

The role of aquaculture and living aquatic resources

Priorities for support and networking



*Report of regional donor consultation
Manila, Philippines, 27-28 November 2002*

**Food and Agriculture Organization of the United Nations
Regional Office for Asia and the Pacific
Bangkok, Thailand**

**Regional donor consultation on the role of aquaculture and living aquatic
resources: priorities for support and networking**

Manila, Philippines 27-28 November 2002

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For copies, write to: Simon Funge-Smith
Aquaculture Officer
FAO Regional Office for Asia and the Pacific
Maliwan Mansion
39 Phra Athit Road
Bangkok 10200
Thailand
Tel. No.: +662 6974149
Fax No.: +662 6974445
E-mail: Simon.FungeSmith@fao.org

PREPARATION OF THIS DOCUMENT

The Food and Agriculture Organisation of the United Nations (FAO), the Mekong River Commission (MRC), the Network of Aquaculture Centres in Asia-Pacific (NACA), the Southeast Asian Fisheries Development Center (SEAFDEC) and the WorldFish Center Regional Donor Consultation on the *Role of aquaculture and living aquatic resources: priorities for support and networking* convened in Manila, Philippines, 27-28 November 2002.

This Regional Donor Consultation was initiated by FAO as a collaborative activity with partner regional institutions (NACA/SEAFDEC/MRC/WorldFish Center) as a way to inform the donor representatives of the role aquaculture and aquatic resources management (meaning all forms of interaction with fisheries and aquaculture) play in rural development, water management, environment, poverty alleviation, food security, livelihood, trade, gender and household nutrition. It was also a forum to discuss with donors the types of appropriate intervention needed in sustainable aquaculture development and mechanisms for their implementation.

The thirty participants in the Consultation came from four regional countries while one participant travelled from Europe (see Annex 6). Nine donors and five regional organizations were represented.

The consultation was organised to share experiences and produce recommendations under the broad thematic headings of:

- I. The role, potential and needs of aquaculture and aquatic resource management in the Asia-Pacific region.
- II. Donor development priorities relevant to rural development, living aquatic resource management and aquaculture.
- III. Priority areas and opportunities for action and support.

The conclusions of the Regional Donor Consultation are targeted at donor agencies, international and regional institutions related to the fishery sectors and also national policy-makers.

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ABSTRACT

The lack of sensitization of policy-makers to the role and opportunities of aquatic resource management and aquaculture is not necessarily a result of inadequate information but rather inadequate channelling of the information to the right decision-makers, in a form that is useful to them. There are currently few opportunities for dialogue and mutual learning and sometimes poorly coordinated efforts to inform policy-makers of the important role of aquaculture and aquatic resource management. As a result, awareness among policy-makers is low and this is reflected in the lack of donor intervention in the sub-sector. Therefore, a Regional Donor Consultation was convened on the *Role of aquaculture and living aquatic resources: priorities for support and networking* to discuss with donors the role that aquaculture and aquatic resources management play in rural and coastal livelihoods and the regional development requirements for this sub-sector.

Each of the organizations promoting aquaculture and aquatic resources management presented an overview of its aims, perceived role in the development process and main activities. Four major themes emerged from these presentations. Donor agencies outlined their guiding policies, main approaches and services. All the donors presenting are supporting the fisheries sector through initiatives such as knowledge dissemination, community-based coastal resources management or marine fisheries. Donors agreed that small-scale fisheries and aquaculture are valuable tools for poverty alleviation and rural development and are prepared to fund these activities provided that proposals can be shown to meet the donors' policy goals.

A pressing need was identified for aquatic resource management and aquaculture to become part of the global discourse on poverty alleviation and to demonstrate that aquaculture and aquatic resources management play a significant role. A number of practical and immediate actions can be taken to make aquaculture and aquatic resources management a larger part of the discourse on rural development and poverty alleviation. Donors are constrained by their own national policies and the policies and priorities of the countries with which they wish to engage. It was also stated that donors often talk to national planners and staff at the various Ministries of Agriculture, which may not always be aware of the importance of the fisheries sector. To assist, regional institutions offered to analyze the range of sectoral strategy papers the various donors are using (trends on development support, inclusion of current issues) and draw up a common document that would be provided to donors. This would include recommendations regarding adaptation and/or revision to current regional and national needs. Additionally, the regional institutions could assess project impact against selected poverty indicators; possibly in a manner of an overall review.

The meeting agreed that follow-up consultations between the regional institutions and donors would be fruitful if held at least once every two years.

Distribution:

Participants at the Consultation
FAO Fisheries Department
Fisheries Officers in FAO Regional Offices
Network of Aquaculture Centres in Asia-Pacific (NACA)
Southeast Asian Fisheries Development Center (SEAFDEC)
Mekong River Commission (MRC)
The WorldFish Center
Relevant international/regional fisheries organizations

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ABBREVIATIONS

AAHRI	Aquatic Animal Health Research Institute
AAPQIS	Aquatic Animal Pathogen and Quarantine Information System
ACIAR	Australian Centre for International Agricultural Research
ADB	Asian Development Bank
ADSEA	Aquaculture Development in Southeast Asia
AIT	Asian Institute of Technology
APARRI	Asia-Pacific Association of Agricultural Research Institutions
APEC	Asia-Pacific Economic Cooperation
ARM	Aquatic Resource Management
ASEAN	Association of Southeast Asian Nations
AUSAID	Australian Agency for International Development
BADC	Belgian Agency for Development Cooperation
BFAR	Bureau of Fisheries and Aquatic Resources
BFS	Binangonan Freshwater Station
BMZ	German Federal Ministry for Economic Cooperation and Development
CCF	Country Cooperation Framework
CCRF	Code of Conduct for Responsible Fisheries
CGIAR	Consultative Group on International Agricultural Research
CITES	Convention on International Trade in Endangered Species of Wildlife Fauna and Flora
COFI	Committee on Fisheries
CRM	Coastal Resources Management
CSP	Country Strategy Papers
DBS	Dumangas Brackishwater Station
DC	Development Cooperation
DFID	Department for International Development
DGCI	Directorate General for International Cooperation
EAPEI	East Asia and Pacific Environmental Initiative
EMS	Environmental Management Systems
ENR	Environment and Natural Resources
EPIC	Environmental Programme for Industry Competitiveness
EU	European Union
FAO	Food and Agriculture Organization
FCG	Fisheries Consultative Group
FMD	Foot and Mouth Disease
GDA	Global Development Alliance
GEF	Global Environment Facility
GOFAR	Group of Fisheries and Aquatic Research
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
ICOM	Integrated Community Based Management
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IMSS	Igang Marine Sub Station
INGA	International Network on Genetics in Aquaculture
IUCN	World Conservation Union
JICA	Japan International Cooperation Agency
JIRCAS	Japan International Research Center for Agriculture Sciences
LGU	Local Government Unit
LIFDC	Low Income Food Deficit Countries
LMB	Lower Mekong Basin
MRC	Mekong River Commission
MSO	Mainstreaming Sustainable Development

NACA	Network of Aquaculture Centres in Asia and Pacific
NARS	National Aquatic Research Systems
NGO	Non Governmental Organization
ODA	Official Development Assistance
OIE	Office International des Epizooties
PEMSEA	Partnerships in Environmental Management for Seas of East Asia
SADC	South African Development Community
SDS-SEA	Sustainable Development Strategy for the Seas of East Asia
SEAFDEC	Southeast Asian Fisheries Development Center
STREAM	Support to Regional Aquatic Resources Management
TCP	Technical Cooperation Programme
TMS	Tigbauan Main Station
UNCTAD	United Nations Conference for Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development
WFC	WorldFish Center
WSSD	World Summit on Sustainable Development
WWF	Worldwide Fund for Nature

EXECUTIVE SUMMARY

The purpose of the Regional Consultation was to inform donors of the role, needs and potential of aquaculture development and living aquatic resources management in the Asia-Pacific region. One of the most significant changes within the sub-sector in the last decade has been a shift in emphasis away from technology to increase production towards rural development. There has now been a wide range of initiatives to address the needs of poor people and contribute to improved livelihoods through small-scale aquaculture and aquatic resource management. (In this report, aquatic resource management includes all forms of interaction with fisheries and aquaculture.) Furthermore, there is a strong desire to share these experiences thereby addressing the limited support for dissemination and the lack of networks for sharing resources and knowledge. These issues have been comprehensively identified in the outputs of the following global and regional meetings:

- The Bangkok Declaration and Strategy for Aquaculture Development Beyond 2000, adopted during the NACA/FAO Conference on Aquaculture in the Third Millennium, 20 - 25 February 2000, in Bangkok, Thailand;
- The third Five-Year Work Programme of NACA which aims to set the stage for aquaculture in the region for the next 20 years and beyond;
- The Resolution on ASEAN Fisheries and Food Security and the Plan of Action on Sustainable Fisheries for Food Security in the ASEAN Region, adopted by the Ministers of the ASEAN-SEAFDEC member countries responsible for fisheries during the ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security in the New Millennium: "Fish for the People" held in Bangkok, Thailand, 19-24 November 2001;
- The outcome of the First Session of the COFI Sub-Committee on Aquaculture, Beijing, PRC, 18 - 22 April 2002; and
- The outcome of the "The Fish for All Summit" held in Penang, Malaysia, on 3 November 2002, coordinated by WorldFish Center.

The lack of sensitization of policy-makers to the role and opportunities of aquatic resource management and aquaculture is not necessarily a result of inadequate information but rather inadequate channelling of the information to the right decision-makers, in a form that is useful to them. There are currently few opportunities for dialogue and mutual learning and sometimes poorly coordinated efforts to inform policy-makers of the important role of aquaculture and aquatic resource management. As a result, awareness among policy-makers is low and this is reflected in the lack of donor intervention in the sub-sector. Therefore, a Regional Donor Consultation on the *Role of aquaculture and living aquatic resources: priorities for support and networking* was convened to discuss with donors the role that aquaculture and aquatic resources management play in rural and coastal livelihoods and the regional development requirements for this sub-sector.

The Consultation focused on the following issues:

1. Informing the donor representatives of the role of aquaculture and aquatic resources management in rural development, water management, environment, poverty alleviation, food security, livelihood, trade, gender and household nutrition.
2. Descriptions by the participating regional organizations of their current collaborative activities in the field of aquaculture and aquatic resource management.
3. Discussion with donors regarding the types of appropriate intervention needed in sustainable aquaculture development and mechanisms of their implementation.

Presentations by regional institutions

Each of the organizations promoting aquaculture and aquatic resources management presented an overview of its aims, perceived role in the development process and main activities. Four major themes emerged from these presentations.

1. Over the last few decades, aquaculture and inland fisheries (the freshwater capture fishery is one of the largest fisheries in most countries) have become increasingly important as a commercial sector and as a source of food supply. This is partly a function of population increase, increasing pressure on wild fisheries, increases in productivity in aquaculture technology and a growing body of knowledge on the social and economic value of the various fisheries.
2. Significantly, as a result of the work of the presenting institutions, the benefits of aquaculture and inland fisheries are now beginning to come to the attention of national policy-makers.
3. These institutions are now arguing for a shift in emphasis from technology and production to aquaculture and aquatic resources management as a platform to address issues related to rural development, poverty alleviation and sustainable livelihoods.
4. Whatever the focus of their work, regional institutions emphasized the importance of cross-sectoral interaction, regional cooperation, sharing of information and resources and the pressing need to more effectively communicate reliable scientific information to policy-makers and other stakeholders.

Presentations by donor agencies

Donor agencies outlined their guiding policies, main approaches and services. All the donors present at the consultation are supporting the fisheries sector in some manner, through initiatives such as knowledge dissemination, community-based coastal resources management or marine fisheries. Donors agreed that small-scale fisheries and aquaculture are valuable tools for poverty alleviation and rural development and are prepared to fund these activities provided that proposals can be shown to meet the donors' policy goals.

Discussion

Participants believed that marine fisheries are focused on issues related to coastal fisheries and are reasonably well covered through existing interventions, however, inland fisheries are rarely considered. There was a need, therefore, for policy frameworks at country level that nurture or facilitate sustainable management of aquatic resources. Linkages and channels for cooperation should involve the participation of any and all relevant Departments or Ministries.

A pressing need was identified for aquatic resource management and aquaculture to become part of the global discourse on poverty alleviation and to demonstrate that aquaculture and aquatic resources management plays a significant role. This was considered particularly important with respect to the development of Country Strategy Papers (CSPs) and Poverty Reduction Strategy Papers (PRSPs). The lack of sensitization of policy-makers to the role and opportunities of aquatic resource management and aquaculture is not necessarily a result of inadequate information but rather inadequate channelling of the information to the right decision-makers, in a form that is useful to them. Sometimes lack of attention is because the issues relate to a group of politically weak people in contrast to the high-value, export-oriented forms of aquaculture, which enjoys excellent political and financial support.

The consultation concluded that a number of practical and immediate actions could be taken to make aquaculture and aquatic resources management a larger part of the discourse on rural development and poverty alleviation.

Senior government officials could be invited to the annual NACA Governing Council meeting. This was considered an opportunity for sharing information between donors and senior government officials.

The Asia Pacific Association of Agricultural Research Institutions (APAARI) is a research-focused forum with reasonably broad participation covering Asia, however, the fishery sector is poorly represented at their meetings. It was asked if APAARI could be used as a vehicle for transmitting development priorities for research. It was noted that ADSEA of SEAFDEC is already a vehicle for this type of research consultation but requires funding support. ADSEA is currently focused on aquaculture but could be expanded to include inland fisheries.

The FAO Committee on Fisheries (COFI) and COFI Sub-committee on Aquaculture are channels that can be used to transmit regional priorities and issues; however, inland fisheries are not well represented, as they are not a high priority for the EU. It was agreed there are advantages in having joint positions and statements.

ASEAN as a regional organization can approach countries (*e.g.* Germany) for assistance and SEAFDEC as the fisheries advisory body [to ASEAN] would be the competent agency through which to channel support.

The Economic and Social Commission for Asia and the Pacific (ESCAP) covers some aspects related to aquaculture (*e.g.* trade, food safety, product quality). ESCAP could be approached by member countries and then channelled through the United Nations system.

“Establishing a presence for aquaculture” is an objective of STREAM (Support to Regional Aquatic Resource Management), an FAO Regional Office priority and also a priority for NACA and SEAFDEC. These issues must be on the agendas of the respective council meetings. At the national level, donors and regional institutions must learn to make more effective use of national and regional media in transmitting issues and results to wider non-technical audience.

The STREAM communications hubs are intended to promote advocacy, on behalf of and by the poor, of aquatic resources issues and there are opportunities to channel in national strategies. Inland fisheries are reflected in their policies.

Initiatives from regional institutions to support donor policy and action

Donors ability to support aquaculture and aquatic resource management are constrained by their own and national policies. It was also stated that donors often talk to national planners and staff at the various Ministries of Agriculture, which may not always be aware of the importance of the fisheries sector. To assist in correctly informing donors and national policy, regional institutions offered to analyse the range of sectoral strategy papers the various donors are using (trends on development support, inclusion of current issues) and develop a common overview strategy-document that would be provided to donors. This would include recommendations regarding adaptation and/or revision to current regional and national needs. Additionally, the regional institutions could assess project impact against selected poverty indicators; possibly in a manner of an overall review.

