



UNDP/GEF PROJECT ENTITLED “REDUCING ENVIRONMENTAL STRESS IN THE YELLOW SEA LARGE MARINE ECOSYSTEM”

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PROPOSED REGIONAL GUIDELINES FOR SUSTAINABLE FISHERIES AND MARICULTURE AND STRATEGIC ACTION PROGRAMME IN THE YELLOW SEA

1 GENERAL ISSUES

- 1.1 According to the overall workplan, the Project has reached the beginning of its second major phase, that is, to develop the Strategic Action Programme (SAP). The “TDA/SAP Training Module” developed by UN’s TRAINSEACOAST network gives the definition of SAP as:

“...a negotiated policy document which should identify policy, legal and institutional reforms and investments needed to address the priority transboundary problems. Endorsed at the highest level, it establishes clear priorities for action to resolve the priority problems which were identified in the TDA. The preparation of a SAP is a cooperative process among the countries of the region....”

- 1.2 Given the definition, the Project should now focus its activities over the next two years on those that will be relevant to the development of the SAP, including the regional and national SAPs, i.e. activities that will eventually lead to formation of management actions, some of which will be included in the pilot implementation during Project Year 5, for their feasibilities, efficiency and effectiveness in addressing Yellow Sea’s marine environmental problems.
- 1.3 A three-step approach is proposed: a) management issues, b) regional targets of the management activities, c) management actions, where activities need to be recommended for each step. While it is suggested that these three steps are taken to develop the fisheries section of the SAP, all steps should be considered simultaneously:
- Consider the **technical and management issues** towards a sustainable fisheries and mariculture regional programme in the Yellow Sea;
 - Recommend achievable **regional guidelines** for sustainable fisheries and mariculture management; and
 - Suggest **sustainable actions** for execution by political, technical, institutional, and legal bodies.

Table 1. Logical framework on technical management issues and regional guidelines towards the development of the fisheries section of the SAP

Step	Description / Issues & Considerations	Expected Outputs – Targets
TECHNICAL AND MANAGEMENT ISSUES	<p>The earlier exercises on the preliminary Causal Chain Analysis and the activities on national data and information collection activity, and the regional synthesis have somewhat addressed the Part “a” (pls. see paragraph 1.3.)</p> <p>The draft Transboundary Diagnostic Analysis (TDA) will provide further insight into the region’s fisheries management issues.</p>	Causal Chain Analysis ¹
REGIONAL GUIDELINES	<p>Consultancies were conducted to gather relevant information to the YSLME region that could lead the Project to deliver regional agreements (strategies).</p> <p>These agreements shall focus on regional programmes towards sustainable fisheries and mariculture in the YSLME region.</p> <p>Based on the outcomes of the consultancies developed, the information available through relevant international organisations and <u>before</u> recommending management actions, one must be clear about the <u>management measures</u> that the project wishes to achieve.</p>	<p>Regional agreements (strategies) for sustainable fisheries management</p> <p>Regional agreements (strategies) for sustainable mariculture management issues.</p>

¹ Refers to Agenda Item 6 of the 3rd RWG-F where a CAUSAL CHAIN ANALYSIS will be finalised having as a reference the preliminary progress report on the TDA consultant.

Table 2. Logical framework on proposed sustainable actions towards the development of the fisheries section of the SAP

Step	Target	Description / Issues & Considerations	Sustainable Actions
<p>SUSTAINABLE ACTIONS</p>	<p>REGIONAL AGREEMENTS (STRATEGIES) FOR SUSTAINABLE FISHERIES MANAGEMENT</p>	<p>One suggestion is to give priority to develop regional agreements that may come from the discussion and recommendations from the consultancies conducted.</p>	<p>Joint-regional Fisheries Stock Assessment Programme</p> <ul style="list-style-type: none"> ➤ Implementation of a collection system of accurate catch and effort and biological data; ➤ Selection of a suitable model from the existing classical mathematical models for reiterative use in fisheries stock assessment in the YS region; ➤ Expert consultation towards the development of new models based on the classical/new models used in other regions. ➤ Implementation of a collaborative research programme towards a joint-prediction system of stock size of commercially important species in the region. ➤ Implementation of a joint-scientific survey programme considering variables such as scope, frequency, sampling strategies, survey design, etc. <p>Regional Fisheries Management for the Sustainable Use of Fisheries Resources</p> <ul style="list-style-type: none"> ➤ Implementation of a Regional Agreement for Sustainable Use of Fisheries Resources. This initiative will have focus on measures for strengthening laws and regulations and improving law enforcement systems.
		<p>Another suggestion is to discuss on how the identification and analysis of management measures available through international organisations such as APFIC, NACA, etc. might be applicable to the UNDP/GEF Yellow Seas Project. ²</p>	<p>Preliminary agreements towards the identification, analysis and modifications of applicable management measures available at regional international organisations which can be suitable for the YSLME.</p> <ul style="list-style-type: none"> ➤ Expert consultation to identify, analyse and determine what other relevant international organisation fisheries management measures are most suitable to the YSLME region.

