessary to allow the Committee to continue with its deliberations on management of the resources within its jurisdiction, considerable technical assistance is required for national fisheries. In Appendix 2, a list of existing FAO executed fisheries projects, both national and regional, arranged by principal subject, is given. Because of the extent and diversity of these projects, it is recognized that a key requirement for the CECAF area is the full coordination of such development activities. This is important, not only to ensure that development projects are appropriate to regional priorities, but that national objectives for fisheries development have some focal point.

Project coordination

Within the mandate of the Committee is assistance to Member Governments in formulating programmes to be implemented through sources of international aid to help achieve the objectives of the Member Governments. In recognition of this need, the Committee has a requirement for a development assistance coordinator to provide advice to donor agencies seeking opportunities for projects and investments in the CECAF area. The coordinator would be responsible for providing advise to the Committee on development initiatives. FAO has proposed to UNDP that a post funded by UNDP be attached to CECAF with the responsibility for coordinating development projects. The cost of this post with adequate travel and some support costs is $150,000 per year; $750,000 over the five-year period.

Summary

The premise for the continuation and support to regional collaboration in the CECAF region is based on the imperative for collaboration where shared stocks occur, where fisheries are shared by several nations' distant-water fishing vessels, and by artisanal fleets, where transhipment of catches out of the region compound difficulties in determining levels of catches and catch rates, where the requirement for a forum is evident to discuss mutual fisheries problems and to plan, coordinate and implement development activities necessary for increased national capability.

UNDP has supported CECAF through the Project for almost ten years but, due to decreased financial resources, is withdrawing its funding to FAO regional bodies before many of the member countries are able to assume the responsibility. This is particularly evident for those regions with shared fisheries and shared stocks where the new Law of the Sea, while giving greater opportunities to coastal States, demands greater responsibilities and competencies.

The continued support to regional collaboration provided by CECAF is basic to the food security of Africa because these fisheries are a primary source of food, an important source of funds and foreign currency for critical development. Without collaboration and national commitment by member countries, the risk of undermining the development opportunities through a collapse in the levels of fish stocks is dangerously high.

Experience in FAO indicates that it takes some twenty years to develop fully the national competence required for rationalizing fisheries development. To this end, CECAF is currently only half-way to its goal of self-sufficiency.

Suggested actior by the Steering Committee

The ad hoc meeting of the Steering Committee of CECAF, which met on 3-4 May 1984 in Rome, reviewed this paper and its comments are given in document CECAF/IX/84/4 (paragraphs 4 to 12 inclusive). The Sub-Committee is invited to comment on the present document in the light of the ad hoc Steering Committed suggestions.

5-Year Project Proposal for CECAF

Annual funding requirements for the provision of core technical assistance staff to CECAF

Staff m/m	Total	Secre-tariat	Statis-tics	Stock Assessment	Manage-ment	Train-ing	Coordination of De-velopment Assis-tance
CECAF Secretary	(12)	(12)	-	-	-	-	-
Statistician	12	-	10	-	-	2	-
Biologist	24	-	6	10	4	4	-
Management Economist	12	-	2	-	8	2	-
Systems Analyst	3	-	2.5	-	-	.5	-
Clerical Staff	48	12	24	5	5	2	-
Coordinator for De-velopment Assistance	(12)	-	-	-	-	-	(12)
Total m/m :	123	24	44.5	15	17	10.5	12
Total Annual Core Staff Cost (in '000 $) 1/	366	(150)	153	70.5	84	58.5	(150)
Core Staff Costs	366		153	70.5	84	58.5	
Staff Travel	50		15	10	10	15	
Contract: Computer time, Publication, etc.	300		250	50	-	-	
Workshops: Non-staff travel Per diem, meeting rooms, publication	250	FAO	50	50	30	120	UNDP
Total Annual Cost (in '000 $) 1/	966	(150)	468	180.5	124.0	193.5	(150)
Total Cost for Period 1985-89 (in million $)	4.83	(.75)	2.34	.95	.62	.97	(.75)

1/ Excludes funding of posts by FAO/UNDP.

APPENDIX 1

FISHERY COMMITTEE FOR THE EASTERN CENTRAL ATLANTIC

Description of the Committee
(Article V1-2 of the Constitution)

Origin : Established by the Director General of FAO in 1967 to replace the Regional Fisheries Commission for Western Africa.

Purpose :

a) To promote, coordinate and assist national and regional programmes of research and development, leading to the rational utilization of the marine fishery resources of the area defined.

b) To assist Member Governments in establishing the scientific basis for regulation measures for the conservation and improvement of marine fishery resources.

c) To encourage education and training through the establishment or improvement of national and regional institutions and by the promotion and the organization of seminars, study tours and training centres.

d) To assist in the collection, interchange, dissemination and analysis or study of statistical, biological and environmental data and other marine fishery information.

e) To assist Member Governments in formulating programmes to be implemented through sources of international aid to help achieve the objectives described above.

f) To promote liaison and cooperation among competent institutions within the sea area served by the Committee in-so-far as the constitution, general rules, regulations and facilities of the Organization permit.