Donor agency initiatives

Donor agencies were highly supportive of the issues raised and the actions suggested to address them. They indicated the possibility of tangible support through routine channels. In addition, donor agencies indicated that as a result of the Consultation, more attention would be given to integrating these issues into country programme strategies. For example, when strategy papers are formulated there are always inputs from various national institutions, however competent regional institutions are not typically involved. A joint position from a consortium of SEAFDEC, NACA, WorldFish, MRC and FAO would be a powerful voice in advocating recommendations for the sector.

If decisions are made at country level, there are simple issues of perception by non-fisheries decision-makers that need to be addressed. The regional institutions should work toward changing negative perceptions. A review of some country strategy papers and offering advice and recommendations may be one way to accomplish this. There is a need for clear recommendations that can be transmitted to donors.

Follow-up

The meeting agreed that follow-up consultations between the regional institutions and donors would be fruitful if held at least once every two years.

A study tour was organized by SEAFDEC/AQD to enable participants to visit Iloilo to see examples of small-scale aquaculture development in the Philippines and further review a number of aquatic resource management issues.

DISCUSSION SUMMARY

During the discussion on 28 November, the participants were presented with a list of points and issues arising from the previous days presentations. These were further discussed and expanded upon. For the purpose of this report they have been grouped under various thematic headings.

Policy implications

Awareness of policy-makers

It was suggested that Ministries of Agriculture often downplay or are unaware of the role that Aquatic Resource Management (ARM), aquaculture and inland fisheries play with other parts of the agricultural sector and the national economy. Since donors are increasingly using country strategy papers for directing ODA and national development priorities, it is crucial that the importance of the aquaculture and inland fisheries sectors be recognized.

Participants believed that marine fisheries interventions are focussed on issues related to coastal fisheries and are reasonably well covered, however, inland fisheries are rarely considered. It was thought there was a need for policy frameworks at country level that nurture or facilitate sustainable management of aquatic resources, however, linkages and channels for cooperation may not necessarily always involve the participation of the Departments or Ministries of Fisheries.

Country strategy papers and poverty reduction strategy papers (CSPs and PRSPs)

A pressing need was identified for aquatic resource management and aquaculture to 'gain access to' the global discussions relating to poverty alleviation and to effectively demonstrate that they can and do play a role. This was considered particularly important with respect to appropriate inclusion in Country Strategy Papers (CSPs) and Poverty Reduction Strategy Papers (PRSPs). The lack of sensitization of policy-makers to the role and opportunities of aquatic resource management and aquaculture is not necessarily a result of inadequate information but rather inadequate channelling of the information to the right decision-makers, in a form that is useful to them. Sometimes lack of attention is because the issues relate to a group in a politically weak sector in contrast to the high-value, export-oriented forms of aquaculture, which enjoys excellent political and financial support. One suggestion to address this issue was to make better use of the media to raise the profile of the aquatic resources (small-scale as well as subsistence) aquaculture sectors.

Cross-cutting nature of fisheries

Several participants described fisheries and aquaculture as cross-cutting a number of sectors including business, health, poverty alleviation and the environment. Whilst these areas may not all be a traditional focus for the aquaculture aquatic resources, they are priority areas that donors are addressing and the integration of the fisheries sector into this is important.

The participants discussed a number of governance issues related to inland fisheries and access to water resources including the tendency for support to aquaculture and ARM to be incorporated into initiatives that address environmental issues. Others included a focus on health and education, fish health, nutrition and safety.

Financial support and investment

It was suggested that limited business skills and enterprise development within target groups is often a constraint. Aquaculture is typically a 'for profit' activity but potential adopters do not have the necessary financial skills or access to the financial infrastructure to make this successful. Access to rural credit and the interest rates typically available limit the viability of borrowing for aquaculture.

Diversification of rural livelihoods and rural safety nets

Urban drift versus return to rural areas in times of economic crisis was discussed in some detail. A focus on opportunities to support these people through diversifying their activities and offering opportunities for income generation was considered important. Such support might not necessarily be through development projects, but would involve direct support to institutions, possibly by the placement of advisers and

facilitators to support national institutions and to assist in programme development, which could then attract funding.

Inter-regional trade and health and safety of products

Many participants identified that improving the quality of aquaculture products will require additional resources to change or modify production practices. However, adding more stringent SPS requirements will disadvantage poorer farmers. Therefore innovative mechanisms and investment are needed to encourage small farmers to be able to achieve these higher standards or better practices, which included their relation to international trade and exports as well as opportunities for value adding and the integration of Hazard Analysis and Critical Control Point (HACCP) into processing. It was thought that there existed an opportunity for aquaculture to control the quality of its product.

Information and statistics in support of effective decision-making

A common theme expressed was the need for accurate and timely statistics to adequately reflect trends in aquaculture production, employment etc. as the lack of such information limits effective policy-making. It was suggested that systems for collecting these statistics are resource limited.

While it was believed a large body of information is currently available on fisheries [but more opportunities for dissemination were needed], there are still requirements for research and there is a potential for linkages to European universities. Several participants said research cooperation should be ‘development oriented’ as this is an increasing requirement for funding. It was also said there remained a need for continued capacity building in research (R&D) for some countries.

It was stated that there is a shift from technology transfer towards the use of aquaculture in support of development (through resource use, environmental and social issues).

Mechanisms and strategies for expanding awareness

It was asked if the Asia Pacific Association of Agricultural Research Institutions (APAARI) could be used as a vehicle for transmitting development priorities for research. APAARI is a research-focused forum with reasonably broad participation and covers Asia, however, the fishery sector is poorly represented at their meetings. It was noted that ADSEA (Aquaculture Development in Southeast Asia) of SEAFDEC is already a vehicle for this type of research consultation but requires funding support. ADSEA is currently focussed on aquaculture but could be expanded to include inland fisheries.

The meeting suggested that senior government officials could be invited to the annual NACA Governing Council meeting. This was considered an opportunity for sharing information between donors and senior government officials

It was stated that the Economic and Social Commission for Asia and the Pacific (ESCAP) covers some aspects related to aquaculture (*e.g.* trade, food safety, product quality). ESCAP could be approached by member countries and then channelled through the United Nations system.

The FAO Committee on Fisheries (COFI) and COFI Sub-committee on Aquaculture are channels that can be used to transmit regional priorities and issues; however, inland fisheries are not well represented, as they are often not a high priority area for all member countries, although may well be important for some groups or regions. It was agreed there are advantages in having joint positions and statements.

It was suggested that ASEAN (as a regional organization) can approach countries (*e.g.* Germany) for assistance and SEAFDEC as the fisheries advisory body [to ASEAN] would be the competent agency through which to channel support.

It was asked where inland fisheries are really represented. Most participants spoke of a need for continued efforts to establish a presence for inland fisheries in international fora and mainstream policies. This is an objective of STREAM, an FAO Regional Office priority and also a priority for NACA and SEAFDEC. There is a need to ensure that these issues are brought up at the respective council meetings. It was further asked, “At the national level, who should be speaking on behalf of aquatic resources?” One answer was [by

both donors and regional institutions] to more effectively use national and regional media in transmitting issues and results to a wider non-technical audience.

It was noted that STREAM communications hubs are intended to promote advocacy, on behalf of and by the poor, of aquatic resources issues and opportunities to channel in national strategies. Inland fisheries are reflected in their policies.

The group concurred that it was not possible to ‘retro-fit’ a regional policy into a development programme once it has been initiated. Therefore the requirement is to ‘fit’ aquaculture and ARM into the country strategy. An important proviso is there must be prioritization by the country itself.

Indications of future focus

It was suggested that when Country Strategy Papers or Poverty Reduction Strategy Papers are formulated there should be inputs from various institutions and a joint position from a consortium of SEAFDEC, NACA, WorldFish, MRC and FAO would be a powerful voice in advocating recommendations for the sector.

It was discussed that if decisions are made at country level, there are simple issues of perception by non-fisheries decision-makers that need to be addressed and that regional institutions should work toward modifying these perceptions. A review of some country strategies papers and offering advice and recommendations may be one way to accomplish this. [A suggestion was that over a 12-month period an analysis of country strategies by the regional organizations could be undertaken that would include some of the national stakeholders]. It was decided there is a need for clear recommendations that can be transmitted to donors.

It was related to the meeting that the European Union was currently working to produce a regional strategy paper and this process would also include a strategy paper for each country.

It was asked if the regional institutions should look at individual country strategies or as a first step look at the regional strategies? It was decided that most likely country strategies are easier to obtain and regional strategies could emerge from this.

What can regional institutions do in support of donor priorities?

Influencing policy

Donors spoke of being constrained by their own national policies and the policies and priorities of those countries with which they wish to engage. It was also stated that donors often talk to national planners and staff at the various Ministries of Agriculture, which may not always be aware of the importance of the fisheries sector. To assist in raising the profile and ensuring appropriate integration of the aquatic resource and aquaculture sectors, regional institutions offered to analyse the range of sectoral strategy papers the various donors are using (trends on development support, inclusion of current issues) drawn into a common document that would be provided to donors. This would include recommendations regarding adaptation and/or revision to current regional and national needs. Additionally, the regional institutions could assess project impact against selected poverty indicators, possibly in a manner of an overall review.

A common theme was the need to emphasize coherence between different parts of national policy and where the responsibility lies in highlighting inconsistency or lack of coherence. It was suggested that better communication of experiences and best practice as well as more effective transmission of this information to donors was required.

Looking at “trade versus aid” it was thought there was a need for further analysis of this area and communication to donor countries.

It was asked, “Were there to be a forum that attempted to address this, would donors be supportive and want to participate in the dialogue?” It was agreed that for future consultations, the invitation of relevant government representatives (also including both fisheries and trade) would be appropriate.

NGOs as channels for intervention in the fisheries sectors

A wide-ranging discussion ensued on interventions as many work through NGOs, small organizations and local government. It was asked, “How can we deliver services (information etc) to these organizations?” and “How can they find us or how can we access them?” The participants felt the provision of technical information services to non-specialist organizations is a joint responsibility (delivery versus access).

The delivery of assistance through NGOs is a response to the perception that in certain circumstances they are better able to deliver services at the local level or when state-to-state initiatives cannot be undertaken. There is now a greater reliance on the NGO sector in informing governments of gaps, problems and needs related to development assistance. Opportunities for institutions to work collaboratively with the NGO sector should be embraced. A sectoral institution can benefit from the broader-based, less technical and more people-oriented competence of NGOs.

ARM as an entry point

There were several participants that believed regional institutions could use aquatic resources management interventions as a means for teasing out the governance and participation issues in the development of poverty alleviation and reduction strategies. That is, the lack of reflection of ARM and aquaculture issues is a result of the current state of consultation – therefore supporting the consultation process appropriately should see the ARM and aquaculture importance emerging naturally.

Other ideas included organizing producers through the NACA network in order that they can be represented in international fora. Fish farmer associations (grassroots) are an important mechanism for effective lobbying and the integration of such associations and organizations into the larger agricultural lobby was considered important. Most participants concurred that there needs to be a dialogue among exporters, between regions and exchange of experience between government and the private sector and private sector with private sector. Exporters may be able to lobby effectively; small-producers may not unless exporters lobby in their behalf (*e.g.* feed industry, processors and exporters).

Funding suggestions

It was suggested there might be support (including financial support) for studies of the type mentioned above. The process might take six months and would require the donor strategies to be reviewed and analysed by NACA/SEAFDEC/WorldFish Center/MRC/FAO etc. ‘Support of International Fisheries Policies’ would benefit from this type of study.

It was noted that AusAID has a 5-year country programme strategy starting next year. It is sectoral and will include environment, rural incomes, health and education. This type of forum [the Manila Consultation] is an important input towards developing country programme strategies (country specific but broadly synchronized) although there are overall guiding frameworks for AusAID to consider.

In this region, DGCI has four partner countries (Bangladesh, Viet Nam, Lao PDR, Cambodia) and the co-operation office is responsible for the discussion of country specific strategy [see DGCI presentation]. A strategic paper on the environment is complete (with respect to fisheries sector) and includes protection of mangroves as well as protection of coastal and marine environments.

It was felt there might be possibilities for FAO to approach donors for trust fund type projects (*e.g.* Participatory Natural Resource Management Projects) and also possibilities through linkages to scientific institutes.

In Cambodia the [GTZ] focus is rural development and on coastal development Viet Nam. Bilateral requests covering aquaculture can be made through the German Federal Ministry for Economic Cooperation and Development (BMZ) and Consultative Group on International Agricultural Research (CGIAR) systems. SEAFDEC has potential through ASEAN.

It was emphasized the need for direction must come from countries as a part of the country strategy processes for national assistance.

Some participants believed time frames for assistance are often rather short and longer term; strategic activities (including research) suffer as a result. This is in part a result of similar short-term focuses for government and private sector support. It was suggested that research co-operations are probably the most appropriate channels to solve this problem. (*e.g.* GTZ have an 8-year programme).

Are there mechanisms for the extension of the benefit of bilateral projects to other countries that may not have such projects?

It was stated that regional guidelines on the implementation of the Code of Conduct for Responsible Fisheries (CCRF) case studies on the success and impact of the fisheries enforcement (Bantay dagat) will be used for wider dissemination to other programmes. It was felt the 'Fisherfolk Symposium' in the region as part of an initiative to transfer learning and experience from Philippines local management of coastal and fisheries resources was a positive step.

It was felt that UNDP could assist in bringing the issues covered in this Consultation to regional forums such as 'Regional Sustainable Development of the Seas of SE Asia'.

A participant suggested that research cooperation through the Philippine Council for Aquatic and Marine Research and Development (PCAMRD) as a channel specific to the Philippines.

What opportunities exist for accessing private sector support or assistance from foundations?

Some participants suggested this might be more of a question for the various to Ministries of Trade. It was not understood that there are many current links between scientific institutions [in Asia] and the private sector (Europe) but there are expected to be a number of opportunities for this, particularly in the technical areas, which are no longer donor priorities.

What mechanisms could be used to ensure donor agencies could be better appraised on a regular basis of the current issues in aquaculture and ARM?

The meeting agreed that follow-up consultations would be fruitful if held periodically (*e.g.* every 2 years).

Food and Agriculture Organization of the United Nations (FAO)



Simon Funge-Smith, Aquaculture Officer, FAO Regional Office for Asia and the Pacific

The principal aim of this Consultation is to discuss and raise awareness as to how aquaculture and aquatic resources relate to the livelihoods of rural people and the role of collaborating regional institutions in addressing these issues. The Consultation will cover both the wide diversity of aquaculture and aquatic resource management types as well as their role. Importantly we will try to explain some of the opportunities that exist for assisting the livelihoods of people that rely on these resources as well as indicating some of the issues that currently threaten this important resource. During the course of this Consultation, we will address the important regional policy and development issues that relating to aquatic resources and their management.

This Consultation is a first step in the process of increasing awareness of the crucial role that inland fisheries, aquatic resource management and aquaculture play in the livelihoods of the people of this region and an opportunity for the regional institutions involved to get feedback from the donor community.

