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Working document

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REPORT OF THE TAC FACT-FINDING MISSION TO THE
INTERNATIONAL CENTRE FOR LIVING AQUATIC RESOURCES MANAGEMENT
(ICLARM)

TAC SECRETARIAT
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DEFINITIONS USED IN THE REPORT

Fish. Generally include all aquatic organisms, whether plant or animal (fin-fish, shell, shrimp, molluscs, algae, and so on).

Seed. Juvenile forms of fish produced in hatcheries or collected in the wild, and used for stocking purposes.

Capture fishery. The harvesting of natural populations of wild stocks, the populations of which are generally considered a common resource and controls are usually through license or permit.

Culture-based fishery. A type of captive fishery where populations of desirable wild stocks are supplemented by the release of hatchery-produced seed to grow under natural conditions. Populations are considered a common resource, although cooperative agreements or government agencies control stocking, and licenses and permits control the subsequent harvest.

Aquaculture. Aquaculture is analogous to agriculture and implies ownership and control over the organisms from seed to harvest, whether the organisms are cultured in natural or man-made water bodies and/or confined in pens or cages.

TAC FACT-FINDING MISSION TO THE
INTERNATIONAL CENTRE FOR LIVING AQUATIC RESOURCES MANAGEMENT (ICLARM)
(Manila, Philippines, 18-22 May 1989)

1. BACKGROUND

The International Centre for Living Aquatic Resources Management (ICLARM) was established in the Philippines in 1977 on the initiative and through the support of the Rockefeller Foundation which provided the bulk of the Centre's core funds until 1984. ICLARM is an autonomous, non-profit, and non-governmental Philippine corporation organized for educational and scientific purposes, and which has been exempted from taxes by the Government. The Centre has been established to conduct and stimulate research on fish and other aquatic organisms, to organize training and conferences, and to publish and disseminate its research findings and recommendations.

The origin of ICLARM was the Rockefeller Foundation's interest in the early 1970's in the dependency of tropical developing countries on aquatic resources for food, income and employment. The aquatic environment covers 70% of the surface of the earth, and aquatic commodities annually yield 95 million metric tonnes of products utilized by mankind, mainly as a food. About half of world fish production is supplied by developing countries. Fishery products provide about 20% of animal protein consumption in developing countries as a group. This share is significantly higher in Southeast Asia (60%) and East Asia (36%).

The value of aquaculture products has been estimated by FAO at 29% of the value of all aquatic commodities. The sector is particularly important for Asia which alone accounts for 84% of total world aquaculture production, and where it is of critical importance to the diet of hundreds of millions, mainly poorer people, for many of whom it also provides significant income and employment opportunities. In Bangladesh, for example, small-scale fisheries provide employment to 10 million people, in Indonesia to 2.2 million and in the Philippines to 1 million. Aquaculture production, which consists of 85% of fin-fish, after a period of decline associated with the green revolution, has expanded rapidly in recent years. Between 1975 and 1986, the average growth of production amounted to 9% per annum.

As marine stocks become over-exploited, aquaculture and culture fisheries will further gain importance. Capture marine fisheries have reached a production plateau despite a sharp growth in capturing capacity. This stresses the need to improve the genetic basis for cultured organisms, and to develop and introduce improved aquaculture production systems. In addition, coastal regions have come under pressure, as human migrations have moved towards the sea, away from agriculture and toward urban centres. ICLARM was established to help address these concerns. The Centre's role is to complement and support the activities of national and regional research institutions in

fisheries, aquaculture and coastal zone management in tropical third world countries. ICLARM's immediate clients are researchers, but the Centre regards also as clients a range of individuals and institutions involved in development programmes, and planners and policy makers in developing countries. Smallholder farmers, fishermen and consumers are regarded as the ultimate beneficiaries of ICLARM's activities.

2. STRATEGY

2.1. The Centre's Previous Strategy

ICLARM was originally established to conduct, stimulate and strengthen fisheries and aquaculture research in Asia and the Pacific Islands. More recently, it has extended its work to Africa (aquaculture) and Latin America (stock assessment/management).

ICLARM sees its role as complementing and supporting national and regional research institutions in their activities in fisheries, aquaculture, and coastal zone management in tropical third world countries. To achieve this, ICLARM envisioned a small core staff of highly competent, highly productive scientists at headquarters who could concentrate on important research on international problems - including development of research methodologies - that could strengthen and complement field research by staff members working in national or regional research facilities.

Since its establishment ICLARM has never had facilities of its own. It has rented space for its headquarters and has shared national or regional research facilities with institutions with which it cooperated. A strong emphasis has been placed on interdisciplinary research in the fisheries and aquaculture continuum. Several major interactive programme areas were given attention, including: Aquaculture, Resource Assessment and Management, Social Science Research, Education and Training, and Information.

In each major programme the strategy was to emphasize first the documentation of the status of the topic or problem in question before undertaking new initiatives. ICLARM has also placed a high priority on publishing its research efforts, and believes these documents have played an important role in research planning with its national programme collaborators. Such documents are also important in training and network activities.

A major characteristic of its international programme activities has been a strong commitment to networking and a decentralized approach to research. ICLARM has also given high priority to its information and publication programmes.

Because of limited and uncertain finances, especially since the financial crisis in 1985, ICLARM has had to incorporate a certain degree of opportunism in its programme planning and development. However, when it was being supported by core funds from Rockefeller Foundation and USAID, ICLARM was praised in a USAID review for refusing special projects that might have distorted the focus of their overall programme.

2.2. The Planning Process

Until 1985, ICLARM used a large Programme Advisory Committee (PAC) comprised of disciplinary experts and national programme leaders to help plan its work. A series of international conferences were also held to identify important research areas that needed attention. More recently, the Programme Committee of the Board has given considerable time and attention to programme planning, by interactions with the Director General and his staff.

In 1986 a Donor Support Group for ICLARM was formed. In that same year a draft longer-term plan was initiated for the first meeting of the Donor Support Group. Following that meeting, a more comprehensive document was drawn up by the staff and reviewed and commented upon by the Board of Trustees.

The completed plan entitled "ICLARM Five-Year Plan (1988-1992)", was published in February 1988. ICLARM intends to make longer-term planning a part of its continuing programme development process, but the Centre has pointed out the difficulty of such planning in an institution with limited staff resources and which has experienced financial insecurity.

2.3. The Centre's Present and Proposed Strategy (1988-1992)

ICLARM intends to build upon its past. Thus it will keep a strong emphasis on a small but active core staff at headquarters to provide scientific leadership and conduct strategic research. The Centre will retain its interdisciplinary nature, carry out research on important international problems in the fisheries and aquaculture continuum, continue to place heavy emphasis on documentation and information services, and encourage staff publications. While it will retain a commitment to work closely with national and regional institutions in collaborative research, the Centre considers it important to build necessary but modest research facilities to carry out its in-house research activities and to make progress on important international problems. The Centre has already built facilities for its coastal aquaculture programme at its Coastal Aquaculture Centre in the Solomon Islands. Two other facilities viewed as essential are a tilapia breeding facility in the Philippines and a production systems research facility in Thailand.

It should be pointed out that the ICLARM Board and Management have taken the position that the Centre will not conduct research on shrimp culture, because shrimp culture systems are not sustainable as presently conceived and managed and can have negative environmental effects, especially in mangrove areas.

2.4. Main Thrusts

ICLARM will continue to concentrate on networking as a way to help national programmes to improve their capacities. Such networks usually begin with information exchange and the building of individual or institutional capacities, but their ultimate purpose is research

consultation or more intensive research collaboration. ICLARM now has four networks in operation: The Network of Tropical Aquaculture Scientists, the Network of Tropical Fisheries Scientists, the Asian Fisheries Social Science Research Network, and the Coastal Aquaculture Network. It should be noted that the Coastal Area Management Project with six ASEAN countries also has many features of a network, both in organization and planning, as well as in operation.

