



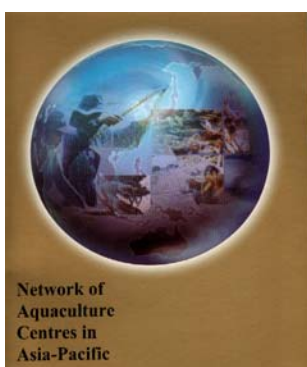
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NACA's Role in Aquaculture Development in Asia-Pacific

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A Brief History

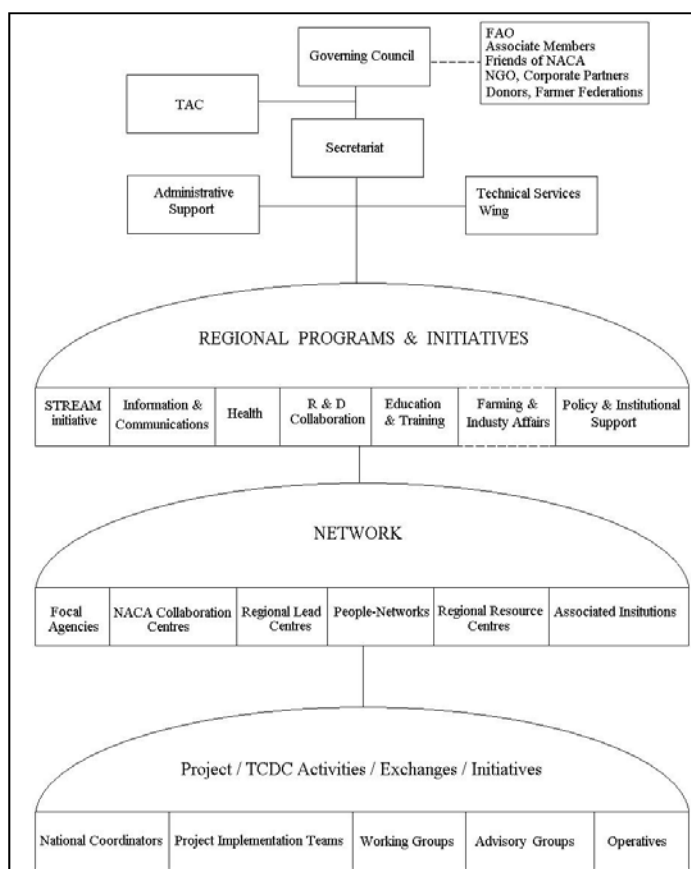


When the setting up of regional networks of aquaculture centres in Asia, Africa and Latin America was proposed at the global conference on aquaculture in Kyoto more than a quarter of a century ago, the best estimate of global production from farming of aquatic organisms was less than four million tons. In 27 years it increased more than 10-fold to 40 million metric tons. Almost 90 percent of this comes from Asia.

The FAO-convened Kyoto Conference on Aquaculture of 1976 conceived NACA. The network—as a UNDP/FAO regional project—became operational in August 1980. Its purpose was to expand the development of aquaculture in the region. Its development objectives were to: increase production of “fish”; improve rural income and employment; diversify rural farm production; and enhance foreign exchange earnings and savings.

These objectives are achieved through coordinated action programs implemented by a network of regional and national centres and associated institutions and bodies.

Operating Structure and Mechanisms



The chart illustrates the structure and operating mechanism of the network organization. A Governing Council composed of Government member representatives, FAO (as a non-voting member), associate members and invited agencies is the policy-making body; a Technical Advisory Committee whose membership is drawn from governments, private sector, NGOs, industry and farmer organizations, formulates – with assistance of the Secretariat – the program of NACA and advises the council of technical, program, and policy matters; the

Secretariat coordinates the network activities which are implemented in various ways and by various bodies.

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The reason for having a network was that sharing resources and responsibilities among institutions and countries is probably the only practical and cost-effective means available (then and now) for identifying and solving the diverse problems—arising from: (a) the diversity of species, farming systems, and environments, and (b) the varying levels of development of the countries, and the diverse problems that the countries of the Asia-Pacific region face in modernizing, expanding and sustaining aquaculture.

The networking and sharing approach was also in line with the policy of the governments to promote regional self-reliance through **technical cooperation**. Cooperation becomes more compelling with *limited resources of governments and donors, and the need to best utilize internal resources and external support*.

The complex and many challenges faced in the development of aquaculture, a relatively new food producing and employment-generating activity, also argue for a collaborative approach to make efficient use of resources and solve common problems. Adding another dimension to cooperation, the NACA members have committed to the principle that the stronger members help the others.

NACA ensures that its programs and projects address the priority issues and needs articulated by governments. The needs and priorities are translated and formulated into a regional action plan by the Technical Advisory Committee of NACA, which is adopted into the regional work program by the Governing Council. Three essential attributes of the NACA program of work emerge from this arrangement. It is:

- owned by governments,
- the product of multi-stakeholder consultation, and
- implemented by the members themselves in a cooperative and coordinated way that builds on the indigenous capacities in the countries and institutions of the region

These attributes in turn create two important conditions:

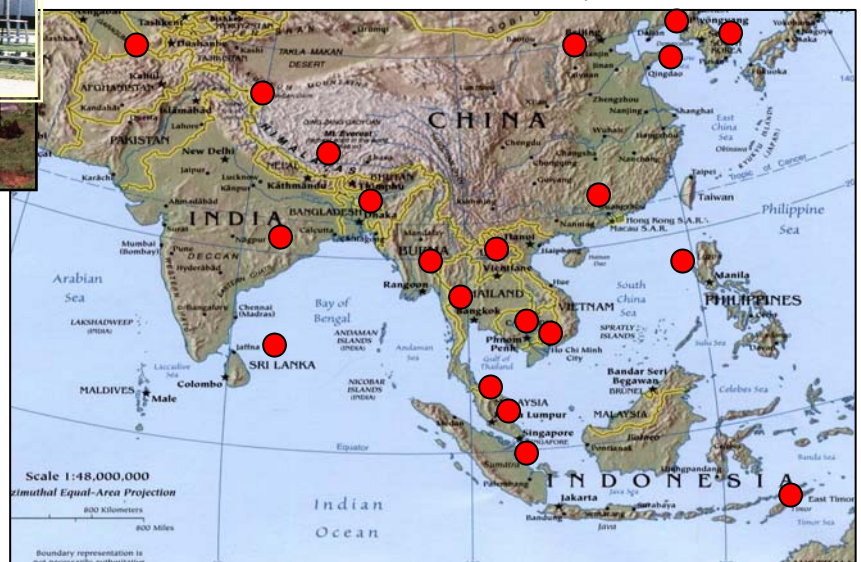
- governments commit resources to implement the programs, and
- take up the results in their policy and programs.