Living aquatic resources play a fundamental role in sustaining the livelihoods of the rural poor in SE Asia

Aquaculture and inland fisheries are vital components of rural livelihoods worldwide, but particularly in many Asian countries. Asia's consumption of fish comprised two-thirds of the world's total of 94 million tonnes. Close to 50 percent of protein is derived from fish consumption in Bangladesh, Democratic People's Republic of Korea, Indonesia, Japan, Cambodia and the Republic of Korea. Providing quality protein, essential dietary micronutrients such as calcium, vitamin A, omega-3-fatty acids, lysine and iodine together with vital opportunities for employment, cash income and foreign exchange. The role of these sectors in developing countries should not be under-estimated.

Unfortunately, the livelihood and national economic benefits of these sectors are often hidden from view, overlooked by agricultural economists and marginalized by export-focused policies. Yet the reality is that this contribution to the national economy is undeniable, particularly for the poorest members of society who are reliant on the open access resources of inland fisheries and small-scale aquaculture for household income generation.

Whilst recognizing that export-oriented, industrial and commercial aquaculture generate foreign exchange, revenue and employment, more extensive forms of aquaculture benefit the livelihoods of the poor through improved food supply, reduced vulnerability to uncontrollable natural crashes in aquatic production, employment and increased income. However, developments of the aquaculture sector have not been without cost and we are also committed to addressing these aspects of the sector as well.

In many cases, the poorer people are the more dependent they are on aquatic resources. This is particularly the case for those who depend upon low-value fish and non-fish aquatic resources. These products are often caught and consumed or traded locally but are frequently ignored in analyses of national fishery resources. However, these locally available resources can provide crucial buffers to livelihood shocks and food security in many rural communities. As well as acting as 'rural safety nets', small-scale aquaculture and aquatic resource management also provide a range of opportunities for diverse and flexible forms of income generation. Families engaged in these activities often shift between use of the resource for consumption and income generation depending upon their particular livelihood needs, both through seasons and from year to year.

One of the reasons for organizing this Consultation is to challenge the frequently held assumption that aquaculture is an activity of the wealthy and landed and that it necessarily requires high levels of investment and inputs. With any production-based intervention, the poorest groups face significant constraints to entry simply because it is the lack of the prerequisites for the production system that makes those people poor. The same generalization can be made for aquaculture. Since aquaculture often requires resources such as land, ponds, water, credit and other inputs, those families able to become involved in

aquaculture may not be the very poorest. It is also probably true to say that many previous aquaculture development interventions have not always directly addressed the needs of the poorest people.

In challenging the assumption that aquaculture is only for the rich, we should ask the question “Who can aquaculture work for?” Experience from a number of initiatives that were directed at poor people and their aquatic resources, clearly demonstrates, that if appropriately planned, there are considerable opportunities for poor people’s entry to aquaculture. However, the types of aquaculture that poor people are able to engage in, or the manner in which poor people may be connected to aquaculture, may not be particularly familiar to us.

Previous support to aquaculture type projects was in terms of aquaculture development where the goal was improved aquaculture, whereas with more recent focus on poverty alleviation as a goal, the emphasis now is more on the use of aquaculture as a tool for development.

We have mentioned that poor people face constraints to entry into all production-based interventions; however, aquaculture may offer significant advantages over other activities (such as cash crops and livestock). Small-scale aquaculture is able to employ low cost technologies, using available on-farm inputs. Often these simple interventions require low investment and therefore a feature for them is their low level of risk. Since the activities are not input intensive. They have low labour input requirements, which fit with household divisions of labour. Thus, adding the aquaculture activity to the family holding does not excessively stress the other livelihood activities. Although the low input nature of these activities means that there are relatively low levels of production, this may still provide important sources of household nutrition and provides a buffer against unexpected problems in the livelihood food security and finances.

In many countries, traditional aquatic resource management practices have existed in a variety of forms in Asia for centuries. Small-scale aquaculture has many of the features of small livestock production and women frequently play a leading role in the operation. Aquatic resource management and aquaculture requires attention, feeding, occasional harvesting and often some form of processing or preparation of the product. These are all traditional roles of women (and sometimes children) in the household. The marketing of the production where this occurs is predominantly the domain of women and this may often be a source of income over which they have some control.

Small-scale aquaculture and aquatic resource management therefore hold considerable potential to contribute to poverty alleviation, but in order to realize this potential, poverty alleviation should be taken as the strategic starting point for interventions. This has significant implications for how interventions are conceptualised, planned and executed and the nature of institutional arrangements and partnerships. When using aquaculture or aquatic resources management as a tool for development, what types of opportunity exist for poorer peoples’ entry to aquaculture and how can entry be facilitated. There are a number of simple activities that can be promoted that enable poor people to start engaging in aquatic resource management with low levels of risk and that do not require fish ponds. These are:

- Breaking up the production cycle to provide opportunities for poor and/or landless people – enable poor people to ‘service’ aquaculture operations’ and provide inputs, which they can produce from small areas of water or land or through the use of their labour.
- Facilitating access to fingerlings is often a simple hurdle that prevents many remote communities from engaging in aquaculture who would otherwise do so. The regular and reliable supply of fingerlings is a strong factor in influencing a family’s’ decision to start fish culture.
- Locally produced seed is often the key. As indicated above, reliability of supply is often crucial and local production is both visible and easy to access. Although species choice maybe limited farmers often prefer the local supplied seed. Traded seed may be of inferior quality because of the stresses of travel and unscrupulous traders.
- Seed/fingerling nursing is an activity that requires minimal land or water surface and can be engaged in by women and even children. The nursed fingerlings have better survival in small-scale ponds and reduced risks to farmers.

- Supporting seed traders and distribution networks can be effective in areas where there are significant quantities of commercial fingerling produced, but the penetration in to rural areas is limited. Seed traders can facilitate supply and landless people can act as traders or service the business (although this would typically require some sort of credit facilitation also). Traders can also be used as an effective extension channel where information dissemination services are limited.
- Facilitation of pond lease or purchase by either individual or groups is a direct and welcome intervention. This can be achieved by the facilitation of credit, or through assistance in community organization to release parts of water bodies to poorer groups as part of broader rural development activities.
- Throughout all of these interventions, it is important that particular emphasis is placed in the effective involvement of women. Although this is often difficult and may be resisted, the undeniable involvement of women in aquaculture and aquatic resource management requires that this is addressed.
- Poor people's livelihoods often depend on a range of resources and livelihood activities therefore aquaculture needs to fit with and complement other activities, rather than attempt to replace such activities.

The list of interventions above relate principally to individuals and their families. There are also a number of group type interventions that can positively impact poor people. In either aquaculture or the broader arena of aquatic resource management. Typically poor people direct these towards support of collective action.

- Poor people often lack or have uncertain access to resources in particular open access water bodies. Facilitation of groups to lease water bodies or to secure access to common water bodies can be an important intervention; although as part of this, trade off's with other resource users may be required.
- The enhancement of communal water bodies though the stocking of self-recruiting species or routine re-stocking mechanisms can raise overall production and act as a mechanism to increase coherence of a group of resource users.
- Assistance with the elaboration of locally devised rules and regulations and assisting with their recognition with local government bodies is another enabling factor.
- For individuals there are opportunities for small cage culture in water bodies.
- Where perennial water bodies act as refuges for broodstock fish that recruit annually to floodplains (especially rice paddy systems) the establishment of non-fishing zones can assist the regular re-recruitment of stocks.
- The establishment of farmer groups underpins many of these interventions and this can also then be integrated into other development activities such as supporting credit and savings groups.

When discussing or planning interventions on rural aquaculture and aquatic resource management there are some issues that are often overlooked. A common mistake is to ignore the fact that small-scale aquaculture is often an important component of management of wild fisheries. Livelihood strategies may vary according to the state of the wild fishery. In some years the aquaculture activity may even be suspended if the wild fishery has a 'boom' year. In other years the small-scale aquaculture operation may compensate for inadequate catches. The distinction between wild fisheries (or 'aquatic resource management') and aquaculture is often merely a technical formality and is not remotely recognized by the people who actually undertake the activities!

The organization of groups for collective action takes considerable time, which is often underestimated during project planning. The result is often hurried action with limited success or sustainability. This will be increasingly important as attention turns to the issues of local resource management in fisheries, but also in facilitating poor peoples' entry to the use of water resources. Another feature of support to collective action is that even where benefits of community management appear to be evenly distributed, the poor may be excluded and rather than 'trickling-down', benefits may in fact 'trickle-up'.

Recognizing the role of aquaculture and aquatic resource management

Much of the emerging information that is now shaping our understanding of these diverse livelihoods roles of aquatic resources has been produced by the organizations represented at this Consultation. An important feature of this shifting awareness is that the organizations responsible are increasingly not working in isolation. Many of the initiatives that will be presented or discussed at this Consultation are actually collaborative activities that involve two or more partners and often these are the organizations represented at this Consultation.

Regional organizations can act as focal or co-ordination points for activities, ensuring that interventions are regionally appropriate. These organizations are often able to mobilise local resources and are often able to act as an effective interface between national institutions and development initiatives.

In this new millennium, we can look back and see how development focus has shifted away from development initiatives that targeted production increases as a means to improve the livelihoods of rural people towards less direct approaches that sought to strengthen the ability and capacity of people to help themselves and that consider a wide range of processes and factors rather than single point interventions.

This shift in focus has seen a tendency for a reduction in support to the agriculture sector in general and fisheries and aquaculture are similarly affected. This does not mean that these sectors are any less important than other areas that receive development attention - it merely reflects the changing opinion as to how change can be sustainably and appropriately effected. Whilst the focus of development may be shifting its approach, the emergence of strong regional organizations with competence in aquaculture and aquatic resources management issues can be considered one of the very successful outcomes of previous development intervention.

It is perhaps paradoxical, that it is only now that we are beginning to realize the importance of the aquatic resources sector and small-scale aquaculture and even larger scale aquaculture on the livelihoods of rural people and the economies of rural areas. Whilst production increase was once a single focus, we are now realising that it is a wide range of features that make these resources so critical to the livelihoods of many people. This is reflected in the policies directions that have emerged from a series of global and regional initiatives that deal with aquaculture and aquatic resource management.

The Bangkok Declaration and Strategy, which was adopted during the NACA/FAO Conference on Aquaculture in the Third Millennium in 2000, emphasized the need for the aquaculture sector to continue development towards its full potential, making a net contribution to global food availability, domestic food security, economic growth, trade and improved living standards. The conference concluded that:

- Aquaculture should be pursued as an integral component of community development.
- There is a need to create enabling environments for optimizing the potential benefits and contribution that aquaculture and culture-based fisheries can make to rural development, food security and poverty alleviation.
- Aquaculture policies and regulations should promote practical and economically viable farming and management practices that are environmentally sustainable and socially acceptable and equitable.
- That in an era of globalization and trade liberalization, the envisaged changes should not only focus on increasing production. They should also focus on producing a product that is nutritious, affordable, acceptable, safe to eat and accessible to all sectors of society.

In November 2001, the ASEAN-SEAFDEC member countries' ministers responsible for fisheries met for the *ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security in the New Millennium* and concluded in their resolution that they would use the Plan of Action adopted by the meeting as a guideline for formulating and implementing programmes, projects and activities. The Plan of Action recommends *inter alia* that:

- As part of more comprehensive measures for fisheries management, the role of local, participatory mechanisms and the allocation of fishing rights to local users should be emphasized. Recognition of the importance of freshwater fisheries for local food security and the various needs for their management. Requirements for improved national and regional fisheries information, especially with respect to decentralized information generation and management.
- Improved management of aquaculture development was required to ensure the production of safe products and to minimize negative effects on the environment, biodiversity and people. The need for capacity building to ensure this at national and regional level this was recognized. It was also concluded that aquaculture should be promoted as an integrated rural development activity within the context of multiple-use of land and water resources.
- Fish products and trade were covered within the context of industrial and artisanal level production and processing, but in both instances the emphasis was on the safety and quality of the products. Again, capacity building was identified as a requirement to enable countries to deal with these issues and to compete in the international trade arena. As a part of this, the harmonization of standards within and between regions was recognized as a key requirement for international trade and collaboration with international technical organizations such as the Food and Agriculture Organization of the United Nations (FAO) and the World Trade Organization (WTO) were specifically mentioned, as well as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Codex, Office International des Epizooties (OIE) and Regional Fisheries Bodies.

The FAO Committee on Fisheries' (COFI) Sub-Committee on Aquaculture, which convened its first session in April 2002, has recognized these issues and placed emphasis on the:

- Creation of an enabling environment for the promotion of sustainable aquaculture development and management. This includes concerns a wide range of issues relating to the quality and safety of aquaculture products and the methods by which they are produced. Importantly, these issues must be dealt with through transparent and non-discriminatory mechanisms.
- Establishment of a framework for sustainable rural aquaculture development. This recognizes the important contribution of rural aquaculture to food security and the improvement of sustainable livelihoods and acknowledges the wide range of livelihoods related opportunities and constraints that relate to this activity.
- Cross cutting nature of education, information sharing and capacity building. The sub-committee placed special emphasis on south-south collaboration and networking at sub-regional, regional and bilateral levels.
- Role of data collection and reporting to improve knowledge and management of the sector. This covers both, education and training as well as the establishment of unified standards and guidelines for data collection and clearer definitions of the terminologies used in the sector.

Most recently, the WorldFish Center initiated the *Fish for All Summit* in early November 2002 which concluded that, given the many benefits of wholesome food, livelihoods and environments that are based on fish and other aquatic life, all people should embrace the vision of 'Fish for All Forever'. This summit highlighted the challenges the world faced to achieve this vision where many poor coastal, lake and river-based communities and even the urban poor are losing their access to fish as prices rise with increasing demand.

- Understanding of livelihood and gender dimensions and appropriate action are exceedingly important in all aspects of fisheries. The data available to assess the patterns of access to fish were too aggregated to be useful for designing interventions. Information is key to policies that governments make, but often the right information is lacking. There has been a tendency to focus on the fish rather than the people and livelihoods that are dependent upon them. Knowledge must be used to drive important social change, looking well beyond productivity into livelihoods and fish. Education concerns knowledge generation and knowledge dissemination.
- Treaties and conventions exist, but poor co-ordination between agencies and often lack of understanding of the fisheries sector leads to lack of impact or inappropriate treatment of aquaculture and fisheries.
- The sustainability of aquaculture is still quite contentious, involving issues of its scale, interactions with the environment and other sectors such as agriculture.
- Developing countries have some trade advantages such as lower costs of production but fish food safety and quality standards will play a greater role in determining market access and trade. Although globalization drives great transformations, its results may often work against the poor and certification systems that could be useful for safety standards may also have impacts on trade and potentially impact the poor.
- Devolution of natural resource management responsibility to local managers is still contentious. Although property rights are increasingly recognized as important aspect of better fisheries management, there are concerns regarding possibly equity problems over the assignment of such rights. Governance concepts should recognize that political power and will are key elements in managing resources.
- Emphasis on partnership and communication - the challenges of inclusiveness will mean building a constituency for support through even more institutional linkages – including those with non-traditional allies on human rights, the environment, civil society, business, etc. Links with water initiatives are also critical now, as are the links with agriculture and anti-pollution constituencies.