The Centre organizes its activities in three research programmes; Aquaculture, Capture Fisheries Management, and Coastal Area Management. The three programmes each include socio-economic work, resource management and training, usually within a network or supported by a network. The Information Programme provides a backing to the three research programmes, an external information service and conducts specialized research.

2.5. Quality Control Processes

ICLARM believes strongly in peer review. All its publications, except newsletters which are reviewed internally, are sent out to at least two external reviewers. Since the dissolution of the Programme Advisory Committee, the Programme Committee of the Board provides oversight on programme and research quality. Also, the Director General has called on specialized research advisory panels to evaluate components of the programme, as he deems necessary.

The Centre has no periodic review process like that of the external reviews of the CGIAR Centres. Since 1986 ICLARM has had a Donor Support Group that comments on programme plans and budgets. From time to time individual donors also review portions of the Centre's activities. Recently, AIDAB and USAID jointly undertook a comprehensive review of the Centre.

3. THE RESEARCH PROGRAMMES

ICLARM was formed to conduct research directly and to assist national programmes in conducting research on fish and other aquatic organisms, and on all phases of fish production, management, preservation, distribution and utilization. The Centre was intended to assist the peoples of the third world in rationally developing their aquatic resources to meet their nutritive and economic needs.

ICLARM initially placed primary emphasis in research on fish seed production and stock improvement and fish nutritional requirements. Second priority was given to integrated aquacultural-agricultural farming systems and the feasibility of sea ranching. Research on economics of aquacultural systems was an integral part of all research programmes. Over the past five years or so, a number of modifications were made in the research programme because of financial constraints. This has resulted in an increased number of special projects. ICLARM's role in many of these research projects has been to advise on project development, to establish working plans, to follow up on the purposes of the projects, to participate at least periodically in the research, and generally to assist in the publication of the research results.

In its research ICLARM has considered fisheries and aquaculture to comprise a continuum of water resources, living organisms and their natural or stocked populations, and management systems. Thus capture fisheries includes marine, brackish and freshwater fisheries, and aquaculture includes cultured systems in those same three water regimes. Capture fisheries efforts are important in Asia, Africa and Latin America. In ICLARM's perspective, there is little hope for improving substantially the catches in most capture fisheries areas during the next three or four decades; thus estimates of fish populations and resource assessments to improve managed capture will play the greatest role in ensuring a continuing supply of fish from that sector. However, as one begins to introduce cultural techniques - particularly stocking - into capture fisheries, the potential improves significantly, especially in some coastal areas of Asia. Another area that has potential is culture-based fisheries in small freshwater bodies in Africa. At present, aquaculture would appear to have more potential in Asia than in Africa and Latin America.

As already indicated in Section 2.4., ICLARM has three research programmes: Aquaculture, Capture Fisheries Management, and Coastal Area Management. The research programmes receive approximately 78% of its total core funds. The allocation of ICLARM's resources across its programmes is shown in Table 1.

Table 1 Allocation of ICLARM's Programme and Total Core Resources, 1989
(in Percentage)

	Programme Core %	Total Core %
Aquaculture	35	29
Capture Fisheries Management	13	11
Coastal Area Management	44	38
Information and Library	8	7
Headquarters and Administration	-	15
TOTAL	100	100

3.1. Capture Fisheries Management Programme

The Programme has one permanent professional staff, two fixed-term professionals, six mid-level professionals and two support staff. The total budget for 1989 is US\$ 489,000 and the budget comprises 13% of the total core programme budget and 11% of the total core budget.

This Programme was initiated to assist developing third world countries to manage their fisheries, because many of these countries were at serious risk of overfishing of non-cultured species. Hence, the Programme concentrates on diagnosing the biological and economic status of fisheries. The main lines of research are to develop methodologies for assessment of tropical multispecies fisheries and the application of such assessment methods in cooperation with national groups. A calculator-based stock assessment package and the ELEFAN microcomputer programme were developed; both are used in many places in the world. Certain simplified methodologies which did not require hardware were compiled as manuals and published by FAO in 1982. These were subsequently reprinted and translated into Spanish and French.

ICLARM works on a project basis. Some of the important projects and their main thrusts are summarized below.

Tropical Fish Stock Assessment involves predominantly in-house studies, with informal linkages with various research institutions. Its objective is to increase understanding of the dynamics of exploited tropical fish communities and to develop stock assessment methods which are straightforward and readily applicable to situations in developing countries. A closely-related project in cooperation with institutions in Peru, Mexico and Uganda creates stock assessment and management modules, and trains fishery scientists in interpreting fisheries data. A new stock assessment and management module was established in cooperation with the Ugandan Freshwater Fisheries Research Organization.

A project on Management Options for Tropical Small Scale Fisheries cooperates with institutions in Bangladesh, the Philippines, Colombia, Peru, Thailand and Ecuador. Its purpose is to develop suitable interdisciplinary research methodologies to analyze management options in small-scale fisheries and to develop analytical tools for tropical small-scale fisheries. ICLARM is also cooperating in developing a curriculum and courses in the use of these methodologies and on application of microcomputers in fisheries management. Modelling efforts to monitor and evaluate new policies for inland open water fisheries of Bangladesh are being tested. Also an economic evaluation of alternative strategies (using decision analysis) for investment and harvesting of groupers in the Philippines has been completed. Another project on Assessment and Management of Small Pelagic Stocks of the Philippines collated and reviewed available data and established a sampling design and suggestions for improving economic performance of the fishery.

The Programme has informal linkages with various individuals and research institutions to document and disseminate software for calculators and personal computers on fish population dynamics, fisheries and aquaculture economics, and fish genetics. The software developed at ICLARM is widely used, both for research and training.

Development of a new interactive database on tropical fisheries resources management has begun in collaboration with the Institut fuer Meereskunde at Kiel University, and FAO. The purpose is to develop a database for microcomputers which assembles key facts and parameters extracted from the literature on tropical fish species and other aquatic resources.

The Network of Tropical Fisheries Scientists was established in 1982 to improve communication between fisheries scientists working in assessment, conservation and management of tropical stocks and to enhance scientists' output. The network aims to improve access to the literature, including free database searches by ICLARM to help fisheries scientists in developing countries to undertake scientifically-sound research on management measures for tropical stock. The network has 850 members from many parts of the world.

3.2. Aquaculture Programme

This Programme has three permanent professional staff, five fixed-term professionals, five mid-level professionals and seven support staff. The total 1989 budget is expected to be US\$ 1.293 million. The Programme budget for 1989 comprises 35% of the core programme budget and 29% of the total core budget.

The Programme concentrates on genetic improvement of cultured aquatic organisms, development of integrated aquaculture-agriculture farming systems, and coastal aquaculture. The main rationale in selecting these research topics was their potential for improving aquaculture technology appropriate for implementation by small scale farmers and coastal dwellers in developing countries. ICLARM considers that strategic research should concentrate on developing improved strains for improved farming systems, complemented by other disciplinary research as required. The Centre has been working toward this for more than ten years with limited funds and facilities, mostly on a collaborative project-by-project basis, and has produced a considerable amount of publications that are widely used.

Like the Capture Fisheries Programme, the Aquaculture Programme works on a project basis. Some of the projects and their work are summarized below.

The Network of Tropical Aquaculture Scientists was established in 1987. The network seeks to enhance communication between tropical aquaculture scientists working on genetics integrated aquaculture-agriculture systems and coastal aquaculture and to facilitate the increased output of scientists and institutions by assisting in information and database searches, research methods, data analysis and information. The network has been helpful to many scientists, particularly those working in isolated places. Members of the network exchange informal notes, news and views in a newsletter "Aquabyte", which is distributed to more than 100 network members in some 30 countries. The network needs more funds to increase membership and provide more services to members.