Rationale for A Network Organization

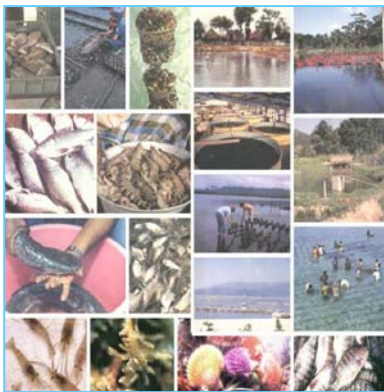
Ownership and Continuity of Initiatives



Regional Lead Centre in China (above); India (left); and Thailand (bottom left).



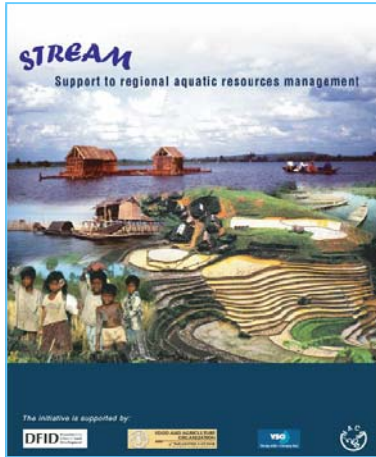
Coordinated programs implemented by a network of centres



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Activities of finite projects are taken up in NACA's work program, assuring continuity of the various initiatives; in short they do not cease when the project ends.

The remit of NACA dictates looking at the issues from the perspective of aquaculture development and aquatic resources management. But it does not preclude looking at them beyond the boundaries of the sector. The complexity and interactions among the issues actually compels one to view them systematically and in holistic way. This prompted the Council to mandate a program on market access issues (including health, safety, trade barriers) related to aquatic products.



The Governing Council in 1991 endorsed a program on environment and aquaculture development. In 1994, it mandated the re-orientation of NACA's program towards the grassroots. Then in 2000, the Council crafted a program that made "aquaculture for rural development" and "addressing poverty through aquaculture and improved aquatic resources management" the core business of NACA, with an initiative called STREAM (Support to Regional Aquatic Resources Management) as the spearhead. This was in recognition of the importance of aquaculture and aquatic resources for rural livelihoods and the potential of improved aquaculture and aquatic resources management for poverty alleviation and food security.

Status of Asian Aquaculture: The Operating Context of NACA

Broadly, Asian aquaculture:

- Is now more organized with increasing state support but also greater private sector participation;
- Productivity has increased faster (average of 10 percent or more over the past decade) than any other agricultural activity owing largely from the better application of technology and technical and management skills;
- Increasing levels of production have improved the availability of food to the population and increased the export earnings of national economies.
- Has contributed to better health, nutritional well-being of people, and improved their income
- Has shown a growing sensitivity to the fact that practicing socially and environmentally responsible aquaculture makes good business sense.

On the other hand,

- Intensified production has begun to stress the land, water and biological resource bases impairing their capacity to continue to support production.
- More crucially, higher production has not been shown to significantly reduce rural poverty; conflicts over resource use simmer, occasionally flaring up to strain the management and regulatory capacities to deal with them.
- Promoting cohesiveness and harmony in the face of diverse interests, with the poor and weak often getting ignored, has begun to expose weaknesses in policy making and governance.
- Information collection, dissemination and exchange capabilities at the national level have not kept up to par with the modern, IT-led demands of efficient policy-making and sector management.
- There is yet to be a clear understanding and concerted multi-sectoral action to better address trade barriers, competitiveness and other difficult issues in the production and marketing of products in highly competitive markets where it is essential to assume responsibility not only for the price-competitiveness and quality of the product but also for the actions taken, or not taken, in producing it.

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Work Programme 2001-2005

The three major guides for the direction and content of this Work Programme are, in the order of their occurrence:

- i. The Asian Regional Aquaculture Development Plan prepared by the Regional Planning Workshop on Aquaculture Development held in Kanchanaburi, Thailand in September 1999;
- ii. Declaration and Strategy for Aquaculture Development beyond 2000, formulated by the Global Conference on Aquaculture in the Third Millennium held in Bangkok in February 2000; and
- iii. Report of the NACA Task Force, an independent and honorary group of experts constituted by the Governing Council to recommend ways to strengthen the Network Organization; it consulted 19 nations in August-September 2000 and made an analysis of the Organization's strengths, weaknesses, opportunities and threats. The Governing Council in its 12th Meeting held in Brisbane in December 2000 adopted the report. (*The Task Force 2000 members were the former Secretary General of SEAFDEC, the former Coordinator of the NACA Project and the Regional Seafarming Development Project of UNDP/FAO, the founding father of Asian Fisheries Society, and a former Senior Aquaculturist and head of an UNDP/FAO aquaculture development project based in Port Harcourt, Nigeria. They divided into two teams, each one accompanied by a NACA Secretariat senior officer as resource person.*)

The Work Program emphasizes rural development, focusing on the social and environmental objectives of reducing poverty, ensuring food security, enhancing livelihoods, managing aquatic resources, promoting a healthful environment and healthy aquatic animals, and improving manpower management and technical skills.

The Program is based on building capacities through better education and training and improving support to policies and institutions, facilitating effective research and development by collaborative networking among centres and individuals; and facilitating the sharing of information.

The Program is implemented through technical cooperation. It gives coherence and relevance to the various efforts to assist governments develop and implement their aquaculture programs by reflecting their viewpoints and needs.