² Some FAO-APFIC relevant fisheries management approaches are mentioned in Annex 1. Likewise, some NACA relevant aquaculture management approaches are mentioned in Annex 2.

Table 2 (Con't)

Step	Target	Description / Issues & Considerations	Sustainable Actions
SUSTAINABLE ACTIONS (Con't)	REGIONAL AGREEMENTS (STRATEGIES) FOR SUSTAINABLE MARICULTURE MANAGEMENT PRACTICES	One suggestion is to give priority to develop regional agreements that may come from the discussion and recommendations from the consultancies conducted.	Joint-regional Research Programme for Sustainable Mariculture <ul style="list-style-type: none"> ➤ Expert consultation on the criteria and major guidelines that should be considered for the implementation of a Joint-Research Programme for Sustainable Mariculture;
		CARRYING CAPACITY and ASSIMILATIVE CAPACITY approaches of coastal waters for specific aquaculture practices in the YSLME region might be considered for discussion at the 3 rd RWG-F.	Regional Agreement on the scheme for the implementation of a carrying capacity research programme in the Yellow Sea <ul style="list-style-type: none"> ➤ To develop a scoping study for research into the aquaculture carrying capacity of YSLME coastal waters ➤ To review the regulations and aquaculture monitoring systems available in the YSLME region with emphasis on environment and consumer protection issues. ➤ To identify and implement a demo site(s) in the YSLME region in order to undertake a Carrying Capacity or an Assimilative Capacity approach.
	CAPACITY BUILDING	One suggestion is to set up a checklist of priorities in capacity building activities that should be part of the forthcoming SAP and based upon the activities done so far by the Project.	<ul style="list-style-type: none"> ➤ “Regional Training in Mariculture Techniques”. Agreed objective and implementation mechanism of this activity, type of workshop, topics, participant groups, time frame. ➤ “Regional Training in Disease Diagnosis, Prevention and Control”. Agreed objective and implementation mechanism of this activity, type of workshop, topics, participant groups, time frame. ➤ “Regional Training in Carrying Capacity Techniques and Major Guidelines for the Set Up of a Demo Site”. Agreed objective and implementation mechanism of this activity, type of workshop, topics, participant groups, time frame.

Note: Issues that should be considered and agreed on during the meeting include:

- What kinds of “management measures” are relevant, reasonable, and achievable in the region?
- What activities are needed to realise the development of such management measures?

2 MAJOR CONSIDERATIONS

- 2.1 Members should provide guidance on how the approved activities should be implemented, or the results used, in such a way that they complement the development of regional management measures towards the development of the SAP.
- 2.2 Members should also elaborate additional activities related to the development of regional fisheries management measures.
- 2.3 After the types of targets and their associated actions have been discussed and agreed, there is a need to devise actions to achieve the targets. These actions may be technical, managerial, political, legal, or a combination of some or all of them. Costs and benefits analysis of each action also need to be contemplated.
- 2.4 To address major fisheries issues in the Yellow Sea, the Causal Chain Analysis exercise will provide useful tools.
- 2.5 APFIC has a sort of approaches towards fisheries management, among others; some of those are summarized at Annex I. NACA has other approaches towards sustainable mariculture and those are also cited in Annex II.
- 2.6 Members should expand on these activities by giving concrete ideas on what actions should be included for implementation.

3 EXPECTED RESULTS FROM THE MEETING

- 3.1 During the consideration of this Agenda, members should discuss and recommend activities to be implemented within the scope of the SAP. Some suggestions for “Target” activities are listed as “Sustainable Actions” on Table 1.
- 3.2 Members should note that some of the above activities can be complemented, combined and reports should include actions to test the ideas through pilot projects, whenever considered appropriate.

Annex I

FAO - Fisheries: Regional Role ¹

1 REGIONAL ROLE

Fish provides nutritious food, employment and income for millions of people in Asia and the Pacific. In 2001, capture fishery production from this region accounted for half of world production, with aquaculture alone reaching 89 percent of the global aquaculture production of fish and shellfish.

Fisheries are critical to the food security of most countries in the region and, although demand for fish is increasing, the supply from capture fisheries is unlikely to increase unless some fairly far-reaching management measures are introduced. Marine coastal fisheries in particular are either fully or over-exploited. Aquaculture, and to a lesser extent inland fisheries, may provide some opportunities for further increases in fish production in the region, but only if they are managed sustainably.