ICLARM has decided to concentrate its work in fish genetics to the improvement of Nile tilapia Oreochromis niloticus. A new genetic improvement programme began in 1988, in collaboration with institutions in the Philippines and Norway to produce better breeds of tilapia with high growth rates. A related activity will be to establish a national tilapia brood stock distribution and testing programme in the Philippines. Genetic resources of tilapia will be documented and evaluated, and selective breeding will be carried out for desired

traits. In conducting genetic improvement work, an ICLARM book, *Tilapia Genetic Resources for Aquaculture*, which was published in 1988 following a 1987 international workshop, will be used to help orient collection missions and breeding objectives. This book is now being translated into French. Landraces of *O. niloticus* are collected in Africa (Egypt, Ghana and Senegal) and pure founder stocks of these are being established in the Philippines. ICLARM considers its genetic improvement work to be very important, and plans to establish a modest genetic resources facility in the Philippines, provided suitable funding can be obtained.

ICLARM has long had a strong interest in tilapia for aquaculture and has published a number of books and reviews on these fish. These include, *Applied Genetics of Tilapia* (1981), *The Biology and Culture of Tilapias* (1982), and *The Second International Symposium on Tilapia in Aquaculture* (1988).

A special effort to improve tilapia use in aquaculture in Africa was begun in 1986 in cooperation with institutions in Israel, Germany and Ghana. The effort which aims to improve tilapia genetics research, culture and management in Africa, includes collection of literature on *O. niloticus*, facilitating research with African institutions and training of African scientists.

The rice-fish farming systems of Asia have experienced changes as rice production systems evolve and become more intensive. Essentially, the fish component of these systems is a by-product of more extensive, low-input rice production, and as rice production intensifies, the rice-fish farming system is likely to decline. Research on the improvement of rice-fish systems is carried out in collaboration with IRRI, Central Luzon State University and the Government of the Netherlands. Both on-station and on-farm research are conducted in India, Indonesia, the Philippines and Thailand. Growth performance of common carp and *O. niloticus* have been evaluated and water management factors have been assessed. An International Workshop on Rice-Fish Farming Systems Research and Development was held in Thailand in 1988, and the proceedings are in press.

ICLARM plans to increase its research work on production systems for tilapia. To do this, it plans to build a modest research facility in Thailand, at the site of the Asian Institute of Technology, near Bangkok.

A tropical aquaculture research facility has been established in Malawi to develop aquaculture technology appropriate for rural Africa. The aim is to encourage cooperative research and information exchange between Asian and African scientists and increase training of African scientists. Ponds and other physical facilities have been established at the Domasi Experimental Fish Farm in Malawi, one of Africa's leading aquaculture research sites.

A project to help transfer Asian aquacultural technology to Africa was started in 1988 in collaboration with France. The project aims to examine the scope of application of Asian aquaculture to Africa, particularly Francophone Africa, and to foster intercontinental cooperation. Relevant information is being disseminated and selected publications are being translated into French.

The Coastal Aquaculture Centre in Honiara, Solomon Islands, was established by ICLARM in cooperation with the Government of the Solomon Islands, primarily to conduct research on the giant clam as a potential new farm animal. ICLARM research has established a means of collecting and hatching eggs, and rearing of the young to a stage where they can be placed in simple nurseries, first in small tanks on land for transfer to cages on coastal reefs and later for transfer as young animals to the reef itself. The giant clam is essentially a self-feeding animal, as it enjoys a symbiotic relationship with algae that provide its food. The animal has an exponential growth rate in shallow reef waters and can be harvested after five years or so, both for meat and the shell. The system being devised is being evaluated economically and socially for coastal village production systems in the Pacific Islands and certain Asian coastal areas.

The Coastal Aquaculture Network was established to enhance and promote international collaboration in coastal aquaculture by linking interested institutions and individuals. The network's focus is on collaborative research and information exchange between the 13 institutions and 100 individuals involved. Among other activities, the network also incorporates the Giant Clam Research Group, together with its newsletter "Clamlines".

3.3. Coastal Area Management Programme

Established in December 1988, this Programme was previously included in the Resource Assessment and Management Programme, under which it was discussed in the Five-Year Plan (1988-1992). It has one permanent professional position (the Director), three fixed-term professionals, two mid-level professionals and two support staff. The 1989 budget is US\$ 1.66 million. In 1989 the Programme comprises 44% of the Centre's core programme budget and 38% of the total core budget of the Centre.

The Coastal Area Management Programme consists of one large project, a USAID-funded ASEAN Coastal Resources Management Project, involving six countries: Brunei, Indonesia, Malaysia, the Philippines, Singapore and Thailand, and aims to improve the capacities of the countries to manage their coastal resources. ICLARM, as the executing agency, provides technical and administrative support to national teams and also facilitates project implementation. The project began in 1986 and its first phase will be completed in 1989. The project is ICLARM's largest single activity.

The ASEAN Coastal Resources Management Project has two main components: (i) the development of site-specific coastal resources management plans in the six countries; and (ii) information dissemination and manpower development. Each country has chosen one coastal site (Thailand has two sites) for study and development of management plans. National institutions are involved in resource assessment, research, and planning activities that lead to the development of management plans. National activities are organized by coordinating agencies in each country. The national teams prepare research proposals for funding which ICLARM then helps to prepare in final form. Necessary research is carried out by national scientists, with advice from ICLARM.

Short courses are held to help improve national capacities in assessment, research and planning. Selected national scientists are studying abroad for advanced degrees in areas related to coastal area management.

ICLARM considers its Coastal Area Management Programme to be important in providing leadership in developing case studies or models that can be applied in coastal area management elsewhere. By establishing partnerships with national institutions, ICLARM can collaborate with national research teams or networks. The Centre hopes to be able to obtain more secure funding and more core staff positions for the Programme. In its Five-Year Plan the Centre points out that this Programme will need support from its Donor Support Group. Longer-term plans call for training and information dissemination on a regional basis.

The Programme publishes a newsletter "Tropical Coastal Area Management", for coastal managers and researchers, mainly in the ASEAN region.

3.4. Asian Fisheries Social Science Research Network (AFSSRN)

The AFSSRN was established in 1983 and consists of a network of 10 research teams at universities and government agencies in Indonesia, Malaysia, Thailand and the Philippines. It is administered and coordinated by an ICLARM staff member, and is financially supported as a special project by IDRC and the Ford Foundation. The objective of the AFSSRN is to develop effective research programmes and professional skills in the social sciences, with respect to fisheries and aquaculture. Among the member institutions there are more than 80 active research workers. Initially the emphasis of the research was on marketing and processing studies, but recently it has shifted to the management of fisheries and aquaculture systems. The network's initial focus has been on the development of professional skills and of individual capabilities to do research, through the organization of short-term training courses on management research methods. Eleven network participants are enrolled for higher degrees.

4. INFORMATION PROGRAMME

In developing countries, information on aquatic science, as for many other sciences, is scarce and difficult to obtain. Since its inception, ICLARM has given high priority to the development of an Information Programme. Its objective is twofold: to improve information availability and access, and to improve the quality and quantity of information. The Programme has two thrusts: services and research. The activities of both these thrusts are highlighted in the following sections.

4.1. Information Services

4.1.1. Serial Publications and Distribution

ICLARM publishes five technical series: Studies and Reviews, Conference Proceedings, Technical Reports, Bibliographies, and

Translations. Recently it has added an educational and software series. In addition ICLARM has a regular series of publications which include the annual report, the quarterly newsletter "Naga" and four network newsletters "Fishbyte", "Aquabyte", "Clamlines" and "Tropical Coastal Area Management". Every three months, the Centre also publishes an ICLARM newsbrief to serve as a regular communication channel between staff, friends and donors of ICLARM. The Centre also handles the editorial and publishing functions of the Asian Fisheries Society, for which it provides the secretariat. Among others, it prepared the launching and editing of the Society's new journal "Asian Fisheries Science". All technical series titles are distributed free of charge, or in exchange to some 300 institutions. The remainder are sold at cost price while newsletters are distributed free.