The Program provides a forum, and facilitate the process for stakeholders to act as partners with governments, add value to each other's efforts, and collectively own the decisions and policies, therefore drawing stronger commitments from every partner to contribute to the common objective.

The work programme has five major elements:

- Policy guidelines and support to policies and institutional capacities
- Capacity Building through educational and training programmes
- Effective R & D by collaborative networking among centres
- Aquatic animal health management
- Information and communication

Special initiatives on Market Access and Trade in Aquaculture Products and promoting farmers associations have been added.

To illustrate the above attributes, eight initiatives under the Work Program are described on the next few pages.

Attributes



Elements



Examples



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STREAM: Support to Regional Aquatic Resources Management



STREAM is a regional initiative to support learning and communication about aquatic resource management which aims to improve the livelihoods of poor people who depend on aquatic resources. It was mandated by the NACA governments and responds to the needs identified by Asia Pacific governments. It follows from analysis conducted by the DFID Aquatic Resource Management Programme, NACA member countries as well as consultations and learning from other initiatives, and develops national strategies in consultation with stakeholders. A Country Strategy Paper planning kit is available to explain the national and regional consultative process.

STREAM has the following themes:

- The promotion of approaches based on an understanding of the livelihoods of recipients of aquatic resource management service provision including raising awareness and building capacity in livelihood approaches amongst government and non-government service providers.
- Supporting communications about aquatic resource management, by facilitating learning and sharing of lessons, via physical and digital networks increasing access to available strategies, processes and practices and by enabling recipients of service provision to take a more active part in the design and implementation of policies and services.
- Supporting the development of policies and institutions in ways that address the objectives of poor people who depend on aquatic resources. The “voices” and communication and policy changes supported by STREAM will eventually help shape the policies of the organization itself, ensuring NACA's program development and support is responding to the needs of poorer members of our Asian societies.

Founded by NACA, DFID, FAO and VSO (Voluntary Services Organisation, an international NGO) STREAM aims to offer support to the livelihoods of poor people who manage aquatic resources (via management of aquaculture or capture of fish or aquatic resources). STREAM was launched in December 2001 and will operate initially for five years. It has set up communication hubs in Cambodia, Vietnam and the Philippines and begun work on livelihood analyses, capacity building and country strategy papers in these countries. STREAM manages a DFID research project in India which is identifying mechanisms for transacting policy change. Initial funding for STREAM comes from DFID, AUSAID, APEC, and Asia-Pacific governments. FAO has contributed (apart from helping develop the concept and collaborating in the precursor activities) a workshop on poverty focusing of small-scale aquaculture. An FAO Technical Cooperation Programme on poverty reduction—implemented by NACA—now supports regional-level activities that enable wider participation of governments and other sectors.



STREAM responds to requests for support and works in partnership with other stakeholders. There have been requests to support national development processes in Indonesia, Nepal, India, Laos and Sri Lanka as well as the countries where it currently operates.



2. Aquatic Animal Health Management in Asia-Pacific

During 1990, a Regional ADB technical assistance project first highlighted the magnitude of the disease problems, and identified a number of actions to address these. Under the Asian Aquatic Animal Health Programme, NACA, through a Regional Technical Co-operation Programme (TCP) Project of FAO, assisted Governments in developing a regional policy to undertake responsible introduction and transfer of aquatic animals. The program established strategies to minimize the potential health risks associated with live aquatic animal movements and in accord with relevant international agreements and treaties, including SPS agreements of WTO and OIE. The project, implemented by NACA in 1998-2000, in cooperation with 21 participating governments, and regional and international organizations (that include OIE's Fish Disease Commission, OIE's Asia-Pacific office in Tokyo, Aquatic Animal Health Research Institute of Thailand, AusAID, APEC, and Australia's Agriculture, Forestry and Fisheries department), became the focal point for a strong, multi-disciplinary *Asia Pacific Regional Aquatic Animal Health Programme*.

The '*Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals and the Beijing Consensus and Implementation Strategy*', the supporting '*Manual of Procedures*' and '*Asia Diagnostic Guide*' were developed through consensus building and consultations. The '*Technical Guidelines*' was adopted in principle by participating governments and by the 9th Meeting of the ASEAN Fisheries Working Group. The *Asia-Pacific Quarterly Aquatic Animal Disease Reporting System* and the Asian chapter of *Aquatic Animal Pathogen and Quarantine Information System (AAPQIS-Asia)* were established under the same cooperative mechanism. Participating countries have drafted National Strategies on Aquatic Animal Health Management. The Strategies are integrated into national development programs of countries.

A major step in moving forward the implementation of the '*Technical Guidelines*' is the establishment of the *Asia Aquatic Animal Health Advisory Group (AG)* – an expert group institutionalised under NACA to provide advice to Asian governments in implementing (and monitoring) the '*Technical Guidelines*' and aquatic animal health issues within Asia. The ADG advises governments on aquatic animal health management, and helps project a strong and coherent approach on aquatic animal health management for Asia, and into relevant international trade and standard setting bodies.

This program has attracted various donor and development agencies to take part in its implementation: APEC continues to provide; the Mekong River Commission Fisheries Programme is giving priority to the development of a basin-wide strategy for controlling aquatic animal diseases in shared watershed among Mekong riparian countries; other related initiatives include the ACIAR-assisted harmonization and inter-calibration of Asian regional diagnostic techniques, the NACA-MPEDA farm level-health management, DANIDA-NACA fish and shrimp health management program in Vietnam, mollusc and marine finfish health, import risk assessment, alien invasive species, carried out with other partners. The lessons and experiences from the project has influenced activities in other regions and helped FAO establish a regional programme on shrimp health for Latin America, fostering linkages between Asia and Latin America through South-South Co-operation.

An APEC-supported training/workshop on import risk assessment was held for Asian and Latin American government as well as bilateral and multilateral project personnel. It drew the participation of FAO, the World Animal Health Organization, and experts from both developed and developing APEC economies and laboratories in France and UK.





