MESSAGE FROM THE BOARD CHAIR

In 2000 the Board of Trustees of ICLARM-The World Fish Center was pleased to observe the progress of re-establishment of the headquarters of the Center in Penang, Malaysia. The first of two full Board meetings for the year was held in March, just weeks after the move to Penang. It enabled the Board to witness first hand the creation of the new headquarters, with all its attendant challenges for the staff responsible. The Board is indeed grateful to the Government of Malaysia for helping make the new headquarters of the Center a reality.

Until his departure to take up a position with the Food and Agriculture Organization the ex-officio headquarters host country Board position was very capably filled by the Director General of Fisheries, Dato' Mazlan Jusoh. The Board wishes Dato' Mazlan well in his new capacity and is very pleased to welcome the incoming Malaysia Director General of Fisheries, Dato' Hashim Ahmad. During the year, we also bid farewell to our outstanding Board member, Professor Mohamed Shariff of Malaysia who has given invaluable service to the Center over his full six-year term, and welcomed Dr Linxiu Zhang, a renowned social scientist from China as a new member of the Board.

The second full meeting of the year made another first for the Board as it met for the first time at the World Fish Center's Research Center for Africa and West Asia at Abbassa in Egypt, which the government of Egypt so generously provided in 1997. There, we took the opportunity to learn more of the Center's research and training work in Africa and
West Asia. In Egypt, the Board took the opportunity to visit fish farms and meet with the Center's Egyptian partners.

The Board has taken an active role not only in the governance of the Center but also in the discussions throughout the CGIAR change process launched in 2000. It has guided the Center's policies in engaging in the discussions, with a view
to ensuring that the important mandate of the Center is recognized and strengthened in the new, emerging CGIAR.

I am pleased to report that the Board has continued to function very effectively in its oversight of the important work
of the Center and to see the progress made in the firm establishment of the Center at its own site.

Kurt J. Peters
Board Chair

MESSAGE FROM THE DIRECTOR GENERAL

The year 2000 was a momentous one for the World Fish Center. We moved our global headquarters from Manila in the Philippines to Penang, in Malaysia following the formal signing of the new headquarters agreements on 17 January 2000 with the Minister of Agriculture of Malaysia and the Lands Commissioner, Kuala Lumpur, Malaysia. International staff and their families moved to commence duties in Penang on 15 February 2000 at our temporary offices in the Equatorial Hotel and we began hiring key local staff shortly thereafter. In October, full reconstruction and building began on the site
of our eventual long term headquarters site at Batu Maung, Penang. The site will be occupied in mid 2001.

Another major change for the Center was the launch of our new image and logo - we are now identified as ICLARM - The World Fish Center and our logo encapsulates our focus on people, science, the environment and partnership. The symbol of a hand and a fish shows this visually and the blue and green colours indicate that we work in the sea and in freshwaters.

Throughout 2000, the Center's programs flourished through staff in 9 countries, including the new headquarters, new project sites in Vietnam and Cameroon and the continuation of work in the Philippines from our office at the International Rice Research Institute at Los Baños, active projects with partners in 22 countries and many stakeholders through our networks, information services and meetings from nearly every country in the world. In the Pacific, which remains a priority region for the Center, we were able to maintain full field operations from our Nusa Tupe field station in the Western Province, Solomon Islands. In addition we sought an additional site from which to conduct other studies and to expand our regional collaborations. Noumea in New Caledonia has been chosen and we will be developing strong links with the Secretariat of the Pacific Community through its headquarters.

Center senior staff and the Board also took leading roles in the major change agenda launched by the Consultative Group on International Agricultural Research. The new directions of the CGIAR, to be decided in the first half of 2001, will touch the shape and way the research programs are devised and delivered, the governance of the system and are likely to greatly increase the integration of the system as a whole - its members, the centers and the stakeholders. Centers such as the World Fish Center will share more services and programs with the other centers. The changes promise to be the most profound in the whole history of the CGIAR and certainly since ICLARM was admitted in 1992. The aim of the changes is to make the work of the CGIAR the most forceful scientific instrument aligned to tackle the global challenges of poverty, food insecurity and environmental degradation.

Meryl J. Williams
Director General

RELOCATION, REORGANIZATION AND AN UPDATED CORPORATE IDENTITY

Relocation

Moving the headquarters of an International organization from one country to another is a challenge at any time. In 2000, ICLARM – The World Fish Center, did just that, moving from the Philippines, its home for 23 years, to Penang, Malaysia. Over 60 per cent of its headquarters staff parted from the Center and remained in the Philippines to take up other opportunities. At the same time, the Center reorganized the structure of its research programs, and updated its corporate identity.

In February 2000, 30 staff arrived from the Philippines with their families. The transfer from the Philippines to Malaysia had been meticulously planned, nevertheless, along with the excitement was a sense of disorientation and need to adapt to the new environment and culture, unpack and settle in both at home and at the office. Meantime there was no interruption in operations, as all around the world, at the Center's research sites, it was business as usual. We still needed to meet our partners' and donors' expectations and keep up the momentum in planning and seeking funds for further research.

At the same time as existing staff arrived from the Philippines, new staff arrived from other corners of the globe, and before long, were joined by the first new Malaysian staff recruited to the Center.

For the executive, the priority was to meet and get to know our host government, research peers and the international community in Malaysia. The Director General and the Director of International Relations met government ministers and members of the diplomatic corps, and, in April, a meeting was held with the Fisheries Research Institute to identify areas where our respective organizations could benefit from collaborative research.

Meantime, the scene in our temporary headquarters changed. Once bare offices were furnished, networked and boxes started arriving from the warehouse, shelving was ordered for the temporary library and by July, most of the collection had been unpacked and shelved and the library opened for business.

The new HQ : building in progress

The Building Committee, representing staff from both research and administrative areas, met frequently with the architects selected to design the new buildings. By September the planning and design phase was completed, and building renovation and construction began in October. By the end of the year the new buildings were taking shape and the project was on track for completion in May 2001 as planned.

By the end of the year the temporary offices were bursting at the seams and no space was unfilled. Fifty per cent of the planned complement of staff had been recruited. Recruitment of the remaining staff is on hold until we have moved into the new building and have space to accommodate them.

Artist's impression of the new Headquarters

Reorganization

Moving not only presented an opportunity for a new look, but also to reorganize how ICLARM – The World Fish Center can get the most from its research. What internal structure for the research activities would be most productive? How could we simplify research management and make the most of our financial resources? How could research themes be grouped to maximize the synergy of proximity whilst encouraging a systems approach across the Center ?

Along with the actual move and reestablishment, this was our biggest challenge - to capitalize on the relocation, to assess the significance of the loss of expertise of departing staff that the move engendered and to rebuild and strengthen research. Fisheries, aquaculture, the management of marine and freshwater resources involve a wide range of demands and effects on human communities, government policies and the environment. Research projects are becoming more complex. The problems we are looking at increasingly span a range of disciplines – biological, socioeconomic and management.
In reorganizing our research, we looked at two aspects: where our research would have the most impact, and what research could feasibly be accomplished.

Unlike an agricultural research center where the focus may be on a single crop, such as rice, or farming system, such as livestock, our 'terms of reference' – research on living aquatic resources – could cover a huge array of topics. There are over 25,000 species of finfish and over 5,000 of those species could be classed as food fish. Fishers range from simple hunters and gatherers to technologically sophisticated and highly commercialized fish harvesters and aquaculturalists.
How then did we choose from this staggering array? First, we chose to do research that will target the needs of the poor in developing countries. Second, we selected species which these groups use, or which they could use, which could be more productive and we use generic research methods, such as selective breeding, to improve them. The species we chose to work on needed to fulfill other criteria: they needed to be important to large numbers of poor people, either as food or as a means to boost their income. For example, many poor farmers who rear Nile tilapia or carps in ponds in Asia can benefit if they can use improved breeds that are more productive. People in coastal communities can make an income from farming giant clams, oysters or sea cucumbers.

These are examples of ICLARM – The World Fish Center's research on pond and rice-field aquaculture, on coral reefs and coastal fisheries, on floodplains and inland water systems. The traditions of fish farming in Asia and the small island developing states of the Caribbean and Pacific and the widespread poverty in these regions make these regions a natural focus. The population in Africa will grow dramatically: 400 million will live in poverty. We focus on the marine fisheries, lakes and inland waters, again to improve and sustain productivity.

National planners in developing countries are faced with making decisions about complex systems and interactions. They confront a bewildering array of options and incomplete information. Software tools and databases alert them to changing conditions and increase their chances of riding the waves rather than being swamped.

In the 1990s, our research was organized in nine themes and seventeen projects. In the 2000s, we have at the same time narrowed and broadened our approach.

The outcome is that ICLARM – The World Fish Center's research is now organized into two disciplinary research programs, Biodiversity and Genetic Resources Research and Policy and Impact Assessment Research, and two resource systems research programs, Freshwater Resources Research and Coastal and Marine Resources Research. Supporting these four programs is what we call the Partnerships, Information and Training Program. This program provides research information services not only for ICLARM projects, but for anyone, whoever they might be, researcher, manager or fish farmer. The assistance with communication, help in arranging training for scientists in developing countries to build the capacity of their own research institutions, developing research networks and brokering research partnerships and collaboration strengthens the Center's effectiveness.

All four of the research programs integrate their work. For example, the Policy Research and Impact Assessment Program is active in projects with each of the other three research programs and the database work of the Biodiversity and Genetic Resources Research Program is used by all programs.

Updated corporate identity

When we move house, it is an opportunity to throw away some of our old furniture and adopt a new look in tune with our new environment. For ICLARM – or as we were known by our full name - the International Center for Living Aquatic Resources Management - the move presented a wonderful opportunity to launch – albeit as a soft launch – an updated corporate identity developed over several years. We believe that our new identity – ICLARM – The World Fish Center - encapsulates what we are, how we do things and what we are working towards.

The World Fish Center logo, a hand holding a fish encircled with the words 'People, Science, Environment, Partners' symbolizes our reason for being and our mode of operation. The fish is a generic symbol for all aquatic resources, including finfish, mollusks, crustaceans and aquatic plants. The hand represents our concern for these resources and the people who depend on them. The circle represents our holistic ecosystems approach. The colours blue and green represent the aquatic and rural environments. The words 'People-Science-Environment-Partners' embody our values. We work for people. Our science is directed at improving livelihoods in developing countries. We conserve and sustain the environment. We work in partnership with our colleagues in science, government, non-government and development organizations worldwide. We believe our new identity will help put fisheries and aquatic resources on the world development agenda and we stand prepared to be a global support for developing world research in this field.

In sum, the year 2000 has been momentous for ICLARM – The World Fish Center. We reorganized our scientific programs, relocated our headquarters from the Philippines to Malaysia, updated our new image to better reflect our values, and reaffirmed our commitment to people of the poorest regions, Sub-Saharan Africa, and South Asia.

THE LOWER MEKONG POVERTY HOTSPOT

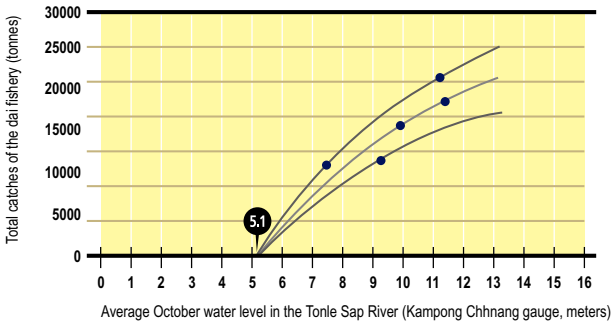
People

Three of the four Lower Mekong basin countries, Cambodia, Lao PDR and Vietnam are among the poorest in the world. Of the 155 million in the four countries, 90 million live within the watershed. In Cambodia alone, more than one million people are either fully or partly dependent on fisheries for their income.

For the poor of the Mekong Basin countries, fish and aquatic produce provide daily sustenance. When crop production fails, fish provides food and helps to buffer the loss of income.

Environment

Development in the Mekong Basin means change, and change may adversely affect fishing. Every year, during the rainy season, floods in Cambodia and southern Vietnam submerge huge areas of forest and create vast wetlands. The Great Lake in Cambodia expands to 15,000 km^2 in the wet season. In the dry season, the lake surface shrinks to 600 to 3000 km^2. During the dry season, the Great Tonle Sap Lake in Cambodia empties into the Mekong River, whereas in the rainy season the flow reverses and the Mekong River fills the lake.



Annual dai catches in Cambodia vs. water level (logarithmic regression)

More than three-quarters of the freshwater fish species in the Lower Mekong basin migrate to the flooded areas to spawn, feed and grow. When the floodwaters recede, most fish species migrate back. Long-distance migrants are about 63 per cent of the total catch taken by the large and medium-scale fisheries in the Great Lake area. Fish production is directly related to the extent of the flooded area of the Great Lake and the duration of the floods.

A riverine village in the vicinity of Phnom Penh, Cambodia

Trees shaped by strong river currents, Khone Falls, Laos

The Mekong River
• 4200 kilometers long
• Ninth longest river in the world
• Annual floods create large wetlands resulting in a very important and significant fish production.
• Wetlands in Lao PDR, Cambodia and Vietnam total 84,000 km^2
• Three-quarters of the freshwater fish species migrate seasonally into the flooded areas to spawn, feed and grow
• Total estimated fish production in the Lower Mekong basin is about one million tonnes, worth US$150-250 million annually

The yearly Cambodian freshwater fish production accounts for 60 per cent of the current annual commercial fisheries landings in Cambodia. Sixty per cent of the fish consumed are from open water capture fisheries, with up to 80 per cent of rural households depending on capture fisheries.

Estimates and the official reported figures for capture fisheries production differ significantly. The confusion in landing estimates is a major impediment to fishery management and proper valuation of a common resource.

Cast net fishing in the rapids of Khone Falls, Laos

	Estimated annual catch (tonnes) Van Zalinge & Thuok 1999	FAO 1999
Cambodia	290,000 - 430,000	70,000
Lao P.D.R.	27,000	
Thailand	303,000	230,000
Vietnam	190,000	65,000

Figures for capture fisheries production in the Lower Mekong Basin vary.

The Mekong River basin is home to an estimated 1,200 fish species (Rainboth 1996) making it one of the three highest fish biodiversity areas in the world. Endangered species include the giant Mekong barb *Catlocarpio siamensis* and the giant Mekong catfish, *Pangasionodon gigas*. Other threatened species are the fresh water dolphin *Orcaella brevirostris* and the Mekong herring, *Tenualosa thibaudeaui*.

Women selling fish along the Mekong River

Science

Over the past 23 years, the Center has developed, in partnership with others, models that can be used to simulate the effects of anthropogenic or biophysical interventions on productivity and the ecosystem.

One model describing and demonstrating risks to the sustainability of fisheries in the Mekong system pays attention not only to the values provided by the aquatic environment and the resources, but to economic, social and policy values. To model the relationship between the fish catches and water levels of the great lake, the Center joined with the International Water Management Institute (IWMI) and the Secretariat to the Mekong River Commission (MRC).

Modeling how climatic, infrastructural and other changes have impacts on the fisheries resource requires integration of hydrological models with biological models of the fish species, migrations and fisheries.

Secondary data and climate data, as well as a detailed evaluation of aquatic biodiversity and ecology, provide the basis for modeling. Data on vegetation, soil and climate are available, though not uniformly for long time series, but
there is little biological data, such as fish taxonomy and fish ecology.