4.1.2. Library and Information Retrieval and Dissemination

ICLARM's Library has an impressive collection of about 9,000 books and monographs, 660 serial titles, 3,800 reprints, and 125 microfiches and microfilms. During 1988 well over 2,000 external researchers and students made use of the Library and its computerized abstract service. ICLARM has a selective fisheries information service, sponsored by IDRC, which provides researchers in third world countries with literature searches and photocopies of key articles. For this purpose, it makes extensive use of available external databases, for which it was the first Centre in Asia to be linked on-line, in addition to its own internal database.

The Centre also prepares "mini-reviews" of literature on selected topics with critical analyses of the content of computer and bibliographic searches, and advises on additional reading materials and useful contacts. ICLARM provides translation services for selected articles considered of wider interest to the public. Finally, Library staff have also provided a significant amount of individual training.

4.2. Information Research

ICLARM undertakes citation analysis of the Centre's publications, as a case study on the impact of fisheries literature. To date, well over 2,100 citations of ICLARM publications have been found in tropical fishery materials alone.

ICLARM has also undertaken a study on the use of libraries by researchers in order to improve their efficiency to the customer and another study on the usefulness of reprints. At present, a project is also underway to determine the characteristics of the Asian aquatic science research community and its literature needs.

5. ACCOMPLISHMENTS AND EXPECTED IMPACT

5.1. Accomplishments

ICLARM's more significant accomplishments during its more than a decade of existence are: the contribution to generating world-wide

interest for research on tropical fisheries and aquaculture, and to the shifting of thinking from resource development (expansion of captures) to management concerns and approaches; development of cost effective resource assessment methods; strengthening of developing countries' research and training capabilities; and demonstration of the usefulness of interdisciplinary research in both fisheries and aquaculture. Accomplishments have been recognized in the publications and information services, research, training and education, and research networks.

The most visible expression of the accomplishments of ICLARM is in the quantity and quality of its publications and their impact on research and presumably for improved management regimes. Their wide distribution and extensive citation in scientific and popular literature is evidence of their perceived value by the young and embryonic scientific community in tropical fisheries and aquaculture in developing countries. The effort has, no doubt, represented an excellent start in the filling of the large information gap existing in tropical fisheries and aquaculture.

ICLARM's library can be regarded as one of the few libraries in developing countries specialized in tropical fisheries and aquaculture. The Centre provides access, through literature awareness and information services based on the in-house collection and worldwide database, to world literature on fisheries and related subjects to researchers throughout the developing countries. By providing editorial support to the publication of the scientific journal called "Asian Fisheries Science", the Centre contributes to the interchange of "peer reviewed" scientific information and exchange in the region. Some of ICLARM's publications are increasingly being used as teaching aids in several developing countries.

Some of the major research accomplishments of ICLARM include:

- The development of a model for fisheries stock assessment, which is being used in more than 30 tropical countries, including Peru, Indonesia, the Philippines and Thailand which have some of the world's largest fisheries, and have served to highlight the importance of management through policy instruments to allow for the sustainable exploitation of the captured fisheries resources.
- Pilot interdisciplinary research studies for small scale fisheries and for coastal area management that have served to highlight the needs for appropriate management of coastal areas and fisheries resources to allow for the sustainable exploitation of the resources.
- The identification of the potential for improved performance of certain freshwater species, especially tilapia, through the wider exploitation of the genetic potential by selection and genetic improvement.
- The provision of various fora, through workshops and information networks, for facilitating communication amongst scientists conducting research in tropical fisheries and aquaculture throughout the world, particularly in the developing world.

Directly or indirectly, ICLARM has contributed to the training of a large number of professionals in developing countries. Numerous professionals have been trained on a one-to-one basis through research under staff supervision and through networks with staff guidance. In addition, ICLARM's staff has participated as lecturers in numerous courses offered by national and regional institutions in developing countries. The Asian Fisheries Social Science Research Network led to the establishment of the first Asian M.Sc. programme on fisheries-aquaculture economics (in Malaysia), the training of over 10 new postgraduate degree holders, and provided support for over 30 specific research studies by institutions participating in the network. ICLARM* has organized or cosponsored since 1980 a total of 80 short-term courses and the number of trainees amounts to several hundred.

5.2. Expected Impact

It is difficult to assess the potential impact of ICLARM activities as much of it depends on the level of funding and on future strategies and modes of operation. ICLARM is confident that, if funded properly at the level specified in its Five-Year Plan, its aquaculture programme will lead in the long term to significant increases in cultured fish production, income and nutritional benefits for developing countries in Africa, Asia, the Pacific, and communities remote from marine fisheries in Latin America. In the area of resource assessment and management, the Centre anticipates that considerable impact could be achieved through the more widespread use of the methodologies for stock assessment already developed and its refinements, leading to more rational and sustainable exploitation and management of captured fisheries and avoid overfishing and depletion. Similarly, the Centre expects to expand the number of pilot studies and refine the methodologies for coastal area resource management. These activities would, ultimately, lead to the implementation of coastal land and aquatic resources management plans, which in turn would allow for the sustainable exploitation of coastal captured fisheries resources, and increases in production and productivity of coastal cultured fish.

Due to time limitations, the TAC Mission did not have the opportunity to visit national research and development programmes. Since perceptions on the potential impact achievable by focusing on alternative research subjects varied considerably among the people interviewed, the Mission was unable to judge the potential impact of the future plan of work of the Centre, other than to indicate that it appears to be large, and that given the importance of fisheries in general the subject merits further and serious consideration by TAC and the CGIAR.

6. GOVERNANCE, MANAGEMENT AND METHODS OF OPERATION

6.1. Legal Status

ICLARM was created in 1976 by the Rockefeller Foundation as a non-stock, non-profit philanthropic Philippine corporation. In order to facilitate meeting legal requirements, the Centre's Board adopted the practice of updating regularly the membership of the corporation by equating it with that of the Board of Trustees.

ICLARM was granted tax-exemption privileges in 1977 (including income tax exemption for foreign professional staff) by way of a Presidential Decree. These privileges were regulated by the Department of Finance by way of a special order. In 1987 the new Government issued an Executive Order withdrawing all tax exemptions granted via Presidential Decree not backed by international agreements or congressional acts. Thus, as per the letter of the law, ICLARM lost its tax-exemption privileges. However, in practice the Secretary of Finance has continued accepting ICLARM's tax-exemption requests. At present, Board and management are taking steps aiming at changing the Centre's legal status from a Philippine corporation to an international organization. Relations with the host country appear to be excellent and give a basis to be optimistic about such possibility.

6.2. Governance, Management and Structure

The Centre is governed by a Board of Trustees composed of 15 members. Two seats on the Board are considered ex officio - the Director General of the Centre and the highest Philippine Government official directly in charge of fisheries (currently the Secretary of Agriculture). All trustees, except those serving ex officio, are elected by the Board to serve on a personal capacity for up to two three-year terms. The Board's principal responsibilities are: (a) to act as the policy-making body of the Centre; (b) to lay down or approve the Centre's medium- and short-term programmes; (c) to review the finances of the Centre and approve the annual budgets; (d) to appoint the Director General; and (e) to review the programme and management of the Centre.

The Board has four Standing Committees - Executive, Finance and Management, Programme, and Nominating - which normally meet once a year. Membership of the first two committees is the same. The Executive Committee acts for the Board, by delegation, on matters requiring immediate attention, but in recent years has met only once a year. The Finance Committee's responsibilities cover budget, financial policy, management and audit oversight. The Programme Committee's main function is to review and evaluate the Centre's annual and long-term programme plans.

Since the abolition, for financial reasons, of the Programme Advisory Committee (PAC - consisting of 29 external advisors) in 1985, the Board's Programme Committee has become the only permanent advisory and sounding body for management proposals. However, occasionally ad hoc advisory panels are convened for consultation on special subjects.

Upon invitation by UNDP, donor representatives agreed in 1986 to hold regular meetings amongst those organizations that provide financial and in-kind support to ICLARM, as well as other parties interested in ICLARM's programmes, to provide a forum for communication and consultation concerning the Centre's programmes and financial requirements. Since then, the ICLARM Support Group held two meetings in 1987 and two in 1988. Besides consultation amongst donors, these meetings serve as a sounding board for ICLARM proposals and provide useful feedback to Board and Management on the feasibility of programme proposals and funding scenarios.