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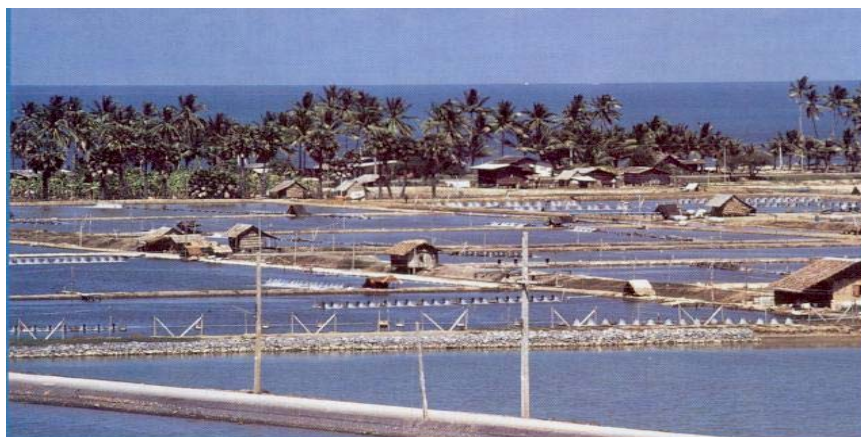
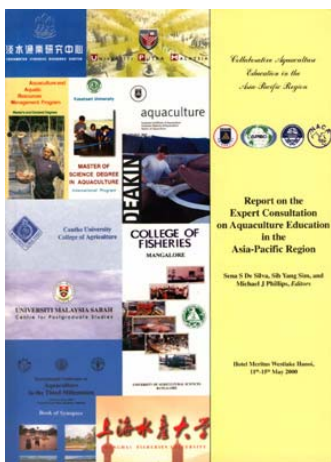
3. Supporting Development of Responsible Farming Systems and Practices

To support the analysis and sharing of experiences on better management practices of shrimp culture, NACA, FAO, the World Bank and the Worldwide Fund for Nature (WWF) entered into a Consortium Program on Shrimp Farming and the Environment. The Consortium Program identified better management practices under various environmental, economic and social conditions and is assessing the cost-benefits for farmers to adopt these practices.

The work was carried out in three continents, Asia-Pacific, Africa and the Americas and involved the participation of more than 100 researchers. NACA was responsible for collecting experiences on better management in Asia. The results of the program will provide a basis for agreement on a set of principles for responsible shrimp aquaculture (perhaps a regional code of conduct), and possibly a certification system that provides assurance to consumers of high quality product produced using responsible farming practices.

A consultation that was attended by 30 representatives from private, sector and governments, donor organizations, foundations and NGOs held by the World Bank in early 2002 identified follow up actions and collaborative arrangements to assist farmer groups and governments implement good management practices. The studies developed under the Consortium Program are readily available from the NACA website (www.enaca.org/shrimp).

NACA continues to support the development of environmentally sound and socially responsible farming systems and management practices for other coastal aquaculture systems (including coral reef species), and inland aquaculture through its network of aquaculture centers and participating institutions and "people oriented" network.



4. Regional Collaborative Program on Aquaculture Education

The development of a network of regional training and education providers is considered an important, cost-effective strategy that will enable countries to build up human resources in a coordinated manner. A cooperative mechanism, comprising a formal networking of key aquaculture education institutions in Asia, providing high quality aquaculture education, is being developed and the blueprint for it has been drawn through an APEC supported Asia-Pacific-wide consultation held in Hanoi in May 2000 followed by a smaller expert working group meeting also in Hanoi in November 2001. The programme framework and detailed implementation strategy, involving formal qualifications (possibly leading to a "Regional Aquaculture Degree"); credit transfers, delivery in the distance mode, use of Information Technology, has been drawn up based on recommendations arising from the APEC project "Cooperative Aquaculture Education Programme."

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A fifth activity is the AP Marine Finfish R and D Network (formerly Grouper R and D Network), illustrates how networking coordinates the participation of many institutions and workers to solve common technical problems and share results equitably. The Marine Finfish network is a people-network layered onto an institutional network layered onto an intergovernmental network. Its objectives are to improve coordination of research, provide opportunities for collaborative research and improve communication among researchers in marine finfish. The program consists of technical, socio-economic (including livelihoods, alternative employment opportunities), marketing, training and extension, and information components.

5. Asia-Pacific Marine Fish R and D Network

These five programmes described above show that a broad-based participatory multi-institutional collaboration multiply benefits to governments and peoples. They demonstrate how cooperation in areas of mutual interests can effectively muster resources, expertise and institutional support to implement regional projects, promoting synergy, avoiding duplication of activities, and expanding the range of beneficiaries.

In 1995 at the Beijing Workshop of the NACA/ADB regional project on aquaculture sustainability and the environment, the farmer representatives requested NACA to assist in the formation of a regional aquafarmers network. NACA approached this by first carrying out a survey of national and local farmers federations, associations, and groups in 16 Asia-Pacific countries; the survey covered almost 400 associations and groups with a combined membership of some 400 thousand.

6. Working with Farmers and Industry

In January 2002, farmers and aquabusiness people joined a Seminar that ran concurrently with the 13th Governing Council meeting (in Malaysia). A joint meeting of the Council members and the Aquabusiness seminar participants came up with a set of recommendations including measures leading to the formation of a Regional Association of Aquaculture Producers.

NACA envisages stronger farmer associations as partners of governments in implementing sustainable aquaculture development activities. What makes cooperation necessary is the fact that Asian fishfarmers are mostly small. It would enable them to achieve economy of scale. This has been especially highlighted at the AquaMarkets 2003 forum which noted that compliance to the numerous and increasingly stringent market requirements could marginalize the small and poorer farmers who are least able to comply and most.





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7. Information and Communications Technology and Strategy for Networking

Information Technology and Communications Strategy (ICTS) is now used to bring into the regional programs more intellectual inputs and resources without spending a lot more money.

A large factor in the success so far achieved in regional aquaculture development is the cooperation among governments and the coordinated participation of national institutions in regional activities. Coordination has facilitated numerous and diverse activities, and enabled the pooling of scarce national resources and sharing of results.