Membership :

Benin	Guinea	Norway
Cameroon	Guinea-Bissau	Poland
Cape Verde	Italy	Romania
Congo	Ivory Coast	Sao Tome & Principe
Cuba	Japan	Senegal
France	Korea, Rep.of	Sierra Leone
Gabon	Liberia	Spain
Gambia	Mauritania	Togo
Ghana	Morocco	USA
Greece	Nigeria	Zaire
Eq. Guinea		

Angola, Canada, Portugal, United Kingdom, USSR and EEC have attended as observers.

Pattern of Sessions : 1969, 1971, 1972, 1974, 1977, 1979, 1981, 1982, 1984.

Subsidiary Bodies : Sub-Committee on Management of Resources within the limits of national jurisdiction.
Sub-Committee on Fishery Development.
Working Party on Resource Evaluation.
Working Party on Fishery Statistics.

Achievement : Improvement of statistical data collection and organization of ad hoc meetings to increase knowledge on stocks living in the EEZ of coastal countries, or shifting from one zone to another, as a basis for resource management.

Limitation of mesh size for the exploitation of demersal species.

Management of stocks shared by several countries.

Increasing participation of coastal countries in the EEZ Programme and transfer to the region of CECAF Secretariat activities.

The Committee : The purpose of the Committee to all extent and purpose represents the purpose of most International Fisheries Commissions, with the unique exception that allocations of the fisheries resources shared by Member States is not within its reference. In addition the Committee differs from other fisheries commissions because its membership is mostly developing coastal States for which development is of critical importance. The purpose of the Committee therefore includes the formulation of programmes for consideration of international financial institutions.

The Project : Attached to the Committee and under the jurisdiction of the Secretary of the Committee is the CECAF Project. The Project commenced in January 1975 with the following objectives:

a) To improve fisheries statistics and biological data, compose data on stocks and strengthen data-gathering mechanisms in the area.

b) To develop a system for monitoring resources and evaluating fish stocks.

c) To strengthen the capacity of participating countries for management of the resources and coordinated development planning.

d) To train personnel required for the above functions.

e) To promote, coordinate and assist in programmes of research

f) To promote and assist in the development of aquaculture.

g) To promote and assist in the development of selected individual country programmes and projects of significance for regional and sub-regional development.

In 1977 the priorities listed above for the project were re-organized to provide emphasis on training, evaluation of fish

APPENDIX 2

List of FAO fisheries projects in addition to CECAF Project INT/81/014 currently operating in the CECAF area, arranged by principal subject

Statistics

MOR/81/002 - Estimation and Ongoing Monitoring of Marine Resources
CVI/82/003 - Fisheries Development - Assistance to the DGP
NIR/77/001 - Artisanal and Inshore Fisheries

2. Resources Evaluation

MOR/81/002 - Estimation and Ongoing Monitoring of Marine Resources
CVI/82/003 - Fisheries Development - Assistance to the DGP
GLO/82/001 - Survey and Identification of World Marine Fish Resources
GCP/INT/392/DEN - Training in Fish Stock Assessment (Caribbean and West African participants, HIRTSHALS, Denmark, June 1984)

3. Socio-Economic Activities

GCP/RAF/192/DEN - Programme of Integrated Development of Small-scale Fisheries, West Africa

4. Extension Work

GCP/RAF/192/DEN - Programme of Integrated Development of Small-scale Fisheries in West Africa
GCP/RAF/197/NOR - Assistance to the Programme of Integrated Development of Small-scale Fisheries in West Africa
BEN/79/005 - Artisanal Fisheries Development
UNO/BEN/001/FDW - Assistance to Women in Fisheries
CVI/82/003 - Fisheries Development, Assistance to the DGP
GCP/PRC/008/PRC - Assitance à la pêche maritime artisanale
MAU/80/004 - Développement des pêches artisanales
SIL/81/003 - Integrated Development of Rural Fishing Villages (pipeline)
ZAI/80/003 - Assistance to ONP and Improvement of Artisanal Fisheries

5. Small-Scale Fisheries Project Evaluation

GCP/RAF/192/DEN - Programme of Integrated Development of Small-scale Fisheries in West Africa
GCP/RAF/175/SWI - Formulation en analyses des projets au Sahel

6. Resources Management

GCP/INT/398/NOR - Policy and Planning Missions
GCP/INT/399/NOR - Monitoring, Control and Surveillance of Fisheries in EEZ
GCP/RAF/182/DEN - Regional Workshop on Fisheries Management and Development, CECAF (follow-up work 1984)

Aquaculture

RAF/82/009 - African Regional Aquaculture Centre (brackishwater aquaculture)

8. Fish Technology

GCP/INT/298/DEN - Improved Handling of Small Pelagic Fish
GCP/INT/391/DEN - Workshops on Fish Technology and Quality Control
G-2336 - Regional Fish Trade Information and Cooperative Service (INFOPECHE - West Africa) pipeline

9. Training Schools

MOR/83/007 - Professional Training for Marine Fisheries
NIR/76/019 - Federal Fisheries School, Lagos

10. Harmonization of Legal Regimes

GCP/INT/400/NOR - Fisheries Law Advisory Programme
CVI/82/003 - Fisheries Development: Assistance to the DGP

Note: Most projects are multipurpose and thus the value of assistance allocated to each subject cannot be identified except in general terms.