As in the case of other international centres, the Board-approved budget constitutes the guide for programme implementation up to the level of secured funding. Programme and Office Directors have authority to operate within their respective approved budgets except for the capital budget which is centralized and allocated as funds become available. ICLARM's organigram is presented in Figure 1. Each of the four Programmes is headed by a Programme Director, as are also Administration and the South Pacific Regional Office. The six Directors and the Director General form the "management team" which deals with centre-wide programme planning, priority setting, budget allocation and administrative issues. Ultimately, administrative and management responsibilities lie with the Director General. The position of Deputy Director General has been approved for the last three years, but has not been filled partially due to financial constraints. The Director General has been on sick leave since October 1988 but is to rejoin the Centre during June 1989. The Director of the Information Programme has acted as Director General during this period.

Of the three planned regional offices (South Pacific, Africa and Latin America) only the South Pacific office is in operation. Plans include the posting of one staff member in Costa Rica in 1990 for a two-year period. After consultations on regional priorities the possibility of opening a regional office there would be considered by the Board. Similarly, plans include the possibility of opening a regional office in Africa. At the moment, activities in this continent concentrate in the Malawi based aquaculture project. ICLARM, however, already collaborates with several national programmes in Africa and Latin America through collaborative research, training and information activities.

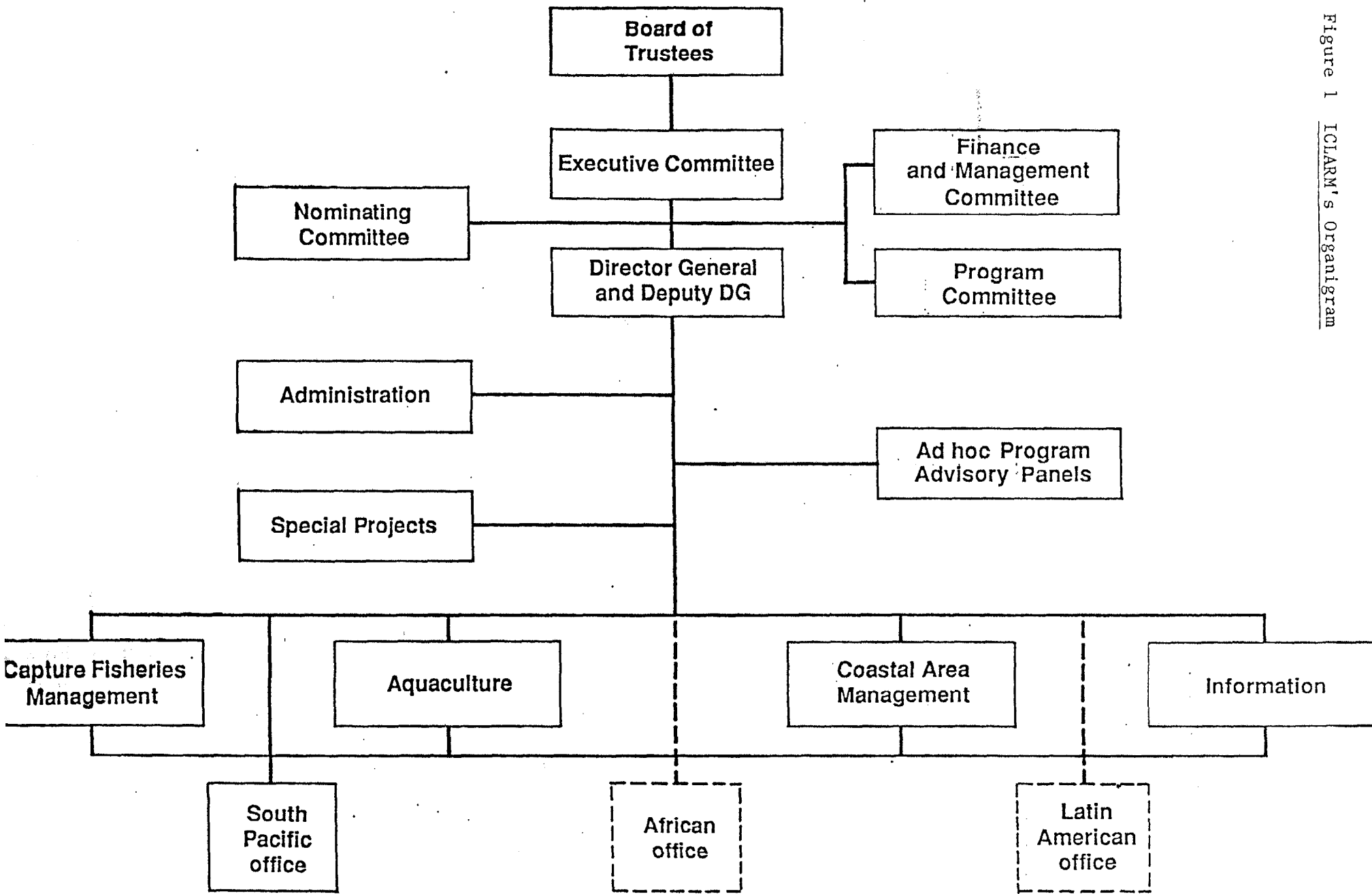
6.3. Methods of Operation

ICLARM's central mode of operation is through collaborative research and networking. As a small institution, it regards its role as being essentially a catalytic one. It aims at achieving its goals through:

- providing methods and analytical tools of wide applicability;
- training opportunities for young scientists;
- **strategic and applied collaborative research in selected, high-priority areas;**
- **information on research results (serial publications, books, workshop proceedings, information services, computerized database); and**
- **fora for communication (e.g. newsletters, workshops) amongst scientists conducting research in selected fields of fisheries.**

Except for the South Pacific field station in the Solomon Islands devoted almost exclusively to giant clam reproductive research, ICLARM does not own or operate field stations. Thus, up to now, research has been conducted mostly in collaboration with others, or on the basis of

Figure 1 ICLARM's Organigram



information generated by others. Since ICLARM does not have its own research facilities, most of the training is done on an individual basis through collaborative research, or on a group basis through short, in-country or regional courses organized in collaboration with other institutions. Such courses are organized by scientists and mid-level professional staff within each Programme.

The networks vary in scope, nature, geographic coverage and degree of formality. The ASEAN/US Coastal Resource Management Project provides for what could be characterized as a formal applied research network with a regional steering committee, individual country steering committees and working groups. The Asian Fisheries Social Science Network is more of an informal professional development-oriented network aimed at providing opportunities for interchange of professional experience, and on diagnostic and analytical methods amongst participants, mostly young economists. The other networks are essentially information networks supported by newsletters with no formal steering or advisory committees defining priorities and modalities of operation.

Up to now ICLARM has emphasized documentation and the development of an information database, activities which have absorbed most of its energies. Research emphasizes the development of methods and tools for aquatic resource management. To build up on the information base generated ICLARM regards it essential to reinforce its own research capacity.

ICLARM regards that the efficiency of its method of operation is affected by the lack of own research facilities to conduct strategic research in high priority areas (e.g. genetic improvement of tilapia, farming systems research) and by the limitations imposed by restricted core and special project funding. In order to increase the relevance and efficiency of its collaborative research and networking approach, ICLARM considers it essential to develop research facilities for the Aquaculture Programme and the Centre's own headquarter facilities, including some training facilities.

6.4. Relations with Other Institutions

6.4.1. Relations with NARS

ICLARM was established to conduct research in collaboration with national institutions. Accordingly, its activities are designed and structured to operate in a collaborative mode with national programmes. The network workshops provide for periodic contact with national scientists for information exchange and collaborative research planning. Newsletters and publications serve as means of communications with and amongst NARS scientists and development officers.