The resources existing in the region that can be brought to bear on aquaculture development are enormous. Getting this vast reservoir of human and physical resources applied and focused on regional priorities would greatly accelerate the development of aquaculture in the region.

Information and Communication Technology would facilitate an effective and economic regional coordination of efforts. NACA has been investing in resources and efforts to enhance the regional information system—which now includes databases that support specific projects as well as special and general information packages. It aims at providing three services:

- A single-stop and interactive shop for acquiring and exchanging information as well as for jointly developing information packages,
- Gateway to a wide range of sources of information and knowledge,
- Forum for focused and systematic interactions to identify, clarify, and resolve common issues.

In addition the Information program is moving to help improve national capacities for accessing information resources by the knowledge workers and information technologists working in aquaculture and aquatic resources management in member countries, particularly the less developed.

Intensifying the use of ICTS for networking draws its rationale from the fact that resource-poor countries can (and traditionally have been shown to) benefit cost-effectively from borrowing and adapting technologies from elsewhere. They need not spend scarce resources reinventing the wheel. Information technology will now allow technologists from poorer countries rapid and economical access to a broader range of information and technology.



To learn better how ICTS could be brought to bear on information needs of local communities; NACA co-founded a Thai consortium of information providers in agriculture, which is facilitated by Thailand's National Electronic Computer Technology Centre.

NACA is also a member of the Asia-Pacific Advanced Network, which promotes the research and development of applications of information technology for agriculture, industry and commerce.

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Trade figures in aquatic products clearly show the importance of aquatic products trade to developing economies. In 2001 the value of global fish exports was US\$ 56 billion, 50% of this from developing countries, 25% by Asia. More significantly the net export revenues from fisheries for developing countries was US\$18 billion. A large portion of the aquaculture production is for domestic consumption, but a significant amount is for export. The developing countries of the region have spent considerable resources in raising production, processing and marketing efficiency to come up with products of acceptable quality and safety attributes, and promoting these in world markets. But they are additionally burdened by having to comply with increasingly stringent quality and food safety requirements even as they strive to keep the environment clean and maintain the state of their natural resources.

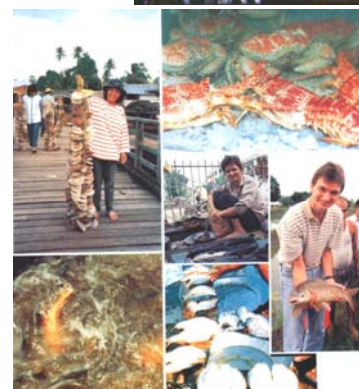
The aquaculture sectors of Asia, have recently focused their efforts to find a clearer understanding and come to a strong and unified action to better address the difficult issues faced by the sector in producing commodities for highly competitive markets where it is essential to assume responsibility not only for the quality of the product but for the actions taken, or not taken, in producing it (AquaMillennium 2000 Report). Ensuring environmental and social responsibility has become a requisite to market access. Recent efforts therefore have been geared towards addressing the technical and non-technical barriers to trade. Because of the imperative to address poverty, the more practical question to governments is how compliance with regulations and standards, which are necessary to gain access to markets, can benefit, or at least not harm or marginalize the small and poorer producers. Most farms in Asia are small which makes it difficult and costly to individually adopt good aquaculture practices or codes of conduct and to ensure product quality.

These issues were explored and highlighted in the AquaMarkets 2003 (Regional Seminar and Consultation on Accessing and Fulfilling Market Requirements of Aquatic Products) held in June 2003 in Manila. The forum provided the basis for developing a program on Market Access. *An ongoing project on trade and poverty is listed and described in Annex 2.*

NACA has generated support for the implementation of major regional and national activities from bilateral, multilateral and investment agencies (Annex 2).

These initiatives illustrate the breadth of multi-institutional collaboration that NACA has been able to facilitate, with the collaboration of various partners in activities that match their respective agenda but meet common regional needs. This list shows very clearly that investments of donors and NACA governments have generated considerable multiplier effects for governments, donors and development agencies, and ultimately for the people.

8. Market Access and Trade



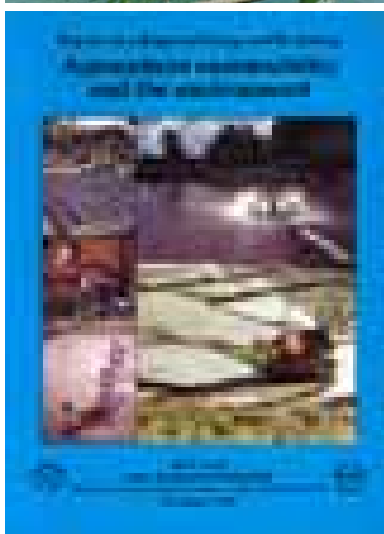
Cost Effectiveness of Collaborative Activities





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Annex 1. Selected projects illustrating multiplier effects of NACA's coordinating role.



Assistance to Safe Transboundary Movement of Live Aquatic Animals in Asia (with FAO and OIE or the World Animal Health Organization). Provides a single unified platform (on the development of technical guidelines for quarantine, certification and reporting) for several agencies to collaborate with governments in addressing multiple issues ranging from capacities for diagnostics, prevention and control; reliable and effective national information systems for decision-support on the causes, origins, seriousness and control of epizootics, and a regional information exchange system. It enables other countries to benefit from a national centre participating in the project that has been strengthened by a bilateral programme into a centre of excellence (i.e. AAHRI).

Aquaculture Farm Performance Study (with ADB). Enabled the collection, analysis, organization, processing and rapid delivery of an extremely large amount of farm-level primary data and information from several (16) countries to guide actions at different operational levels (i.e. farm, farming community or region, agency, national, supra-national; enables quick access to these data by intermediate users of information for various other purposes). The recommendations embodied in the publication "Aquaculture Sustainability Action Plan" have formed the basis for government policy, legislation and management plans for sustainable aquaculture.

Mixed Farming Systems in Mangroves (with ACIAR and AIMS) in Vietnam. Multiplier effect: provides a regional spread to the results of a national-level activity through the regional information exchange and links to other sub-regional and regional projects under NACA. It is now being fed into training and extension not only in the country in which it was conducted (Vietnam) but in other countries as well.