ANNEX P

Existing Network of Regional Fishery Bodies and Associated Technical Assistance Units and Proposals for Expansion

Appendix A

EXISTING NETWORK OF REGIONAL FISHERY BODIES AND ASSOCIATED TECHNICAL ASSISTANCE UNITS AND PROPOSALS FOR EXPANSION

Regional body and sub-regional grouping	Technical assistance unit (short title and function)	
	Operational	Proposed
INDIAN OCEAN FISHERIES COMMISSION (IOFC)		
- Bay of Bengal Committee	Bay of Bengal Project (Development of small-scale fisheries in the Bay of Bengal)	Bay of Bengal Project (expanded scope)*
- Red Sea	Red Sea Project (Development of fisheries in areas in the Red Sea and Gulf of Aden)	
- South West Indian Ocean Committee	South West Indian Ocean Project (Development and management of fisheries in the SW Indian Ocean)	
- Gulf Committee		Gulf Project (Development of fisheries in the Gulf between Iran and the Arabian Peninsula)*
- Tuna Committee	Tuna Management Programme (Management of tuna in the Indian Ocean and West Pacific Ocean)1/	
INDO-PACIFIC FISHERIES COMMISSION (IPFC)		
- Tuna Committee	See above	
- South China Sea Committee	South China Sea Programme (Development and coordination of fisheries in South China Sea)	
GENERAL FISHERIES COUNCIL FOR THE MEDITERRANEAN (GFCM)		Mediterranean Project (Development and management of Mediterranean fisheries)*

Appendix A (cont.)

Regional body and sub-regional grouping	Technical assistance unit (short title and function)	
	Operational	Proposed
FISHERY COMMISSION FOR THE EASTERN CENTRAL ATLANTIC (CECAF)	CECAF Programme (Development and Management of Eastern Central Atlantic fisheries)	(Possible split into two components, one to serve NW African coastal countries, the other countries bordering the Gulf of Guinea)ϕ
WESTERN CENTRAL ATLANTIC FISHERIES COMMISSION (WECAFC)	WECAF Programme (Development and Management of Western Central Atlantic fisheries)	
- Lesser Antilles Committee		Lesser Antilles Project (special unit to serve needs of the Lesser Antilles)*
REGIONAL FISHERIES ADVISORY COMMISSION FOR THE SOUTHWEST ATLANTIC (CARPAS)		Fisheries development and management in the SW Atlantic ϕ
SOUTH PACIFIC PERMANENT COMMISSION (SPPC)2/		Fisheries development and management in the SE Pacific ϕ
- 3/	South Pacific Project (Regional Fisheries Coordinator, South Pacific)	

1/ In collaboration with IPFC

2/ Non-FAO body

3/ Project works in collaboration with the South Pacific Forum Fisheries Agency

* Indicates project proposal formulated

ϕ Indicates project idea

ANNEX Q

A LOOK AT WEST AFRICA

THE FISHERIES SECTOR

A LOOK AT WEST AFRICA

THE FISHERIES SECTOR

Gerald S. Posner
National Marine Fisheries Service
31 July 1985

SUMMARY

Africa, the second largest continent, is beset by problems of drought, famine, poor quality soils, limited highways and railroads, and a population of 350 million people reproducing at a steadily increasing rate. Experts acknowledge that the sub-Saharan drought of 1972 really never went away and so rain-fed agriculture is an inadequate source of food. The Asian green revolution cannot be transported easily, if at all, to Africa because of soil, climate, irrigation, labor, and infrastructure characteristics.

The only readily available, ecologically sound source of additional protein are the fisheries of Africa. Fish can provide more high quality animal protein than any other type of meat for a given level of investment. In Africa, FAO judges that the present annual production of 6,847,000 tons of fish can be expanded to 10,964,000 tons, an increase of 60 percent. A limited redistribution of the foreign catch would overwhelm even this large increase. For all this to occur, African fisheries must become better managed, and quickly, lest overfishing destroy major components of the resource. There must be an effective plan for redistribution of the catch. If this increased catch is not to sit and go to waste on the beach, the private sector must provide an excellent marketing system.

Now is the time to act. 1985 and the next two years are a critical time for fisheries development because:

- high technology methodologies (satellite/remote sensing, aquaculture/mariculture) have just about completed their experimental phases and consequently, among other major changes, fishing will change from hunting to gathering, and from low to higher efficiency;

- the recent ratification of the Convention on the Law of the Sea Treaty places fisheries management responsibilities on the shoulders of each coastal state and,

- low income groups are the worst hit by drought or other natural disaster, and fish are classically their choice protein source.

Background

Africa, framed by four oceans, is in distress, beset by problems of drought, famine, poor quality soil, limited transportation systems, and a population of 350 million people reproducing at a steadily increasing rate.

The litany of distress symptoms is long and often repeated:

- food production per capita is in decline since 1961 (figure 1);
- calories per person (1977) show only 5 countries without an overall calorie deficiency, and the situation has gotten worse, especially for the poor (table 1);
- the sub-Saharan drought of 1972 has really never gone away (figure 2);
- not only are population growth rates high, but they are the highest in the world and getting even higher (figure 3);
- infant mortality rates are the biggest in the world (table 2);
- there is one doctor for every 24,000 people;
- the lowest gross national production in the world; and,
- the highest costs of education (at all levels) as a percentage of gross national product per capita.