The FAO regional office, also working through the [Asia-Pacific Fishery Commission \(APFIC\)](#) – a statutory body of the Organization which presently has a membership of 20 countries – is addressing these issues by promoting:

- Sound management and sustainable use of resources in fisheries and aquaculture
- Development of fisheries and aquaculture techniques
- Responsible aquaculture development
- Conservation of marine and inland fisheries' resources within the Framework of the [FAO Code of Conduct for Responsible Fisheries](#)
- Strengthened regional institutions and international collaboration in support of responsible fisheries
- Improved fisheries statistics

Owing to the continuing pressures on fisheries resources in many countries in the region, the central issue remains that of management and sustainability. The prime concern is the need to increase the supply of fish and the economic benefits from fishing by the introduction and enforcement of better management. Generally, coastal resources are severely over-fished by an overcrowded small-scale fishery sector. In many of these domains, the income from fishing as well as the quantity and value of the catch are declining. Fishers are increasingly required to spend more time chasing fewer fish. Conflicts between small-scale fisheries and trawlers in the coastal zones are frequent and fishery management is complicated. Partnerships between local communities and the central government are evolving in some countries in order to develop more effective community-based fishery management systems for local resources.

Aquaculture is becoming an increasingly important source of food and is an important feature of both rural livelihoods as well as economic growth in many Asian countries. It is clear that considerable benefits may be gained by the better integration of aquaculture into overall rural and agricultural development, particularly as pressures on land and water resources increase. The supply of fish from aquaculture could be increased further by the wider application of technological advances in feed development and better management of fish health. The region represents a huge diversity of cultured species and genetic improvement of these cultured species promises greater reliability and economic benefits. The wider application of semi-intensive production systems that use land and water more efficiently are already becoming a visible regional trend.

¹ Taken from: http://www.fao.org/world/regional/rap/fisheries_regional.asp

Governments and FAO are addressing these issues by promoting appropriate policies and programmes. The effective implementation of the Code of Conduct for Responsible Fisheries remains the primary goal for FAO in Asia and the Pacific. The code aims to raise awareness – from top officials to local fisher folk – of creating a responsible fishery system that stands on the principles of protecting living aquatic resources and environmental and coastal areas. Central to a responsible fishery system is the development of fishery and aquaculture techniques as well as conservation measures, along with enhanced food security and food quality, by all people engaged in the industry.

2 APFIC AND OTHER ACTIVITIES

2.1 Asia-Pacific Fishery Commission (APFIC)

The FAO regional office hosts the secretariat of the Asia-Pacific Fishery Commission (APFIC), which is a regional fishery body that acts as a consultative forum and works in partnership with other regional organizations, arrangements and members. It provides advice, coordinates activities and acts as an information broker to increase knowledge of fisheries and aquaculture in the Asia-Pacific region to underpin decision-making. The APFIC secretariat is based at the FAO Regional Office for Asia and the Pacific, Bangkok, Thailand.

2.2 Other activities

- APFIC meetings in 2004 and 2005
- Response to the tsunami of 26 December 2004
- Projects

3 FAO CODE OF CONDUCT FOR RESPONSIBLE FISHERIES ²

Fisheries (which includes the management, catching, processing, marketing of fish stocks) and aquaculture (the farming of fish) provide an important source of food, employment, income and recreation for people throughout the world. Millions of people depend upon fish for their livelihoods. If there is to be enough fish for future generations, everyone involved in fishing must help conserve and manage the world's fisheries so that these activities continue to make this important contribution to sustainable development. The Code of Conduct for Responsible Fisheries sets out principles and international standards of behaviour for responsible practices that promote effective conservation, management and development of living aquatic resources.

² <http://www.apfic.org/modules/xfsection/index.php?category=2>

ITEM	SUMMARY
Compliance Agreement of the CCRF ³	Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (Compliance Agreement).
FAO Code of Conduct for Responsible Fisheries ⁴	This is the full text of the FAO Code of Conduct for Responsible Fisheries.
FAO Technical Guidelines for the CCRF ⁵	These technical guidelines provide more specific technical detail and guidance on the articles of the FAO Code of Conduct for Responsible Fisheries (CCRF). These technical guidelines are intended to assist fisheries professionals in understanding the technical aspects of the articles of the CCRF. Some of the guidelines address specific articles of the CCRF while others cover specific environments or issues.
International Plans of Action ⁶	The international plans of action (IPOAs) are voluntary instruments elaborated within the framework of the Code of Conduct for Responsible Fisheries. They apply to all States and entities and to all fishers. Four IPOAs have been developed to date.
Strategy for Improving Information on Status and Trends of Capture Fisheries ⁷	The Strategy for Improving Information on Status and Trends of Capture Fisheries is a voluntary instrument that applies to all states and entities. Its overall objectives are to provide a framework, strategy and plan for the improvement of knowledge and understanding of fishery status and trends as a basis for fisheries policy-making and management for the conservation and sustainable use of fishery resources within ecosystems.
What is the FAO Code of Conduct for Responsible Fisheries? ⁸	A non-technical simplified version of the FAO Code of Conduct for Responsible Fisheries