In certain research projects ICLARM places resident scientists to work alongside national scientists. The Coastal Area Management Programme is working very closely with ASEAN countries, not only with researchers in national institutions but also with development officers and policy makers. The AFSSRN provides for strong international linkages among social scientists conducting research in Asia,

particularly in Southeast Asian countries. Through its information services the Centre has been able to communicate with and provide support to numerous scientists in developing countries. The recent establishment of the South Pacific Office (Solomon Islands) and the African Aquaculture Project (Malawi) will greatly facilitate linkages with scientists in those regions. The latter will also facilitate the linkages between African and Asian scientists.

6.4.2. Relations with Regional Organizations

There exist two major regional intergovernmental fisheries development organizations in Asia, namely SEAFDEC and NACA. SEAFDEC (Southeast Asia Fisheries Development Centre) is funded by its members (Philippines, Thailand, Singapore, Malaysia and Japan) and runs its Aquaculture Department in Iloilo, Philippines, as well as several aquaculture projects in the Philippines, its Training Department in Thailand, and its Marine Fisheries Research Department in Singapore. SEAFDEC's research interests in aquaculture in the past were similar to those of ICLARM, yet relationships between both institutions do not appear to have been particularly strong. Recent changes in SEAFDEC's research programmes, focusing more on sea farming, imply little overlap and increased complementarity with ICLARM's activities, thus providing an opportunity for increased collaboration.

NACA (Network of Aquaculture Centres in Asia) is funded by UNDP and supported by FAO's Regional Office in Bangkok, Thailand. After the termination of the UNDP/FAO project at the end of 1989, NACA is to become an autonomous intergovernmental organization sponsored by the 13 member countries. Through a network of four regional lead centres established in China, India, the Philippines and Thailand and the project headquarters in Bangkok, NACA has organized: (a) graduate level courses for training senior aquaculturalists and several short term training courses for technicians; (b) applied research on selected farming systems of importance in the region; and (c) a system for the collection, processing and exchange of information relevant to aquaculture development. NACA also initiated an action programme for the diagnosis and control of the spread of the epizootic disease that has caused serious fish mortality in some countries of the region. ICLARM and NACA cooperate mainly through technical meetings, conferences and publications, but relations may not be as close and synergistic as they might be, given the complementary nature of their respective mandates, priorities and strategies.

6.4.3. Relations with CGIAR and Other International Organizations

ICLARM collaborates with IRRI on integrated rice-fish farming systems through the Asian Rice Farming Systems Research Network. The Centre also has an agreement for collaboration with IFPRI, but initiation of joint activities have been delayed due to the temporary absence of the Director General. In the future, the Centre sees a possibility of collaborating with WARDA and IITA. The Mission anticipates that there might also be opportunities for collaboration with ISNAR.

Relations with FAO have been good and appear to be synergistic and intense in certain specific areas. For example, recently FAO has contracted ICLARM to provide training on the use of ELEFAN software (for assessment of tropical fish stocks) for scientists and specialists in developing countries. Similarly, FAO has provided small grants for partial funding of other projects in ICLARM and has invited ICLARM staff to participate in courses and conferences sponsored by FAO in various countries. FAO has also provided continued support to ICLARM's information activities.

7. PROFILE OF RESOURCES

7.1. Physical Facilities

ICLARM's headquarters facilities consist of 1 1/2 floors of rented space (1,200 m²) in an office building in Makati, Metro Manila. These facilities provide space for offices and the library. At the time of the visit ICLARM was taking possession of another rented floor in the same building which will provide for badly needed additional office space and for a modest conference facility, totalling 2,000 m². Headquarters equipment includes 35 microcomputers, of which 9 are devoted to administration and 9 to desk top publishing and information services. The Centre has plans to construct its own headquarters building in Metro Manila composed of office, library, computer, and training facilities for holding short-term courses and conferences. Cost estimates are slightly above US\$ 2 million, and a donor has already indicated willingness to consider the possibility of funding one fourth of the cost up to US\$ 600,000.

Other facilities being used/shared by ICLARM include fish ponds and tanks (for tilapia genetics research) at the Philippine Bureau of Fisheries and Aquatic Resources field station in Muñoz, Nueva Ecija, and offices, laboratory and field facilities at the Fresh Aquaculture Centre of the Central Luzon State University located nearby.

The South Pacific Office has a modest office and wet laboratory facility, and a field station owned and developed by ICLARM (total cost US\$ 250,000) dedicated to giant clam reproduction and research. The African Aquaculture Programme has constructed office and field research facilities at the Domasi Experimental Fish Farm near Zomba, Malawi. The facilities include staff offices, a student laboratory, a library and storage facilities. The new field research facilities consist of 36 x 200 m² ponds, 36 x 5 m³ bioassay tanks and 78 x 500 litre experimental tanks.

In addition to the new headquarters building, future capital plans include the construction of facilities for the Aquaculture Genetics Unit in the Philippines, for the Integrated Farming Unit in Thailand, and for the Project Office in Latin America. No funding has been identified as yet for the construction of these new facilities. Total cost is estimated at approximately US\$ 2-3 million.

7.2. Human Resources

ICLARM's 1989 staffing is indicated in Table 2. There are three broad staff categories: professional staff, mid-level professional staff, and support staff. Professional staff are internationally recruited senior scientists and administrative staff at the Ph.D. level or equivalent. They include four categories: post doctoral, associate scientist or associate expert, research scientist, and senior scientist. Two of the positions are currently filled by seconded staff.

Table 2 ICLARM 1989 Staffing

	Professional		Mid-Level Professional	Support
	Indefinite	Fixed Term		
Aquaculture	3	5 <u>1/</u>	5	7
Capture Fisheries Management	1	2	6	2
Coastal Area Management	1	3 <u>2/</u>	2	2
Information Research and Information Services	1	0	2	6
Publication Services	0	0	1	8
Administration and Finance	3 <u>3/</u>	0	4	10
Special Projects	0	1	0	1
South Pacific Office	1	0	0	1
TOTAL	10	11	20	37

1/ **Two of these** positions are filled via secondment - one from UK's ODA and another from the Netherlands.

2/ **Two of these positions** (Coastal Resources Planner and Economist) are vacant but should be filled early in the second semester.

3/ **The Deputy Director General** position is still vacant.

At present the Board has authorized only ten of professional staff positions as permanent. The remaining eleven positions are filled under fixed-term contracts and are funded by fixed-term grants. Of the 21 professional staff, eleven are located at headquarters, while ten are outposted. All professional staff positions are subject to annual review in the light of revised programme plans and funding expectations. Professional staff salary payments and benefits are administered by IIE. The ICLARM salary scale and benefit package is reviewed periodically for competitiveness on the basis of the periodic IARC salary and benefit surveys carried out by IIE. Mid-level professional staff are normally recruited locally and filled with professionals at the B.Sc. or M.Sc. level. Support staff is always recruited locally. Salaries and benefits are competitive in the local job markets. Performance is reviewed annually utilizing a standard format and procedure involving one or more supervisors. The TAC Mission was particularly impressed by the competence and effectiveness of the Filipino staff.

7.3. Financial Resources

During the period 1979-1983 ICLARM's operating costs were financed primarily by the Rockefeller Foundation and USAID. The Foundation ended its funding in 1984 which resulted in a financial crisis in 1985, year in which the Centre almost collapsed. Since 1985, ICLARM managed to survive through restricted grants and consultancy contracts that helped fund key staff positions. The project preparation, reporting and administrative burden placed by an increasing number of projects on an already stretched staff caused considerable concern regarding the Centre's ability to maintain its momentum in addressing the high priority research areas already identified. The strategies adopted in 1986 and 1987 to overcome these concerns were to prepare the Five-Year Plan, and the formation of the ICLARM Support Group at the initiative of various donors. In 1988, there was a considerable increase in the number of donors willing to contribute unrestricted core support (including the World Bank), and an increase in restricted core grants to areas identified in the Plan as of high priority. One of the major strengths of ICLARM has also been the continuity of its senior and mid-career professional staff. This has been a major contributing factor to the Centre's achievements.