The 350 million inhabitants of Africa have 11.7 million square miles of land available to them, so overall population density is low (Figure 4). For example, Zaire is five times the size of France but has about one-half of the latter's population.

Of the 48 countries on this continent, 47 are less developed countries and more than 800 languages are spoken. The population growth rate (1970-80) ranges from a low of 0.9 percent (Cape Verde) to 5.1 percent (Ivory Coast), with most countries showing a rate better than 2.7 percent.

Arable land and land under permanent crops amount to 6.3 percent of the total geographic area (compare this with 63.5 percent for Bangladesh or 51.4 percent for India) but some 60-90 percent of the people are occupied in the agricultural sector. In most of Africa, soils lack humous and have low productivity. With huge areas of deserts, dry savannahs, and plateaus with bushes, grasses and woodlands, many people maintain herds by moving from one area to another to feed them. In the 20-year period, 1961-80, the cattle and goat population increased by nearly 30 percent overall, but in the Sudan these increases were 162 and 100 percent, respectively.

One of the most disturbing trends in African agriculture is the declining per capita food crop production: of the 21 drought-affected countries, this decline has been steady since 1961, another eight had less per capita food production in 1980 than in either 1961 or 1970. Consequently, some of these countries have deficient intake of calories, and, in others, cereal imports have replaced food self-sufficiency.

The green revolution is not readily, if at all, transferrable to Africa. The green revolution of Asia was based upon research and key technological changes over several decades, but research in African food production began around 1970. In southeast Asia primarily only two commodities, wheat and rice, were grown--almost entirely on irrigated land. In Africa, a large variety of crops are grown in many different conditions, with limited experience or potential for irrigation. African soils tend to be far more fragile than those in Asia. Furthermore, unlike Asia, in Africa, labor is not in surplus and, at best, is minimally trained.

The Statistics Division of FAO (May 1985, p.3) goes so far as to say:

> "Several scientists and scholars are of the view that the [terrestrial] ecological balance has been disturbed in Africa; the balance between land, livestock and human population has become seriously distrupted in some parts of the continent. Some even think that heavy pressures of human and livestock population are adversely affecting climatic factors."

Agriculture and fisheries are the only components of the economic sector which produce food. However, fisheries alone requires neither fertilization nor tilling, nor, in and of itself, does it deteriorate the environment. In contrast with farming, fishing is environment-gentle, a fact of vital importance in Africa.

The combined marine fisheries conservation zone for Africa cannot yet be quantified because some countries have not established their own. Certainly it is huge. Inland water bodies are 250,000 square including 12 million km of rivers and streams.

Fish is poor man's food in Africa. If one lists in rank order (from most to least) by country the proportion of animal protein supplies derived from fish, one finds that, with the exception of Japan, the top 40 are developing countries. It has been demonstrated repeatedly that increased meat and poultry production goes primarily, if not exclusively, to the middle class and the wealthy (table 3). The fact that fish is the food of the poor becomes doubly significant in table 4, which shows the importance of fish in the protein intake of Africans (Josepuit, 1981. The Economic and Social Effects of the Fishering Industry. FAO Fisheries Circular no. 314, Revision). Recalling that these are <u>average</u> figures (meaning that the impoverished groups are relying on fish as a protein source even more than indicated here) it is almost incredible that, in 1976, 13 African countries relied on fish to provide one-third or more of their total animal protein.

Most fish species are 17-20 percent protein, with the component amino acids as abundant as in meat. Cereal grains are relatively poor in lysine, an essential amino acid richly found in most fishes, but less abundant in meat. Fish can not only add nutritional value to a mixed diet by adding lysine, but also increase the consumption of bland cereal foods when used as a condiment. Fishes are a good source of minerals and vitamins, and their high ratio of polyunsaturated to saturated fats helps lower blood cholesterol.

Fish production in Africa is economical. Fish frozen on board a factory ship can be landed in Africa at $350-400 per ton, but in many instances, first hand prices for fish are as low as $100-200 per ton. It is estimated that

cattle production costs upwards of $500 per ton in developing countries. No comparable figures are available for pigs and poultry. Tilapia culture costs in Africa are as low as $350 per ton.

Fish Stocks

The overall picture regarding West African fisheries is shown in table 5 (FAO, 1985. Personal communication). From the above discussion we know that fish is a major source of complete protein in Africa and especially among the poorer people. Table 5 shows that West Africa produced 5,197,100 tons of marine fish in 1982, of which 66 percent came from foreign fleets. FAO experts project a potential catch of 7,695,000 tons. The experts judge that production can increase overall by 48 percent.

One further set of brief comments before providing additional details on fish yields. Important commercial stocks in resource rich areas such as West Africa appear to be nearing full exploitation levels, but small pelagics and some scattered limited stocks offer room for expansion. Better management of existing fisheries, reduction of post-harvest losses, aquaculture and satellite systems, and greater participation by Africans in fishing their own resources can move to realize this potential and its important economic and nutritional benefits.