To date the new types of hydrological models, based on land cover types – soil, vegetation, evapo-transpiration – simulate the reversal of flows and flooding of the Great Lake of Cambodia. Conceptual models of the relationships between flooding, fish migrations and fish production will be modeled when detailed elevation data can be secured for the whole lower Mekong Basin. These biophysical relationships when built into models linking fluctuations in the aquatic resource to different management and use regimes produce semi-quantitative simulations to illustrate the positive or negative effects of management decisions.

ENVIRONMENT PARTNERS

Science is not simply required in biotechnology and modeling. Socioeconomic and policy research inputs include, describing the role of fisheries resources in household food security; evaluating the effects of transnational, national and local intervention in the Basin on fisheries resources; assessing the impact of interventions on communities that are dependent on these resources; developing economic values and indicators; and analyzing the legal and institutional framework for governance of the wetlands and their resources.

The model integrates biological and hydrological inputs with socioeconomic and policy considerations. Trend analysis circumvents the lack of biological data, and decision-support models identifying impacts on a component will seek to balance the sum of the different trends. The urgency with which countries of the region need to address wetlands and fisheries management issues cannot wait for the several years that it would take to collect definitive time series data in all categories. The modeling approach will help local managers develop policies and management strategies that consider food security and ecology values of wetlands.

Partners

Our partners:

•Gather, evaluate data, maximize use of incomplete data on fisheries and hydrology;
•Develop hydro-biological models;
•Estimate fish resources – their quantity and consumption;
•Assess biological and genetic diversity;
•Integrate fish resources and food security into inter-sectoral policy and management.

Research in the Mekong River Basin integrates scientific disciplines, seeks out collaborators who can contribute information and expertise for the common good, builds on strengths to provide solutions to ecosystem sustainability threatened by development, and develops tools that stakeholders can use and understand. We strive to ensure that development will result in the equitable distribution of wealth, and that development will not benefit one sector of society at the expense of the other.

Arrow - shaped fish net in a canal, South Vietnam

Donors and research partners

• Asian Development Bank (ADB) • Asian Fisheries Society (AFS) • Cambodia: Department of Fisheries • Asian Institute of Technology • Bangladesh national partners • DANIDA • DFID • Ford Foundation • Government of Norway • ICLARM – The World Fish Center core fund donors • IDRC • IFAD • International Irrigation Management Institute • International Union of Conservation Network (IUCN) • International Water Management Institute (IWMI) • International Rice Research Institute (IRRI), Vietnam • Kasetsart University • Lao PDR: Department of Livestock and Fisheries • Mekong River Commission (MRC) • National aquatic research systems in Cambodia, Lao PDR, Thailand and Vietnam • Oxfam America • SEARO • SIDA • Technical Advisory Committee (TAC) of CGIAR • Thailand: Department of Fisheries • Thailand: NAGRI • Thailand: Prince of Songkla University • Various partners in Asia • Vietnam Agricultural Science Institute • Vietnam: Can Tho University • Vietnam: College of Agriculture and Forestry • Vietnam: Ministry of Fisheries • Vietnam: RIA1; RIA2 • Wetlands International

COASTAL AQUACULTURE HELPING COASTAL COMMUNITIES

Blacklip oyster juveniles grown in plastic holding trays

Cleaning blacklip oyster shells before seeding

Amidst ethnic violence and warring militias, fishery scientists in the Solomon Islands recently coaxed a crop of precious black pearls from cultured oysters. Black pearl farming may offer hundreds of poor, coastal communities throughout the region a viable and sustainable alternative to over-fishing.

The breakthrough could not have come at a better time. In late October, the World Bank delayed support to the Solomons following an increase in ethnic tensions and doubts about local plans for large-scale development. The Solomon Island's problems are compounded by fears that over-fishing and global warming are threatening coral reefs and local economies. A sustainable cash crop is needed to relieve the pressure on the reefs. In the Solomon Islands, where jobs are scarce, average income is less than US$3 per day in rural areas, and conflict has shattered the economy. Local people frequently over-fish the reefs for food and income. Some use fishing methods that threaten coral reefs and long-term production. The first crop of cultured pearls from Solomon Islands was auctioned as jewelry in Australia over the Internet in September 2000 and brought in more than $A40,000. Goodmans, one of Sydney's elite auction houses, sponsored the sale, underscoring the quality of the crop. Profits were donated to the Gizo hospital, which is located near the experimental farm where the pearls originated. The auction helped raise awareness of the nation's prospects for pearl farming.

Pearl farming is a US$1.5 billion global industry. A quarter of the value of the market is in so-called black pearls—large, lustrous gems that take on many colors including peacock blue, silver gray, and bronze. Different species of oysters produce different types of pearls, each adapted to local conditions that cannot be replicated elsewhere. Only the black-lipped oyster, *Pinctada margaritifera*, produces black pearls. The species is common in the clear central Pacific where French Polynesians first cultivated black pearls some 30 years ago. Black-lipped oysters are harder to find in the Southwest Pacific where inshore waters often contain higher levels of nutrients and sediments produced by runoff from soil erosion.

To produce black pearls in the Solomons, researchers first had to find concentrations of baby oysters, also known as spat, to cultivate on an experimental farm. In the Central Pacific, spat can be easily collected in the calm clean waters of coral atolls, but in the nutrient-rich Solomon Island lagoons, algae and predators make collection difficult. After an extensive search, researchers finally found spat in the clear waters offshore, away from islands that are the source of nutrients and sediment. They then developed production techniques that would protect the oysters and keep them safe from predators.

When the oysters are sufficiently large, a small hole is drilled through their hinges and they are suspended in vertical lines above the ocean floor. Eighteen months later a technician will seed the oyster by inserting a small bead into its tissue. Ideally, the pearl will respond by coating the bead with layers of mother-of-pearl, there by producing a black cultured pearl.

The World Fish Center created the pilot pearl farm in partnership with the Government of the Solomon Islands and the Australian Centre for International Agricultural Research. The fledgling industry offers exciting prospects for economic development at a time of difficulty in the Solomon Islands.

ENVIRONMENT PARTNERS

Black pearl farming may also provide a model for other island communities with similar environmental conditions. Researchers are providing technical assistance to Fiji and Tonga, both of which want to establish pearl farms. Fiji hopes to seed 10,000 oysters this year.

Pearl farming is not risk free, however. In the Cook Islands, producers are struggling to change economic arrangements that grant up to 30 per cent of all pearls harvested to the technicians who seed the oysters. In addition, a 24-square mile Cook Island lagoon is now almost entirely filled with pearl farms, leading experts to fear that the overcrowded lagoon is vulnerable to disease. In French Polynesia, oyster farmers previously moved sick oysters from one atoll to another, spreading disease unsuspectingly.

The Center has studied these problems and believes we can avoid them through sound environmental management. We advocate safeguards such as limiting the size and proximity of farms and using wild spat rather than hatchery-reared oysters. If hatchery oysters must be used, we urge rigorous checks for disease before transferring oysters to ocean farms. We also discourage growers from transferring spat between locations in order to protect important genetic traits, such as large size and shell color, that may differ among isolated populations.

Training in pearl grafting

The World Fish Center and its partner organizations plan to explore arrangements with other farms in the Pacific in order to train people from the Solomon Islands in the technique of seeding oysters. The goal is local self-sufficiency in all technical aspects of cultivation. We have the opportunity to set up an industry in Solomon Islands on a sustainable basis so that it will deliver lasting benefits for local people and promote the health of coral reefs.

Adult blacklip oysters suspended from a long line

The future of black pearl farming in the Pacific also depends on private investors. Prospective investors are talking with the governments of several nations in the southwestern Pacific. People are learning that they can farm something precious from the sea and that makes them care more about the future of the ocean.

This story was featured on the Future Harvest homepage www.futureharvest. org in December 2000.

REPORT ON RESEARCH PROGRAMS FROM THE DEPUTY DIRECTOR GENERAL, PROGRAMS

Seine fishing in a pond in South Vietnam.

Breeding GIFT Tilapia at Jitra station, Malaysia.

With the Center's move to Malaysia, the Center has taken the opportunity to rationalize its activities into the five programs whose activities are described below. Although each program has a particular resource system or disciplinary focus, the Center's intention is to approach the issues of aquatic resources research and management in a multidisciplinary way, including the provision of appropriate information for the sector and on the basis of its own research. It can be seen from the following that there are multiple instances of the collaboration and integration of program efforts in the research which are expected to strengthen institutionally in the years to come.

The focus of our overall research portfolio continues to be in Asia, the region of major producers and consumers of aquatic produce. With more than 70 per cent of the populations of the archipelagic countries of South East Asia and the Pacific living in coastal situations, environmental and resource protection are important ingredients in sustaining the contribution of aquatic produce to food security and livelihoods for the poor. For the same reason the Center has established deliberate foci for its research in the small island developing states of the Pacific and the Caribbean. The Center is also expanding its work in Africa, to try and enhance the role that fisheries and aquatic resources management can play in food security for the continent. Current achievements have been particularly through sustainable aquaculture practices where fish production has been integrated into agricultural development at the farm level. The Center's freshwater resource system focus remains on pond aquaculture - now broadened to include small water bodies and extended to include river floodplains. The Center's traditional areas of research on coral reefs and coastal fisheries are maintained and consolidated.

The Biodiversity and Genetic Resources Program pursues strategic research on the conservation and sustainable use of biological and genetic diversity and contributes to the development of research methods and policy. In responding to the needs of the developing countries for biodiversity information the program has conducted training workshops for 55 African, Caribbean and Pacific (ACP) National Aquatic Research Systems (NARS), emphasizing the use of biodiversity databases, such as FishBase, ecosystem-based management and electronic networking. A database on fish larvae, LarvalBase, was started in 1998 which will contribute to the knowledge of larval biology and identification to assist aquaculture development. Key achievements in 2000 of the FishBase database project were expanded coverage (>25,000 species), greater utility (new graphs for analysis of fisheries data) and improved accessibility (Internet) of FishBase. The project has undertaken genetic characterization studies of fishes important to the poor, including tilapia (*Sarotherodon melanotheron*) in West Africa and silver barb (*Barbodes gonionotus*) in Asia as inputs into conservation strategies and aquaculture development of these key species. A major effort on fisheries biology and hydrological modeling with CGIAR centers and collaborators in the Mekong region has been undertaken to look at the nexus between the flooding of the river, fish biodiversity and annual production. To optimize the available data sets and to move directly to management support when these data do not exist, the Center and its collaborators are constructing a semi-quantitative model to understand the relationship between the magnitude of flooding and fish production in the lower Mekong Basin.

ENVIRONMENT PARTNERS

The Program contributes to the work of the Convention on Biological Diversity and its Subsidiary Body on Scientific, Technical and Technological Advice and Clearinghouse Mechanism; and other global biodiversity fora such as Species 2000; Food and Agriculture Organization (FAO) Fisheries Division and Commission on Genetic Resources for Food and Agriculture (CGRFA); the World Conservation Union (IUCN); and the CGIAR System-wide Genetic Resources Program (SGRP). One aim is to raise the profile of ecosystem approaches to conservation and sustainable use of genetic resources. To extend the Center's work on the improvement of Nile tilapia, offspring from the sixth generation of the Genetically Improved Farmed Tilapia (GIFT) fish have been transferred to Malaysia to provide the base for further selective breeding of growth rate and qualitative traits. An equivalent project with indigenous strains of Nile tilapia is being conducted in Egypt and microsatellite markers have been developed in cooperation with Auburn University to examine their use in selective breeding of tilapias. A project on carps conducted with national partners in six Asian countries combines selective breeding and socio-economic evaluations of breeding goals to help increase fish quality and production in the region. Early gains in growth of several species are indicated as a result of the selective breeding methods being undertaken and that the approach pioneered with tilapia will also be effective for the further development of carp aquaculture. Evaluation of carp species and traits is conducted collaboratively with the International Network on Genetics in Aquaculture's (INGA) partner countries and with the Center's Policy Research and Impact Assessment Program (PRIAP) which leads the socioeconomic evaluation strategy.

Growing pearl oysters in a panel net

The Coastal and Marine Resources Research Program is a large program of research which includes projects designed to conserve and manage coastal habitats, restore depleted stocks, improve the productivity of fisheries and valuable species on a sustainable basis, equip managers with the information needed for these tasks, and increase the capacity of NARS through effective training in integrated coastal management. A major regional project has been developed to analyze existing trawl data for determining the current status and dynamics of coastal fish stocks in eight countries of South and South East Asia. In conjunction with the policy program the economic effects of overfishing are being determined to help translate the consequences of large fish biomass declines into readily appreciable parameters for active management and policy

Sea cucumbers cultured in tanks

Particular emphasis is placed on research on coral reef ecosystems. Coastal aquaculture and stock enhancement projects focus on developing methods to increase the productivity of species associated with coral reefs through sustainable aquaculture, restocking and stock enhancement. Prior to 2000, most of the research was done in the Solomon Islands at the Coastal Aquaculture Centre (CAC). However, the closure of the CAC in late 1999 due to long term civil strife curtailed research. Projects continued from the fieldstation at Nusa Tupe in the Western Province of the Solomon Islands included: maintenance of cultured giant clam broodstock; assessment of the survival of cultured trochus released onto coral reefs; operation of a demonstration black pearl farm; preliminary releases of cultured sea cucumbers (sandfish) in two habitats; and sampling of postlarval reef fish with light traps and crest nets for the development of artisanal grow out procedure for aquarium species. All these projects respond to the need for Pacific and other island countries to seek wise means of exploiting their aquatic resources in sustainable ways and for improved income generation for coastal dwellers and these small nations generally. In the Solomon Islands results of the pilot study on the effects of alternative logging operations on freshwater and coral reef habitats were reported. However, sampling for the first year of the main study was postponed due to the civil unrest. A highlight in 2000 was the auction over the Internet of thefirst crop pearls from the demonstration

Adult giant clam, Tridacna gigas

farm. The sale effectively disseminated the results of the research and alerted investors to the potential for farming pearls in the Solomon Islands.

The Center is taking active steps to disseminate the best technologies to other countries, farming systems and aquatic environments. In 2000, rearing and grow-out of sandfish began in Vietnam in collaboration with the Research Institute for Aquaculture No.3. This will examine the possibility of integrating sea cucumber farming with shrimp farming. In Tonga, collection of wild spat to assess the potential for black pearl farming in Tonga is in progress. Funding support to develop optimal release strategies for cultured sandfish has allowed the Center to reformulate this project building on earlier hatchery advances and the new stage of the project will now take place in New Caledonia in 2001.

Marine protected areas (MPAs) provide a possible management intervention to halt overfishing and to assist resource restoration. However, too little science is available that will indicate to developing countries how and where to deploy protected areas and how to deal with the socioeconomic consequences of closure. The Center is conducting research on the role of marine protected areas in fisheries management and biodiversity conservation in the Caribbean. Work in 2000 led to the i) incorporation of quarterly inventories of fish and invertebrate biomass at Discovery Bay, Jamaica, and Hans Creek, British Virgin Islands (BVI) into Ecopath/Ecosim models; ii) evaluation of recruitment of larval fish to MPAs by different techniques (light traps, crest nets and fish traps). Trapping has provided a continuous record since August 1996 in Jamaica and April 1997 in BVI. A comprehensive set of morphometric data has been collected to evaluate the possibility of using rectangular escape gaps in traps to increase the average size of deep-bodied fish. Comparable work is being carried out in the Solomon Islands so that general lessons for the establishment of MPA for coral reef areas and fisheries can be developed.