Tropical Coastal Ecosystems Project (DANCED) in Malaysia and Thailand and Denmark. Also a multiplier effect – providing regional spread to the benefits derived from the methodologies and results of a sub-regional project through training, information exchange and links to other network activities, such as Environmental Impact Assessment, rural aquaculture, coastal resources development and management

Grouper Regional R and D Network now Asia-Pacific Marine Fish R and D Network (ACIAR, APEC, SEAFDEC AQD, and lately NGOs including International Marinelife Alliance and The Nature Conservancy). Enables the coordination of and sharp focus to separate research and development efforts of individual workers and institutions located in various countries to crack, in a concentrated manner, technical problems that have been the major bottleneck to mass seed production. It has expanded its remit to include environment, socio-economics and institutional development and manpower training as well as extension.

Formulation of a Master Plan for Aquaculture Development, Sabah, Malaysia (UNDP and the Sabah State Government). Three major features can be cited from this bilateral project – the coordinated use at a very cost-effective manner of regional expertise to develop the Plan, the continuing (as opposed to a one-time) assistance provided to a member government of the activities recommended by the Plan, and the expansion of one regionally relevant aspect of the Plan – namely reef fish management and culture – into a full-blown regional project on grouper research and development.

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Annex 2 Programs and Projects 1990—2003/2004

This is a list of some 54 regional, sub-regional as well as national projects and activities undertaken by the Inter-governmental NACA Organization from 1990, when it became independent, to 2003.

1990. Regional study and workshop on Fish Disease Control Health Management (with the Asian Development Bank). Established firmly the links between environment and aquatic animal health, quantified economic losses from fish diseases, and identified areas for the region and countries to strengthen their capacities at aquatic animal health management.
- 1992-94. Regional study and workshop on the Taxonomy, Ecology and Processing of Red Seaweeds, with FAO, the Government of France and Kasetsart University.
- 1993-94. Assessment of abandoned shrimp culture areas in Thailand, with Coastal Resources Institute, Prince of Songkhla U and National Economic and Social Development Board of Thailand
- 1993-95. Two studies on environmental impact assessment of shrimp farming (carried out in two ecological systems, mangrove and crop lands) with the Office of Environmental Policy and Planning, Government of Thailand
1994. National Workshop on Aquaculture Development and the Environment with Govt of Vietnam and participation (sourced and arranged by NACA) of FAO's legal office, FAO RAPA, EU-project for returnees in Vietnam, Mekong River Commission, CP (private sector), and "Feed the Children" Programme.
1994. Capacities and Needs Matching in Sustainable Coastal and Inland Fisheries and Aquaculture Management with UNDP and Myanmar
- 1994-95. Environmental Assessment and Management of Aquaculture Development, with FAO (A Regional TCP)
- 1994-95. Regional Study and Workshop of Aquaculture Sustainability and the Environment, with ADB (Regional Technical Assistance)
- 1994-96. Key Research Issues in Sustainable Coastal Shrimp Aquaculture with ACIAR, CSIRO, Kasetsart University, and DOF, Government of Thailand
- 1995-97. Master Plan for Coastal Aquaculture Development for Sabah, Malaysia with the Government of the State of Sabah, Malaysia and UNDP
- 1995-96. Establishment of Aquaculture Microprojects in Myanmar under the Human Development Initiative program of UNDP (with FAO, UNDP and UNOPS)
- 1995-96. Survey of Aquaculture Development Research Priorities in Asia, with FAO.
- 1995-96. Survey of Water Pollution Sources and Coastal Aquaculture in Thailand, with the Department of Pollution Control
1996. Regional Workshop on Aquaculture and Management of Coral Reef Fishes and Sustainable Reef Fisheries with UNDP and Government of Sabah, Malaysia
1996. Regional Workshop on Health and Quarantine Guidelines for the responsible Movement of Aquatic Organisms (with FAO and AAHRI) and Working Group Meeting on Regional Fish Disease Reporting System with OIE, AAHRI and SEAFDEC AQD.
1996. Regional Workshop on Legal and Regulatory Aspects of Aquaculture in India and SEAsia, with International Law Institute, Rockefeller Brothers Fund, and Kasetsart University
- 1996-97. Phase I of Mangrove Mixed Farming Systems (Socio-economic study of integration of shrimp culture with mangrove ecosystems in the Mekong Delta of Vietnam) with ACIAR, AIMS and Government of Vietnam; Phase II was finished in 2002 and developed a program to extend the research results of Phase I through training, information and extension activities.
1997. Epidemiological study of EUS, Pakistan with AAHRI ACIAR, DFID
1997. Study of Mangrove Aquaculture Interaction, with Government, Academic, Private Sector and NGO participation)
1997. Study on Food Safety Issues Associated with Products from Aquaculture with WHO and FAO; followed in 1998 by a Regional training on HACCP as applied to aquaculture production (also with WHO and FAO)
- 1997-99. Danish/South-East Asian Collaboration in Tropical Coastal Ecosystems Research and Training Project.
- 1998 - ongoing. APEC/NACA Grouper (now Marine Finfish) Aquaculture R and D Network with collaboration of ACIAR, SEAFDEC Aquaculture Department, and numerous national institutions and individuals from Asia and the Pacific. A Grouper Electronic Newsletter is disseminated through the Internet.
- 1999- ongoing. Development of better management practices for Sustainable Shrimp Aquaculture, case studies to identify elements of good practices; also involves institutions in Latin America, Central and North America and Africa. Includes assessment of mangrove management practices. This is a project that spans Asia, Africa and Latin America involving a consortium of partners: FAO, WWF USA, World Bank, and NACA with the participation of national and regional organizations and NGOs in the 3 continents.
- Phase I of the FAO/NACA Asia-Pacific Regional Program on Molluscan Health Management completed in 1999. NACA and FAO co-organised Phase I with SEAFDEC, Philippines
2000. Shrimp Disease Control and Coastal Management, with India's MPEDA, results to be fed into the above project as well. With NACA, MPEDA and ACIAR.
- Expert Consultation on the Research Needs for Standardization and Validation of DNA-Based Molecular Diagnostic Techniques for the Detection of Aquatic Animal Pathogens and Diseases, jointly organized by FAO, NACA, ACIAR, CSIRO and DFID, 7-9 Feb, 1999
- Assessment of socio-economic costs of aquatic animal diseases in aquaculture with FAO.
- "Primary Aquatic Animal Health Care in Rural, Small-Scale Aquaculture Development in Asia" held in Dhaka, Bangladesh from 27-30 September 1999, co-sponsored with FAO and DFID and hosted by the Government of Bangladesh
- Workshop on Aquaculture Nutrition and Environmental Health Management for the Sustainable Intensification of Freshwater Food Fish Production in South Asia, November 2001, with NACA, FAO and India's CIFA.