Table 6 provides the 1982 catch data for the eastern central Atlantic Ocean. The CECAF area does not coincide exactly with the geographic subdivivisions of table 5, hence the differences.

Table 1--Calories per capita, selected countries, Sub-Saharan Africa, 1977

Region and country	Percentage of nutritional requirements	Region and country	Percentage of nutritional requirements
	Percent		Percent
The Sahel:		Central Africa-- continued	
Chad	74	Equatorial Guinea	--
Gambia	--	Gabon	--
Mali	90	Zaire	--
Mauritania	86		
Niger	91	East Africa:	
Senegal	95	Burundi	97
Upper Volta	79	Ethiopia	75
		Kenya	88
West Africa:		Rwanda	98
Benin	98	Somalia	88
Cameroon	89	Sudan	--
Ghana	86	Tanzania	93
Guinea	84	Uganda	91
Guinea-Bissau	--		
Ivory Coast	105	Southern Africa:	
Liberia	104	Botswana	--
Nigeria	83	Lesotho	99
Sierra Leone	93	Madagascar	115
Togo	90	Malawi	90
		Mozambique	81
Central Africa:		Zambia	87
Angola	91	Zimbabwe	108
Central African Republic	99		
Congo	103		

-- = Not available.

Table 2--Infant mortality rates 1/

Region	Infant mortality
	Deaths/1,000 births
Sub-Saharan Africa 2/	151
Asia	103
Latin America	85
Oceania	42
Europe	19
North America	13

1/ Data for most countries are from 1975 through 1978 or are the latest available estimates.

2/ Includes only the Sub-Saharan African countries analyzed in this study.

Source: Population Reference Bureau, inc., "1980 World Population Data Sheet."

Table 3

Table 3. Household expenditures for fish relative to meat (a number greater than 1.0 indicates more money is spent on fish, no number means an insignificant expenditure on fish and/or an insignificant group) by income class (I is the poorest).

	Average	I	II	III	IV	V	VI	VII	VIII	IX	X
Chad (1965)	0.76	1.1	74	64	82	80					
Ghana (1967-68)											
rural	2.4	2.9	3.3	2.9	2.6	2.3	1.0				
urban	2.6	2.6	4.0	3.3	3.1	1.8	1.6				
Kenya (1977)											
Mombasa	.4	.9	.6	.3	.2						
Lesotho (1972-73)	0.6	0.9	.06	.05	.05						
Malawi (1968-69)	.6	2.9	1.4	1.0	0.9	0.8	0.7	0.5	0.5	0.2	
Tanzania (1969)	.4	.6	.6	.4	.2	.1	.5	.2			

Table 4. Relative importance

of fish in food supply (1974-76 data)

	Fish as Percent of		Per Capita Consumption (kg)	
	Total Protein	Animal Protein	Fish	Meat
Ghana	20.2%	65.9%	27.6 kg	9.4 kg
Congo	18.4	61.3	24.9	9.2
Senegal	17.4	58.9	40.5	13.4
Sierra Leone	16.6	71.8	26.8	5.3
Ivory Coast	13.5	49.3	21.1	15.1
Liberia	9.9	43.2	20.8	10.4
Mauritania	8.5	17.5	20.9	25.7
Togo	7.5	45.9	11.5	9.4
Benin	6.9	37.9	11.2	11.7
Cameroon	6.4	38.0	10.4	12.7
Zaire	5.9	28.9	6.3	20.6
Nigeria	5.8	40.3	11.0	8.4
Angola	5.3	23.2	6.7	13.0
Guinea	2.6	25.6	4.7	5.6
Morocco	1.7	12.6	4.5	12.7

Table 5. Present marine fish catch (1982) and potential in West Africa ('000 tons)

	1982		Potential	
	Domestic	Foreign	Total	Total
Northwest	613.7	1,762.3	2,376.0	3,350
Gulf of Guinea	679.4	24.6	704.0	1,120
Southwest	324.8	1,631.8	1,956.6	3,000
Western Med.	160.5	-	160.5	225
TOTAL	1,778.4	3,418.7	5,197.1	7,695

Table 6. Reported catch in 1982 in the eastern central Atlantic Ocean (in metric tons), listed by habitat and major groups according to country statements.

	Local	Other African	West Bloc	East Bloc	Total	
34.1.1 Morocco Coastal (Morocco)						
Demersal Fishes	13,858	0	1,398	0	15,256	
Coastal Pelagics	233,531	0	1	11,010	244,542	
Marine Fishes NEI	31,188	0	29	0	31,217	
Crustacea	1,173	0	0	0	1,173	
Mollusca	35,769	0	3	0	35,772	
Subtotal					327,960	
34.1.2 Canaries/Madeira(Spain, Portugal)						
Demersal Fishes	284	67*	8	0	359	
Coastal Pelagics	3,550	652*	0	0	4,202	*Ghana
Marine Fishes NEF	153	0	15	0	168	
Crustacea	1	0	0	0	1	
Mollusca	7	0	28	0	35	
Subtotal					4,765	
34.1.3 Sahara Coastal (Mauritania)						
Demersal Fishes	12,120	0	9,504	38,575	60,199	
Coastal Pelagics	7,160	0	443	556,841	564,444	
Marine Fishes NEI	5,790	0	16,812	29,045	51,647	
Crustacea	0	0	136	4	140	
Mollusca	550	0	24,000	3,100	27,650	
Subtotal					704,080	
34.2.0 Northern Oceanic						
Demersal Fishes	N.A.	0	2	0	2	
Coastal Pelagics		0	0	186,496	186,496	
Marine Fishes NEI		0	11	9,815	9,826	
Crustacea		0	0	0	0	
Mollusca		0	0	0	0	
Subtotal					196,324	