The role of the FAO Regional Office for Asia and the Pacific

As a regional office of FAO covering the section of the globe that produces more than 90 percent of aquaculture production and encompassing the majority of the world's rice producing countries and being home to the countries with some of the highest per capita fish consumption, there is plenty of work to be done in the Asia-Pacific Region. FAO takes the Code of Conduct for Responsible Fisheries (1995) as a broad framework for planning its activities in the fisheries sub-sectors and in addition to this are the highlighted issues and recommendations that emerge from other global fora such as the recent World Summit on Sustainable Development and the declaration of the year 2003 as the "International Year of Freshwater".

The various initiatives that FAO has been party to developing were described earlier and encompassed both global and regional issues. The FAO Regional Office focal areas are derived from FAO's overall medium term plan and also echo the main policy directions of the organizations represented at the Consultation. These focal areas include:

- the improved organization of fishers and farmers and their participation in decision making, addressing the quality of information developed at national level and transmitted to FAO;
- promotion of awareness of value and role of inland fisheries and rural aquaculture;
- promotion of good practice in aquaculture and safety of in aquaculture products.

Cross-cutting themes for the FAO Regional Office for Asia and Pacific emphasize the importance of learning and communication coupled to the promotion of organization and sharing of knowledge. In this context, organization can be at the local level in terms of fisheries or farmers or at the institutional level where FAO seeks to enhance collaboration amongst institutions. As part of FAO's normative role there is

direct support to policy development as well as improving information for support to policy decisions. Over-arching this is the emphasis in the FAO constitution to support the betterment of rural peoples' livelihoods and food security.

Whilst there is a trend in downsizing public support to aquaculture there are still significant development challenges as indicated previously. There is a strong need for co-operation that emphasizes complementarity rather than duplication or competition. Such cooperation is best achieved through focal points such as Regional Organizations with competence or mandate in aquaculture and aquatic resource management.

As far as possible, FAO Regional Office for Asia and the Pacific activities are undertaken in collaboration with competent regional institutions. Typically, there is often some common interest between these institutions and in many cases, more than one institution will be involved. There is current ongoing active collaboration on a wide range of initiatives with AIT, IUCN, NACA, MRC, SEAFDEC and WorldFish Center. The presentations of the regional organizations that follow will highlight some of these collaborations.

Network of Aquaculture Centres in Asia-Pacific (NACA)



Pedro Bueno, Director-General, Network of Aquaculture Centres in Asia-Pacific

Aquaculture and aquatic resources in the sustainable development of Asian economies: NACA's role in bringing aquaculture development and aquatic resources management to address more effectively poverty, hunger and resource conservation

Historical background

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 26 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 were to be achieved through coordinated action programmes implemented by a network of regional and national centres and associated institutions and bodies.

Rationale for a network organization

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 diversity of species, farming systems and environments and varying levels of development - that the countries of the vast 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 even more compelling with the limited resources of governments and donors and their 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 overcome constraints.

Adding another dimension to cooperation, the NACA members have committed to the principle that the stronger shall assist the weaker members.

Policy and operational strategy

When NACA became an independent intergovernmental body in 1990, it adopted a major change in operational strategy. It had to:

- a. become self-sustaining in order to finance core activities (such as technical advice, information exchange and overall network activities coordination and secretariat administration);
- b. generate revenues by provision of services against payments, develop programmes and projects for collaborative assistance of donors and development agencies; and
- c. forge partnerships with other institutions and work with them on areas of common interests.

These provisions made it possible for NACA to continue as a focal point for the implementation of multilaterally and bilaterally funded regional and national projects.

Ownership and continuity of initiatives

NACA ensures that its programmes and projects address the priority issues and needs articulated by governments in various forums in which NACA is involved. 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 programme by the Governing Council.

Three essential attributes of the NACA programme 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 programmes; and
- take up the results in their policy and programmes.

Activities of finite projects are taken up in NACA's work programme, assuring continuity of the various initiatives, rather than being terminated 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 in a systematic and holistic way.

The Governing Council in 1991 endorsed a holistic programme on environment and aquaculture development. In 1994, it mandated a re-orientation of NACA's programme towards the grassroots. Then in 2000, the Council crafted a programme 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 Support to Regional Aquatic Resources Management (STREAM) 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:

- a. Is now more organized with increasing state support but also greater private sector participation;
- b. 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;
- c. Increasing levels of production have improved the general availability of food to the population and increased the export earnings of national economies;
- d. Has contributed to better health, nutritional well-being of people and improved their income; and
- e. Has shown a growing sensitivity to the fact that practicing socially and environmentally responsible aquaculture makes good business sense.

On the other hand,

- a. Intensified production has begun to stress the land, water and biological resource bases impairing their capacity to continue to support production.
- b. 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.
- c. 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.

- d. 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 management for sustainable development.
- e. Finally, 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.

This is the context of the work programme of NACA.

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.
- iii. Report of the NACA Task Force, an independent and honorary group of experts¹ 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.

Attributes of the work programme

Thrust: The Work Programme 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.

Pillars: The Programme 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.

Working principle: The Programme gives coherence and instils relevance to the various efforts to assist governments develop and implement their aquaculture programmes by reflecting their viewpoints and needs.

Guideline for cooperation: Its outlook on regional cooperation is to provide a forum, 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.

Elements of the programme

The work programme has five major elements:

- policy guidelines and support to policies and institutional capacities;
- capacity building through educational and training programmes;

¹ 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.

- effective R&D by collaborative networking among centres;
- aquatic animal health management; and
- information and communication.

To illustrate the above attributes and demonstrate NACA's support to rural development, five initiatives under the Work Programme are described here:

Support to Regional Aquatic Resources Management (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. It was mandated by the NACA governments and responds to the needs identified by Asia Pacific governments. It follows from analysis conducted by the Department for International Development (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 programme development and support is responding to the needs of poorer members of our Asian societies².

Founded by NACA, DFID, FAO and Voluntary Services Overseas (VSO), an international NGO, STREAM aims to offer support to the livelihoods of poor peoples 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, Viet Nam 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. It is now considering support for regional-level activities that will 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 Nepal, India and Laos as well as the countries where it currently operates and interest from the World Bank and International Development Research Centre (IDRC) in building partnership links.

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, FAO, through a Regional Technical Co-operation Programme (TCP) Project assisted Governments in developing a regional policy to undertake responsible introduction and transfer of aquatic animals. The programme established strategies to minimize the potential health risks associated with live aquatic animal movements and in accord with relevant international agreements and treaties, including the Sanitary and Phytosanitary Agreement (SPS) agreements of the World Trade Organization (WTO) and the

² In other words, it aims to extend the network to participation of poor people in programme development and implementation to ensure that NACA responds to the needs of the poor in its work program.

Office International des Epizooties (OIE), the World Organisation for Animal Health). The Regional TCP, implemented by NACA in 1998-2000, in cooperation with 21 participating governments, regional and international experts and regional and international organizations (that include OIE, Fish Diseases Commission (FDC), OIE Tokyo, Aquatic Animal Health Research Institute (AAHRI), AusAID/APEC and AFFA [Agriculture, Fisheries and Forestry–Australia]), 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'³, the supporting 'Manual of Procedures' and 'Asia Diagnostic Guide' were developed through consensus building and consultations. The 'Technical Guidelines' was adopted in principle in June 2000 by participating governments and by the 9th Meeting of the ASEAN Fisheries Working Group in September 2001. 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 expected to be integrated into national development programmes 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 the intergovernmental organization of NACA to provide advice to Asian governments in implementing (and monitoring) the *Technical Guidelines* and aquatic animal health issues within Asia. The principal objective of the AG is to advise governments on aquatic animal health management and projecting a strong and coherent approach on aquatic animal health management for Asia, including into relevant international trade and standard setting bodies.

This programme activity has sensitised donors and development agencies to assist in its implementation. Asia-Pacific Economic Cooperation (APEC) continues to provide valuable assistance. 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 harmonization and intercalibration of Asian regional diagnostic techniques, farm level health management, mollusc and marine finfish health, genetics and breeding for disease resistance), carried out with other partners.

Additionally, the lessons and experiences from the project has influenced and 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.

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 Programme on Shrimp Farming and the Environment. The Consortium Programme 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 programme 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.

3 FAO/NACA. 2000. Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals and the Beijing Consensus and Implementation Strategy. FAO Fisheries Technical Paper. No. 402. Rome, FAO. 2000. 53 p.

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

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

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 consultations 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”.

Asia-Pacific Marine Fish R & D Network

A fifth activity is the AP Marine Finfish R & 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 programme consists of technical, socio-economic (including livelihoods, alternative employment opportunities), marketing, training and extension and information components.

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.

Working with farmers

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 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.

Information and communications technology and strategy for networking

Information Technology and Communications Strategy (ICTS) is now used to bringing into the regional programmes 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 enabled the pooling of scarce national resources and a wide and equitable 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 expanded development of aquaculture regionally and within states.

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 will provide three services:

- one-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; and
- forum for focused and systematic interactions to identify, clarify and resolve urgent and common issues.

Information and Communication Technology is intended to complement the traditional means of effecting coordination, delivering information and education and fostering interactions among people taking part in network activities. It is not a substitute, but it is now the only known option to cost-effectively carry out a people-oriented and project-expertise oriented networking mode.

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

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

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.

Conclusion

Multiplier effects from capacity building

From the organizational perspective, the strengthening of national manpower and upgrading of facilities have created a multiplier effect for various assistance programmes. The multiplier effects include: wider dissemination of results; assurance of follow-up activities within governments thus ensuring continuity of project-initiated activities in the NACA programme of work and utilization of strengthened national institutions by various assistance programmes. A list of selected projects to illustrate the added impact of collaborative and coordinated action under NACA appears as Annex 3.

Cost-effectiveness of collaborative activities

NACA has generated support for the implementation of major regional and national activities from bilateral, multilateral and investment agencies. Capsule descriptions of each activity and the national, regional and international agencies involved are listed in Annex 4. These initiatives illustrate the breadth of multi-institutional collaboration that NACA has been able to facilitate, with the collaboration of various partners in specific 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.

The Southeast Asian Fisheries Development Center (SEAFDEC)



Rolando R. Platon, SEAFDEC/AQD Chief

Responsible aquaculture for livelihood and development in Southeast Asia SEAFDEC Aquaculture Department

SEAFDEC is a regional treaty organization established in 1967 to promote sustainable fisheries development in Southeast Asia. The member countries of SEAFDEC are:

- Japan
- Malaysia
- Philippines
- Singapore
- Thailand
- Brunei Darussalam
- Viet Nam
- Myanmar
- Indonesia
- Cambodia

The application for membership of Lao PDR in SEAFDEC is presently being processed.

Four departments of SEAFDEC

- Aquaculture Department (Philippines) for sustainable aquaculture development
- Training Department (Thailand) for research and training on marine capture fisheries
- Marine Fisheries Research Department (Singapore) for fisheries post-harvest and processing
- Marine Fishery Resources Development and Management Department (Malaysia) for fishery resource conservation and management

New SEAFDEC Strategic Plan (adopted in March 1998)

- Strategy
 - Placing emphasis on regional issues
 - Promoting efficient and sustainable use of fisheries resources
 - Facilitating intra-regional exchange of expertise and information
 - Creating mechanisms for regional collaboration
 - Avoiding duplication of efforts

During the First Meeting of the ASEAN-SEAFDEC Fisheries Consultative Group, Bangkok, Thailand, 4 March 1999, the need to strengthen ASEAN-SEAFDEC relations was emphasized. This collaborative framework between SEAFDEC as a technical organization and ASEAN as a political organization provides effective mechanism for technological developments as output from SEAFDEC activities to be incorporated into ASEAN countries' national development programmes. This also facilitates examination of policy implications on the regional level of certain issues requiring technical expertise.

ASEAN-SEAFDEC Millennium Conference

- ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security in the New Millennium: "Fish for the People", Bangkok, Thailand, 19-24 November 2001;
- ASEAN Ministers adopted the Resolution on Sustainable Fisheries for Food Security for the ASEAN Region as the regional policy providing the framework for the promotion of sustainable fisheries for food security in the ASEAN region; and
- Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region serves as guideline on prioritized actions to be undertaken in line with the Resolution.

ASEAN-SEAFDEC Special Five-Year Programme

- This is in pursuance of the Plan of Action to achieve sustainable fisheries and increase supplies of fish and fishery products in the ASEAN region emphasizing support for the least-developed countries in the region to minimize disparities and to achieve coordinated efforts toward sustainable fisheries.

The SEAFDEC Aquaculture Department (AQD)

Mandates of AQD

- Develop human resource in aquaculture
- Promote and undertake R&D on aquaculture
- Disseminate and exchange information on aquaculture

Programme formulation

- Seminar-Workshop on Aquaculture Development in Southeast Asia (ADSEA).
- ADSEA is a forum where scientists and representatives from SEAFDEC members, the academe, aquaculture industry, government agencies and NGOs assess the contribution of AQD to the development of the aquaculture industry in the region and recommends priorities for R&D.
- ASEAN-SEAFDEC Programs
- Provides the framework for regional cooperation in the conduct of R&D and in the transfer of technologies to ASEAN countries through their respective national development programs.

Project stations

- Tigbauan Main Station (TMS), Iloilo, Philippines
40-ha area along the Gulf of Panay with several laboratories, broodstock and hatchery facilities, library, training and information facilities as well as administration offices, guest and staff houses, apartment building, dormitory, cafeteria, sports facilities, social hall and private-run elementary school.
- Dumangas Brackishwater Station (DBS), Iloilo, Philippines
16-ha experimental and demonstration pond culture facilities, field laboratory for routine chemical and microbiological analyses on-site and modest accommodation facilities.
- Igang Marine Sub-station (IMSS), Guimaras, Philippines
Established on an islet off Guimaras, cages are maintained for marine fish broodstock development and verification of marine fish cage culture.
- Binangonan Freshwater Station (BFS), Tapao Point, Rizal, Philippines
35 km southeast of Manila, the Station has laboratory facilities for fish breeding and grow-out, fish nutrition studies, fish health and lake ecology, water chemistry, training facilities, a dormitory and limited number of staff houses.

Facilities for RD&E

- **Breeding facilities**

Broodstock rearing and spawning of marine fishes can be conducted in concrete tanks at TMS or in floating cages at IMSS. Both stations are equipped for larval rearing of marine fishes and crustaceans. Mollusk breeding is done exclusively at TMS. The marine fish species maintained at TMS and IMSS include: milkfish (*Chanos chanos*), grouper (*Epinephelus coioides*), rabbitfish (*Siganus vermiculatus*), sea bass (*Lates calcarifier*), mangrove red snapper (*Lutjanus argentimaculatus*), spadefish (*Scatophagus argus*) and sea horses (*Hippocampus kuda* and *H. barbouri*).

Breeding of freshwater fishes are conducted mainly at BFS where work is being done on the Nile tilapia (*Oreochromis niloticus*), bighead carp (*Aristichthys nobilis*) and the native Asian catfish (*Clarias macrocephalus*) using indoor and outdoor tanks or floating and fixed net cages.

- **Grow-out facilities**

The basic layout of DBS consists of 16 units of earthen ponds ranging between 5,000 and 9,000 m². Some of the ponds have been subdivided into 1,000 m² scale-up units or 200 m² experimental units that can be used for replicated studies. The remaining large ponds are used for commercial-scale grow-out trials with penaeid shrimp, portunid crab and finfishes.