The code advocates a balance between human well-being and ecological well-being. It takes into account the biological characteristics of the fishery resources and their environment (ecosystems) as well as the interests of consumers and other users. States and all those involved in fisheries are encouraged to apply the Code and give effect to it. This is done through the integration of the Code's principles into regional and national legislation and policy formulation as well as implementing it in day-to-day activities based on Technical Guidelines that accompany it and a series of simplified guidelines.

³ Downloadable document available at: <http://www.apfic.org/modules/xfsection/article.php?articleid=11>

⁴ Downloadable document available at: <http://www.apfic.org/modules/xfsection/article.php?articleid=7>

⁵ Downloadable document available at: <http://www.apfic.org/modules/xfsection/article.php?articleid=18>

⁶ Downloadable document available at: <http://www.apfic.org/modules/xfsection/article.php?articleid=6>

⁷ More info available at: <http://www.apfic.org/modules/xfsection/article.php?articleid=10>

⁸ A simplified text explaining the purpose of the Code of Conduct for Responsible Fisheries is available at: <http://www.apfic.org/modules/xfsection/article.php?articleid=9>

4 EMERGING FISHERIES ISSUES

ITEM	SUMMARY
Low value & trash fish issues ¹	Low value or so-called “trash Fish” is a broadly used term that relates fish species that by virtue of their small size or low consumer preference have little or no commercial value. They are used widely in coastal areas either directly for human consumption or as feeds for aquaculture and livestock. Capture fisheries in the Asian region are increasingly landing these small species as quality of catch declines and there is a ready market for these fish.
Aquaculture ²	The Asia-Pacific region is by far the world's largest contributor to world aquaculture, producing 46.9 million tonnes or 91 percent of global aquaculture production.
Fishery & aquaculture trends ³	This section contains analysis of the fisheries subsectors focussing on the trends in production and the resource. These analyses draw primarily from the FAO fishery statistics (FishSTAT) and other sources.
Industrial fisheries ⁴	This section covers reviews of issues in industrial fisheries. Initial reviews cover the development and emergence of industrial fishing in regions within APFIC's area of competence.
Mainstreaming co-management in fisheries ⁵	Many agencies (both governmental and non-governmental) are striving to improve the livelihoods of poor people that are dependent on aquatic resources by including these stakeholders in the planning and implementation of fisheries management. Many States have adopted decentralization as the way to implement future fisheries management, especially in developing countries, which often involves a partnership between government and the local communities i.e co-management approach. The challenge is to find a way that co-management becomes “mainstream” practice of both government and non-government organizations and communities.

¹ Downloadable reference docs available at: <http://www.apfic.org/modules/xfsection/article.php?articleid=1>

² An APFIC briefing note on aquaculture trends in Asia and the Pacific (2004) is available at: <http://www.apfic.org/modules/xfsection/article.php?articleid=4>

³ Downloadable documents available at: <http://www.apfic.org/modules/xfsection/article.php?articleid=2>

⁴ More info available at: <http://www.apfic.org/modules/xfsection/article.php?articleid=20>

⁵ More info available at: <http://www.apfic.org/modules/xfsection/article.php?articleid=16>

Nutritional & economic contribution of fisheries ⁶	The fisheries and aquaculture sector is of fundamental importance to the Asia-Pacific region in terms of food security, revenue generation and employment. In rural areas, catching or farming aquatic resources forms a vital part of the livelihoods of the people.
Small-scale fisheries ⁷	Small-scale fisheries fisheries-related activities (processing, trading, net-repairing, etc.) make a very important contribution to the nutrition, food security, sustainable livelihoods and poverty alleviation of many countries in the Asia Pacific region, especially developing countries.