	Local	Other African	West Bloc	East Bloc	Total	
34.3.1 Cape Verde Coastal (Senegal, Gambia, Guinea-Bissau, Guinea)						
Demersal Fishes	48,607	240**	7,978	97,241	154,066	
Coastal Pelagics	124,254	413**	1,902	124,879	251,448	**Ghana and Ivory Coast
Marine Fishes NEI	49,007	0	4,522	4,131	57,660	
Crustacea	5,861	0	39	0	5,900	
Mollusca	6,983	0	5,265	6	12,254	
Subtotal					481,328	
34.3.2 Cape Verde Insular						
Demersal Fishes	0	0	15	0	15	
Coastal Pelagics	0	0	0	0	-	
Marine Fishes NEI	5,360	0	58	0	5,418	
Crustacea	25	0	0	0	25	
Mollusca	0	0	0	0	-	
Subtotal					5,458	
34.3.3 Sherbro (Sierra Leone, Liberia)						
Demersal Fishes	7,783	400	363	18,262	26,808	
Coastal Pelagics	32,724	0	2	41,591	75,317	
Marine Fishes NEI	2,323	0	330	319	2,972	
Crustacea	754	0	3	0	757	
Mollusca	1,014	0	351	650	2,015	
Subtotal					107,869	
34.3.4 Western Gulf Guinea (Ivory Coast, Ghana, Togo, Benin)						
Demersal Fishes	39,708	0	14	0	39,722	
Coastal Pelagics	157,110	0	0	0	157,110	
Marine Fishes NEI	36,492	0	65	0	36,557	
Crustacea	645	0	0	0	645	
Mollusca	527	0	0	0	527	
Subtotal					234,561	

	Local	Other African	West Bloc	East Bloc	Total
34.3.5 Central Gulf of Guinea (Nigeria, Cameroon, Equatorial Guinea)					
Demersal Fishes	144,902	0	0	0	144,902
Coastal Pelagics	126,657	0	0	0	126,657
Marine Fishes NEI	92,697	2,688***	0	0	95,385
Crustacea	4,436	0	0	0	4,436
Mollusca	104	0	0	0	104
Subtotal					371,484
34.3.6 Southern Gulf of Guinea (Gabon, Congo, Zaire, Angola)					
Demersal Fishes	28,810	0	0	0	28,810
Coastal Pelagics	35,957	0	0	0	35,957
Marine Fishes NEI	2,166	0	0	0	2,166
Crustacea	1,857	0	0	0	1,857
Mollusca	29	0	0	0	29
Subtotal					68,819
34.4.1 Southwest Gulf of Guinea					
Demersal Fishes	0	0	10	30	40
Coastal Pelagics	0	0	0	0	-
Marine Fishes NEI	0	0	58	0	58
Crustacea	0	0	0	0	0
Mollusca	0	0	0	0	0
Subtotal					98
34.4.2 Southwest Oceanic					
Demersal Fishes	0	0	121	197	318
Coastal Pelagics	0	0	0	0	0
Marine Fishes NEI	0	0	950	0	950
Crustacea	0	0	0	0	0
Mollusca	0	0	0	0	0
Subtotal					1,268