The Center continues to play a key role in the accumulation and sharing of global information on coral reef resources. The coral reef database, ReefBase 2000 was launched at the 9th International Coral Reef Symposium in Bali in October 2000. ReefBase is being used extensively as a data source for a major analysis of reefs at risk (from anthropogenic and natural threats) in South East Asia being undertaken by the World Resources Institute (WRI). It will similarly contribute to other regional assessments in the future to build up a detailed global picture for improved management and raising awareness of coral reefs. The ReefBase team developed an extensive group of collaborators including the World Bank, the Reef Health Program at NOAA; the GRID and the Biodiversity Clearing House programs at UNEP, the Coral-ID and long-term monitoring program at the Australian Institute of Marine Science, the Atlas of Coral Reefs at the World Conservation Monitoring Center (WCMC), the Global Coral Reef Monitoring Network (GCRMN), and ReefCheck.

The Freshwater Resources Research Program is developing new approaches to integrate biological, climatic and socioeconomic variables in the evaluation of best practices for the introduction of aquaculture into farming systems. The Center links its field experience in Asia and Southern Africa with that of others in evaluating the development impact of the introduced technology. New initiatives are being taken to extend field activities to the humid zone of West Africa with CGIAR and regional NARS partners.

In 2000, research in integrated aquaculture-agriculture (IAA) systems focused on: the improvement of small farm productivity through the introduction of multiuse waterbodies on farms in Bangladesh, a country with abundant rainfall and a great variety of waterbodies that can be used for aquaculture; Cameroon as a new activity, with a continuum of environments from the humid forest to peri-urban farming; and Malawi, a semi-arid country in southern Africa dependent upon seasonal rainfall. At each site, the integration and uptake of aquaculture is supported by biological research and the adaptation of aquaculture systems to suit local conditions. A project for increasing and sustaining the productivity of fish and rice in the floodplain ecosystems of South and South East Asia is in operation in Bangladesh and Vietnam.

ENVIRONMENT PARTNERS

The objectives are to: analyze alternative resource management strategies in floodplain ecosystems; study participatory development and viable income generating options and their field validation; and identify viable community-based mechanisms to secure target group access to waterbodies and adequate provision of inputs and access to markets. In the Mekong Delta, opportunities for aquaculture are being explored in environments which were previously saline and which are now changing because of measures that are being taken to prevent saline intrusion.

In Bangladesh, IAA technologies are being extended to 6,000 new farm households throughout the country. Monitoring and socioeconomic impact analysis is being conducted on a large sample of these. Support has been provided to 13 different research projects in cooperation with research organizations and universities in Bangladesh. More than 200 NGO field workers were trained in 12 workshops, each of three days duration, covering basic aquaculture principles and recommended technology options. 162 trainers of cooperating NGOs received specialized training on specific topics in three-day training courses. A national workshop to review the research basis for aquaculture recommendations was held in January. Two regional workshops with fish hatchery and nursery operators were held. In all cases the Center's impact assessment of IAA technologies and their adoption is conducted as a multidisciplinary approach.

Monitoring of fish growth by the Research-Extension Team, Malawi

The Malawi Department of Fisheries is implementing the Research-Extension Team method to enhance the adoption of aquaculture at the smallholder level. Staff continue to provide guidance through a new project training Departmentof Fisheries (DOF) staff and organizing on-farm demonstrations.

Members of the DOF from Zambia were also trained. A Malawi-based companion site for the Pond Dynamics/Aquaculture Collaborative Research Support Program (PD/A CRSP) Africa project in Kenya was established at Bunda College under the supervision of staff of the Center's Malawi office. Initial studies on fish reproduction in Lake Chilwa with special emphasis on *Barbus paludinosus* and the status of the watershed have been completed and the results will be used to contribute to a management plan for the watershed.

Fish culture introduced to traditional deepwater rice cultivation in Narai Thana, Bangladesh

A new project was established in collaboration with the International Institute of Tropical Agriculture (IITA) at their Humid Forest Station in Cameroon. Ponds at the research station of the collaborating national partner institution Institut de Recherche Agricole pour le Développement (IRAD) in Foumban were rehabilitated, staff training initiated and field surveys conducted to determine project sites and conduct socioeconomic baseline surveys.

In community-shared management of deepwater rice-fish culture in Bangladesh and Vietnam, trials showed that well functioning institutional arrangements between different social groups can be achieved. The technology introduced for integrating fish farming into the production cycle for deep water rice growing proved to be economically beneficial for the communities undertaking this new enterprise.

The Policy Research and Impact Assessment Program continued to examine the policy environment and options in fisheries, aquaculture and coastal resources management to ensure wider adoption and benefits of research by the poor in the developing world. The Program's three research themes are economic monitoring and evaluation of developing country fisheries; aquatic resources planning and impact assessment; and legal and institutional analysis for fisheries management.

PEOPLE SCIENCE

Deepwater rice-fish in Kishoreganj, Bangladesh

Cast net fishing on the Mekong River, Laos

Harvest from a pond managed by women, Bangladesh

A project referred to as "Fish to 2020: the Effects of Aquaculture" is a major new collaboration with the International Food Policy Research Institute (IFPRI) and FAO. It is a key effort in raising awareness of the value of fish and fish products and integrating consideration of these into world agricultural food models which, astonishingly, have to date not included fish! In 2000 the institutes continued to collaborate in data identification and collection as well as designing the parameters for the modeling exercise.

The project "Database on prices and market for fish and seafood products in developing countries" with INFOFISH strengthened the collaboration between the two institutions on sharing and dissemination of information on fish species and product grouping in relation to price, market and market share to benefit small-scale suppliers and producers of diversified fish and seafood products in the developing countries.

The Center has been testing issues related to institutions and governance of fisheries and wetlands. Since July 2000, the Center has been conducting a project with OxFam America, entitled "Community Assessment, Management and Monitoring of Local Aquatic Resources System for Improved Food Security in the Mekong Basin", in collaboration with the International Institute for Rural Reconstruction (IIRR), Philippines, Can Tho University, Vietnam, and Pakse Southern Agricultural College (PSAC), Lao PDR. Community participation and gender involvement will also be investigated in Vietnam through the CGIAR system-wide project on Participatory Research and Gender Analysis (PRGA).

The Center has successfully completed the Phase 1 activities of the Community-Based Fisheries Management (CBFM) Bangladesh which seeks to assess the best practice and constraints to the sustainable management of inland water fisheries in Bangladesh and other countries of South East Asia. The project also developed new milestones for a five-year Phase 2 project. Monitoring and data-collection during Phase 1 revealed that, given the opportunity, stakeholder management of beels for fisheries can be extended to the wider community to ensure cooperation among fishers and other users of the aquatic environment, as well as to mediate conflicts. The new phase of the Center's global fisheries co-management studies (conducted with the North Sea Center Denmark and collaborating countries in Asia and Africa) focus on identification of the socio-economic factors governing legitimacy and compliance in institutional arrangements.

Similarly, an analysis of the legal and institutional framework for fisheries and coastal resources management in South East Asia and Bangladesh has been completed and has led to a four-country project to examine the legal and institutional requirements for the sustainable management of the wetlands in the Lower Mekong Basin which will be initiated in the coming year. The project will include the economic valuation of aquatic resources in the wetlands of the Mekong River region, through links with concerned national, regional and international agencies. Stronger collaborative links with the Mekong River Commission's (MRC) wetland and fisheries programs are expected during implementation of the project.

ENVIRONMENT PARTNERS

The Partnerships, Information and Training Program's work in research and related activities - training, workshops, conferences, information dissemination is carried out in partnership with national institutions and regional and international organizations. The major role is to strengthen existing collaborations and to develop new partnerships with national aquatic research systems (NARS), NGOs, regional and international organizations, advanced scientific institutions and the private sector, in research and related activities.

The year 2000 saw the development of new collaborations. Potential areas for collaboration with Malaysian partners were identified at a meeting held in Malaysia in April 2000. A meeting with Chinese NARS in November 2000 broadened links with Chinese institutions.

Participants from Cote d'Ivoire sampling tilapia fry from breeding hapas, Training on Selective Breeding (GIFT) Technology

Coordination of the research network INGA (International Network on Genetics in Aquaculture) and the information network NTAFP (Network of Tropical Aquaculture and Fisheries Professionals) continued. The collaborative research project aimed at conserving fish genetic resources and increasing fish production through genetic enhancement of local tilapia strains in Africa has been completed. This represents a close collaboration between the INGA network, the genetic enhancement and impact assessment projects of the Center and national institutes of aquaculture in collaborating countries. Fish germplasm for evaluation, for direct use in aquaculture or utilization in breeding programs was transferred amongst members of the Network.

It has of course been a challenge to relocate the Center's headquarters and the transition is still underway. The Center expects to move into its new purpose-reconstructed site in Penang in mid-2001. Those familiar with the work of the Center will note the names of many newly recruited professional and support staff to strengthen the Center's contribution to aquatic science and the role of aquatic resources in development.

Peter Gardiner
Deputy Director General, Programs

COLLABORATIVE PROJECTS

Biodiversity and Genetic Resources Program

Project	Source of funds	Duration	Research partners	Milestones achieved in 2000
Strengthening Fisheries and Biodiversity Management in African, Caribbean and Pacific (ACP) Developing Countries, with Further Development of a Biological Database on Fish (FishBase)	European Union (EU); ICLARM core donors	December.1996 – December 2000	National programs of 55 countries in the ACP regions International/Regional: Caribbean Community (CARICOM) Fisheries Resources Assessment and Management Program; Food and Agriculture Organization of the United Nations (FAO); Secretariat (SPC); World Conservation Monitoring Centre (WCMC); World Conservation Union (IUCN) Belgium: Musée Royale de l'Afrique Centrale Canada: Ocean Voice International; University of British Columbia (UBC) France: Museum National d'Histoire Naturelle Germany: Institut für Meereskunde, Kiel (IFM-K) Namibia: National Marine Information and Research Centre Sénégal: Centre de Recherche Océanographique, Dakár-Thiaroye (CRODT) UK: Natural History Museum; Species 2000 Project, University of Reading USA: American Fisheries Society; California Academy of Sciences Other institutions and individual researchers	• Covered all 25,000 described fish species in FishBase. • Produced FishBase CD-ROM and book. • Maintained FishBase web page on Internet. • Developed applications and analytical tools to assist ACP partners in scientific, educational, conservation and management in fisheries and aquaculture. • Made key facts sheets available on the Internet and as leaflets. • Published a checklist of Freshwater Fishes of South and Central America. • Developed tools for aquaculturalists; held workshops with experts who will contribute aquaculture data or analytical tools. • Developed concept and curriculum for using FishBase in university teaching. • Convened workshop to plan next phase of FishBase. • Convened fourth ACP-EU Steering Committee meeting.
LarvalBase: A Global Information System on Fish Larvae	Bundesministerium für Wirtschaftliche Zusammenarbeit/ Deutsche Gesellschaft für Technische Zusammenarbeit (BMZ/GTZ), Germany; ICLARM core donors	February 1998 - June 2002	Germany: Institut für Meereskunde, Kiel (IFM-K)	• Collected and checked data on fish larvae in aquaculture. • Collected, checked, and harmonized data, and developed graphs and analytical routines on fish larvae from secondary sources, including grey literature, electronic sources. • Entered data and pictures of eggs/larvae and scanned pictures into FishBase. • Made LarvalBase accessible through FishBase.
Fish Biodiversity in the Coastal Zone: A Case Study on the Genetic Diversity (Process of Speciation), Conservation and Sustainable Use in Aquaculture and Fisheries of the Black-chinnedTilapia (*Sarotherodon melanotheron*) in West African Coastal Lagoons and Watercourses	Bundesministerium für Wirtschaftliche Zusammenarbeit/ Deutsche Gesellschaft für Technische Zusammenarbeit (BMZ/GTZ), Germany; ICLARM core donors	March 1997 - March 2002	Germany: Zoologisches Institut und Zoologisches Museum, Universität Hamburg (ZIM/UH) Ghana: Water Research Institute Belgium: Musée Royale de l'Afrique Centrale	• Completed the collection of samples from *S. melanotheron* populations in its western range (Gambia, Guinea, Sierra Leone, Côte d'Ivoire) and collected more samples in its eastern range (Ghana, Togo, Benin, Nigeria, Cameroon, Equatorial Guinea, Gabon and Congo). • Continued molecular genetic (at ZIM/UH and WRI, Accra) and morphological characterization (at MRAC, Tervuren) characterization of *S. melanotheron* populations. • Continued *S. melanotheron* culture trials (at WRI, Accra).

				• Started testing methods for identification of tilapia species and hybrids (in Ghana). • Held Project team meetings (at ZIM/UH and WRI, Accra) and prepared for an international workshop.
Genetic Diversity of the Silver Barb, *Barbodes* (Puntius) *gonionotus* (Bleeker) in Southeast Asia	Department for International Development (DFID), UK; ICLARM core donors	October 1997 – September 2000	UK: University of Wales, Swansea (UWS)	• Continued survey of genetic variation in the mtDNA control region. • Sequenced the positive microsatellite clones isolated and developed new microsatellite loci. • Completed collection of taxonomic data from museum samples. • Optimized techniques for morphometric analyses of fish based on scanned slide photographs.
Genetic Improvement of Carp Species in Asia	Asian Development Bank (ADB); ICLARM core donors	Phase I: 1997 - 1999	Bangladesh: Bangladesh Fisheries Research Institute (BFRI); Department of Agricultural Finance, Bangladesh Agricultural University China: Freshwater Fisheries Research Center; Shanghai Fisheries University India: Central Institute of Freshwater Aquaculture (CIFA); National Bureau of Fish Genetic Resources Indonesia: Research Institute for Freshwater Fisheries; Universitas Hasanuddin Thailand: Asian Institute of Technology (AIT); National Aquaculture Genetics Research Institute (NAGRI) Vietnam: Research Institute for Aquaculture (RIA) Nos. 1 and 2	• Reported on the analysis of carp genetic research priorities. • Reported on carp genetic resources in Asia. • Reported on status of carp genetic improvement programs in Asia. • Organized final workshop.
Genetic Improvement of Tilapias	DFID; ICLARM core donors; International Development Research Centre (IDRC); United Nations Development Programme (UNDP); United States Agency for International Development (USAID)	5 - 10 years	Philippines: Freshwater Aquaculture Center/Central Luzon State University (FAC/CLSU); GIFT Foundation International, Inc. UK: FishGen University College of Swansea; University of Stirling USA: Auburn University	• Continued mass and family selection in *O. niloticus* and *O. aureaus.* • Identified molecular genetic markers for marker-assisted selection. • Developed protocols to study the potential environmental impact of genetically modified organisms. • Initiated studies to evaluate the comparative performance of the GIFT and other improved strains.