At any time, the ponds can be configured to conform to a required design or culture protocol. Some of the ponds have been retrofitted for zero-discharge operation by recirculating water through treatment ponds where seaweeds and/or oysters are stocked.

Cage culture studies are conducted at IMSS or at BFS depending on the species cultured. The cages available at IMSS are of two types: circular or square. Most have steel frames and are kept afloat by buoys. Bamboo-framed cages are set-up from time to time depending upon need. Floating catwalk connects the cages to the station house making it unnecessary to use a boat to inspect the cages or feed the stock. A Mariculture Park model is also being maintained at IMSS for verification and pilot demonstration.

- **Laboratory facilities**

Laboratory works are conducted in five locations at TMS: (1) Centralized Analytical Laboratory for standard water analyses, nutrient analyses as well as analysis for fatty acids, amino acids, vitamins, pesticide residues and enzymes, etc.; (2) Feed Laboratory for production of feeds for studies conducted at AQD; (3) Fish Health Laboratory for diagnosis of various fish diseases including DNA-based diagnosis of viral, bacterial and fungal diseases of shrimp; (4) Microtechnique Laboratory for processing of slides of specimens for use of ongoing studies at AQD; and (5) Natural Food Laboratory for maintenance of pure cultures of microalgae species. Potential natural food organisms both from freshwater and marine waters continue to be screened in order to widen the availability of feed species.

The sixth is the Laboratory for Advanced Aquaculture Technologies or Biotechnology Laboratory, a grant aid from the Government of Japan to the Philippines, which is still undergoing construction at AQD. The Biotechnology Laboratory has five components: (1) Endocrinology and Genetics Laboratory; (2) Feed Technology Laboratory; (3) Algal Production Technology Laboratory; (4) Microbiology Laboratory; and (5) Enclosed Wet Laboratory.

Research publications

Since 1976 AQD researchers continuously publish results of their research studies conducted at AQD in international refereed journals. Through such research publications, many AQD researchers have been recognized as world-class scientists.

- Total research publications from 1976 to December 2001 – **968**
- Total ISI-covered publications as of December 2001 – **527**
- Published and accepted for publication in ISI-covered publications during the period January-September 2002 – **53**
- Accepted for publication as of September 2002 – **26**
- Papers presented in conferences (January-September 2002) - **24**

RD&E programs of AQD

The technical recommendations of ADSEA on priority species and technology gaps are used as basis for the formulation of the research programs of AQD. These recommendations were prioritized based on areas of concern in responsible aquaculture development, namely, technology feasibility, economic viability, environmental integrity and social equity.

Responsible technologies for increased aquaculture production

- **Broodstock management and seed quality improvement of cultured species**

This program addresses problem areas related to broodstock management, genetic improvement and development of improved hatchery production technologies, such as: (1) poor and inconsistent

supply of spawned eggs; (2) non-synchronous, unpredictable and highly seasonal spawning of some species; (3) lack of information on the genetic diversity of cultured species; (4) lack of broodstock management and genetic selection methods for most of important cultured species; (5) poor survival in the hatchery of fry and fingerlings of some species; (6) slow growth of juveniles; and (7) economics of hatchery production.

- **Development of responsible and sustainable aquaculture technologies**

This program aims to develop sustainable aquaculture technologies with minimum impact on ecosystems. Specifically, the program will continue to develop and promote efficient aquaculture systems and designs for maximum sustainable productivity. In addition, nutritionally efficient feeds using alternatives to fishmeal and fish biomass will also be developed in order to promote the sustainability of aquaculture.

- **Strain improvement of commercially-important seaweeds**

This program aims to: (1) develop improved strains of *Eucheuma* and *Gracilaria* spp. through biotechnology; (2) assess improved cultivars for growth, culture characteristics and quality of carageenan and agar; and (3) conduct field and on-farm verification of improved seaweed strains.

Screening of new species for aquaculture

This program aims to search candidate species of finfishes, shellfishes and aquatic plants suitable for culture. A major component of the program includes the identification and screening of novel species for aquaculture to augment and further diversify the present number of aquaculture commodities in the region, emphasizing on indigenous species.

Development of strategies for stock enhancement

This program aims to promote stock enhancement activities in the region to increase fish supplies from inland and coastal waters. This program includes development of technologies for seed production and stock enhancement of mollusks and invertebrates, initially through the release of hatchery-produced juveniles into the natural environments.

Development of appropriate technologies for use of lakes

This program generally aims for the rational use of lakes by determining the carrying capacity of major lakes currently being used or planned for aquaculture activities; carrying out studies on pollutants in lakes and their biota as well as the possible consequences on human health; and investigating the toxic algal blooms in lakes and their possible effects on fish populations. While initial activities are undertaken in the Philippines in collaboration with a number of government agencies and NGOs, these will later expand to cover other countries in the region.

Regional fish disease project

This project is aimed at the development of fish disease inspection methodologies for artificially bred seeds, which is funded by the Japanese Trust Fund and implemented through the ASEAN-SEAFDEC Fisheries Consultative Group (FCG) collaborative mechanism.

The project aims to promote disease-free aquaculture in the region and healthy and wholesome aquaculture products including seeds for aquaculture; develop standardized diagnostic methods for important diseases of aquacultured organisms and disseminate these through trainers' training courses involving fish health personnel in the region; and establish a surveillance system.

In the proposed scheme for the Regional Network for Fish Disease Control in the Region, the project will coordinate with the FAO and OIE as well as with WHO at the global level; and with NACA, ASEAN, APEC, ACIAR, JIRCAS, AAHRI, ICLARM, AusAID, etc. at the regional level with NACA serving as the Information Centre and SEAFDEC as the Technical Center; and with the national centres at the respective fisheries departments of the ASEAN member countries.

Sustainable production of aquatic animals in brackish mangrove areas

Under the collaborative mechanism of SEAFDEC and the Japan International Research Center for Agricultural Sciences (JIRCAS), this project aims to: develop low input aquaculture systems in mangrove areas; undertake valuation of mangrove resources and services, property regimes in mangrove ecosystems, implication for the adoption of mangrove-friendly aquaculture; and undertake an analysis of farm management and economic benefits of new sustainable fish production system in brackish mangrove areas.

Technology transfer

This program aims to test the viability of research-based aquaculture technologies in collaboration with the government and the private sector, non-government organizations, fisheries schools, financing institutions and other agencies. The technologies transferred must not only be technically and financially viable but also ecologically sustainable and socially equitable. Technologies verified are documented by AQD into manuals and other information format, then disseminated in the region.

Training

The training program of AQD aims to accelerate the transfer of responsible aquaculture technologies through regular and collaborative training programs, suitable to different levels of knowledge and skills in order to produce self-reliant and responsible manpower for the promotion and development of sustainable aquaculture practices. The training courses conducted by AQD are organized into:

- Formal sessions at AQD
 1. Freshwater Aquaculture
 2. Marine Fish Hatchery and Nursery Operations
 3. Crab Seed Production (funded by ACIAR)
 4. Management of Sustainable Aquafarming Systems
 5. Mariculture Skills Development
 6. Third-Country Training Program on Responsible Aquaculture Development (with JICA)
- On-site training in specific countries to consider location-specific features of the host country
- Distance Learning or E-Training (in collaboration with the University of the Philippines Open University)
 1. Aqua Health On-line
 2. Aqua Nutrition On-line
- Sustainable Aquaculture and Coastal Resource Management

This training course is designed to give focus on the local government units (LGUs) in order to provide them with technical background as basis for formulating policies and regulations as regards aquaculture within the context of coastal resource management. Over the years, the Government of Japan's Fellowship Fund mostly funds training sessions conducted at AQD's stations for SEAFDEC.

Verification and commercialization

- **Commercialization and promotion of developed technologies**

This program aims to fast track the commercialization of developed aquaculture technologies through verification and pilot demonstration. This is undertaken in collaboration with appropriate government agencies in respective member countries, local government units, NGOs, financing institutions and the private sector. Thus, AQD implements the Mangrove-Friendly Shrimp Culture Project, funded by the Japanese Trust Fund and placed under the FCG collaborative mechanism, in collaboration with the governments of Thailand, Viet Nam and Myanmar. In the Philippines, AQD's collaboration with the Bureau of Fisheries and Aquatic Resources (BFAR) involves demonstration of mangrove-friendly shrimp culture practices in strategic training centres of BFAR.

AQD also implements the Aquaculture-Based Community Development Program with an NGO (Meralco Foundation, Inc.) in order to promote freshwater aquaculture for rural development.

- **Integrated Regional Aquaculture Program**

This program is the aquaculture component of the ASEAN-SEAFDEC Special Five-Year Program based on the output of the ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security in the New Millennium: “Fish for the People,” Bangkok, Thailand, 19-24 November 2001.

This program takes into consideration that some countries in the region are more advanced than others in terms of technology, expertise and experiences. Sharing these with less developed countries provide arena for regional collaboration, which requires assistance from external sources and funding to get moving. The aquaculture component of the program comprises two projects: Aquaculture for Rural Development; and Supply of Good Quality Seeds, which will be implemented in the ASEAN countries. Participating countries have identified activities based on national priority need, in the form of capability building such as on-site training or in form of pilot demonstration of certain production system.

In the adopted Project Framework, the implementation of the projects will be coordinated by AQD. Among the major responsibilities of AQD, is to explore possible collaboration with donors for the implementation of the projects.

For each participating country, their National Coordinator shall oversee the conduct of activities within the country, with the assistance of their respective Technical Coordinators. The National Coordinators are responsible in securing national financial contribution for the implementation of the activities under the cost-sharing scheme being promoted in the Special Five-Year Program. While the initial budget for this program is provided through the ASEAN Foundation, supplementary funding from external sources are being sought to enable full implementation of planned activities.

Since the specific activities to be conducted in respective countries have been identified and confirmed as national priority programs, the participating countries could gain full benefit from the program in terms of technology development, ownership of output, exchange of information, etc., that would eventually lead to the upliftment of the socio-economic well-being of the fisherfolk in the ASEAN countries.

Information packaging and dissemination

AQD continues to produce aquaculture manuals, newsletters, flyers, posters, video production, etc. using the output from its RD&E activities and packaging specific aquaculture systems. Moreover, AQD also recently came up with two collegiate-level textbooks that have been pre-tested in a number of Philippine universities. The following are the recent publications of AQD:

- Aquaculture Manuals: The most recent manuals include: Diseases of Penaeid Shrimps in the Philippines (2000), Grouper Culture in Floating Net Cages (2000), Net Cage Culture of Tilapia in Dams and Reservoirs (2000), Farming of Seaweed *Kappaphycus* (2000), Induced Breeding of Bighead Carp *Aristichthys nobilis* (2001).
- Textbooks: Nutrition in Tropical Aquaculture (2002) and Health Management in Aquaculture (2001), which are also used as reference materials in the Distance Learning Courses.
- Proceedings: The most recent publications include: Mangrove-Friendly Aquaculture (2000), Use of Chemicals in Aquaculture in Asia (2001) and Conservation and Ecological Management of Philippine Lakes (2001).
- Video Production and CD-ROM: The most recent CD-ROM productions include: AquaChem (2002) and Regional Guidelines for Responsible Aquaculture (2002).

- State-of-the-Art Compilations: Environment-friendly Schemes in Intensive Shrimp Farming (2000) and Closed-Recirculating Shrimp Farming System (2000).
- Flyers and posters: The most recent productions include: Mangroves and Community Aquaculture (2000), Abalone Seed Production and Culture (2000), Reviving Kapis Fishery Along Panay Gulf (2000), Protecting Livelihood through Stock Enhancement (2002).
- SEAFDEC Asian Aquaculture: This quarterly newsletter includes recent developments in aquaculture in the region as well as highlights of aquaculture technical advances achieved from the RD&E activities of AQD.
- Operationalization of www.seafdec.org.ph (AQD web site) and www.mangroveweb.net (mangrove web page).

Specific collaborative programs

Collaborative projects with FAO, NACA and ICLARM

- Regionalization of the Code of Conduct for Responsible Fisheries: Aquaculture Development

With the participation of FAO and NACA as well as other agencies, the project came up with the Regional Guidelines for Responsible Aquaculture. It was published in 2001 and is now being translated into national languages in the region.
- Grouper Research Network

Established by APEC and ACIAR and coordinated by NACA, AQD undertakes research on larval morphology and nutrition focusing on the species *Epinephelus coioides*.
- Manual on Husbandry and Health Management of Grouper

AQD was designated by APEC to serve as coordinator for the publication of the Manual on Husbandry and Health Management of Grouper in 2001, which has been translated into major languages in the Asia-Pacific region.
- Co-organization and/or representation in conferences, seminar-workshops, training, etc. Many conferences, seminar-workshops, training, etc., have been co-organized by SEAFDEC, FAO and NACA. The major ones are:
 - ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security in the New Millennium: “Fish for the People,” Bangkok, Thailand, 19-24 November 2001, with FAO and NACA
 - Hands-on Training for Important Viral Diseases of Shrimp and Marine Fish, Iloilo City, Philippines, 4-15 November 2002, mainly with NACA and OIE
- Institutional Arrangement and Fisheries Co-Management with the WorldFish Center

AQD implements the project “Scale question on co-management: Malalison Island and LIPASECU Bay Management Council, Inc.”
- Others

Representation of AQD in FAO, NACA and ICLARM conferences, study and advisory groups, seminars, etc. and through provision of resource persons and exchange of information.

Proposed collaboration between SEAFDEC through AQD and MRC

- Specific activities under the aquaculture projects of the ASEAN-SEAFDEC Special Five-Year Program on the Contribution of Sustainable Fisheries for Food Security in the ASEAN Region, especially for specific activities to be implemented in the Mekong River countries.
- The specific activities identified and considered national priority needs by the ASEAN countries, are shown in the Program Document of the Integrated Regional Aquaculture Program, the Aquaculture Component of the ASEAN-SEAFDEC Special Five-Year Program.

WorldFish Center

Paul S.Teng, Deputy Director-General (Research)

Role, potential and needs of aquaculture and aquatic resource management in rural development

The WorldFish Center is one of the 16 international centers of Consultative Group on International Agricultural Research (CGIAR). We are the only one that deals with fisheries in the broad sense of the word: living aquatic resources. I will focus [today] on how we see some of the research issues. To the extent possible, the WorldFish Center complements and works with other organizations that are more grassroots oriented.

Key drivers of change

To set the context there is a need for cross-sectoral interaction. As fisheries people we tend to look at the water part of it. I was at a conference earlier this month in Bangkok where they were looking at the role of technology in sustainable aquaculture but unfortunately they left out the water part of it (the fisheries part of it), what lives in the water. The title of that meeting was “ More People: Less Land”. I needed to remind them that when we look at the drivers of change (the key influences on change these days) they are: more people, less land, less water, less farm labour and less wildlife resources. That is why we care as a research organization, to set the right context for research issues.

Rural Livelihood, Rural Quality of Life (QOL) and Income Per Capita

Again this morning the rural livelihoods model was mentioned. New knowledge, new technologies and improved products work to improve the per capita income, which in turn improves the quality of life and improves rural livelihoods. We see our role as a research organization as a global reach organization focusing on these aspects, recognizing these [new knowledge, new technology, new products] feed upward to income per capita. We are concerned about livelihood issues for fishers and farmers, especially in the rural sector and also for the consumers in the urban sector.