The Board, management and staff, however, remain concerned regarding the level of funding, especially of unrestricted core, and regarding the possibility of obtaining funds for the construction of the facilities planned. Considerable staff time is still spent in project preparation, management and reporting and the TAC Mission could not help to avoid obtaining the impression that modifications in programme plans were largely project and donor driven.

The 1989 core budget and projections for 1990 are presented in Table 3. Due to uncertainty over grants to be received, expenses to be funded with unrestricted core grants are prioritized over three levels - essential, highly desirable, and desirable. As the funding situation becomes clearer during the year, second and third priority items may be authorized by the Director General. In addition, there are at present four special projects not reflected in the budget of which three are in Bangladesh and one is subregional (the AFSSN), for a total of US\$ 430,000 during 1989. The evolution of the various types of funding since 1982 is depicted in Figures 2 and 3. The drastic reduction of special project funding in 1989 as compared to 1988 (Table 3) is due to the incorporation of the ASEAN Coastal Area Management Project as part of the (restricted) core programme.

Table 3 ICLARM's 1989 Budget

I C L A R M

1989 EXPENSE BUDGET AND 1990 FORECASTED BUDGET

(In U. S. Dollars)

	Unrestricted Core			Total Unrestricted Core	For Restricted Funding	Total Budget 1989	Total Budget 1990
	Restricted Core	Priority 1	Priority 2				
SUMMARY:							
I. CORE PROGRAMS							
a. Aquaculture	849,825	337,247	38,300	0	375,547	67,500	1,292,872
b. Capture Fisheries Management	146,556	285,350	26,750	5,000	317,100	23,000	486,656
c. Coastal Area Management	1,635,528	21,244	5,000	0	26,244	0	1,661,772
d. Information Research	0	32,945	7,000	3,000	42,945	45,000	87,945
e. Library and Information Services	40,400	159,596	14,000	0	173,596	0	213,996
Total Core Programs	2,672,309	836,382	91,050	8,000	935,432	135,500	3,743,241
II. GENERAL ADMINISTRATIVE EXPENSES							
a. Board of Trustees	0	129,087	5,000	0	134,087	0	134,087
b. Overall Program Development, Coordination and Supervision	0	141,903	17,000	10,000	168,903	0	168,903
c. Administration and Finance	12,076	182,016	5,000	5,000	192,016	0	204,092
Total General Administrative	12,076	453,006	27,000	15,000	495,006	0	507,082
III. HQ GENERAL OPERATING EXPENSES	0	133,350	0	0	133,350	0	133,350
IV. CAPITAL EXPENDITURES	53,740	63,950	7,000	1,300	72,250	0	125,990
GRAND TOTAL	2,738,125	1,486,688	125,050	24,300	1,636,038	135,500	4,509,663

Figure 2 Revenue Profile in Actual Amounts: in Million US\$

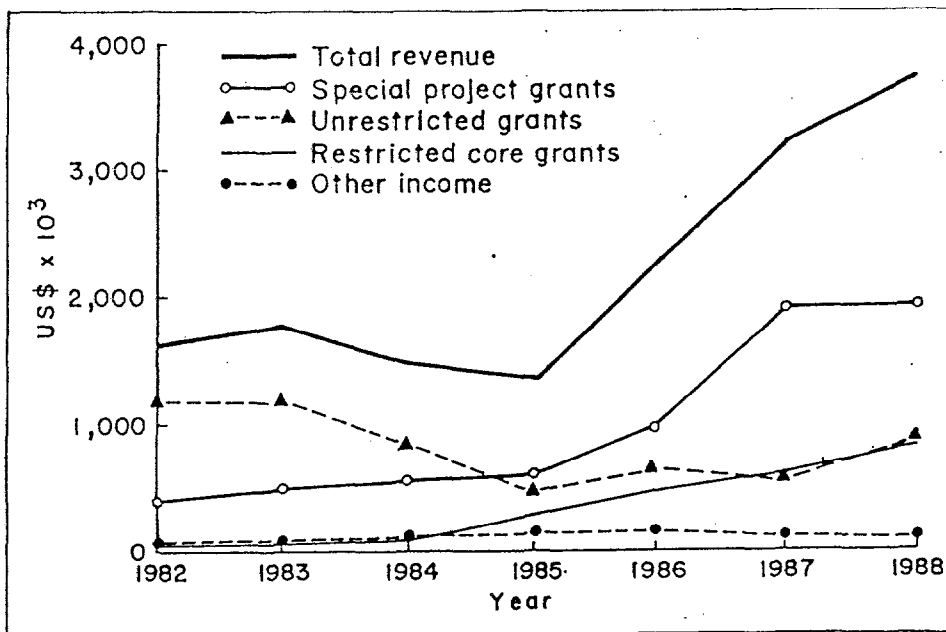
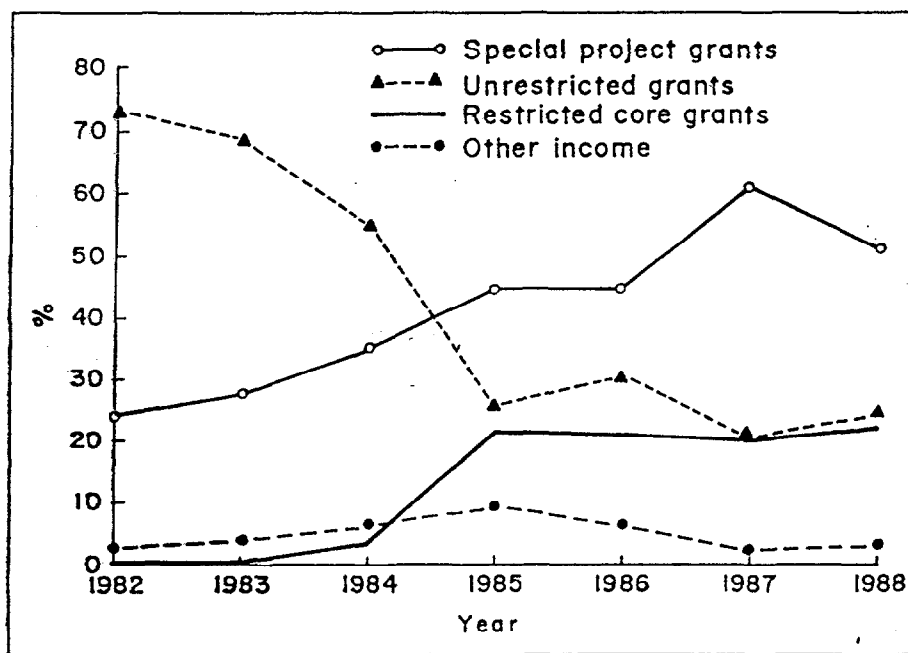


Figure 3 Revenue Profile as a Percentage of Total Revenue



8. ISSUES AND CONCERNS

The major issues that concern ICLARM's Board and management could be summarized as follows:

- The fact that the Centre is still below the minimum critical mass required to carry out the Board approved research programme, leading to a distortion of the priorities thereby specified.
- The burden placed on the Centre by the excessive dependence on restricted core and special project grants which demand much staff time for project preparation, reporting and accommodation to donor preference and administrative procedures, and diverts the attention from planned core research thrusts.
- The general resistance of some donors to include in the restricted grants adequate overhead levels (the Board-approved level is 26% of personnel costs).
- The erosion of staff morale resulting from the financing situation.
- The urgency to regularize the legal status of the Centre as an international organization.

TERMS OF REFERENCE

FOR THE TAC MISSION TO THE NON-ASSOCIATED CENTRES

Introduction

The CGIAR decided at its May 1988 meeting to consider a possible expansion of the System to incorporate some of the activities being undertaken by the so-called non-associated centres. TAC was given the responsibility of assessing ten of these institutions. The Committee has defined the strategy to be followed and has developed criteria for the evaluation. Two stages are envisaged in the evaluation process.