Coastal And Marine Resources Research Program

Title	Source of funds	Duration	Research partners	Milestones achieved in 2000
Village Farming and Restocking of Giant Clams	Currently: US Peace Corps. Previously: Australian Centre for International Agricultural Research (ACIAR); Economic and Social Commission for Asia and the Pacific (ESCAP); EU; FAO South Pacific Aquaculture Development Programme; ICLARM core donors	Operational since 1987. Current phase, mid-1995 - December 1999	Australia: James Cook University (JCU) Fiji: University of the South Pacific Solomon Islands: Ministry of Agriculture and Fisheries (MAF)	• Performed experiments to monitor the survival of trochus, reared in polyculture with giant clams once they are released in the wild. • Continued to supply seed clams to village farmers in the Solomon Islands. • Continued efforts to expand the markets for cultured giant clams by promoting them in the live seafood markets of Asia. • Transferred methods for village farming of giant clams to Tonga. • Prepared publications on the factors affecting mantle color in *Tridacna maxima* and the polyculture of trochus and giant clams. • Presented a paper on poyculture of trochus and giant clams at the World Aquaculture Society Conference. • Initiated a major project to restock giant clams at several places in the Solomon Islands through linking restocking to the farming of clams at village sites.
Development of Village Farms for Blacklip Pearl Oysters in Solomon Islands	ACIAR; ICLARM core donors	Operational since 1993. Current phase, early 1998 - December 2001	Australia: James Cook University (JCU) Fiji: Fisheries Division Solomon Islands: Ministry of Agriculture and Fisheries (MAF)	• First batch of cultured pearls from the Solomon Islands marketed and sold to assist the government to attract investment for the industry. • Canadian scientist recruited to manage the pearl farm at the Nusa Tupe field station. • Reseeded/seeded 3,500 oysters to improve pearl quality. • Papers on the effects of predation on the survival of spat, improved methods for collecting spat, and comparative rates of growth and survival of wild and hatchery-reared spat published. • Reported on the potential for collecting spat of blacklip pearl oysters in Tonga. • Constructed specialized hatchery for the production of pearl oysters and routine production of spat in the hatchery.
Development of Methods for the Mass Rearing of Tropical Sea Cucumbers for the Purpose of Enhancing Wild Stocks	ACIAR; Canadian International Development Agency (CIDA); ICLARM core donors	Operational since 1993. Current phase, January 1995 – December 2000	Australia: Advisory Panel from Advanced Scientific Institutions in Australia, ACIAR; University of Sydney Solomon Islands: MAF	• Recruited project staff for the next stage. • Produced sufficient cultured juvenile *H. scabra* to initiate field experiments on optimal release strategies. • Published papers on protocols for larval rearing of *H. scabra* and the ecology of the juveniles. • Completed major review of the biology, aquaculture and fisheries management of *H. scabra*. • Submitted final report on the first stage of the project to ACIAR. • Completed first release of juvenile *H. scabra* in large-scale experiments to identify optimal release strategies.

Development of New Artisanal Fisheries Based on the Capture and Culture of Postlarval Coral Reef Fish	ACIAR; ICLARM core donors	January 1999 - January 2002	Australia: Australian Institute of Marine Science (AIMS); Queensland Department of Primary Industry Solomon Islands: MAF	• Sampled postlarval fish monthly with light traps and crest nets. • Presented paper at the Ninth International Coral reef Symposium. • Implemented growout trials for selected species. • Trained Scientific Officer from the Division of Fisheries, Solomon Islands, in the use of light traps and crest nets, and the culture of juvenile fish. • Documented temporal variability of postlarval coral reef fishes caught by light traps and crest nets. • Evaluated best method of capturing fish for culture (light traps vs crest nets) and identified species amenable to culture. • Submitted first annual report to ACIAR.
Effects of Alternative Logging Operations on Inshore Marine Ecosystems in the Tropical Western Pacific	Government of New Zealand; ICLARM core donors	October 1998 - October 2003	New Zealand: National Institute of Water and Atmospheric Research Solomon Islands: Kolombangara Forest Products Limited (KFPL); MAF; Ministry of Forests, Environment and Conservation (MFEC)	• Recruited national scientist to: collect information on water turbidity and temperature; to establish and monitor the experiments using marine sentinel species and uniform habitats for freshwater invertebrates; and to coordinate the participation of resource owners in the project. • Reported on the first full sampling of all study sites using the optimum suite of sampling methods and replicates determined by the pilot study. • Presented the final results of the pilot sampling at the Ninth International Coral Reef Symposium. • Presented final report of pilot sampling with recommendations for the best methods and distribution of the sampling effort.
ReefBase	ICLARM core donors; Swedish International Development Agency (SIDA); USAID	January 1999 – March 2001	International/Regional: Global Coral Reef Monitoring Network (GCRMN); WCMC China: Reef Check Program, Hong Kong University of Science and Technology USA: Earth Observations Program, NASA-Johnson Space Center; National Center for Atmospheric Research (NCAR); University of Rhode Island (URI); World Resources Institute (WRI) Others: institutions and individuals who contribute data and pictures to the database	
Application of Rapid Assessment of Management Parameters (RAMP) in ReefBase	USAID; SIDA; ICLARM core donors	November 1997 – March 2001	USA: University of Rhode Island (URI)	• Increased RAMP data in ReefBase. • Normalized RAMP data structure to facilitate efficiency for the database and removed data redundancies.



Population Interdependencies in the South China Sea Ecosystems (PISCES)	UNFIP; ICLARM core donors	January 1997 – June 2000	Indonesia: Environment Study Center, Universitas Pattimura Ambon Malaysia: Universiti Malaya Solomon Islands: Coastal Aquaculture Centre (CAC) Taiwan: Institute of Zoology, Academia Sinica (IZAS) Vietnam: Institute of Oceanography, Department of Marine Living Resources	• Analyzed samples from Northern Taiwan and the Spratly Islands for the model of reef linkages.
Coastal Management Training Program	Rockefeller Brothers Fund; ICLARM core donors	Five years from 1997	Indonesia: Pusat Kajian Sumberdaya Pesisir dan Lautan, Institut Pertanian Bogor (PKSPL-IPB) Philippines: Local Government Academy (LGA) Vietnam: Can Tho University (CTU)	• Assessed gaps in the extant in-country skills, knowledge and attitudes required for ICM through TNA. • Developed framework for country specific curriculum. • Continued consultation with national experts and stakeholders on the ICM training design through government organizations, NGOs, and the private sector. • Solicited external reviews to ensure relevance and maintain standards. • Conducted training courses for local government units. • Institutionalized ICM approaches in Philippine government organizations.
Population, Consumption and Environment Coordination	John D. and Catherine T. MacArthur Foundation; ICLARM core donors	January 1998 – December 2000	International/Regional: Programme for Integrated Development of Artisanal Fisheries in West Africa (IDAF) Congo: Conseil National de Recherche Scientifique et Technique (CNRST) Ecuador: Fundacion Natura; World Wildlife Fund El Salvador: Center for Environmental and Social Studies on Sustainable Development (CEASDES) Ghana: Institute of African Studies, University of Ghana Honduras: Committee for the Defense and Development of the Flora and Fauna in the Gulf of Fonseca (CODDEFFAGOLF) India: National Institute of Oceanography; Tata Energy Research Institute (TERI) Madagascar: Madagascar University Museum Micronesia: Kosrae Department of Agriculture and Land Norway: Christian Michelsen Institute (CMI) Philippines: University of the Philippines (UP) USA: Institute for International Studies, Stanford University; Institute of Pacific Islands Forestry, Honolulu; International	• Organized the last workshop for the 26 collaborators. • Assisted in synthesizing the results of the studies made by the collaborators and coordinated the publication of the results

			Center for Research on Women (ICRW); The Nature Conservancy (TNC); Office of Population Research, Princeton University; University of Connecticut; URI; World Wildlife Fund Zimbabwe: Center for Applied Social Sciences (CASS), University of Zimbabwe	
International Coral Reef Action Network (ICRAN)	UNFIP; ICLARM core donors	June 2000 – June 2004	International: Coral Reef Alliance; Global Coral Reef Monitoring Network; International Coral Reef Initiative-Coordinating and Planning Committee; World Conservation Monitoring Centre; World Resources Institute (WRI); United Nations Environment Programme (UNEP)	• Developed comprehensive strategic action plan and plan for raising matching funds. Provided Reefs at Risk in Southeast Asia management advice for the region in a GIS and map-based format.
Tropical Fish Stock Assessment	ICLARM core donors	Indefinite	Predominantly in-house, with informal linkages with various research institutions	• Maintained the software for distribution. • Developed a biomass estimation module/analysis for testing the use of marine protected areas to manage fisheries for tropical coral reef invertebrates in the Arnavon Islands.
Modeling of Multispecies Fisheries	Danida; ICLARM core donors	Continuing since February 1990	Canada: Fisheries Centre, UBC Denmark: North Sea Centre (NSC)	• Officially released Ecopath with Ecosim 4.0.
Regional Technical Assistance on Sustainable Management of Coastal Fish Stocks in Asia	ADB; ICLARM core donors	1998 – 2001	Bangladesh: Bangladesh Fisheries Research Institute (FRI); Department of Fisheries (DOF); University of Chittagong India: Central Marine Fisheries Research Institute; Indian Council for Agricultural Research (ICAR) Indonesia: Central Research Institute for Fisheries (CRIFI); Directorate of Fisheries Resource Management Malaysia: Department of Fisheries (DOF); Fisheries Research Institute Philippines: Bureau of Fisheries and Aquatic Resources (BFAR); University of the Philippines in the Visayas (UPV) Sri Lanka: Ministry of Fisheries and Aquatic Resources Development Thailand: Department of Fisheries (DOF); Southern Marine Fisheries Development Center Vietnam: Ministry of Fisheries; Research Institute for Marine Products	• Finalized technical reports on the resource analysis and socieconomic component. • Reviewed the Fisheries Resource Information System and Tools (FiRST) 2000 version and printed the FiRST user manual. • Finalized the eight national strategies and action plans. • Organized and conducted the regional consultative planning and final workshop. • Prepared the RETA technical reports and regional workshop proceedings for publication. • Prepared final technical/ financial reports.
Testing the Use of Marine Protected Areas to Manage Fisheries for Tropical Coral Reef Invertebrates – Arnavon Islands	ACIAR; ICLARM core donors	October 1994 - September 1999	Australia: Great Barrier Reef Marine Park Authority (GBRMPA) Solomon Islands: MAF; MFEC USA: TNC	• Wrote papers for Naga and scientific journals about the project and the effects of fishing closure for three years. • Prepared a proposal to continue monitoring the MCA in collaboration with a consultant. • Estimated abundances of invertebrates four years after closure.

Caribbean Marine Protected Areas Project: The Role of Marine Protected Areas in Fisheries Management and Biodiversity Conservation in Coral Reef Ecosystems	DFID; ICLARM core donors	January 1999 - December 2001	British Virgin Islands: Conservation and Fisheries Department; H. Lavity Stout Community College Jamaica: CMS-UWI	• Developed preliminary Ecopath models of the ecosystems of Hans Creek, BVI, and Discovery Bay, Jamaica, including estimates of biomasses of system components at quarterly intervals, estimates of growth and mortality rates of principal species, catch data and trophic interrelationships, and then focused data collection on refining the models.

Freshwater Resources Research Program

Title	Source of funds	Duration	Research partners	Milestones achieved in 2000
Integrated Resources Management (IRM) Group and Development of RESTORE Software	ICLARM core donors	1991 - 1999	Bangladesh: national collaborators Cameroon: national collaborators Malawi: national collaborators Philippines: national collaborators Other countries: Approximately 200 requesters of the package	• Further working relationships with ongoing projects established to further test and evaluate RESTORE.
Research for Development of Sustainable Aquaculture Practices	USAID; ICLARM core donors	June 1993 – December 2000	Bangladesh: BFRI Others: various NGOs	• Continued linkages with government organizations and an active network of collaborating NGOs for training in IAA technology. • Monitored NGO outreach and continued field demonstrations. • Completed analysis of results, further adoptive research, another round of NGO participation and formulation of a new project proposal in the nine-month project extension to September 2000. • Completed 12,700 on-farm demonstrations. • Commissioned 13 small research projects with universities, BFRI and NGOs. • Trained 167 NGO trainers of trainers who in turn trained 6,388 farmers in 252 batches in the Spring of 2000.
Development of Sustainable Aquaculture Project	USAID; ICLARM core donors	October 2000 – July 2005	Bangladesh: BFRI Others: BAU and various NGOs	• Initiated 6,900 new on-farm demonstrations involving 17 NGOs.
Aquaculture Research and Development for Smallholder Farms in Southern Africa	Danish International Development Assistance (Danida); ICLARM core donors	1996 - 2000	International/Regional: Aquaculture for Local Community Development Programme (ALCOM), FAO Malawi: Fisheries Department; Ministry of Agriculture and Livestock Development; University of Malawi	• Expanded pilot phase on the implementation of RET approach to cover 300 farmers in the southern region of Malawi. • Continued monitoring at MSEP and initiated monitoring for the Lake Chilwa Wetland and Catchment Management Project. • Prepared technical report on MSEP. • Conducted IAA technology study on identification of factors regulating nitrogen retention in IAA systems.

Upland Integrated Aquaculture-Agriculture Systems in Forest Buffer Zone Management	BMZ/GTZ; Philippine/ Germany Community Forestry Project-Quirino (CFPQ); ICLARM core donors	July 1996 - December 1999	Philippines: CFPQ/GTZ/ Department of Environment and Natural Resources (DENR); Peoples Organizations (POs) of barangays Baguio Village and Don Mariano Perez	• Completed PhD thesis on gender analysis of IAA.
Development of Integrated Agriculture-Aquaculture Systems for Small-Scale Farmers in the Forest Margins of Cameroon	Department of International Development; ICLARM core donors	September 2000 – August 2005	International: International Institute of Tropical Agriculture (IITA) Cameroon: Institut de Recherche Agricole pour le Développment de Cameroun (IRAD), Ministere de l'Elévage des Pêches et des Industries Animales de Cameroun (MINEPIA)	• Implementation phase. Rehabilitated research station, set up office, selected personnel and research sites.
Increasing and Sustaining the Productivity of Fish and Rice in the Flood -prone Ecosystem in South and Southeast Asia	Ford Foundation; International Fund for Agricultural Development (IFAD); ICLARM core donors	June 1997 - May 2000	International/Regional: International Rice Research Institute (IRRI) Bangladesh: BFRI; Bangladesh Rice Research Institute; Proshika Manobik Unnayan Kendra (MUK) Vietnam: RIA Nos. 1 and 2; Vietnam Agricultural Science Institute (VASI)	• Completed second-year trials in all sites. • Analyzed survey and experiment production data. • Analyzed institutional and organizational arrangements in Bangladesh and Vietnam. • Held concluding workshop in Bangladesh, synthesizing project results and presenting recommendations.