⁶ More info available at: <http://www.apfic.org/modules/xfsection/article.php?articleid=5>

⁷ More info available at: <http://www.apfic.org/modules/xfsection/article.php?articleid=3>

Annex II

NACA - Aquaculture: Overview

1 GENERAL ISSUES ¹

1.1 Vision

NACA is an intergovernmental organization that promotes rural development through sustainable aquaculture. NACA seeks to improve rural income, increase food production and foreign exchange earnings and to diversify farm production. The ultimate beneficiaries of NACA activities are farmers and rural communities. The core activities of NACA ²are:

- Capacity building through education and training;
- Collaborative research and development through networking among centers and people;
- Development of information and communication networks;
- Policy guidelines and support to policies and institutional capacities;
- Aquatic animal health and disease management; and
- Genetics and biodiversity.

2 OBJECTIVES ³

The objectives of the Organization shall be to assist the Members in their efforts to expand aquaculture development mainly for the purpose of:

- a. increasing production;
- b. improving rural income and employment;
- c. diversifying farm production; and
- d. increasing foreign exchange earnings and savings.

In order to facilitate the achievement of the foregoing objectives, the Organization shall:

- a. consolidate the establishment of an expanded network of aquaculture centres to share the responsibility of research, training and information exchange essential to aquaculture development in the region;
- b. strengthen institutional and personal links among national and regional centres through the exchange of technical personnel, technical know-how and information;
- c. promote regional self-reliance in aquaculture development through Technical Cooperation among Developing Countries (TCDC); and,
- d. promote the role of women in aquaculture development.

¹ Taken from: <http://www.enaca.org/modules/tinyd1/>

² STRUCTURE & MEMBERS. Current member governments are Australia, Bangladesh, Cambodia, China, Hong Kong SAR, India, Indonesia, I.R. Iran, Korea (DPR), Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Vietnam. Other participating (non-member) governments include Rep. of Korea, Lao PDR and Singapore. NACA policy is determined by the Governing Council composed of high officials representing in the member governments. The Governing Council regularly meets once a year and formulates NACA's 5-Year Regional Work Programme. FAO is a non-voting member. The NACA Agreement provides for other international and government assistance agencies to be non-voting members, by invitation.

³ More info available at: <http://library.enaca.org/PDF/NACA-GC14-FINAL.pdf>

3 FUNCTIONS⁴

- a. conduct disciplinary and interdisciplinary research on selected aquafarming systems for adaptation or improvement of technologies, and for the development of new technologies;
- b. train and upgrade core personnel needed for national aquaculture planning, research, training, extension and development;
- c. establish a regional information system to provide appropriate information for development planning, research and training;
- d. assist Members in strengthening their national centres linked to the regional centres;
- e. assist the national centres of Members in testing and adapting existing technology to local requirements and in the training of technicians, extension workers and farmers at the national level;
- f. transfer to the Members appropriate aquaculture technologies and techniques developed at regional centres;
- g. facilitate the exchange of national experts, technical know-how and information within the framework of TCDC;
- h. develop programmes for the promotion of women's participation in aquaculture development at all levels;
- i. assist Members in feasibility studies and project formulation; and
- j. undertake such other activities related to the objectives of the Organization as may be approved by the Governing Council.

4 NACA ROLE IN AQUACULTURE DEVELOPMENT IN ASIA-PACIFIC⁵

The NANCA's 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

⁴ More info available at: <http://library.enaca.org/PDF/NACA-GC14-FINAL.pdf>

⁵ More info available at: http://library.enaca.org/PDF/NACA_Role_in_Aquaculture.pdf

Special initiatives on Market Access and Trade in Aquaculture Products and promoting farmers associations have been added. To illustrate the above attributes, some **initiatives** under the Work Program are described on the next few pages.

5 REGIONAL INITIATIVES

5.1 STREAM

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.¹

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.

5.2 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 Program, 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.²

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*

¹ 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.

² The project, implemented by NACA in 1998-2000, in cooperation with 21 participating governments, and regional and int'l 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, multidisciplinary *Asia Pacific Regional Aquatic Animal Health Programme*.

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 institutionalized 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.³

5.3 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.⁴

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.

5.4 Regional Collaborative Programme 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 (2000) followed by a smaller expert working group meeting also in Hanoi (2001).⁵

³ This program has involved donors and development agencies. APEC and 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 countries. ACIAR assisted in the harmonization and intercalibration of Asian regional diagnostic techniques, etc.

⁴ 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).

⁵ 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.”

5.5 Asia-Pacific Marine Fish R and D Network

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, socioeconomic (including livelihoods, alternative employment opportunities), marketing, training and extension, and information components.

These five programmes described above show that a broad-based participatory multiinstitutional collaboration multiply benefits to governments and people. 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.

5.6 Working with Farmers and Industry

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.

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.

5.7 Other initiatives

- Information and communications technology and strategy for networking
- Market access and trade
- Cost-effectiveness of collaborative activities