World Summit on Sustainable Development (WSSD)

Again to set the context, the World Summit on Sustainable Development was mentioned [this morning] and many of us are familiar with this recommendation. “Achieve the Millennium Declaration target to halve by the year 2015 the proportion of the world’s people who suffer from hunger and realize the right to a standard of living adequate for the health and well-being of themselves and their families, including food, including by promoting food security and fighting hunger in combination with measures which address poverty, consistent with the outcome of the World Food Summit and, for States Parties, with their obligations under article 11 of the International Covenant on Economic, Social and Cultural Rights.”

“Maintain or restore (fisheries) stocks to levels that can produce the maximum sustainable yield with the aim of achieving these goals for depleted stocks on an urgent basis and where possible not later than 2015.’

These set the challenges we all face as organizations involved in rural development.

Presentation outline

My presentation this morning is focused on the aquaculture sector, aquatic resource management in the broad sense, how we as a research center have responded and saying a few words on what we believe are our key competencies and what we bring to the table as a partner.

- Aquaculture and aquatic resource management issues
- Our response
- Our core competencies
- Building on partnerships

Trends in fish production

[The presenter showed a series of colour slides (graphs) including aquaculture production by major country categories and percent contribution of the developing countries to world production (1970-1999), capture fisheries production by major country categories and percent contribution of the developing countries to world production (1970-1999), and trends in fish production by different country categories (1961-1999). The presenter went through the slides very quickly and did not focus on individual slides for any significant length of time. The presenter said the slides were a reference or starting point.

Here are some of the trends in fish production that really underpins all of our discussions. Most of us recognize the contrasting trends: an expanding aquaculture sector in many countries and a stagnant capture fishery sector in many countries and also globally. If we look at the production points by developed country and by developing country we see a tremendous growth in the developing country curve. This is very remarkable. This is all background data that has been used to justify investments.

An interesting trend around 1985 or 1986 was that a stabilizing factor occurred. This is more data but I will go through this very quickly as these are just highlight points. The growth rates in aquaculture have been tracked and studied and we feel it is our responsibility as a global fish center organization to look at these trends using both primary and secondary data. We work very closely with FAO [on the data].

Growing Share of LIFDCs

Aquaculture's growth rate and percentage contribution to total fishery production in Low Income Food Deficit Countries (LIFDCs in selected Asian countries and Egypt (1990 and 2000)

Country	Total Aquaculture Production		
	1990	2000	Average Annual growth Rate
Bangladesh	192 592	657 121	13.14
India	1 012 121	2 095 072	6.79
China	6 482 402	24 580 671	14.34
Philippines	379 940	387 680	-1.69
Thailand	291 719	706 999	8.13
Viet Nam	160 076	510 555	13.13
Indonesia	499 824	788 500	4.14
Sri Lanka	5 500	12 360	7.17
Egypt	61 916	340 093	15.42

Source: FAO 2001

One of the strongest arguments we can make about things to come is the example of China. I think few people are aware that most of the fish [in China] that gets to the table is now produced through aquaculture, not through the capture fishery anymore. I think we see that trend occurring in many countries, including Southeast Asia.

Trends in fish production composition and trends in fish consumption

Country	Fish Consumption (kg/person/year)		Percent Increase
	1970	2000	
Bangladesh	10.30	10.90	5.83
India	2.80	4.50	60.71
Sri Lanka	14.80	21.10	42.57
China	4.50	25.00	455.56
Indonesia	9.90	19.50	96.97
Philippines	34.00	29.60	-12.94
Thailand	24.40	28.70	17.62
Viet Nam	14.50	19.20	32.41
Egypt	2.80	12.80	357.14

Source: FAO 2001

Significant growth in consumption and trends in fish trade

- Per capita fish consumption grew in both developed and developing countries
- Nearly 40 percent of the world fish production are internationally traded with a gross value of US\$55 billion
- LIFDCs represent 20 percent of global fish trade
- Increasing dominance of Asian countries in trade

Implied in these figures are some points referred to earlier [today]. The danger is the cash value of fish (of formerly lower value fish) is now depriving the poor a source of protein.

Technology trends in aquaculture

- Provision of diversified food source for farmed fish
- Supply of improved genetic materials
- Using wider water areas
- Use of polyculture to optimize productivity and artificial feeding
- Success of breeding and fish farming technology
 - Selective breeding—increased productivity and reduced average cost of production—more than 60 percent for salmon and 25 to 75 percent yield improvement for Nile tilapia in Asian countries
 - Emerging development of modern bio-technology to further improve quality and quantity of reared fish

Looking at more conventional methods we see great improvement with conventional breeding and selection *e.g.* the fact that you can get on an average of 20 to 25 percent per generation gain just by looking at inherent variability in our stocks right now. Tilapia is a classic example of our breeding efforts and a modern success story. [The presenter showed a slide indicating accumulated selection responses in Nile Tilapia in six generations.]

The message to donors is with conventional technology we are able to produce more fish with less feed and it is implied with less pollution. This is a way to increase the efficiency of fish production with less environmental degradation.

Issues in capture fisheries

- Resource and habitat degradation
 - Degradation of inland and marine environment
 - Destruction of coral reefs and mangrove
- Stock depletion “fishing down the food-webs”
- Poverty and displacement of livelihoods dependent on inland and coastal fisheries
 - Population pressure
 - Property rights and access by the poor

For the donor community and the public in general, this part of the story (habitat degradation) has perhaps more resonance with the public than development issues. Pictures of coral reef destruction strike-home more than say pictures of aquaculture development.

Issues in aquaculture

1. Understanding adoption pathways in demand-driven settings
 - market forces to provide appropriate incentives
 - input prices reflecting relative scarcity of inputs
2. How will the needs of a broad spectrum of users, systems, practices and species be met?
 - stakeholder and equity issues - significance of backyard, small-scale and household operations
 - volume/quantity issues - scale and efficiency
 - land-water use and access

- a) vast areas of rice paddies
- b) many newly created seasonal and perennial water bodies (*e.g.* irrigation canals and reservoirs)

3. Knowledge-intensive system and participation of the poor

- transfer of basic principles of aquaculture to
 - a) local knowledge system
 - b) different political and cultural contexts
- transfer of successful practices from one country/region to other
 - a) gathering information on different practices
 - b) analyzing conclusion drawn from various experiences

4. Integrity of coastal aquaculture

- effects on marine ecosystems and their services - non-market benefits
- downstream externality
- primary biology and productivity negatively affected; nursery and spawning grounds destroyed
- traditional and commercial fishers bearing the cost
- monoculture threatening biodiversity in coastal wetlands

Balancing supply and demand for fish as food

	1997	2020
Production (supply) from capture fisheries	64.5	76.0
Production (supply) from aquaculture	28.6	54.0
Total	93.1	130.0
Production (supply) used for food	69.8	97.5
Consumption (demand) for fish as food	91.3	127.8

The bottom-line for our CG centers (and future harvest centers) are concerned is balancing the equation between the supply of food and the consumption. The best current estimates put the shortfall at 30 metric tonnes. This is important in terms of the call for reduced fishing to rehabilitate capture fisheries stocks. This is a paradigm challenge that must be reconciled through research.

Learnings from the Twentieth-Century and going into the Twenty-First Century

- Problems affecting people, environment and food are commonly multi-sourced, with connectivities
- Solutions often require multi-sector approaches and partnerships
- Conventional, contemporary technologies need complementing with newer technologies because the baselines have changed!

An example of the new baseline is more along the lines of the Mekong Delta with maybe five crops in two years; less than fifteen days turn-around between crops. This is the environment we are working in. We need to recognize the changing baselines.

Cross-cutting issues and problems leading to multi-sectoral, multi-institutional and multi-disciplinary opportunities and solutions which in-turn lead to improved food security, nutrition security, poverty alleviation, improved livelihoods, sustainability and conservation.

These are key drivers for us [WorldFish Center] to come to this meeting because this is a gathering of many people (representing many institutions and sectors) that can jointly look at the issues. We all share the same goals. It is surprising to the read the mission statements of our organizations as one or more words are the same, we all have the same goals.

These are the issues we think are important:

- Sectoral boundaries (*e.g.* NGO vs. GO vs. private)
- Institutional boundaries (*e.g.* research vs. extension vs. training)
- Disciplinary boundaries (*e.g.* water scientists vs. biological vs. policy)

Aquatic resource management Issues that are particular focus for the WorldFish Center

- Policy, governance and institutional issues affecting living aquatic resource management
- Declining global and local marine and freshwater stocks for captured fisheries
- Capacity in developing countries for management of living aquatic resources
- Destruction of habitats for bio-organisms living in water
- Increased need and demand for aquaculture products

For the WorldFish Center there are some issues, which are of particular focus for us and are key areas for our work. We cannot do everything and we try to complement others. This list is very generic and is available in our medium term plan. If you would like a copy please send me an email; some of it is available on our website as well.

Approach to our research programming is based on three major criteria:

- Partnerships
 - Currently in partnership with 259 institutions
- Multi-disciplinarily
 - The way we organize ourselves and focus on the major ecosystems
- Research for impact
 - We do not do research for research-sake anymore. We do research for development.

Important aquatic resource systems

We have identified eight important aquatic resource systems: coastal waters, including estuaries and lagoon; small water bodies, reservoirs and lakes; floodplains, streams and rivers; soft-bottom shelves; up-welling shelves; open oceans; coral reefs and ponds, but we plan to focus on four:

- Ponds
- Coral reefs
- Coastal waters
- Floodplains, streams and rivers

WorldFish Center program thrusts

1. Conservation of aquatic biodiversity
2. Mitigation of adverse impact of alien species on aquatic biodiversity (*new emphasis*)
3. Genetic Improvement and Breeding
4. Strategies and options for realizing gains from freshwater aquaculture systems
5. Freshwater fisheries in an integrated land and water management context (*new emphasis*)
6. Increased and sustained coastal fisheries production (*redefined*)
7. Restoration and protection of coastal habitats (*redefined*)
8. Knowledge bases and training for improved management of coastal resources (*redefined*)
9. Economic, policy and social analysis and valuation of aquatic resources in developing countries
10. Aquatic resources planning and impact assessment
11. Legal and institutional analysis for aquatic resources management
12. Improved partnerships and capacity -building among developing country NARS (*redefined*)
13. Access to information for sustainable development of fisheries and coastal resources (*redefined*)

This is directly from our research program for the next few years. Some of them are new and others are redefined. Again, this is in the medium term plan and I am happy to share a copy with you. There are a number of governance issues as you can see. We deal with both marine and inland fisheries.

Core competencies of WorldFish Center

1. Stock assessment of coastal fisheries
2. Methods for developing improved fish strains
3. Socio-economic analysis of the fisheries sector
4. Culture and restocking of coral reef invertebrates
5. Global databases for management of aquatic resources
6. Watershed approach to aquatic resources management

7. Institutional analysis for governance of aquatic resources
8. Development and evaluation of small holder focused aquaculture technologies

What does WorldFish Center bring to the table? We feel that as a Center that has just celebrated its twenty-fifth anniversary we have built up a skill set. We have identified eight which we believe we have some special skills in.

We use the global impact model of IFPRI (International Food Policy Research Institute) to look globally at how to predict much better the role of fish and aquatic resources in the global demand for food. This goes back to something said earlier today about fish being left out of the global discussion on food. We are making a very specific and purposeful move now to include fish in this global model.

Collaboration via formal and informal networks

We collaborate through both formal and informal networks. Examples of networks where we are leaders include: GOFAR; INGA; ICRAN; and NTAFP which is a regional project on increasing and sustaining fisheries and aquaculture in Asia. We are members of NACA networks. We have some we host such as the International Action Coral Reef Network.

Partners in 2002 (by region)

131	Asia
33	Africa
23	Europe
2	South America
19	Australia and Oceania
32	Regional/International
14	United States and Canada
5	Central America and Caribbean

Conclusion

CGIAR challenge programs: extending the reach to achieve impact

Water and Food Challenge Program:

Endorsed by IsC and CGIAR. Implementation proceeding as the first full-fledged CP

Coastal Zone Challenge Program:

Pre-proposal is 1 of 4 selected for review and further development in the next year

In conclusion I would like to mention a couple of new developments that are quite exciting in terms of partnerships; the CGIAR Challenge Programs. They have been successful in attracting new funding (and I emphasize the word new). These are multi-institutional programs in the true sense of the word. The WorldFish Center is the lead on the Coastal Zone Challenge Program so over the next several months we will be spending quite a lot of time on this. This is off the ground.

CGIAR challenge program on water and food

This is a consortium of NARS, CG centers, international and regional organizations, ARIs and NGOs. Seven basins and five themes have been selected. Three of the basins are in Asia (Yellow River Basin in China, Indo-Gangetic Basin in South Asia and the Mekong Basin). The MRC has agreed to take the lead on Mekong Basin.

The WorldFish Center leading one of five themes – Aquatic Ecosystems and Fisheries. The themes set the research priorities and the basins are to set the development priorities for the basin. It is a matrix approach.

The call for pre-proposals is going on in mid-December 2002 and we are expecting thousands of pre-proposals to be submitted from around the world. There is significant new funding; in fact, the first round of funding committed the first year is between US\$40 to US\$80 million of new funding for this initiative.

Partnerships and stakeholder involvement

- Stakeholder participation in problem identification, research planning and implementation
- Kind and number of collaborative arrangements with NARS, NGO's, ARIs, farmers, private sector and development agencies
- Enhanced co-ordination, resulting in greater synergies and cost-effectiveness
- Contribution to capability building of NARS partners

Coastal zone challenge program

The second program being developed is on the coastal zone. This offers us a great deal of potential in this context here. We have been asked to take the lead on this on behalf of the consortium of 22 NARS, ARIs and NGOs; 8 Regional Agencies; and 6 CGIAR Centers. We look at the coastal zone as the interface between the land and the sea in which more than 40 percent of the developing world's population live and work.

Coastal zones: the land-sea interface

- Terrestrial ecosystems e.g. tropical forests, agricultural systems
- Marine ecosystems e.g. coral reefs, mangroves, seagrasses

Underpinning all I have presented on the research issues, our research agenda, is that harnessing the strengths of all partners to generate knowledge and technologies which reduce poverty, conserve the environment and improve livelihoods is what is needed.

Thank you.



Mekong River Commission (MRC)

Jeanineke Dahl Kristensen, Manager, Fisheries Programme

Introduction

The food security of 60 million people living in the Lower Mekong Basin (LMB) is based on rice and fish. Rice is the main supplier of energy and plant protein in the diet and fish supplies a range of important micronutrients and animal protein. Fish and other aquatic animal products can justifiably be called “the milk of South East Asia”. There are no immediate replacements for these two important food components, on which many South East Asian societies have developed. Any substantial and irreversible damage to the ecosystems in the region may lead to severe shortages in food production.

The inland fishery resources of the LMB are among the most productive in the world and are of immense importance to the people in the region. The annual flooding of the Mekong Basin drives the productivity. The rise and fall of the Mekong also creates the variety of habitats that shelter an incredibly diverse fish fauna. More than 1,200 fish species live in the Mekong and its tributaries, making it one of the most species-rich rivers in the world.

Fish in the Mekong Basin is not just a local resource, but also a trans-boundary resource, which during its life cycle travels hundred of kilometres, from downstream feeding habitats to upstream refuge habitats or spawning areas.