Policy Research And Impact Assessment Program

Title	Source of funds	Duration	Research partners	Milestones achieved in 2000
Valuation and Policy Analysis for Sustainable Management of Coral Reefs (in conjunction with ReefBase project, CMRRP)	ICLARM core donors; SIDA	October 1998 – March 2001	University of the Philippines, Marine Science Institute	• Continued the review of valuation techniques. • Presented findings from the case study in Balinao, Philippines at the International Society for Ecological Economics 2000 Conference 8 July 2000 Economic valuation of the Balinao coral reefs in the Philippines: an application of non-market valuation techniques. • Contributed to the economic valuation module in ReefBase database. This is a database on economic values compiled from valuation studies on coral reef systems.
Database for the Assessment of Developing Country Fisheries	ICLARM core donors IDRC, Canada	1997 – 2000	International/Regional: FAO; Intergovernmental Organization for Marketing Information and Technical Advisory Services for Fishery Products in Asia and Pacific Region (INFOFISH); Network of Aquaculture Centres in Asia-Pacific (NACA) Others: to be identified	• Continued compiling fishery statistics data from existing literature. • Continued interacting with INFOFISH for the study on database on prices and markets for fish and seafood products in developing countries; collection of information on fish species and product grouping in relation to price, market and market share to benefit small-scale suppliers

				and producers of diversified fish and seafood products. • Gathered data and derived parameters for the IMPACT model with IFPRI and in collaboration with FAO. • Submitted project proposal Fish to 2020 to IDRC for funding and received positive response.
Socioeconomic and Bioeconomic Analysis of Coastal Fish Stocks in Asia (in conjunction with ADB-RETA 5766 Sustainable Management of Coastal Fish Stocks in Asia, CMRRP)	ADB; ICLARM core donors	1998 – 2001	Bangladesh: Chittagong University India: Central Marine Fisheries Research Institute Indonesia: Directorate General of Fisheries Malaysia: DOF; FRI Philippines: UPV; BFAR Sri Lanka: Ministry of Fisheries and Aquatic Resources Development Thailand: DOF; Southern Marine Fisheries Development Center Vietnam: Research Institute for Marine Products	• Participated in the national workshops conducted by the eight country collaborators where results of the socioeconomic component were presented. • Prepared a regional paper 'A socioeconomic analysis of sustainable management of coastal fish stocks in Asia' using information provided by collaborators. • Provided technical inputs to national and regional fisheries management and planning, and to the formulation of national development strategies and action plans. • Started preparing the terminal socioeconomic component report as part of the final project report.
Assessment of the Contribution of Aquatic Resources in the Mekong River Basin to Food and Nutritional Security of the Fishing and Farming Population	Oxfam America; SEARO; ICLARM core donors	1998 – 2000	International/Regional: International Institute of Rural Reconstruction (IIRR) USA: Institute for Development Anthropology (IDA) Vietnam: CTU	• Completed the draft of the project technical report. • Submitted follow-up project proposal entitled Community Assessment Management and Monitoring of Local Aquatic Resources for Improved Food Security in the Mekong Basin. Approval received July 2000.
Community Assessment Management and Monitoring of Local Aquatic Resources for Improved Food Security in the Mekong Basin	Oxfam America; SEARO; ICLARM core donors	July 2000 - June 2001	International/Regional: International Institute of Rural Reconstruction (IIRR) Lao PDR: Pakse Southern Agricultural College (PSAC) Vietnam: CTU	• Training workshop 'Participatory research on management and monitoring of local aquatic resources systems' CTU, 3-15 December 2000. • Completed workshop report documenting training and fieldwork. • Continued collaboration with CTU on the research design for the establishment of the fish conservation zone.
Developing an Appropriate Fishery Extension System for Transfer of Technology Based on Evaluation of Existing Alternative Extension Approaches	IFAD; ICLARM core donors	October 1997 – June 2000	Bangladesh: DOF	• Competed analysis of survey data. • Held a local workshop with farmers in Kapasia to assess the results of monitoring and the potential for improving their farming systems, including aquaculture. • Held a national workshop on the sustainability of aquaculture and the assessment of extension approaches. • Completed project report.

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Legal and Institutional Frameworks and Economic Valuation of Resources and Environment in the Mekong River Region - A Wetlands Approach	SIDA; ICLARM core donors	Preparatory phase, October 1998 – June 2000; implementation phase, July 2000 – December 2003	International/Regional: Mekong River Commission (MRC); AIT; IUCN Sweden: Lund University; University of Gothenburg Cambodia: DOF; others to be identified Lao PDR: Department of Livestock and Fisheries through the Regional Development Center; others to be identified Thailand: DOF through the Office of Environmental Policy and Planning; Coastal Resources Institute (CORIN) of the Prince of Songkhla University (PSU); others to be identified Vietnam: College of Agriculture and Forestry; others to be identified	• Strengthened links and framework of collaboration with MRC, AIT, riparian countries and institutions in Sweden. • Held workshops with partners in Thailand, Cambodia, Lao PDR and Vietnam and established detailed activity plans.
Institutional Capacity Building for Community-based Fisheries Management in Bangladesh	Ford Foundation; ICLARM core donors	1 January 1997 - 31 December 2000	Bangladesh: Banchte Shekha; Bangladesh Rural Advancement Committee (BRAC); Caritas; Center for Natural Resource Studies (CNRS); CRED; DOF; Proshika MUK Philippines: Tambuyog Development Center	• Finalized project report and manual.
Methods for Consensus Building for Management of Common Property Resources	DFID; ICLARM core donors	February 2000 – March 2001	Bangladesh: CNRS; Banchte Shekha; Bangladesh Centre for Advanced Studies (BCAS); Caritas UK: Centre for Land Use and Water Resources Research, University of Newcastle; Department of Anthropology, University of Durham; Centre for Economics and Management of Aquatic Resources, University of Portsmouth	• Held project planning meeting with partners to agree on sites, roles and responsibilities, and established a project steering group. • Reviewed CBFM and CPR projects to develop a typology of consensus-building methods for CPR management. • Reviewed literature on consensual resource management, stakeholder methods and conflict resolution/conflict management and community management of CPR. • Undertook stakeholder-based analysis of the constraints to consensual management of CPR. • Tested the system-based workshop methods developed by the Land-Water Interface project to facilitate consensus and accommodation in floodplain resources management, and modified the method in iterative cycles. • Undertook studies on means of building consensus among different stakeholders in fisheries and wetlands.
Coastal Resource Co-Management Project: A Worldwide Collaborative Research Project (Phase II)	Danida; ICLARM core donors	January 1999 – December 2003	International/Regional: CARICOM Fisheries Resource Assessment and Management Program; Programme for IDAF; Southeast Asian Fisheries Development Center-Aquaculture Department (SEAFDEC-AQD);	• Built on Phase I research and developed new directions in order to generate more specific information for policy and practical applications. • Carried out policy analysis and hypothesis testing.

			Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) Bangladesh: Chittagong University Denmark: Institute of Fisheries Management and Coastal Community Development (IFM); NSC Indonesia: Directorate General of Fisheries; Indonesian Fisheries Socioeconomic Research Network; Research Institute for Marine Fisheries (RIMF); Universitas Pattimura Ambon; Yayasan Hualopu Lao PDR: Living Aquatic Resources Research Center Malawi: Chancellor College; Fisheries Department Malaysia: Universiti Putra Malaysia (UPM) Mozambique: Institute for Development of Small-scale Fisheries Philippines: College of Public Administration, UP; DENR; Haribon Foundation; Palawan Council for Sustainable Development; Tambuyog Development Center; UPV South Africa: Sea Fisheries Research Institute; University of Cape Town Thailand: DOF; Andaman Sea Fisheries Development Center; Kasetsart University; CORIN, PSU Vietnam: CTU; Ministry of Fisheries; National Center for Social Sciences Zambia: DOF Zimbabwe: Center for Applied Social Sciences, University of Zimbabwe; Lake Kariba Fisheries Research Institute	• Developed and monitored case studies to provide new insights. • Carried out research on hypothesis testing and institutional, policy and legal aspects of co-management approaches to fisheries management. • Held workshops to disseminate information on the applicability of co-management for policymakers and resource managers. • Provided technical assistance to co-management initiatives of NARS partners. • Drafted a policy brief incorporating the key findings from Phase I of the research for policymakers and researchers. • Edited the Proceedings of The International Co-Management Workshop.
Interdisciplinary Multivariate Analysis (IMA) for Adaptive Co-management	DFID; ICLARM core donors	October 2000 – September 2001	Denmark: IFM, NSC UK: The Statistical Services Center, University of Reading Others: Marine Resources Assessment Group (MRAG) Ltd; NARS	• Developed and tested an interdisciplinary multivariate statistical methodology to identify conditions and arrangements leading to desirable fisheries related livelihood outcomes. • Compiled profiles of co-managed artisanal fisheries describing their livelihood assets, management strategies, transforming structures and processes from Thailand, Indonesia, Philippines, Vietnam, Lao PDR, Malawi, Zambia, Mozambique and South Africa.
Community-based Fisheries Management Policy Research on User-based	DFID; ICLARM core donors	Preparation: January 2000 – March 2001; Implementation: April 2001 – March 2006	Bangladesh: Banchte Shekha; Bangladesh Environmental Lawyers Association (BELA); BRAC; Caritas; Centre for Natural Resources Studies (CNRS); DOF; FemCom; Proshika MUK	• Completed the monitoring program in CBFM-I sites. • Design of CBFM-II completed and approved by DFID.

Management: the Case of Inland Openwater Fisheries of Bangladesh				• Component plans prepared with partners and awaiting government of Bangladesh approval.
CGIAR System-wide Initiative on Property Rights and Collective Action	ICLARM core donors			• Presented papers at International Workshop on Watershed Management, Managua, Nicaragua 13-16 March 2000 and Workshop on Participatory Research and Gender Analysis, Nairobi, Kenya 6-10 November 2000.

Partnerships Information And Training Program

Title	Source of funds	Duration	Research partners	Milestones achieved in 2000
International partnerships	ICLARM core donors	Continuous	National, regional, and international institutions	• Continued strengthening/ developing research partnerships with national/regional and international institutions/ organizations. • Analyzed data from survey of partners and initiated actions for improving partnerships. • Published Proceedings of the First Meeting of APAARI; Technical Report on Integrated Rice-Fish farming. • Assisted NARS scientists in capacity building. • Publication of Aquabyte and NTAFP news sections in Naga.
International Network on Genetics in Aquaculture (INGA)	Government of Norway; IDRC; ICLARM core donors	Continuous	International/Regional: Food and Agriculture Organization of the United Nations; South East Asian Fisheries Development Center Australia: Queensland University of Technology Bangladesh: Bangladesh Fisheries Research Institute (FRI) China: Shanghai Fisheries University; Freshwater Fisheries Research Centre (FFRC) Côte d'Ivoire: Centre National de Recherche Agronomique (CNRA) Egypt: Central Laboratory for Aquaculture Research (CLAR) Fiji: Ministry of Agriculture, Fisheries and Forestry Ghana: Water Research Institute (WRI) Hungary: Fish Culture Research Institute India: Central Institute of Freshwater Aquaculture (CIFA); National Bureau of Fish Genetic Resources (NBFGR); University of Agricultural Sciences (UAS)	• Assisted implementation of national breeding programs in member countries. • Continued regional research project in Côte d'Ivoire, Egypt, Ghana, and Malawi. • Exchanged genetic materials, complying with material transfer agreements and strict quarantine protocols. • Established INGA web page. • Finalized proceedings of the 5th INGA Steering Committee meeting for publication. • Provided technical backstopping and support to initiation of ICLARM's tilapia genetic improvement program in Malaysia. • Published INGA News section in Naga.



			Indonesia: Research Institute for Freshwater Fisheries (RIFF) Israel: Agricultural Research Organization Japan: National Research Institute of Aquaculture Malawi: University of Malawi Malaysia: Universiti Malaya Philippines: Bureau of Fisheries and Aquatic Resources (BFAR); Freshwater Aquaculture Center/ Central Luzon State University (FAC/CLSU) Thailand: National Aquaculture Genetics Research Institute (NAGRI) The Netherlands: Wageningen Agricultural University Norway: Institute of Aquaculture Research Ltd. United Kingdom: University of Stirling; University of Wales Swansea USA Auburn University Vietnam: Research Institute for Aquaculture (RIA) No. 1; Research Institute for Aquaculture (RIA) No. 2	
Asian Fisheries Social Science Research Network	Asian Fisheries Society; ICLARM core donors	Continuous	International/Regional: Economics Section, Research Division, Southeast Asian Fisheries Development Center-Aquaculture Department (SEAFDEC-AQD) Indonesia: Central Research Institute for Fisheries (CRIFI); Faculty of Economics, Universitas Diponegoro (UNDIP); Research Institute for Marine Fisheries (RIMF) Malaysia: Faculty of Economics and Administration, Universiti Malaya; Natural Resource Economics Department, Universiti Putra Malaysia (UPM) Philippines: Bureau of Fisheries and Aquatic Resources (BFAR); Department of Agricultural Economics, College of Economics and Management, University of the Philippines at Los Baños (UPLB); Faculty of Arts and Sciences, University of the Philippines in the Visayas (UPV); Freshwater Aquaculture Center/ Central Luzon State University (FAC/CLSU) Thailand: Coastal Resources Institute, Prince of Songkla University; Department of Agricultural and Resource Economics, Faculty of Economics and Business Administration, Kasetsart University (KU); Fisheries Economics Research Subdivision, Department of Fisheries (DOF) Vietnam: Can Tho University (CTU); Ministry of Fisheries	• Held annual meeting of the Network in Penang on October 20, 2000 and elected the executive committee. • Continued research collaboration of network members in the coastal resources co-management project managed by ICLARM. • Contributed news and articles to the AFSSRN News section in the Naga the ICLARM Quarterly.

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Network of Tropical Aquaculture and Fisheries Professionals	ICLARM core donors	Continuous		• Reviewed papers for Aquabyte and Fishbyte sections of Naga submitted by members. • Provided literature searches, and published materials to members.
Information & Communication	ICLARM core donors	Ongoing		• Managed and directed Information Services and Communications Units. • Continued center-level and system-wide involvement.
Dissemination of ICLARM's Research and Related Activities	ICLARM core donors	Ongoing	Various external authors contributing manuscripts; a few authors on commission; external reviewers	• Constructed new mailing list and order fulfillment database and entered data.
Information Services	ICLARM core donors	Ongoing	Exchange agreements with 155 aquatic resource libraries or institutions worldwide	• Set up ICLARM library in temporary offices in Penang. • Continued cooperation and resource sharing with other fisheries and aquatic resources libraries worldwide.
Public Awareness	ICLARM core donors	Ongoing	CGIAR System-wide PA	• Continued to assist with development of fundraising strategy. • Implemented updated corporate identity. • Updated donors on progress of the move of ICLARM headquarters. • Developed and issued news releases and background stories to promote the importance of fisheries issues and ICLARM's work. • Published Impact flyers on the impact of ICLARM's research and produced Focus for Research flyers.