NACA's role in aquaculture development in Asia-Pacific

Annex 2 Programs and Projects 1990—2003/2004 (continued)



- 1998-2000. Regional Technical Cooperation Programme "Assistance for the Responsible Movement of Live Aquatic Animals in Asia" which has catalyzed the regional program on Aquatic Animal Health Management of NACA involves 21 governments and multi-agency collaboration, started in January 1998 and successfully terminated in June 2000 with the final workshop held in Beijing with the adoption of the Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals and the Beijing Consensus and Implementation Strategy. Other important components involved institutional strengthening, training and an information system (Aquatic Animal Pathogen Quarantine Information System or AAPQIS).
- Aquaculture Conference in the Third Millennium and Aquaculture and Seafood Fair 2000, 20-25 February 2000. Attended by around 600 from nearly 70 countries representing over 200 organizations; came up with a guide for aquaculture development in the next 20 years in the "Bangkok Declaration and Strategy for Aquaculture Development beyond 2000." NACA and FAO collaborated in the Conference, which was hosted by the Government of Thailand.
2000. Cooperative Aquaculture Education Programme for the Asia-Pacific with APEC assistance for the study and workshop. The Hanoi Workshop held in May 2000 recommended an Aquaculture Education Consortium that will develop as well as participate in a regional education program for aquaculture at various levels. A Strategy for Aquaculture Education was formulated. Distance education and its delivery through Information Technology are seen as a cost-effective option in the new Millennium. With NACA and Deakin University, involving also the participation of national agencies and academic institutions, among them Fisheries Department of Fiji and the University of South Pacific. A follow up working group of experts meeting in Hanoi in November 2001 (that included those from Universities, Training and Education Centres, Donor agencies, NACA, and ASEAN Secretariat) has developed the implementation plans for the Aquaculture Education.
- The Provisional Meeting of the Asia Regional Advisory Group on Aquatic Animal Health (AG) was held at the NACA Headquarters in Bangkok, Thailand on 7-9 November 2001.
2001. Support to Regional Aquatic Resources Management, developed and being implemented initially by a coalition of partners that include DFID, FAO, NACA and an international NGO, the Voluntary Services Organization. This had its genesis from the 1998 NACA-initiated concept "Aquaculture for Sustainable Rural Livelihood Development (ASRLD) that FAO supported.
2001. Aquaculture Alliance in the Lao PDR, an alliance that would generate, provide, facilitate funding and/or technical assistance to Laos, which includes NACA, ICLARM, and the Department of Fisheries of Thailand through its Aquatic Animal Health Research Institute (AAHRI)
2001. Plans for a TransHimalayan Network of Coldwater Fishery and Fishery Resources – which is focused on poverty alleviation, resources management and environment – involving the countries bordering the Himalayan ranges were agreed in a regional workshop in Katmandu in July 2001 that was attended by South Asian country and China representatives, academics, experts from Mekong River Commission and Thailand, and supported by various organizations that included WWF, IUCN Nepal, EU projects in Nepal, a Professional Fishery Association, and FAO and NACA.
- NACA collaboration with the ongoing (2001-2005) NSW/ACIAR project Development and Delivery of Practical Disease Control Programs for Small-Scale Shrimp Farmers in Indonesia, Thailand and Australia
2001. Intensification of Food Production through Freshwater Aquaculture. The expert consultation, held in October at NACA's regional lead center in India (CIFA) and organized by FAO, NACA and the Centre identified technical, strategic and policy issues that constrain producing more food through freshwater aquaculture, and recommended specific follow up actions to resolve the water, feed and seed and animal health issues.
- The first meeting of the Asia Regional Advisory Group on Aquatic Animal Health (AGM-1) was held at the NACA Headquarters, Bangkok, Thailand on 6th-8th November 2002.
2002. Regional Workshop on Focusing Small-Scale Aquaculture and Aquatic Resources Management on Poverty Alleviation, with FAO RAP.
- 2002 Study of the Commercialisation of Aquaculture Development with FAO. Described and analysed the factors that facilitated (or impeded) the development into commercial level of the culture of certain species in selected countries (Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Thailand, Vietnam).
2002. An Emergency Disease Control Task Force on a Serious Disease of Koi and Common Carps in Indonesia, (Task Force), was organized by NACA in cooperation with ACIAR and AAHRI. FAO and the OIE Regional Representation for Asia-Pacific
2002. Import risk analysis (IRA) awareness and capacity building (with APEC support and collaboration of FAO and OIE). Two training workshops were held, in Bangkok for Asian nationals and in Mazatlan, Mexico for North, Central and South American personnel. An important output is a training manual on IRA applicable to aquatic animals.
2002. Regional Aquafeed Project, with focus on the Mekong River Basin countries with ACIAR, AIT and MRC. A workshop in June 2002 developed a regional plan for collaboration in research, capability building and information exchange focused on low-cost and preferably indigenous resources-based aquafeed for small-scale aquaculture
- A joint NACA/MPEDA/CIBA/ICAR/CSIRO/ACIAR/BIOTEC Expert Consultation on Rapid Diagnosis of Shrimp Viral Diseases conducted in Chennai in June 2002
2002. Asia-Pacific Marine Finfish R and D Network. The former Grouper R and D network has been institutionalized and incorporated into NACA's work program. A series of workshops on various aspects of marine fish culture (as well as marine fishery resource management, and marine fish trade) have been conducted, the latest of which was one that focused on the larval rearing and feed development of marine fish, with a complementary consultation on development of standards for aquacultured marine fish.
2002. Development of standards for the culture of reef fish, as part of a region wide initiative to develop standards for the live reef fish trade, co-funded by APEC.