Care is needed if the aquatic resources and biodiversity of the Mekong for future generations are to be maintained. The long-term sustainability of the living aquatic resources of the LMB as an important source of food, income and employment will require extensive knowledge of the resources and of key factors controlling recruitment and survival, such as life history, habitat and migration route requirements, part of the work the MRC Fisheries Programme started in 1993. It will also require that the living aquatic resources are taken into account in national and regional planning, especially in Government where decisions are made on alternative uses of water resources.

Policy aspects

The Fisheries Programme forms one of five sector programmes within the intergovernmental body Mekong River Commission. In November 2002, the Fisheries Programme revised its development objective to: “Coordinated and sustainable development, utilisation, management and conservation of the fisheries of the Mekong Basin.” The objective has been formulated together with line agencies in the four riparian countries and derives from the Mekong River Commission mission: “to promote and coordinate sustainable management and development of water related resources for the four countries’ mutual benefit and the people’s well being by implementing strategic programmes and activities and providing scientific information and policy advice”.

The target groups for the Fisheries Programme are derived from the MRC vision of “an economically prosperous, socially just and environmentally sound Mekong River Basin”. The Fisheries Programme provides information directly to the basin development planners and decision makers and indirectly by capacity building within the line agencies and National Mekong Committees. The ultimate target group is the low-income resource users in the Basin that are dependent on fisheries for their livelihoods. The purpose of the Programme expressed in the development objective is to enhance the livelihoods of the ultimate target group.

Strategy

Methods of work

In recognition of the fact that it is impossible to plan for all the eventualities that may arise over a long period, the Fisheries Programme has a five-year rolling plan, which is adjusted annually. This strategy ensures that the Fisheries Programme is flexible, adapting from experience gained under the

implementation and can respond to changes in the external environment. In particular, this means that the Fisheries Programme will be responsive to the fisheries development needs of the MRC member countries and will continually review funding possibilities for Programme activities.

The Fisheries Programme works primarily through the relevant line agency in each country, but components are never national. Experience is shared between countries by regular meetings on the component level as well as the Programme level. Fisheries Programme activities incorporate relevant aspects of upgrading the capacity of the line agencies and the MRC to plan and manage the Fisheries Programmes.

Gender equity is a cross-cutting issue for the Programme in order to ensure that there is a reasonable participation of both men and women in Programme implementation and that there is a fair distribution of benefits from development activities.

The MRC Fisheries Programme is very keen to collaborate with all other organizations working in the fisheries sector in the Mekong Basin. The fisheries in the region are of immense economic and nutritional importance and the resources are under pressure from varied sources. Consequently, the management and development needs of the sector are immediate and important. In this context, it is apparent that coordination of activities across governments, research, development and management institutions, donor agencies and NGOs is essential to ensure the best use of the limited resources available.

Areas of work

The fisheries sector may be divided into aquaculture and capture fisheries/aquatic animals. However, because the two types of fisheries is interlinked in the Lower Mekong Basin, the sector interact with other sectors and the outcome of the sector is essential for people's livelihoods, the MRC Fisheries Programme focuses on four interlinked thematic areas:

1. Fisheries Ecology and Impact Assessment
2. Enhancing Livelihoods
3. Fisheries Management
4. Communication

Fisheries ecology and impact assessment

The Fisheries Programme has over the past seven to eight years collected information on habitat and life cycle requirements, especially migration patterns, of fish species in the LMB by using novel methods *e.g.* Local Ecological Knowledge surveys and monitoring larval drift. However, more information is needed on life histories, key environmental variables (day length, temperature, flow regime) distribution of species and stocks, the major patterns of fish migration and habitat use during their life cycle and the energetic basis of productivity and fish yields per habitat type.

Detailed information is also needed on the other elements of the fishery, which include the fishers, traders, retailers and suppliers and the social and market systems in which they operate. Such information on key features of the fishery is fundamental to sound management, environmental impact assessment and impact mitigation.

Biological and socio-economic data will be used in models (*e.g.* impact assessments, environmental flows, water resource utilisation and basin development plans), which eventually will guide management and development decisions.

In addition to information on the fishery, sustainable development requires effective fisheries focused Environmental Impact Assessments (EIAs) which adequately incorporate mitigation, environmental monitoring and management in the planning and operation of water management activities. The EIA process is ineffective at present to achieve favourable outcomes for fisheries because fisheries agency staff lack the proper channels and contacts for effective engagement in the process and because agencies in the other sectors whose activities impact the fishery (*e.g.* hydroelectricity, flood control, irrigation) lack awareness of fisheries issues and do not engage effectively with fisheries professionals. Several Fisheries Programme activities will seek to improve EIA processes for fisheries in the Mekong Basin.

Enhancing livelihoods

Fisheries play a fundamental role in sustaining the livelihoods of rural populations and alleviating poverty in the Mekong Basin. They provide food security and opportunities for diverse, flexible and dynamic forms of income generation and an important buffer to economic and social shocks affecting poor households.

The livelihoods approach makes it imperative to look at the context and relationships and at policies and institutions. Poverty alleviation requires poor people gaining access to and control over their resource base – not merely their natural resource base but also over political resources and decision- and policy-making processes, thereby enhancing their rights and capabilities in expressing and organising themselves to represent their interests – giving them a voice. Learning effectively from each other's experience is a valuable tool here. Two-way learning and an open transparent approach are essential.

Fisheries management

Fisheries management takes place at various levels and in various forms. All MRC member countries now recognise the importance of promoting participatory management practices at the community level. This can be the co-management techniques developed by the Fisheries Programme during the past seven years, or variations of those techniques adapted to fit particular circumstances in each country and particular situations. There is an opportunity to extend the experiences gained in specific habitats to wider applications for fisheries management in the Basin.

There has not yet been developed approaches or implementation experiments for participatory natural resource management on a large scale that are commensurate with the magnitude of the biological production system or environmental interactions in the Basin. Participatory management on the scale of sub-catchments or major river/floodplain areas, as well as the community level, will be a focus area for the MRC Fisheries Programme in the future.

National and regional government levels are the key decision-making areas in fisheries management. The Fisheries Programme has always worked closely with these levels for implementation of the Programme. Future emphasis will be on improved communication flow of information that can be used in national and trans-boundary decision-making.

Communication

The overall goal of Fisheries Programme communication activities is to inform all stakeholders of the importance of fisheries to the livelihoods of people of the Mekong River Basin, with a view to ensuring political and community support for the maintenance of healthy rivers and fisheries in the Mekong. Such information must be communicated in easily understood language and a variety of formats.

In order to achieve its goals, the MRC Fisheries Programme will have a strategy for communication of adequate fisheries information, generated both within and outside the Programme, to diverse audiences, including Member Governments and natural resource managers.

Communication processes within the Programme integrates with the MRC Communication Strategy, thereby ensuring the information flows to a broad audience within the Basin. Communication processes and milestones are formally built into all components of the Programme.

Communication processes involved include technical and general publications, films, interactive CDs, storage of databases within the MRC, advocacy and representation of fisheries interests, fisheries symposiums within the Mekong Basin and networking with other fisheries and natural resource agencies in the region. Networking and interaction with target audiences will allow for continual appraisal of the requirements for information, as well evaluation of the effectiveness of communication practices.

These four thematic areas of work cover the key activities needed to work towards the achievement of the development and immediate objectives.

Immediate objective and outputs

The Immediate Objective of the Fisheries Programme is: 'Relevant fisheries information generated, communicated and used by resource users, riparian governments and the MRC in management planning and implementation'.

The Fisheries Programme is about information relevant for fisheries development, utilisation, management and conservation in the Mekong River Basin. Relevant information is that identified as being necessary for an understanding of the biology, ecology, economics and social aspects of fisheries and for the planning and management of fisheries activities. The Fisheries Programme will therefore be concerned with generation, communication and use of information, as expressed in the following Outputs:

1. Relevant information on fisheries biology, ecology and socio-economics generated
2. Relevant fisheries information communicated to management agencies and resource users
3. Use of relevant information facilitated

The Fisheries Programme facilitates use of the information by providing it in user-friendly formats and advising the users on possible strategies for the utilisation of information. To ensure that the information is widely spread to other sectors, information on fisheries will also be disseminated through other MRC publications.

Current and planned components of the fisheries programme

Four components operating are:

- Management of River and Reservoir Fisheries in the Mekong Basin
- Aquaculture of Indigenous Mekong Species
- Assessment of Mekong Capture Fisheries
- Institutional Support

Component ideas proposed for funding:

- Trans-boundary Co-management of Deep Pools
- Trans-boundary Management of Flagship Species
- Fish Population Genetics
- Participatory Management
- Fish Larvae and Fry Ecology
- Fisheries Information Systems
- Biological Diversity Conservation
- Fisheries Impact Assessments
- Catchment Co-management
- Communications

Need for external support

The national line agencies and related fisheries institutions in the MRC member countries already have the institutional structures necessary for fisheries development in the Basin. However, because of constraints in the national economies of most member countries, they do not have sufficient resources to implement major development programmes with trans-boundary significance. The Mekong River Commission, being an organization formed by the four governments, is well suited to facilitate such programmes, but needs external funding to do so. The MRC member countries are providing an increasing share of MRC expenses, but it will require many years of economic growth before they are able to meet all the operational costs.

Importance of the LMB Fishery, Effects of Water Management on Fisheries, Role of the MRC and Components of the New Programme (2003-2010)

The Lower Mekong Basin

- The total population is 60 million (present)
- GNP in Cambodia, Lao PDR and Viet Nam are among the lowest in the world
- Water is important for development, but also a potential source for conflict

Fish production estimates

- Total: 2 million tonnes
- Capture Fisheries: 1.75 million tonnes
- Aquaculture: 0.25 million tonnes

Estimation methods include: consumption studies (above figures), wetland productivity (150 kg/ha/yr) and landing surveys.

How large is the fishery in the LMB?

- The world capture fishery (marine and freshwater) is 92.3 million tonnes.
- The Mekong fishery at 1.75 million tonnes is 1.9 percent of world capture fishery.
- The value of the Mekong fishery is about US\$ 1,400 million and involves 40 million people full and part time.

Fish consumption in LMB countries

Country	Consumption Per Person (kg)	Total Consumption (tonnes)
Cambodia	47 (10-89)	508 000
Lao PDR	26 (17-36)	133 000
Thailand	35 (20-41)	795 000
Viet Nam	33 (15-60)	597 000
Total	36	2 033 000

Importance of fish in the Cambodian diet

	Intake	Protein	Vitamin A	Iron	Calcium
Rice	511.0 g	40.0 g	0.0 RE	6.1 mg	51.0 mg
Fish	121.0 g	15.0 g	110.0 RE	2.7 mg	282.0 mg
Meat	53.0 g	6.0 g	21.0 RE	0.9 mg	4.0 mg
Other	111.0 g	1.0 g	31.0 RE	0.7 mg	19.0 mg
Total	796.0 g	62.0 g	162.0 RE	10.4 mg	357.0 mg

Note: The table shows intake of different food groups energy in a rice surplus area of Cambodia.

Effects of water management on fisheries: problems for fisheries

- Dams (dykes, weirs): Hindrance to fish migrations
- Reservoirs: Still water body, anoxic bottom conditions, rapidly changing water level
- Downstream: Anoxic water outlet, changed water temperature, lack of sediment, etc.
- Potential Effect: Loss of income, employment, food security and biodiversity.

Mitigation methods

- Downstream effects: Changed water intake to turbines
- In-reservoir: Bubbling systems, improved management of water level etc.
- Passing the dam: Fishways

Fishway capacity and the requirement for the Tonle Sap river

- Vertical slot: 7 meters, 5 000 fish per 24 hours
- Fish lift: 15 meters, 3 200 fish per 24 hours
- Tonle Sap River: 50 000 fish per minute

The role of the Mekong River Commission

The 1995 Agreement states, MRC's role is to promote "Cooperation in all fields of sustainable development, utilisation, management and conservation of the water and related resources of the Basin." This should contribute to sustainable and balanced development, while preserving the environmental integrity of the Basin.

Working with fisheries agencies (TAB)

- LNMC, Vientiane, LAO PDR NAFRI (LARReC)
- CNMC, Phnom Penh, Cambodia Department of Fisheries
- VNMC, HCMC (Ban Me Thuot), Viet Nam ministry of Fisheries (RIA 2)
- TNMC, Udon Thani, Thailand Department of Fisheries (Inland Fisheries Division)

[The presenter went on to describe the organizational structure of the MRC including the roles of the Council, Joint Committee, National Mekong Committees (NMCs), Donor Consultative Group, TAB and the Mekong River Commission Secretariat.]

Components of the new programme (2003-2010)

- Management of river and reservoir fisheries
- Aquaculture of indigenous Mekong species
- Assessments of Mekong capture fisheries
- Population genetics of 'trey riel'
- Institutional support
- New component ideas
 - Developed in conjunction with line agencies and core programmes
 - Complementary and new fields of work
 - Need new funding

Features of the new programme

- Multiple donors
- Unified field offices
- Operations in all MRC countries
- Increased emphasis on communication of information and knowledge

Thematic areas

- Fisheries management (MRC and NMCs)
- Enhancing livelihoods (donors and international community)
- Fisheries ecology and impact assessment (riparian governments, TAB and resource users)

European Union (EU)

Gildo Pivetta, Development Counselor, Delegation of the European Commission to the Philippines, and Daniel Plas, Senior Programme Officer, Delegation of the European Commission to the Philippines

Presentation objectives

- Overview of the main policies of the European Commission on Rural Development and Fisheries, including Rural Development interventions in the Philippines as an example
- Main instruments of the European Commission

Policy overview

Development cooperation: Article 177 of the Treaty establishing the European Community

- The sustainable economic and social development of developing countries, particularly the most disadvantaged
- The smooth and gradual integration of the developing countries into the world economy
- The campaign against poverty in developing countries

Six pillars of development policies (Statement on Development Policy in 2001)

- Macro-economic support and access to social services
- Food security and rural development
- Trade and development
- Regional Integration
- Institution building
- Transport

Rural development policies (policy and approach to rural development 15 June 2000)

- Progressing toward more peaceful, equitable, open and democratic societies
- Establishing more effective and accountable rural institutions
- Supporting economic policies which enable rural growth
- Enhance the individual asset of rural dwellers
- Promoting more sustainable management of natural resources
- Improving the coherence between EC development policies and other EU policies such as trade, agriculture, environment and immigration

Rural development in the Philippines

In the Philippines this is done through Area Development Projects with main elements: strengthening of peoples' organisations, local government institutions and rural finance institutions, providing rural infrastructure, natural resource management and technology transfer on agriculture (including fisheries and aquaculture based) and non-agricultural fields.

Support in the area of fisheries and aquatic resources included:

- support for seaweed farming and fish cages, establishing a management council for marine resources (*e.g.* Maceda Bay in Samar), and Barangay/community level coastal management plans, including establishing protection zones and controlling destructive fishing methods.