WORKSHOPS, TRAINING COURSES

Date/event/topic	Location	Number of participants	Participating countries/ institutions	Resources and collaborative support
21 March – 7 April 2000 Training Workshop on Socioeconomic and Genetic Analysis on Genetic Improvement of Carp Species in Asia Project	Penang, Malaysia	25	Bangladesh: Department of Agricultural Finance, Bangladesh Agricultural University; China: Freshwater Fisheries Research Centre, Shanghai Fisheries University India: Central Institute of freshwater Aquaculture, University of Agricultural Sciences, Indian Council of Agricultural Research; Indonesia: Central Research Institute for Fisheries, Indonesian Fisheries Socio-economic Research Network Thailand: National Aquaculture Genetics Research Institutes, Department of Fisheries Vietnam: Vietnam Agricultural Statistics Institute and Research Institute for Aquaculture 1 and 2	ICLARM, ADB
10-11 April 2000 Department of Fisheries, Malaysia – ICLARM Meeting on Collaborative Research in Fisheries	Fisheries Research Institute, Penang, Malaysia	35 representatives	Fisheries Research Institute, Malaysia; Department of Fisheries, Malaysia; ICLARM	ICLARM and Department of Fisheries, Malaysia
30 March 2000 Workshop on Participatory Approaches in Aquaculture	Bangkok	21	Fisheries Department, FAO Rome; Institute of Aquaculture, Stirling University	FAO
15 –20 May 2000, Fisheries Co-management Project Training Workshop for African Partners.	Cape Town, South Africa	20 research scientist and fisheries department staff	Malawi: Department of Fisheries; Mozambique: Institute for Small Scale Fisheries Development (IDPPE); Zambia: Department of Fisheries; South Africa: University of Western Cape and University of Cape Town; Denmark: Institute for Fisheries Management and Community Development,(IFM).	ICLARM, co-management project funds, University of Western Cape, IFM.
13 June 2000 The purpose, methods, and expected outputs from experimental fishing	Puerto Princesa City, Philippines	20 research staff and local government officials	Local government units, law enforcement agencies, non-government organizations and community members	BFAR PCSDS SPCP

6-10 November 2000 Ecopath with Ecosim (version 4) Training Course	UBC Fisheries Centre	20 research scientists	Canada, USA, Hong Kong, Germany, Philippines	UBC
31 May – 8 June 2000, Bioeconomic Analytical Modeling Workshop on the Thai demersal fisheries in the Gulf of Thailand	Hua Hin, Thailand	30 research scientists	Italy: Food and Agriculture Organization, Rome Thailand: Department of Fisheries (DOF); Southern Marine Fisheries Development Center (SMDEC), Songhkla; Kasetsart University DOF, SMDEC, Kasetsart University, FAO	FAO, ICLARM, DOF, Thailand
30 June – 2 July 2000, Training on Water Quality Assessment	Puerto Princesa City, Palawan, Philippines	15 researchers, teaching staff	Philippines: State Polytechnic College of Palawan (SPCP); Palawan Council for Sustainable Development (PCSD); Bureau of Fisheries and Aquatic Resources – Region 4 under the Department of Agriculture (BFAR-DA)	Fisheries Resources Management Program of the Philippines (FRMP), SPCP, PCSD, BFAR-DA
17-20 July 2000 FAO workshop on ecosystem-based fisheries management	UBC Fisheries Centre, Vancouver	40 scientists	Japan, China, Hong Kong, Thailand, Indonesia, Australia, Malawi, South Africa, Namibia, Argentina, Brazil, Chile, Colombia, USA, Canada, Italy, England	Government of Japan
FishBase course in ichthyology for University teaching	online	220 - 1,000 users per month		UBC, Canada
Lectures on LarvalBase (and Fishbase)	University of Sao Paulo, Brazil	20 high level staff from universities and research institutions	Universidade Federal Fluminense, Faculdade de Veterinaria Department de Zootechnica in Niteroi, Brazil	German-Brazil bilateral cooperation agreement (WTZ).
11 & 12 April 2000, Inception meeting to initiate RSA-DBD activities	SEARCA, Lao Banco, Laguna, Philippines	25 participants	DA - BFAR, Philippines	DA - BFAR, ICLARM, SEARCA.
1-5 March 1999 PCE workshop	Philippines	45 Representatives/ collaborators from the first and second sets of grantees of the PCE Program	Indonesia, Hong Kong, India, Vietnam, El Salvador, Honduras, Micronesia, Ghava, Zambia, Thailand, Madagascar, Ecuador, Philippines	MacArthur Foundation
8 - 25 November 1999 E-mail Conference on 'Property Rights, Devolution and Compliance in Natural Resource Management in Developing Countries'				

28-29 September 2000, "Legal and Institutional Frameworks and Economic Valuation of Resources and Environment in the Mekong River Region - A Wetlands Approach" project	Vientianne, Lao PDR	17 participants from different agencies involved in wetland use and management in Lao PDR as well as representatives from regional/institutional organizations operating in the country	Lao PDR: Agriculture and Forestry Service of Vientianne Province; Borikhamsay Agriculture and Forestry Office; Department of Agriculture and Forestry of Savannakhet Province; Division of Forest Resources Management; Fisheries Division, Department of Fisheries and Livestock; Lao National Mekong Committee Secretariat; Living Aquatic Resources Research Center; Mekong River Commission; MRC Fisheries Programme; Provincial Agriculture and Forestry Office, Champassak Province; Provincial Agriculture and Forestry Office, Khammuane Province; Regional Development Coordination; Regional Development Coordination (RDC) for Livestock and Fisheries in Southern Laos; Science, Technology and Environment Agency; Soil Survey and Land Classification Center	Regional Development Centre; Living Aquatic Resources Research Center; Mekong River Commission; Asian Institute of Technology-Aquaculture and Aquatic Resources Management (AIT-AARM) Cambodia
Hat Yai, Thailand.	2-7 October 2000, Fisheries Co-management Project Workshop for Asian Partners.	20 research scientist and fisheries department staff	Regional: South east Asian Fisheries Development Center (SEAFDEC) – Aquaculture Department Cambodia: Department of Fisheries; Indonesia: Department of Fisheries, Universiti Diponegoro; Malaysia: Universiti Putra Malaysia; Philippines: University of the Philippines in the Visayas; Thailand: Department of Fisheries; Prince of Songkla University, CORIN (Coastal Resources Institute) Vietnam: Institute for Fisheries Economics and Planning (IFEP) USA: World Resources Institute (WRI)	ICLARM, co-management project funds, CORIN and WRI
Siem Reap, Cambodia	11-12 October 2000, "Legal and Institutional Frameworks and Economic Valuation of Resources and Environment in the Mekong River Region - A Wetlands Approach" project	24 participants from different agencies in wetland use and management in Cambodia as well as representatives from regional/institutional organizations operating in the country	Cambodia: Asian Development Bank – Protection and Management of Critical Wetlands in the Lower Mekong Basin; Asian Institute of Technology-Aquaculture and Aquatic Resources Management (AIT-AARM) Cambodia;	Department of Fisheries; Mekong River Commission; Asian Institute of Technology-Aquaculture and Aquatic Resources Management (AIT-AARM) Cambodia

			MRC Assessment of Mekong Fisheries Component; Cambodia National Mekong Committee; Department of Agronomy and Agricultural Land Improvement; Department of Fisheries; Environment and Natural Resources Planning, Ministry of Environment; IUCN-Cambodia; Ministry of Environment; Ministry of Rural Development; Ministry of Tourism; MRD/DoF/Danida project for the Management of Freshwater Capture Fisheries of Cambodia; Participatory Natural Resources Management In The Tonle Sap Region; Smithsonian Tropical Research Institute (STRI); Wetlands International	
Two training courses on participatory aquaculture research and extension methodologies	ICLARM Office National Aquaculture Center, Domasi, Malawi	11 Malawi NARS staff and a Zambian Training Officer	Department of Fisheries, Malawi; Mbowe Sustainable Ecofarming Project; Action Aid (Malawi); University of Malawi	USAID
Beijing, China	1 November 2000 Meeting with Chinese NARS institutions.	70 scientists from ICLARM and Chinese institutions.	35 national fisheries institutions in China.	ICLARM, China Fisheries Society (Beijing)
Hat Yai, Thailand	13-15 November 2000, "Legal and Institutional Frameworks and Economic Valuation of Resources and Environment in the Mekong River Region - A Wetlands Approach" project	22 participants from different agencies and some NGOs involved in wetland use and management in Thailand as well as representatives from regional/institutional organizations operating in the country	Thailand: Coastal Resources Institute (CORIN) – Prince of Songkhla University; Department of Fisheries; Division of Land Use Planning; Faculty of Fisheries, Kasetsart University; Look South Group; Mahidol University; Office of Environmental Policy and Planning; Provincial Governor's Office – Pattalung Province; Regional Environment Office 12; Royal Forest Department; Songkhla Inland Fisheries Station; Southern Development Center (SDC)	Mekong River Commission; Asian Institute of Technology-Aquaculture and Aquatic Resources Management (AIT-AARM) Cambodia; Coastal Resources Institute (CORIN) – Prince of Songkhla University
Freshwater Fisheries Research Centre, Wuxi, China	14-17 November 2000, Final Workshop on Genetic Improvement of Carp Species in Asia	25	Bangladesh: Department of Agricultural Finance, Bangladesh Agricultural University; China: Freshwater Fisheries Research Centre, Shanghai Fisheries University	ICLARM, Freshwater Fisheries Research Centre, China

			India: Central Institute of Freshwater Aquaculture, University of Agricultural Sciences, Indian Council of Agricultural Research; Indonesia: Central Research Institute for Fisheries, Indonesian Fisheries Socio-economic Research Network Thailand: National Aquaculture Genetics Research Institutes, Department of Fisheries Vietnam: Vietnam Agricultural Statistics Institute, Research Institute for Aquaculture 1 and 2	
5 - 13 December, 2000. Training on participatory research methods on management and monitoring of local aquatic resources system	Can Tho University, Vietnam	25	Staff of Can Tho University (CTU), Vietnam and Pakse Southern Agricultural College (PSAC), Lao PDR Vietnam: CTU Lao PDR: PSAC	Can Tho University, Oxfam, ICLARM
11-13 December 2000, "Legal and Institutional Frameworks and Economic Valuation of Resources and Environment in the Mekong River Region - A Wetlands Approach" project, Regional Workshop	Siem Reap, Cambodia	34 participants from the riparian countries in the Lower Mekong Basin and some representatives from regional/ international organizations operating in the region	Regional/International: IUCN South & Southeast Asia Regional Coordination Office; Mekong River Commission; UNEP Environment Assessment Program for Asia and the Pacific; Wetlands International Cambodia: Asian Institute of Technology-Aquaculture and Aquatic Resources Management (AIT-AARM) Cambodia; Assessment of Mekong Fisheries Component; Cambodia National Mekong Committee; Department of Fisheries; Department of Agronomy and Agricultural Land Improvement; Environment and Natural Resources Planning, Ministry of Environment; IUCN-Cambodia; Ministry of Environment; Participatory Natural Resources Management In The Tonle Sap Region;	Mekong River Commission; Asian Institute of Technology-Aquaculture and Aquatic Resources Management (AIT-AARM); Department of Fisheries - Cambodia

			Project for the Management of Freshwater Capture Fisheries of Cambodia; Office of Energy Cooperation; Science, Technology and Environment Agency Lao PDR: Department of Livestock and Fisheries; Lao National Mekong Committee Secretariat; Living Aquatic Resources Research Center; Provincial Agriculture and Forestry Office, Champassak Province; Regional Development Coordination Thailand: Coastal Resources Institute – Prince of Songkhla University; Department of Fisheries; Department of Land Development; Mahidol University; Udon Thani Fisheries Development Center; Office of Environmental Policy and Planning Vietnam: Science Section, Sub-FIPI, Secretary of Vietnam Wetland Team; Sub-FIPI, National Coordinator of Vietnam Wetland Team; University of Agriculture and Forestry, Ho Chi Minh City; Vietnam National Environment Agency Mekong River Commission; Asian Institute of Technology-Aquaculture and Aquatic Resources Management (AIT-AARM) Cambodia; Department of Fisheries - Cambodia	
Spring 2000 Training courses for NGO training of trainers	ICLARM Office, Dhaka, Bangladesh	176	21 NGOs in Bangladesh	USAID
25-26 January Review workshop on aquaculture technology with the cooperation of BFRI	Mymensingh	50	NARS, BAU, DoF	USAID, BFRI
26 February Regional workshop with fish hatchery and nursery operators	Mymensingh	75	Producer associations, DoF	USAID

25 March Regional workshop with fish hatchery and nursery operators	Bogra	75	Producer associations, DoF	USAID
Workshop on production and outreach methods	Bangladesh	250	NGOs and DoF	USAID
13 December National workshop on Effective Aquaculture Technology Demonstrations	Dhaka	54	NGOs and other stakeholders	USAID, BFRI, BAU, NGOS in Bangladesh, DFID
18 - 28 September Utilizing different aquatic environments for small-scale aquaculture: a workshop to produce a resource book	IIRR, Silang, Cavite, Philippines	37	IIRR; IDRC; FAO; AIT; NACA; SEAFDEC	IDRC; FAO; Royal Netherlands Embassy, Manila; ICLARM
June 2000. Training of trainers at 4 locations	Field	93 NGO extension staff	NGOS in Bangladesh	USAID

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ENVIRONMENT PARTNERS

ADVISORY SERVICES

M. Ahmed. Associate Editor, Asian Fisheries Science.

M. Ahmed. Executive Committee, International Institute for Fisheries Economics and Trade (IIFET), and Scientific Committee Member for IIFET 2000 held 10-14 July in Oregon State University, USA.

M. Ahmed. Steering Committee. System-wide project Collective Action and Property Rights (CAPRi) being coordinated by Ruth Menzen-Dick from IFPRI.

M Ahmed, Reviewer and adviser for Asian Fisheries Society (AFS) funded research projects.

M Ahmed, Scientific Adviser, International Foundation for Science (IFS), Stockholm, Sweden.

M. Gupta. Editor, Aquabyte section, Naga.

M. Gupta. Editor, INGA and NTAFP News Section, Naga.

M. Gupta. Advisor/Reviewer of Lao PDR aquaculture sector and development of research plans (contract with Living Aquatic Resources Research Center, Lao PDR).

M. Gupta. Secretary, Asian Fisheries Society.

M. Gupta, Member, Editorial Board of Journal of Applied Aquaculture.

M. Gupta, Member, Editorial Advisory Board, Journal of Applied Fisheries and Aquaculture.

M. Gupta, examiner of Ph. D theses of University of Calcutta and Kalyani University.

G. Silvestre. Editor Fishbyte section, Naga.

M. Torell. Advisory services to the MRC Wetlands Programme on institutional and legal aspects as part of the (informal) cooperation between ICLARM and MRC on wetlands (to be formalized during the implementation phase of the "ICLARM Mekong Wetland Approach").

M. Torell. Advisory services to the Socioeconomic and Bioeconomic Analysis of Coastal Fish Stocks in Asia in relation to institutional and legal aspects. The project is funded by ADB-RETA 5766 "Sustainable Management of Coastal Fish Stocks in Asia" under the CMRRP.

M. Torell. Regional Advisor to SIDA - an equivalent of 50% of the time was spent following up Sida supported programmes and projects in Southeast Asia.

M Torell, Advisory services to the Coastal Resources Institute in Had Yai in preparation of wetland awareness raising material.

K.K. Viswanathan. Editorial Board Member. Asia Pacific Journal of Management Science.

K.K. Viswanathan. Editorial Board Member. Malaysian Journal of Agricultural Economics.

KK Viswanathan, Editorial Board Member. Asia Pacific Journal of Management Science.

KK Viswanathan, Editorial Board Member. Malaysian Journal of Agricultural Economics.

KK Viswanathan, Member of the Senior Advisors Group, Marine Stewardship Council (MSC), London, U.K.

WORKSHOPS/CONFERENCES/SEMINARS/MEETINGS

Ablan, M. Asian Population Network (APN) and the Population Consumption and Environment (PCE) tandem conferences. Penang, Malaysia, 10-14 April 2000.

Ablan, M. Reefs at Risk for Southeast Asia Expert Consultation conducted on behalf of the Reefs at Risk project sponsored by the UNEP-ICLARM International Coral Reef Action Network project (ICRAN) University the Philippines Marine Science Institute Diliman, Quezon City, Philippines, 6-8 April 2000.

Ablan, M., ICLARM related initiatives on coral reef management. Presentation at the DOF (Malaysia)-ICLARM Meeting on Collaborative Research in Fisheries held at the FRI, Batu Maung, Penang, Malaysia, 10-11 April 2000.

Ahmed, M. and K.K. Viswanathan. Thirteenth Steering Committee Meeting of the Co-management Research Project, Oregon, USA, 15-16 July.

Ahmed, M. and L.R. Garces. Bangladesh National Workshop for the Sustainable Management of Coastal Fish Stocks in Asia, ADB-RETA 5766, Dhaka, Bangladesh, 2-6 October 2000.

Ahmed, M. and R.A.V. Santos. Bioeconomic Modeling Workshop on the Thai Demersal Fisheries in the Gulf of Thailand, Hua Hin, Thailand, 31 May – 9 June 2000.

Ahmed, M. International Conference on Aquaculture in the Third Millennium organized by the Network of Aquaculture Centers in the Asia-Pacific (NACA) and FAO. Panelist on the Increasing Contribution of Aquaculture for Food Security and Poverty Alleviation session,Bangkok, Thailand, 20-25 February 2000.