***Sao Tome and Principe

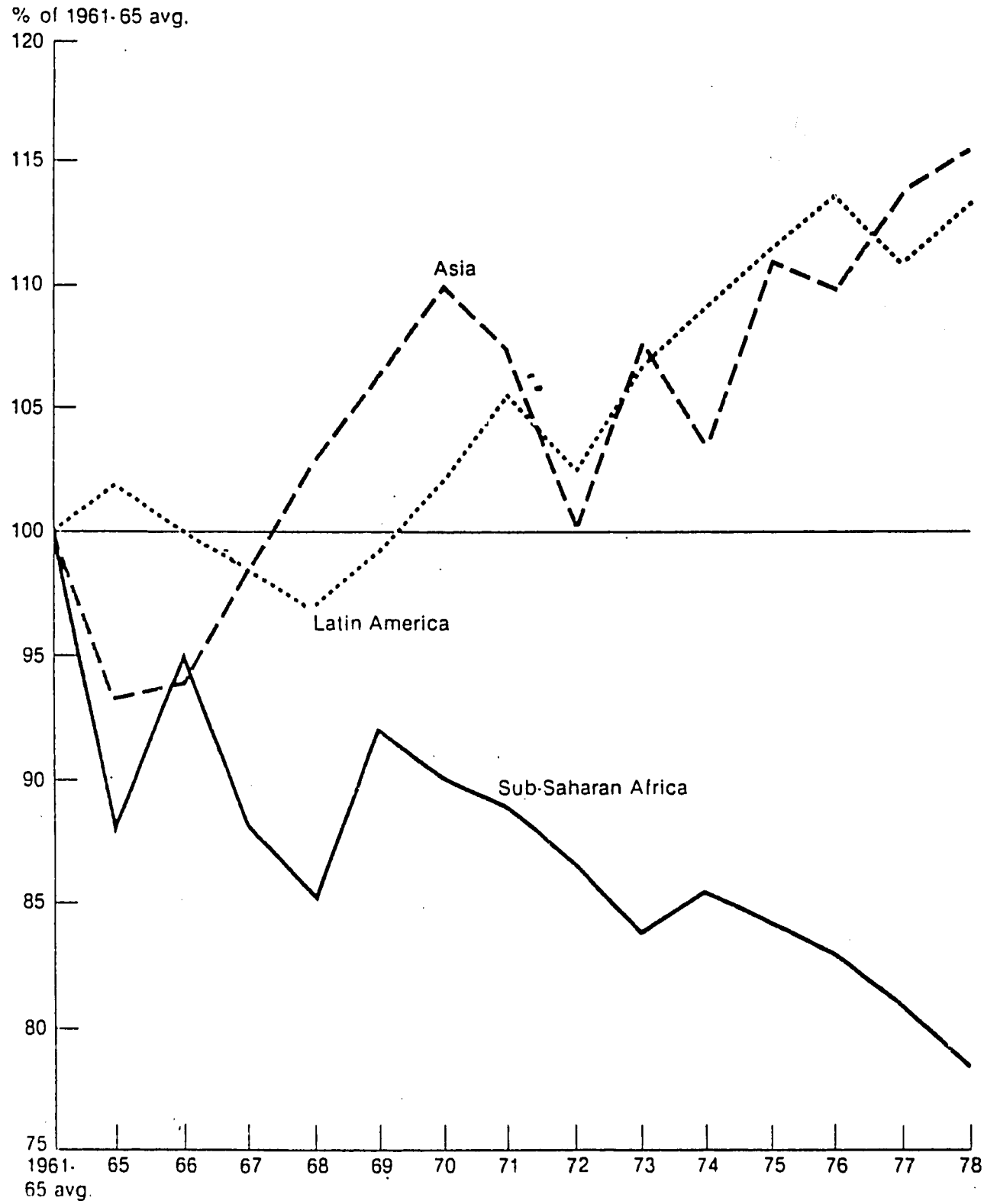
		Local	Other African	West Bloc	East Bloc	Total	
34.9.0	Not Known						
	Demersal Fishes	0	0	45,622	0	45,622	
	Coastal Pelagics	0	0	97,560	0	97,560	
	Marine Fishes NEI	0	0	96,990	0	96,990	
	Crustacea	0	0	14,360	0	14,360	
	Mollusca	0	0	114,634	0	114,634	
	Subtotal					369,166	
34.0	Total Tuna Catch						
	Oceanic Pelagic Fishes	N.A.	62,939	212,947	26,812	305,097	(incl. NEI = 2,399)
	Subtotal					305,097	
34.1.1	Northern Sub-Area						
34.1.3	Demersal Fishes	74,585	240	28,098	135,816	238,772	
34.A.A	Coastal Pelagics	364,945	413	2,399	692,730	1,060,487	
34.C.Q	Marine Fishes NEI	85,985	0	23,383	33,176	142,580	
34.X.Y	Crustacea	7,034	0	1,376	4	8,414	
	Mollusca	43,302	0	30,276	3,106	76,684	
	Subtotal					1,526,937	
34.3.3	Southern Sub-Area						
34.3.4	Demersal Fishes	221,203	400	377	18,262	240,242	
34.3.5	Coastal Pelagics	353,448	0	2	41,591	395,041	
34.3.6	Marine Fishes NEI	133,670	2,688	395	319	137,080	
	Crustacea	7,692	0	3	0	7,695	
	Mollusca	1,674	0	351	650	2,675	
	Subtotal					782,733	

		Local	Other African	West Bloc	East Bloc	Total	
34.1.2	Oceanic Sub-Area						
34.2.0	Demersal Fishes	284	67	156	227	734	
34.3.2	Coastal Pelagics	3,550	652	0	186,496	190,698	
34.4.1	Marine Fishes NEI	5,513	0	1,092	9,815	16,420	
34.4.2	Crustacea	26	0	0	0	26	
	Mollisca	7	0	28	0	35	
	Subtotal					207,913	
34.0.0	CECAF Area						
	Demersal Fishes	296,072	707	74,253	154,305	525,370	(incl. 33 NET)
	Coastal Pelagics	721,943	1,065	99,961	920,817	1,743,786	
	Oceanic Pelagics	0	62,939	212,947	26,812	305,097	(incl. 2,399 NEI)
	Marine Fishes NEI	225,176	2,688	121,860	43,310	393,070	(incl. 36 NEI)
	Crustacea	14,752	0	15,739	4	30,495	
	Mollusca	44,983	0	145,289	3,756	194,028	
	Subtotal	1,302,926	67,399	670,049	1,149,004	3,191,846	(incl. 2,468 NEI)