In stage one, for which these terms of reference have been developed, sub-groups of TAC Members will visit the non-associated centres to review the subject matter represented by their programmes. The sub-groups will be assisted by one or two external experts for each centre. After reviewing the mission reports, TAC may proceed to stage two and subject those centres whose activities might be eligible for CGIAR support to a more detailed assessment in the form of external programme and management reviews.

Purpose and Scope of the Mission

The main objective of the mission in stage one, is to assess the programmes/activities carried out by the non-associated centre(s) in order to determine whether they meet the criteria established by TAC for CGIAR support.

The review mission is expected to give particular attention to the following aspects of the work of the centre:

- (i) Obtain information on actual programmes/activities.
- (ii) Obtain five-year and longer-term strategic plans, if available.
- (iii) Make a preliminary analysis of the potential contribution of the programmes/activities of the centre to elements that TAC would probably use in its CGIAR priority setting exercise such as:
 - contribution to food production and food security;
 - contribution to sustainable use of resources;
 - internationality of efforts;
 - research and related activities; and
 - contribution to the strengthening of national agricultural research programmes.
- (iv) Determine current and potential interactions of the centre with CGIAR institutes, with other non-associated centres, as well as with other research organizations, and assess how the centre interacts with national programmes.

- (v) Make a preliminary assessment of the research and related activities with respect to:
 - results of past research;
 - current and planned research;
 - adequacy of research-support facilities; and
 - potential impact.
- (vi) Assess the nature and appropriateness of the governance, organizational structure and research management.
- (vii) As much as possible, identify quantitatively how they allocate resources among activities, as specified in the revised glossary of CGIAR activities (Appendix I), currently and within five years.
- (viii) Make a preliminary assessment of the physical plant.

The sub-groups of TAC Members and consultants will prepare reports on their findings at the end of the review mission for consideration by TAC.

Proposed Report Outline (Items in parenthesis correspond to specific items in the Terms of Reference)

- 1. BACKGROUND
 - a brief history of the centre
 - mandate/mission statement
 - the centre's clients and how it perceives them
- 2. THE CENTRE PROGRAMME (i)
 - the centre strategy, and its implementation (ii)
 - constraints addressed, constraint analysis
 - the programme approach and operation
 - the research programme
 - . strategic
 - . applied
 - . adaptive
 - training
 - support programmes
 - the regional distribution of programmes
 - future plans
- 3. RESEARCH RESULTS AND IMPACT (v)
- 4. GOVERNANCE, MANAGEMENT, AND METHODS OF OPERATION (vi)
 - governance and structure
 - methods of operation
 - relations with other institutions (iv)
 - . national programmes
 - . other IARCs
 - . institutions in advanced countries

5. A PROFILE OF RESOURCES (vii)
 - physical facilities (viii)
 - staff resources
 - funding resources (allocation based on glossary of CGIAR activities)

6. ISSUES AND CONCERNS

COMPOSITION OF TAC SUB-GROUP TO ICLARM

Chairman

Dr. Gustavo A. Nores (TAC Member)
Estanislao del Campo 152
1641 Acassuso
Provincia Buenos Aires
Argentina

Members

Prof. Charan Chantalakhana (TAC Member)
Kesetsart University
Department of Animal Science
Bangkok 10903, Thailand

Dr. V.R.P. Sinha (Consultant)
Director and Vice-Chancellor
Central Institute of Fisheries Education
Versova, Bombay-400 061
India

Dr. D.L. Plucknett
Scientific Advisor
CGIAR Secretariat
World Bank, 1818 H Street, N.W.
Washington, D.C. 20433
U.S.A.

Dr. Guido Gryseels
Senior Agricultural Research Officer
TAC Secretariat
Food and Agriculture Organization of
the United Nations (FAO)
Via Terme di Caracalla
00100 Rome, Italy

TAC SUB-GROUP REVIEW PROGRAMME

(Philippines, 18-22 May)

Thursday, 18 May

- 09:00 Preliminary discussions on organization of visit with Acting Director General, Director of Administration, and Board Chairman
- 10:00 Coffee break - meet with ICLARM staff
- 10:30 Overview of ICLARM by Management and Programme Directors
- 12:30 Lunch
- 13:30 Presentations by Programme Directors (cont'd)
- 19:00 Cocktail hosted by ICLARM

Friday, 19 May

- 09:00 Discussions Aquaculture Programme
- 12:30 Lunch
- 13:30 Discussions Capture Fisheries Management Programme
- 15:30 Discussions Coastal Area Management Programme
- 16:30 Discussions Social Science Research Network

Saturday, 20 May

- 09:00 Information Programme
- 10:30 Administration, Funding, Governance
- 12:00 Final discussions with Programme Directors and Management
- 13:00 Lunch with ICLARM staff
- 14:00 Report preparation

Sunday, 21 May

- Report preparation
Departure Drs. Sinha and Chantalakhana

Monday, 22 May

Discussion of report with ICLARM Management

Note:

Some members of the team took the opportunity of a subsequent stay at IRRI to undertake an informal visit on Wednesday, 24 May to a nearby ICLARM collaborator, i.e. the Tilapia Pond Hatchery Farm of Mr. Joe Capistrano in Pililia, Rizal.

PERSONS MET BY THE TAC SUB-GROUP

A. ICLARM

Management and Board

Mr. Jay L. Maclean, Acting Director General
Mr. Roy I. Jackson, Chairman, ICLARM Board of Trustees
Mr. B.M. Rodriguez, Jr., Director, Administration and Finance
Ms. Conception Bernardo, Secretary to the Director General

Capture Fisheries Management Programme

Dr. Daniel Pauly, Director
Ms. Annabelle V. Cruz, Programme Assistant
Dr. Max N. Agüero, Associate Scientist
Ms. Lourdes D. Palomares, Research Associate
Mr. Felimon C. Gayanilo, Jr., Research Associate

Aquaculture Programme

Dr. Roger S.V. Pullin
Dr. Ambekar E. Eknath, Post-Doctoral Fellow
Ms. Mary Ann P. Bimbao, Programme Assistant
Mr. John D. Balarin, Project Director, Malawi
Dr. Catalino R. dela Cruz, Project Leader, Rice-Fish Farming Systems
Ms. Anne A. van Dam, Associate Expert
Ms. Catherine Lhomme-Binudin, Translator
Ms. B.O. Acosta, Research Assistant

Coastal Aquaculture Centre

Dr. John L. Munro, Director

Coastal Area Management Project

Dr. Chua Thia-Eng, Director
Dr. Alan T. White, Technical Advisor
Dr. R. Tubin, Visiting Scientist
Mr. James N. Paw, Project Specialist

Information Programme

Mr. Jay L. Maclean, Director
Ms. Leticia B. Dizon, Editor
Ms. Rosalinda M. Temprosa, Chief Librarian
Ms. Norma I. Jhocson, Librarian

Asian Fisheries Social Science Research Network

Prof. Harlan C. Lampe, Coordinator
Ms. Marissa W. Manuela, Project Assistant

B. Others

Dr. Manuel Lantin, Department of Agriculture, Manila
Dr. Edgardo Gomez, Director, Marine Science Institute, University of
the Philippines and ICLARM Board Member
Dr. Rogelio Juliano, University of the Philippines in the Visayas
Mr. Joaquin Ortega, Governor, La Union Province

LIST OF ACRONYMS

AFSSRN	Asian Fisheries Social Science Research Network
AIDAB	Australian International Development Assistance Bureau
ASEAN	Association of Southeast Asian Nations
CGIAR	Consultative Group on International Agricultural Research
FAO	Food and Agriculture Organization of the United Nations
ICLARM	International Centre for Living Aquatic Resources Management
IDRC	International Development Research Centre (Canada)
IFPRI	International Food Policy Research Institute
IIE	International Institute for Education
IITA	International Institute of Tropical Agriculture
IRRI	International Rice Research Institute
ISNAR	International Service for National Agricultural Research
NACA	Network of Aquaculture Centres in Asia
PAC	Programme Advisory Committee
SEAFDEC	Southeast Asian Fisheries Development Centre
TAC	Technical Advisory Committee
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
WARDA	West Africa Rice Development Association