Ahmed, M. International Conference on International Society for Ecological Economics (ISEE), Canberra, Australia 5-8 July 2000.

Ahmed, M. Participatory Research and Gender Analysis (PRGA) Workshop, Nairobi, Kenya, 6-10 November 2000.

Ahmed, M., and M. Torell. International Workshop on Watershed Management. System-wide Program on Collective Action and Property Rights (CAPRi), Managua, Nicaragua, 13-16 March 2000.

Ahmed, M., M.M. Dey, K.K. Viswanathan, P. Thompson and P. Sultana. International Conference on International Institute for Fisheries Economics and Trade (IIFET), Oregon, USA, 10-14 July 2000.

Christensen, V. Invited participant, Canadian Living Marine Resources–Global Ocean Observation System workshop. BIO, Halifax, Canada. 29-30 March 2000.

Christensen, V. Resource person, DOF, Thailand and FAO bioeconomic modelling workshop on the Thai demersal fisheries in the Gulf of Thailand. Hua Hin, Thailand, 31 May-9 June 2000.

Christensen, V. Resource person, FAO workshop on the use of ecosystem models to investigate multispecies management strategies for capture fisheries. UBC FC and FAO, 17-20 July 2000.

Garces, L. and L. Lachica-Aliño. Training/Workshop on Rapid Resource Assessment Methodologies. Asturias Hotel in Puerto Princesa City, Philippines, 10-11 February 2000.

Gardiner, P.R., G.T. Silvestre, M. Ahmed, K.K. Viswanathan, L.R. Garces, and R.A. Valmonte-Santos. Malaysian National Workshop for the Sustainable Management of Coastal Fish Stocks in Asia, ADB-RETA 5766, Langkawi, Malaysia, 25-27 September 2000.

Gardiner, P.R., M. Ahmed, and K.K. Viswanathan. The Third World Fisheries Congress, Beijing, PR China, 31 October – 3 November 2000.

Gupta, M.V. GOFAR 2000 – Strengthening Partnership in Agricultural Research for Development in the Context of Globalization, Dresden, Germany, 20-26 May.

Gupta, M.V. International Conference on Aquaculture in the Third Millennium organized by the Network of Aquaculture Centers in the Asia-Pacific (NACA) and FAO, Thailand. Panelist on the Aquaculture Genetics in the Third Millennium session, Bangkok, 20-25 February 2000.

Gupta, M.V. International Network on Genetics in Aquaculture: Present Status. International Symposium on Genetics in Aquaculture, Townsville, Australia, 15-23 July 2000.

Gupta, M.V. Seventh Annual Meeting of Mekong River Commission Fisheries Programs, Pakse, Lao PDR, 13-15 June 2000.

Gupta, M.V. Sixth General Assembly meeting of APAARI/Expert Consultation on Strategies for Implementation of APAARI Vision 2025, Bangkok, Thailand, 20 February 2000.

Gupta, M.V., and B.O. Acosta. DOF-ICLARM Meeting on Collaborative Research in Fisheries, Penang, Malaysia, 10-11 April 2000.

Prein, M. International Conference on Aquaculture in the Third Millennium organized by the Network of Aquaculture Centers in the Asia-Pacific (NACA) and FAO, Thailand. Panelist on session 2.3 Involving stakeholders in aquaculture policy-making, planning and management. Bangkok, 20-25 February 2000.

Prein, M. DFID Retreat on Aquatic Resources Management for Sustainable Livelihoods of Poor People, Bangkok, Thailand, 6-7 July 2000.

Prein, M. and M Torell. DFID e-mail conference on Aquatic Resources Management for Sustainable Livelihoods of Poor People (June–July 2000) and retreat in Bangkok, Thailand, 6-7 July 2000.

Shah, W.A. NACA-DOF Workshop on Coastal Shrimp Aquaculture and Livelihood. Economics of shrimp farming system in four coastal areas of Bangladesh. 3 July 2000.

Silvestre, G., L. Garces, F. Valdez, M. Ahmed, M. Torell and R.A.Valmonte-Santos. 2nd National Team Leaders Workshop, Bangkok, Thailand, 20-24 March 2000.

Silvestre, G., L. Garces, L. Lachica-Aliño, and K. Santos. PRA/RRA Workshop, Puerto Princesa City, Philippines, 30 March 2000.

Silvestre, G.and L. Lachica-Aliño. Resource and Social Assessment Database Development (RSA-DBD) Inception Meeting. SEARCA, Los Baños, Laguna, 11-12 April 2000.

Thompson, P.M., P. Sultana, A.K.M. Firoz Khan, M. Nuruzaman, S. Chakma, H. Khandker Mahbub, D. Hossain and A. Islam. Workshop on Aquaculture Extension: impacts and sustainability organized by Department of Fisheries and ICLARM, sponsored by ICLARM out of CBFM project funds (IFAD grant). Bangladesh Institute of Management and Administration, Dhaka, 11 May 2000.

Torell and A Salamanca. National Workshop on Legal and Institutional Frameworks and Economic Valuation of Resources and Environment in the Mekong River Region – A Wetlands Approach, Hanoi, Vietnam, 5-6 October 2000.

Torell, M and A Salamanca National Workshop on Legal and Institutional Frameworks and Economic Valuation of Resources and Environment in the Mekong River Region – A Wetlands Approach, Vientianne, Lao PDR, 28-29 September 2000.

Torell, M. and A Salamanca. National Workshop on Legal and Institutional Frameworks and Economic Valuation of Resources and Environment in the Mekong River Region – A Wetlands Approach, Hat Yai, Thailand, 13-15 November 2000.

Torell, M. and A. Salamanca. National Workshop on Legal and Institutional Frameworks and Economic Valuation of Resources and Environment in the Mekong River Region – A Wetlands Approach, Siem Reap, Cambodia, 11-12 October 2000.

Torell, M., M. Ahmed and A. Salamanca. Regional Workshop for the Legal and Institutional Frameworks and Economic Valuation of Resources and Environment in the Mekong River Region - A Wetlands Approach project, Siem Reap, Cambodia, 11-13 December.

Viswanathan, K.K. Expert Group meeting on the Study of Excess Capacity in the Fisheries, University of Southern Denmark, Esbjerg, Denmark, 6-8 December, 2000.

Viswanathan, K.K. Fifth Agricultural Policy Forum focusing on policy and programmatic issues on Community-based Coastal Resources Management organized by the Philippine Institute of Development Studies, Makati City, Philippines, 22 June 2000.

Viswanathan, K.K. Fisheries Co-management project workshop for Asian NARs partners, Prince of Songkla University, Had Yai, Thailand, 2-7 October, 2000.

Viswanathan, K.K. Fisheries Co-management project workshop for African NARs partners, University of Western Cape, Cape Town, South Africa, 15-20 May 2000.

Viswanathan, K.K. Marine Stewardship Council, Senior Advisors Group meeting, Madrid, Spain, 20-21 October, 2000.

Viswanathan, K.K. National Conference on Fisheries Co-management, Kuala Lumpur, Malaysia, 17-18 October, 2000.

FINANCIAL SUMMARY

ICLARM – The World Fish Center seeks to ensure that its operating service strategy is built on a client-oriented culture dedicated to delivering carefully targeted services to meet the broad range of needs of its internal and external clients. The cost-conscious approach it adopts ensures the delivery of high value services at costs comparable to, or less than the market. Senior management, the Board, the internal auditor and the external auditor KPMG Peat Marwick provide the financial management and oversight of the Center.

The Center's total income in 2000 was US$12.9 million, 8 percent above 1999 income of US$11.9 million. This income was distributed as follows (in millions):

Unrestricted	US$7.0
Restricted	US$5.4
Other income	US$0.5

The Statement of Financial Position, the Statement of Activities and the Statement of Cash Flows summarize ICLARM – The World Fish Center's finances in 2000. These Financial Statements are presented below. A complete, audited financial statement by KPMG Peat Marwick is published separately and can be requested from the Associate Director General.

Funding by CGIAR undertakings

	Percent of total funding
Protecting the environment	43.7
Saving biodiversity	1.3
Improving policies	13.5
Strengthening national research systems	15.6

Funding by ICLARM – The World Fish Center Project (US$ million)

	1999		2000	
	US$ million Actual	Percent	US$ million Actual	Percent
Genetic enhancement and breeding	1.47	12.0	1.00	9.5
Improvement of freshwater aquaculture	1.69	13.8	2.56	24.4
Fisheries resources assessment and management	1.55	12.6	1.13	10.8
Assessing and limiting coral reef degradation	0.96	7.8	0.93	8.9
Coastal aquaculture and stock enhancement	1.04	8.5	0.81	7.7
Economic monitoring and evaluation of developing country fisheries	0.06	0.5	0.10	1.0
Legal and institutional analysis for fisheries management	1.32	10.7	1.14	10.9
Aquatic resources planning and impact assessment	0.26	2.1	0.01	0.1
Information and capacity building for aquatic resources research in developing countries	1.58	12.8	1.06	10.0
	12.29	100	10.49	100

INTERNATIONAL CENTER FOR LIVING AQUATIC RESOURCES MANAGEMENT, INC.

(A nonstock, nonprofit organization)

STATEMENT OF FINANCIAL POSITION

(in U.S. Dollar '000)

	December 31 2000	1999
A S S E T S		
CURRENT ASSETS		
Cash and cash equivalents	8,014	8,213
Accounts receivable		
Donors	3,075	2,443
Employees	261	100
Others, net	1,171	1,170
Supplies inventory	4	-
Prepaid expenses	15	30
Other current assets	2,775	2,559
Total current assets	15,315	14,515
PROPERTY AND EQUIPMENT, net	190	36
OTHER ASSETS	320	302
Total assets	15,825	14,853
LIABILITIES AND NET ASSETS		
LIABILITIES		
Accounts payable		
Donors	5,789	6,004
Employees	89	82
Others	968	36
Advances from donors	-	1,626
Funds in trust	1,350	1,636
Accrued expenses	1,030	1,456
Commitment expense payable	956	957
Reserve for contingencies	235	220
Total liabilities	10,417	12,017
NET ASSETS		
Unrestricted	5,408	2,836
Total net assets	5,408	2,836
Total liabilities and net assets	15,825	14,853

INTERNATIONAL CENTER FOR LIVING AQUATIC RESOURCES MANAGEMENT, INC.

(A nonstock, nonprofit organization)

STATEMENT OF ACTIVITIES

(U.S. Dollar '000)

	For the year ended December 31			
			TOTAL	
	Unrestricted	Restricted	2000	1999
REVENUES, GAINS AND OTHER SUPPORT				
Total grants (Exhibit 1)	7,014	5,365	12,379	11,606
Other revenues	495	-	495	259
Total revenues	7,509	5,365	12,874	11,865
EXPENSES AND LOSSES				
Program related expenses	2,847	5,365	8,212	8,763
Management and general expenses	1,905	-	1,905	2,794
Headquarters relocation costs	-	-	-	1,181
Headquarter Site Renovation	1,056	-	1,056	-
Total expenses	5,808	5,365	11,173	12,738
Recovery of indirect costs	(678)	-	(678)	(446)
Total expenses and losses	5,130	5,365	10,495	12,292
CHANGE IN NET ASSETS FOR THE YEAR	2,379	-	2,379	(427)
NET ASSETS				
Beginning	2,836	-	2,836	3,263
Acquisition of Fixed Assets	193	-	193	-
End	5,408	-	5,408	2,836
MEMO ITEM				
Operating expenses - By natural classification				
Personnel	2,723	1,832	4,555	5,526
Operating costs	2,596	3,123	5,719	6,149
Travel	450	410	860	813
Depreciation of property and Equipment	39	-	39	250
Indirect cost recovery	(678)	-	(678)	(446)
Total expenses and losses	5,130	5,365	10,495	12,292

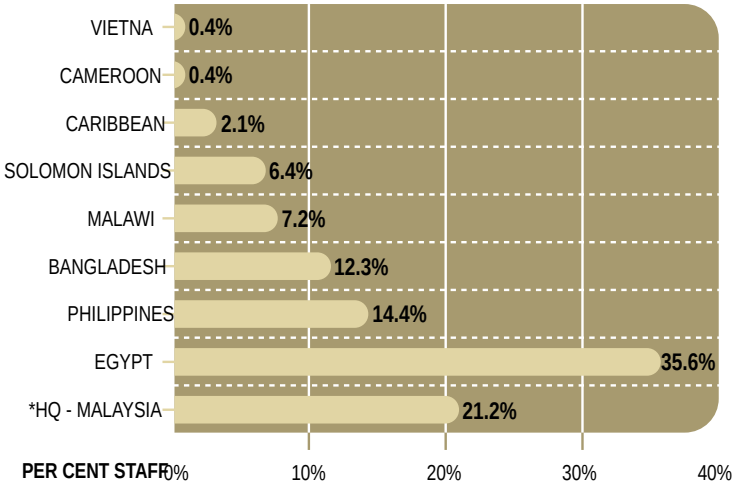
INTERNATIONAL CENTER FOR LIVING AQUATIC RESOURCES MANAGEMENT, INC.

(A nonstock, nonprofit organization)

STATEMENT OF CASH FLOWS
(U.S. Dollar '000)

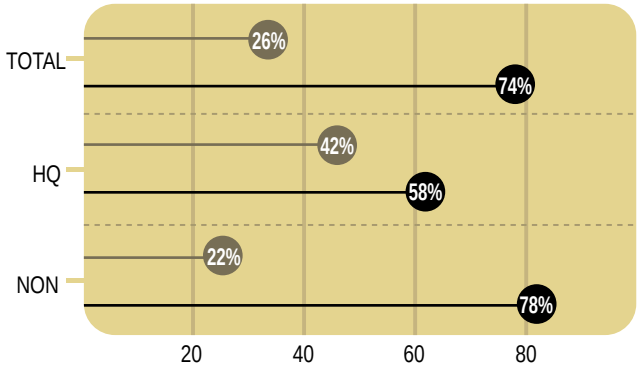
	For the year ended December 31	
	2000	1999
CASH FLOWS FROM OPERATING ACTIVITIES		
Change in net assets for the year	2,572	(427)
Adjustments to reconcile change in net assets for the year to net cash provided by operating activities:		
Depreciation	39	250
Loss on disposal and write-off of property and equipment	-	546
Changes in:		
Accounts receivable	(794)	126
Supplies inventory	(4)	10
Prepaid expenses	15	139
Other current assets	(216)	(2,493)
Accounts payable	724	2,601
Advances from donors	(1,626)	1,403
Funds in trust	(286)	(89)
Accrued expenses	(426)	310
Commitment expense payable	(1)	170
Reserve for contingencies	15	6
Net cash provided by operating activities	12	2,552
CASH FLOWS FROM INVESTING ACTIVITIES		
Acquisition of property and equipment	(193)	(99)
Proceeds from disposal of property and equipment	-	6
Decrease (increase) in other assets	(18)	243
Net cash provided by (used in) investing activities	(211)	150
NET (DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS	(199)	2,702
CASH AND CASH EQUIVALENTS		
Beginning	8,213	5,511
End	8,014	8,213