NACA's role in aquaculture development in Asia-Pacific



Annex 3 Programs and Projects 1990—2003/2004 (continued)

2002. NACA is collaborating in a CABI project to develop a compendium on aquaculture. It is a member of the working group to progress the results of a consultation to develop the business plan and outline the structure, content and thrust of the compendium.

Phase II of the FAO/NACA Asia-Pacific Molluscan Health Management program was held from 29th November to 5th December 2002. NACA and FAO co-organised Phase II with the University of Queensland, Australia and in cooperation with other organizations/institutes from Australia

Regional Seminar " Harmonization of Quarantine Procedures for Live Fish Among ASEAN Member Countries" February 24-26 , 2003, Penang Malaysia. Department of Fisheries of Malaysia, ASEAN and NACA collaborated in organizing the regional seminar.

2003 (June 2-6). AquaMarkets 2003. A Regional Seminar/Consultation/Exhibition on the theme Accessing and Fulfilling Market Requirements of Aquatic Products. Organized by NACA and the Government of the Philippines' Departments of Agriculture and Trade and Industry; with the cooperation of FAO, ASEAN, SEAFDEC and PHILSHRIMP, Inc. A ten-point recommendation to address various market access issues, among which is the need to ensure that small producers can comply with an increasing number and stringency of market requirements, and to ensure that trade contributes to poverty alleviation.

Workshop on "Use of international mechanisms for the control and responsible use of alien species in aquatic ecosystems" 27-30 August 2003, Yunan, China. The workshop was jointly organized by FAO, NACA, AIT, FNNP, IUCN, MRC, Sea Grant program (USA), and Ministry of Fisheries, China.

The second meeting of the Asia Regional Advisory Group on Aquatic Animal Health (AGM-2) was held at the NACA Headquarters, Bangkok, Thailand on 10th-12th November 2003

The International Seafood Trade: Supporting Sustainable Livelihoods Among Poor Aquatic Resource Users in Asia (A project under EC's Poverty Reduction Program). *Ongoing*. The project addresses *trade and development*, and indirectly two other issues: *food security and sustainable rural development and institutional and capacity building*. It investigates the complex trade and fisheries market relationships in developing countries in Asia, particularly relevant in the light of the possible entry of fisheries into the WTO process (following Doha). Outcomes will provide guidance in national and international trade policy development and the influence of these policies in encouraging market and institutional mechanisms for more effective use of trade in aquatic products to support sustainable rural livelihoods and poverty reduction.

Reducing Risks of Aquatic Animal Disease Outbreak, under the DANIDA assisted "Support to Brackishwater and Marine Aquaculture (SUMA) Fisheries Sector Program Support. The project is piloted in five (Ca Mau, Nge Anh, Ha Tinh, Quang Ninh and Khanh Hoa) provinces of Vietnam with the objective of developing and implementing control measures that reduce the risk of fish and shrimp disease outbreaks and their negative impacts on farmers and trade (November 2003-December 2005)

Regional TCP/RAS/2908 (T) on Poverty alleviation through improved aquatic resources management in Asia, in collaboration with FAO. The project will contribute to achieving the overall objectives of STREAM Initiative (June 2003 to Feb 2005). It will produce: national analyses of aquatic resources, their users and management and relevance to poor people and national policy change; mechanisms for training in livelihood approaches and analyses and national capacity building; regional aquatic resources and livelihoods information network; country strategy papers on aquatic resources and livelihoods support; and a framework for pro-poor regional strategy on sustainable aquatic resources management in Asia-Pacific.

"Requalification of small scale fisheries micro-enterprises and ecosystem-based innovation of aquatic production systems for the sustainable development of Thai coastal communities, Phang Nga Bay, Thailand." A cooperative project between Terre des homes Italy Foundation-Thai Delegation and NACA aimed to develop efficient services to the small scale fishermen in the sectors of education, information, marketing and seafarming innovation to support the shift from purely extractive patterns of use to a wider perspective ecosystem-based integrated farming. This project further enriches the activities of the Asia-Pacific Marine Fish Aquaculture Network. It has 4 elements: (i) survey of markets and marketing systems of small-scale fisheries/farming productions in Southern Thailand; (ii) study of Bangkok's marketing network to investigate the marketing systems for the range of products derived from the South; (iii) a regional market study to look at selected markets involved in the import/export of live reef fish and other selected products to be conducted in Malaysia, Singapore, Taiwan, HongKong, and Guangzhou; and (iv) a regional seafarming production technology component that will review selected regional seafarming technologies and systems that might apply to Southern Thailand, and a survey of technology development hotspots with focus on integrated seafarming, specialty products and species





NACA's role in aquaculture development in Asia-Pacific

Annex 4 Members and Participating Governments



NACA Member Governments

- Australia
- Bangladesh
- Cambodia
- PR China
- Hong Kong China
- India
- DPR Korea
- Malaysia
- Myanmar
- Nepal
- Pakistan
- Philippines
- Sri Lanka
- Thailand
- Viet Nam

Associate Members:

- Secretariat of the Pacific Community (SPC)
- Asia-Pacific Association of Agricultural Research Institutes (APAARI)

Participating Governments

- **Indonesia:** membership endorsed by the Ministry of Marine Affairs and Fisheries and by the Ministry of Foreign Affairs, in the process of accession to the NACA Agreement.
- **Iran:** membership approved by Government; application to be voted on by Governing Council during its 15th meeting in April 2004.
- **Lao PDR:** engaged through the Alliance for Aquaculture involving NACA, AIT, ICLARM-WorldFish Centre and Thailand's Aquatic Animal Health Research Institute.
- **RO Korea:** membership under study
- **Singapore:** participating in selected regional activities
- **Brunei Darussalam:** participating in selected regional activities

Host Government

Royal Thai Government through its Department of Fisheries, Ministry of Agriculture and Cooperatives