Figure 1

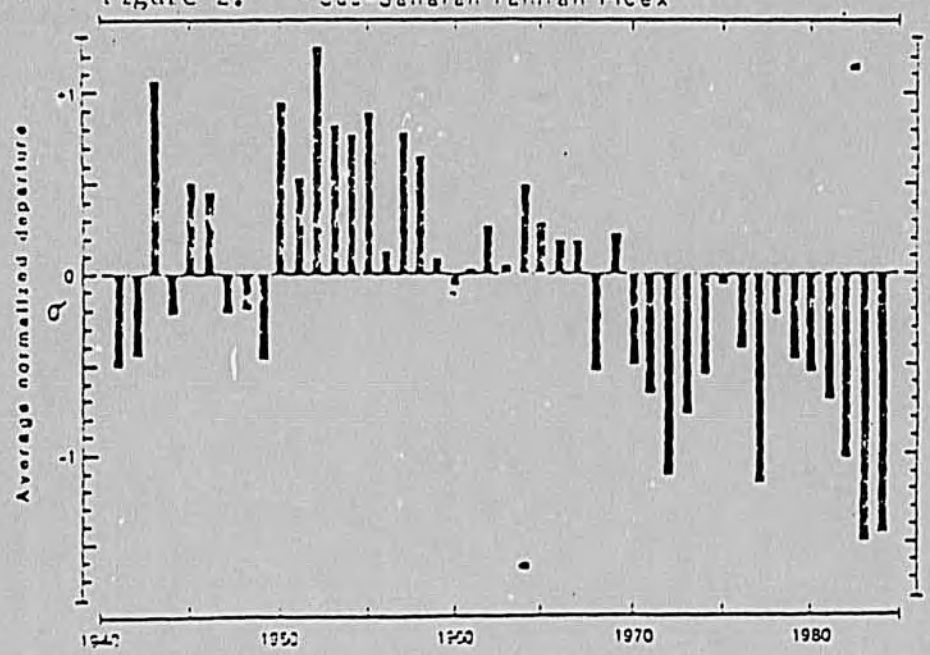
Sub-Saharan Africa

Index of Food Production per Capita



Source: Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture, Indices of Agricultural Production.

Figure 2. Sub-Saharan rainfall index



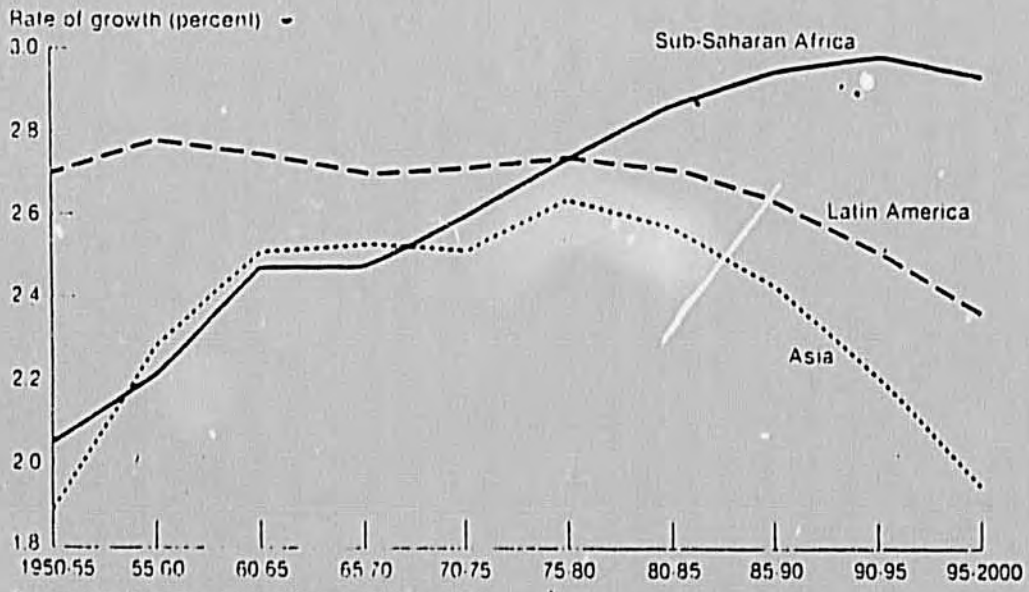
Fair weather and foul

The sub-Saharan drought in a sense began in the 1950's as unusually wet weather turned to normal and then, in the late 1960's, to unusually dry. This graph of an index of annual departures from normal rainfall (1941 to 1974) in sub-Saharan West Africa, prepared by Peter Lamb, shows that long downward trend punctuated by three pulses of intense dryness. The last 2 years—1983 and 1984—are the driest of this century. The 1984 bar includes data from 16 of the usual 20 stations, but data from the four remaining stations are not expected to change its value markedly.

Figure 3

Sub-Saharan Africa, Asia, Latin America

Population Growth Rates, 1950-2000



Source: UN World Population Trends and Policies 1984

Figure 4


Fig 8
Population supporting capacities compared with present populations
(average densities)
Low input
Persons/ha
Less than 0.1 – 0.5
0.51 – 1.0
1.01 – 2.0
2.01 – 5.0
5.01 – 10.0
Ha/person
More than 10.0 – 2.0
1.99 – 1.0
0.99 – 0.5
0.49 – 0.2
0.19 – 0.1
Potential capacity less than population

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