ENVIRONMENT PARTNERS



WORLDWIDE STAFF

**Due to the transition, the HQ was not fully staffed*



STAFF GENDER

FEMALE

MALE

NATIONALITY	NUMBER	PERCENTAGE
AMERICAN	3	1.27
AUSTRALIAN	7	2.97
BANGLADESHI	29	12.29
BARBADIAN	1	0.42
BRITISH	7	2.97
CANADIAN	2	0.85
DANISH	1	0.42
EGYPTIAN	83	35.17
FILIPINO	47	19.92
FRENCH	1	0.42
GERMAN	2	0.85
INDIAN	1	0.42
LEBANESE	1	0.42
MALAWIAN	17	7.20
MALAYSIA	19	8.05
NORWEGIAN	1	0.42
SOLOMON ISLANDER	12	5.08
SWEDISH	1	0.42
TRINIDADIAN AND TOBAGAN	1	0.42
	236	100.00

STAFF

OFFICE OF THE DIRECTOR GENERAL

Meryl J. Williams - Director General
Maizurah Bt Abdullah - Office Manager
Choo Poh Tze - Consultant

PROJECT DEVELOPMENT COORDINATING UNIT

Rizalina Camanag - Manager

OFFICE OF THE DEPUTY DIRECTOR GENERAL (PROGRAMS)

Peter R. Gardiner
- Deputy Director General/Programs
Li Sze Lim - Program Assistant

BIODIVERSITY AND GENETIC RESOURCES RESEARCH PROGRAM

Stewart Grant - Program Leader
Jorn Thodesen - Project Leader
Eric P. Baran - Research Scientist
Florabelle Gagalac - Assistant Scientist

PHILIPPINES RESEARCH SITE

Rainer Froese - Senior Research Scientist
Boris Fabres - Training Coordinator
Ma. Lourdes D. Palomares
- Software Development and Database Scientist
Rachel Atanacio - Senior Artist
Estelita Emily Capuli - Research Associate
Christine Marie Casal - Research Associate
Rodolfo Reyes, Jr. - Research Associate
Eli Agbayani - Research Programmer
Josephine France Rius - Research Programmer
Meynard G. Gilhang - Research Programmer
Crispina Binohlan - Senior Research Assistant
Cristina Garilao - Senior Research Assistant
Susan Luna - Senior Research Assistant
Grace Pablico - Senior Research Assistant
Pascualita Sa-a - Senior Research Assistant
Lemwel Castel - Artist/Research Assistant
Arlene Sampang - Research Assistant
Irene Milagros Robel - Program/Budget Assistant
Ma. Teresa Cruz - Secretary

FRESHWATER RESOURCES RESEARCH PROGRAM

Mark Prein - Program Leader
Madan Mohan Dey - Research Scientist
Ferdinand J. Paraguas - Assistant Scientist
Teresita Lopez - Consultant

CAMEROON RESEARCH SITE

Randall E. Brummett
- Senior Aquaculture Scientist

MALAWI RESEARCH SITE

Daniel M. Jamu
- Project Team Leader (Officer-in-charge)
Emma V. Kambewa - Socioeconomist
Henry G. Hunga - Aquaculture Technician
Patience T. Kananji - Project Assistant
Francis F.C. Kachala - Information Officer
Foster Makuwa - Foreman
Silas Nsonthi - Technical Assistant
Alim Monjeza - Technical Assistant
Yusuf Fulaye - Office Assistant
Issa Jaffari - Field Assistant
George Mwalabu - Field Assistant
Frackson Lifa - Field Assistant
Lackson Maluwa - Field Assistant
Bosco Kalipalire - Field Assistant
Benson Chimbalanga - Watchman
Lackson Pondiya - Watchman
Bwana Chipire - Watchman

BANGLADESH RESEARCH SITE

John H. Grover - Senior Aquaculture Scientist
Parvin Sultana - Consultant
Aminul Islam
- Integrated Aquaculture Consultant
Wajed Ali Shah
- Monitoring and Evaluation Specialist
Debashih Mazaumder - Research Associate
Mohammad Samaun Safa - Research Assistant
Shameem Kamal - Research Assistant
Manuara Azim - Research Assistant
Mohammed Jahangir Sarker
- Research Assistant
Ishrat Jahan - Research Assistant
Mohammed Billal Hossian - Research Assistant
Mahfuzul Haque - Project Coordinator
Khan Golam Rasul - Accountant
Hasan A. Chowdhury - Research Associate
Bijoy Bhushan Debnath - Administrative Officer
Mohammed Dulal - Driver
Abdur Razzak - Driver
Tapan Chandra Sarker - Messenger
Idris Ali - Messenger
Rowshon Ali - Messenger

COASTAL AND MARINE RESOURCES RESEARCH PROGRAM

Johann Bell - Program Leader
James K. Oliver - Research Scientist
Geronimo T. Silvestre - Research Scientist
Villy Christensen - Part-time, Canada
Ma. Carmen Ablan-Lagman - Assistant Scientist
Len R. Garces - Assistant Scientist
Meii B. Mohammad Norizam
- Research Assistannt
David Yap - Research Assistant

SOLOMON ISLANDS RESEARCH SITE

Idris Lane - Manager
Cletus Oengpepa - Assistant Manager
Cathy Hair - Senior Research Associate
Kathy Launa
- Finance and Administrative Supervisor
Aniel Giza - Assistant Administrative Officer
Stephanie Pallay - Information Officer
Christian Ramofafia - Scientific Assistant
Mason Tauku - Foreman
Charles Toihere - Senior Technical Aide
Francis Kera - Technical Aide
Regon Waren - Technical Aide
Ambo Tewaki - Technical Aide
Nathaniel Edau - Technical Aide
Alisea Theophilius - Mechanic and Maintenance
Teabi Tebounaba - Groundsman

PHILIPPINES RESEARCH SITE

Sheila Vergara - Research Associate
Lualhati Lachica-Aliño - Research Associate
Victor Alarcon - Senior Research Programmer
Myra Collado - Research Programmer
Ronald C. Evangelista - Research Programmer
Rosenne Funk - Senior Research Assistant
Lambert Anthony Meñez
- Senior Research Assistant
Kathleen Patricia Reyes - Senior Research Assistant
Joann Glorioso - Research Assistant
Kristine Santos - Research Assistant
Audrey Marie Banzon-Serrano - Research Assistant
Ana Blesilda Meneses - Research Assistant
Cindy Cabote - Secretary

CARIBBEAN/EASTERN PACIFIC RESEARCH SITE

John Munro - Consultant
Marguerite Watson - Assistant Research Scientist
Zsolt Sary - Research Associate
Robert Power - Research Assistant
Newton Eristhee - Temporary Research Assistant

VIETNAM RESEARCH SITE

Rayner Pitt - Manager

POLICY RESEARCH AND IMPACT ASSESSMENT PROGRAM

Mahfuzuddin Ahmed - Program Leader
Kuperan Viswanathan - Research Scientist
Magnus Torell - Research Scientist
Albert Salamanca - Assistant Scientist
Rowena Andrea Santos - Assistant Scientist
Gloria Umali - Assistant Scientist
Thirunavukkarasu Jr. - Research Assistant
Mary France Rull - Research Assistant

BANGLADESH RESEARCH SITE

Paul Thompson
- Project Leader and Officer-in-charge
Nurul Islam - Research Associate
M. Nuruzzaman - Research Associate
Firoz Khan - Research Associate

ENVIRONMENT PARTNERS

Khandker Hasib Mahbub - Computer Programmer
Sabinoy Chakma - Computer Operator
Arif Hossain - Research Assistant
Delawar Hossain - Secretary
Saiful Ahsan - Computer Operator
Anwar Hossain - Driver

INTERNATIONAL RELATIONS OFFICE

Modadugu V. Gupta
- Director, International Relations Office
Belen Acosta - Assistant Scientist

PARTNERSHIP, INFORMATION AND TRAINING PROGRAM

Modadugu V. Gupta - Program Leader

INFORMATION & COMMUNICATIONS DIVISION

Sandra Child - Head

COMMUNICATIONS UNIT

Pee Hoay Lau - Manager
Lee Mei Tan - Graphic Designer

INFORMATION SERVICES UNIT

Norma Jhocson - Librarian Consultant

REGIONAL RESEARCH CENTER FOR AFRICA AND WEST ASIA ABBASSA, EGYPT

Roger Rowe (Retiring)
Patrick Dugan - Deputy Director General/Africa and West Asia (New Appointment)
Abdel Rahaman El-Gamal
- Senior Aquaculture Scientist
Attiah Ibrahim Gomaa - Researcher Genetics
Ebtehag Abdel-Razek Kamel - Researcher/Genetics
Samir Ali Zein El-Abdeen - Fish Health Research
Fatehy Abdullah Mohamed - Research Technician
Mohamed El-Sayed Mahmoud
- Research Technician
Abeer Ahmed Harb - Research Technician
Hussein Zarie Hussein - Laboratory Technician
Waheed Abdel Rahman - Research Coordinator
Shawki Abou Zied Mohamed - Finance Manager
Amira Mohamed Ibrahim - Accountant
Ahmed Abdou Ahmed - Accountant/Cashierr
Ibrahim Abdel Aaty Mohmed
-Administration and Finance Manager
Mohamed Mahdi Khateeb - Administrative Officer
Abdel-Megeed Hussein Attiah - Personnel Officer
Ahmed Said Deyab - IT and Computer Supervisor
Mohamed Yehia Abou Zaid
- Library and Information Suprvisor
Abdullah Mohamed Abdullah
- Purchasing Representative
Adel Hassan Darwish
- Purchasing Representative
El-Sayed Attih Attih - Store Controller
Sabry El-Sayed Ahmed - Store Keeper
Mohamed Al Hussainy Abdel Ghany
- Fish Feed Store Keeper
Samia Mahmoud Mohd. Gommaa
- Senior Secretary
Abdel Hakeem Attia Mahmoud - Secretary
Abdel Nabbi Farag Alsayed - Secretary
Mohamed Abdel-Aziz Attiah
- Security Supervisor
Amr Ahmed Khidr - Security Supervisor
Mohamed Mahmoud Hassan - Security Driver
Ayman Ibrahim Dousoki - Security Driver
Mohamed Hafez Alsayed - Pickup Driver
Mohamed Ali Attiatullah Ahmed - Driver
Tawfik George Yanna Antoun
- Engineering Supervisor
Wahiba Mohamed Seliem
- Mechanical Workshop Supervisor
Nasser Mohamed Darwish
- Engineering Technician
Gamal Othman El-Naggar
- Engineering Technician
Mahfouz Mohamed Alzainy - Senior Carpenter
Fathey Ahmed Abdullah - Senior Electrician
Mandour Rabie - Workshop Senior Technician
Mamdouh Khalil Ibrahim
- Engineering Service Technician Helper
Khairy Ibrahim Mohamed
- Engineering Service Technician Helper
Waheed Elwan Mohamed
- Engineering Service Technician Helper
Abdullah Mohamed Ibrahim
- Workshop Technician
Heba Fouad Mohd. Ahmed Ayoub
- Workshop Technician
Abdel Hay Hassn El-Sobky
- Workshop Administrative Assistant
Mahmoud Hassan El-Naggar
- Engineering Services Helper
Mahmoud Ali Rezk - Engineering Services Helper
Mohammed Abdel Hadi El-Ngaar
- Diesel Mechanic
Ahmed Mohamed Ali - Diesel Mechanic
Mamdouh Mohamed Deibis
- Gasoline Mechanic
Tharwat Ismael Dawood - Plumber
Effat Ahmed Sayed Ahmed
- Heavy Equipment Driver
Mohamed Abdel-Nabi Abdel Mahdi
- Tractor Driver
Mahmoud Abdou Mousa - General Worker
Talaat Mohamed Abdullah
- Landscaping Foreman
Ahmed Hassan Dabour - Landscaping Worker
Said Abdel Samie Mohamed
- Landscaping Worker
Mohamed Alsayed Teialab - Landscaping Worker
Khaled Noor El-Deen Basuoni
- Landscaping Worker
Mohamed Alsaid Abdel-Hamid
- Landscaping Worker
Mohamed Alsaid Abdel-Rahman
- Senior Housekeeper
Abdel Kereem Abdel Megeed Mohd.
- Housekeeper
Zakaria Mohamed Badawi - Housekeeper
Essam Abdel Salam Mourad - Stock Ponds Supervisor
Yasser Mohamed Abdel Hadi
- Ponds and Grounds Supervisor
Abdullah Mohamed Abdel-Aal
- Ponds and Grounds Services Assistant
Fatehy M. Waheed Salem
- Pond Worker/Tractor Driver
Othman Fatehi Mahdi - Pond Worker/Tractor Driver
Rezk Fathey Mohamed
- Pond Worker/Tractor Driver
Diaa Abdel Reheem Kenawy - Pond Worker
Ali Rizk Attia - Pond Worker
Abdel Nabi Abbas - Pond Worker
Fawzi Mohamed Hassan - Pond Worker
Seliem Eliwah - Pond Worker
Abdel Aziz Radwan - Pond Worker
Sobhi Mahdi El-Sayed - Pond Worker
Karam Ahmed Khalil - Pond Worker
Tahany Hosny Abdou Hasoub - Pond Worker
Ibrahim Ahmed Mahmoud - Pond Worker
Gameel Abdullah Khalil - Pond Worker
Haggag Hassan Haggag - Pond Worker
Ali Ibrahim Ghareeb - Pond Worker
Abdel Nasser Mohamed - Pond Worker
Abdullah Mohamed Hassan
- Pond Worker

CORPORATE SERVICES DIVISION OFFICE OF THE ASSOCIATE DIRECTOR GENERAL

Edward N. Sayegh - Associate Director General

HUMAN RESOURCES UNIT

Vasu Suppiah - Manager

FINANCE UNIT

Loriza Dagdag - Manager
Chong Ee Fung - Accountant
Mohd Ismadi - Accountant
William Ng - Accountant
Joyce Yeoh - Consultant

INFORMATION TECHNOLOGY UNIT

Ng Hung Yee - Manager
Teoh Gim Yeow - Technical Assistant

ADMINISTRATION AND OPERATIONS UNIT

Siew Hua Koh - Consultant
Ahmad Kamal B. Anuar - Administrative Assistant
Norhaslinda Bt Hashim - Secretary/Receptionist
Planning and Budget Unit
Yeoh Li Lian - Budget Associate

FINANCIAL AND ADMINISTRATIVE SYSTEMS UNIT

Rainelda Ampil - Manager
Tan Chee Liang - Programmer

HEADQUARTERS SITE DEVELOPMENT

Brian Tierney

PHILIPPINES RESEARCH SITE

Ceres Pasamba - Management Consultant

ICLARM - The World Fish Center programs focus on the poorest regions of Sub-Saharan Africa and South Asia. It has offices in Malaysia, Egypt, Bangladesh, British Virgin Islands, Malawi, the Philippines, Vietnam and the Solomon Islands and projects in 22 countries.

Bangladesh: Promotes beneficiary-based management of inland fisheries, develops and introduces low-cost techniques for fish culture suited to local socioeconomic conditions.

Cameroon: Extends integrated aquaculture-agriculture technologies to the humid zone of West Africa.

Caribbean: Studies the benefits of marine protected areas for enhancing and protecting stocks of fish and other aquatic resources.

Egypt: Focuses on leading research for Africa and West Asia, research and training in aquaculture.

Malawi: Focuses on integrated aquaculture-agriculture systems to improve resource utilization and productivity of small and marginal farmers.

Malaysia: Global headquaters, leads and serves all the work of the Center. Improves carps, tilapia and other aquaculture species used by smallholders.

Philippines: Develops global databases of fishes and coral reefs and assists fisheries resource management and regional coastal zone management and capacity.

Solomon Islands: Develops and disseminates profitable farming methods for rearing and stocking sea cucumber, giant clam, pearl oyster, and green snail.

Vietnam: Extends collecting, hatching and restocking technologies to South East Asia.