Problems with the adoption of technologies by beneficiaries included:

- Limited technical know-how and extension capacity of local governments and NGOs
- Capital requirements for investments
- Technical problems with aquaculture technologies, such as seaweed farming
- High cost of inputs (*e.g.* feed)
- Insufficient availability of inputs (*e.g.* fingerlings)

A general trend in designing development cooperation interventions is towards a lesser dependence on project-focused interventions and toward sector programmes where possible. Another trend is to provide more support to the social sectors such as health and education. The Philippines is a case in point where the National Indicative Programme (2002-2004) has programmed about half of the development cooperation resources to a health sector support programme.

Fisheries development policies

The EC Fisheries Development Policies are derived from the Council Resolution on Fisheries and Poverty Reduction 14 November 2001.

Sectoral approach

Political dialogue is increasingly important and therefore should be taken up in the formulation of the Country Strategy Papers and National Indicative Programming documents. It is recognized that this has not yet sufficiently taken place. [This approach] assists countries in drawing-up and implementing a strategy for sustainable development in the fishery sector.

The Commission will adhere to the principles formulated in various international agreements, such as Montego Bay 1982, Rio de Janeiro 1992, Rome 1995, Kyoto 1995 and the 28th FAO Conference on the Code of Conduct for Responsible Fisheries:

Principle 1	Optimal use of biological resources in the countries Exclusive Economic Zones
Principle 2	Coastal states to determine the capacity of exploiting biological resources and can allow other states exploit the surplus of admissible catch
Principle 3	Environmental concerns shall be integrated in all development processes
Principle 4	Cautionary principle
Principle 5	Local communities must be made responsible
Principle 6	Fishing levels must be in proportion to production capacity
Principle 7	Joint management of resources at sub-regional, regional and world levels
Principle 8	Importance small-scale fishing
Principle 9	International trade in fish must not have adverse effects on the environment

Implementation measures

- Improving governance of sustainable management and strengthening civil society
- Support implementation of National Sector Programmes, including scientific knowledge, management of fishing activities, protection of aquatic ecosystems, improvement of production, marketing and food security
- Support for sub-regional and regional cooperation conservation and management of resources (ARCBC [ASEAN Regional Centre for Biodiversity Conservation] is an example in relation to biodiversity)
- Support national and regional efforts to combat non-controlled and non-recorded fishing

Interventions related to economic development

- Improve fishing fleet and processing, infrastructures and training
- Support in reaching sanitary standards for aquaculture products in European markets
- Seeking complementarity and coherence (especially with the Common Fisheries Policy)

Main instruments of the European Commission

Development cooperation instruments

Bilateral assistance

The majority of assistance is bilateral assistance, which is programmed through Country Strategy Papers and related National Indicative Programming for both Africa, Caribbean, and Pacific (ACP) countries and the Asia and Latin American countries.

Country Strategy Papers are part of the political dialogue between the EC and the Partner Countries and cover all aspects of their relationship including political, trade and development issues. When available, Poverty Reduction Strategy Paper (PRSP) adopted by partner governments are important elements in planning development interventions.

Horizontal budget lines

Horizontal budget lines are global thematic instruments and are implemented through calls for tenders which are available at the website of the European Commission Co-operation Office. There is no separate budget line for fisheries or aquatic resources, but interventions in these areas have been supported through the environment budget line and the NGO co-financing budget line.

Regional indicative programmes

A Regional Indicative Programme with the Pacific Forum for 29 million Euro and a duration of five years, which was signed in October 2002 as part of the ACP programme. On Sustainable Natural Resource and Environmental Planning and Policy:

- Information and data collection to determine optimal level of resource extraction
- Development of common policies and regulations
- Sustainability of the natural heritage through
 - Conservation of biodiversity
 - Common protection strategies
 - Integrated coastal zone management
 - Prevention of pollution and protection fresh water habitats
 - Natural disaster mitigation

There is no regional Indicative Programme for Asia countries.

Other support

The FISHBASE programme (implemented by ICLARM) was co-funded by the EC under ACP funding.

Research instruments

The EC supports the CGIAR Consultative Group for International Agricultural for Research Activities.

Research framework programmes

The funding cycles of the Research Framework Programmes numbers one through five have been complete. The sixth framework programme 2002 to 2006 will be implemented in three phases in 2003-2004 and 2005. Main themes related to environment will include:

- Food security provided by coastal ecosystems
- Integrated framework for interpretation and analysis
- Rehabilitation of degraded systems (protected areas)
- Methods and approaches for economic valuation of coastal ecosystems

Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ)

Rudolf Hermes, GTZ Project Advisor, Visayan Sea Coastal Resources and Fisheries Management Project and Marc Nolting, GTZ Project Advisor, Leyte Island Program, Integrated Community Based Coastal Zone Management Silago Bay (ICOM)

Priority areas and priority partner countries in Asia

GTZ's corporate mandate

- GTZ is tasked by the German Government to achieve its development policy goals
- GTZ works on a public-benefit basis

On behalf of the German Government

- GTZ implements official Technical Cooperation measures

With the approval of the German Government

- GTZ implements commissions from other clients (Technical Cooperation for International Clients) and measures financed from its own funds (GTZ financed measures)

GTZ profile

- The Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH is a government owned corporation for international cooperation with worldwide operations.
- The German Federal Ministry for Economic Cooperation and Development (BMZ) is its main source of finance. GTZ has more than 10 000 employees in around 130 countries of Africa, Asia, Latin America, in the Eastern European countries in transition and the New Independent States.
- Around 8 500 employees are locally contracted nationals (“national personnel”).
- GTZ maintains its own field offices in 63 countries.

Our services: GTZ

- advises organizations in partner countries in planning, implementing and evaluating their projects and programmes; recruits experts, prepares them and provides sector-specific and human resources backstopping services during their assignment;
- conducts project-related training and upgrading; conducts technical planning and purchases materials and equipment for projects; and
- provides non-repayable financial contributions from Technical Cooperation.

Focus of German Development Cooperation (DC) in Asia

- Priority areas
- Poverty reduction
- Environmental protection and conservation of natural resources
- Health, family planning, HIV/AIDS Education and training

Cross-cutting issues

- Emergency aid and conflict prevention
- Private sector promotion
- Good governance
- Decentralization

At the government negotiations in 2001, the Visayas region was agreed upon as a priority region for German development cooperation with the Philippines.

Our support to Coastal Resources Management in the Philippines Leyte Island Programme (Integrated Community Based Coastal Zone Management Silago Bay)

- strengthens performance capability of the responsible extension services; establishes functional integrated bay-wide Fisheries and Aquatic Resources Management Council;
- supports institutional strengthening and capacity building of Local Government Units and People's Organizations in CRM interventions;
- conducts technical planning and purchases materials and equipment for supplemental livelihood opportunities assist; and LGUs in delineation of municipal waters and fishing grounds.

Our support to Coastal Resources Management in the Philippines Visayan Sea Coastal Resources and Fisheries Management Project (VisSea)

- Promotion of income diversification or supplemental livelihood;
- Assisting in the formulation and implementation of a joint management plan;
- Establishment of an information base for resources management and monitoring;
- Networking among stakeholders in four participating provinces and 22 municipalities and cities; and
- Support to Local Government Units in implementing CRM interventions (marine protected areas, mangrove reforestation, fishing gear regulations, pollution control, etc.).

Development policy

Development policy is part of the German Government's global policy aimed at securing peace and stability. The core problems facing many developing countries (poverty and social injustice, environmental destruction and population growth, disease and lack of educational opportunities, violent conflicts and crises of state) have reached a level which encroaches on the future of the industrialised countries and of the world as a whole.

These problems can only be resolved by means of global responsibility and partnership. The status of development policy, which pursues these goals, has consequently increased significantly. The German Government sees development policy as global structural and peace policy based on the tenets of sustainable development.

The aim is to influence globalisation by changing structures in order to enhance the political, social, economic and ecological framework in partner countries to:

- Improve structures in partner countries;
- Improve international structures by shaping global frameworks and establishing international regulations; and
- Step up cooperation among bilateral and multilateral institutions and between public and private sector actors.

The developing countries and their governments bear the primary responsibility for their own development (principle of 'ownership'). Their will to help themselves and establish the appropriate political, economic and social framework conditions is an essential prerequisite for successful development #Journalistenhandbuch Entwicklungspolitik; BMZ (issued annually).

The basis of GTZ's work is the General Agreement signed on 12 December 1974. This stipulates that the German Federal Ministry for Economic Cooperation and Development (BMZ) dictates the development policy goals and the goals of the individual measures. The BMZ decides on the promotion of projects and the framework of financial assistance. GTZ implements the BMZ commissions on its own responsibility and has the work done either by its own staff or by sub-contractors. GTZ also has an advisory function *vis-à-vis* the BMZ. The guidelines on development policy of the Federal Republic of Germany are the starting point and goal of GTZ's work. GTZ is a public benefit corporation whose shares belong to the Federal Republic of Germany. GTZ's basic capital amounts to DM 40 million.

Technical Cooperation (TC)

In the field of international cooperation, GTZ assumes the tasks of Technical Cooperation (TC). Technical Cooperation boosts the performance capacity of both individuals and organizations. It helps enhance the political and institutional framework for sustainable development in partner countries. Technical Cooperation transfers and mobilises knowledge and skills and together with its partners; creates and develops the environment in which these can be applied. The aim is to strengthen peoples' initiative, enabling them to improve their living conditions through their own efforts. However, Technical Cooperation does not merely transfer know-how. It also acts as a facilitator between the government and civil society and as a mediator where there are conflicts of interest within society.

GTZ consultancy services span a wide range of activity areas from economic development and employment promotion through health and basic education to environmental protection, resource conservation and regional rural development. Government advisory services have increased significantly in recent years. GTZ is now supporting numerous partner countries in their efforts to introduce comprehensive reform processes and to initiate the necessary changes in the policy, economic and social frameworks. Where acute need means that immediate human survival is jeopardized, GTZ also responds with emergency aid and refugee programmes, but even these short-term relief measures are designed to enhance peoples' potential and capacity to help themselves and to achieve long-term positive impacts.

GTZ services include:

- planning and implementing project-oriented training and upgrading;
- specification, planning and procurement of materials and equipment for the projects;
- granting, processing and disbursing non-repayable financial contributions from Technical Cooperation funds;
- advising organizations in partner countries on project and programme planning, implementation and evaluation;
- planning, steering and implementing complex tasks, *e.g.* in the field of logistics or in cooperation and event management; and
- recruiting and briefing experts for their tasks, as well as attending to their professional and personal welfare during their period of assignment.

The Technical Cooperation provided to the partner countries is non-repayable and because of the public-benefit nature of the GTZ as stipulated in its Articles of Association, profits can be used only for public-benefit development measures, regardless of whether they originate from public-benefit or non-public-benefit business. They are therefore channelled into so-called GTZ-financed measures. These are small-scale measures which the GTZ implements or finances from its own funds up to a ceiling of DM 200,000. They are designed to directly assist a formal or informal executing agency in a partner country. GTZ financed measures are used in particular as funds to promote self-help among local groups and private enterprise in the environment of a Technical Cooperation project. To ensure that the purpose of these measures is in line with the development policy of the Federal Republic of Germany, GTZ-financed measures also require the prior approval of the Federal German Ministry for Economic Cooperation and Development (BMZ) as well as of the Federal German Foreign Office.

Our corporate identity

Our vision:

We successfully promote international cooperation, which contributes to sustainable development throughout the world. Our company is strengthening its position on the global market for international cooperation services.

Our mission:

We are a government-owned corporation with international operations. We implement commissions for the German federal government and other national and international, public and private sector clients. We further political, economic, ecological and social development worldwide and so improve people's living conditions. We provide services that support complex development and reform processes.

Our common values:

We act on the conviction that respect for human rights and the dignity and uniqueness of each individual create the basis for international cooperation; rule-of-law, legal security and citizens' participation in the political process are prerequisites for effective government action; the environmentally sound use of resources secures development opportunities for future generations; a market friendly and socially oriented economic order together with development focused governance are the platform for income-security and progress; effective contributions towards peace and security are key pillars of development; cooperation in a spirit of partnership leads to success; transparency and integrity engender clarity and understanding of corporate action both within our organization and externally, and so create trust.

Our corporate guiding principles

Client orientation: Client satisfaction is the yardstick for the quality of our work.

Employee Orientation: We promote our employees' development. The quality of their work guarantees the success of our company. Management personnel are role models.

Results Orientation: Our actions are geared to achieving sustainable and verifiable impacts.

Efficiency: Our operations aim to achieve maximum cost-effectiveness.

Flexibility: We use flexible structures and processes, which we match to the demands on hand.

Responsibility and Accountability: Our decision-making is located next to the operational level and oriented to common corporate interests.

Guidelines on development policy of the Federal Republic of Germany

Focuses of development cooperation (DC)

Poverty reduction

Poverty reduction (poverty alleviation) measures are designed to foster the productive capabilities and creative forces of the poor and enable them, through their own economic activities, to create the preconditions for their advancement. Poverty reduction involves first and foremost measures to reform social, political and economic framework conditions (structural poverty reduction).

Environmental protection and conservation of natural resources

Measures in the field of environmental protection and conservation of natural resources are designed to maintain the natural resource base on which life depends, by making economic development in partner countries ecologically compatible and enabling those countries to participate in global environmental protection. This is achieved by promoting national environmental policies and partner-country programmes and projects designed to conserve natural resources. It also involves participating in international initiatives to promote eco-systems at particular risk and ensuring the environmentally sound design of all development cooperation activities.

Health

Health measures aim, in particular, to strengthen the medical infrastructure and to upgrade primary health care and HIV/AIDS prevention.

Education and training

Education and training measures are designed to help establish the human resource capacities needed for sustainable development of our partner countries. In this context, education and knowledge are considered elementary preconditions for human development. At this time of globalisation the importance of knowledge and the access thereto is constantly increasing.

Emergency aid and conflict prevention

Within the scope of the reorientation of development cooperation (towards global structural and peace policy) new focuses are emerging which include emergency aid and conflict prevention.

Private sector promotion

Greater development policy impact through cooperation between development cooperation organizations, private sector businesses and public sector inputs dovetail. This enables both partners to achieve their goals better, more rapidly and at a lower cost.

Directorate General for International Cooperation (DGCI) of Belgium

Luc Risch, Program Officer D31, Directorate General for International Cooperation

The Belgian Federal Development Aid Policy and the fishery sub-sector

Introduction

The Belgian Development Aid policy has always paid particular attention to fishery and aquaculture. The development of this subsector is supported by various interventions on different levels in the past as well as today. In the past decade several projects were supported through a direct bilateral cooperation (Burundi, Thailand, Surinam and the ongoing projects in Benin and Ivory Coast), through a multilateral cooperation (Kenya, SADC, CGIAR) and through an indirect bilateral cooperation (NGO, universities, scientific institutions).

However, the global Belgian policy with regard to development aid in general has drastically changed in the past years after a number of in-depth evaluations. There was a general feeling among the Belgian people and the politicians that the efficiency and the effectiveness of the Belgian aid were very low. Principal findings indicated the necessity to better concentrate the interventions as they were too scattered and to separate the policy-making tasks from the execution tasks.

In order to submit new proposals concerning fishery and fish culture correctly, it is important to understand the new procedures and financing channels. Therefore we think that it is more useful to give here a brief account on the reform of the Belgian Federal Development Aid rather than to enumerate the fishery and fish culture activities supported by Belgium during the last decade.

The Federal Law on International Cooperation of 25 May 1999

Based on the recommendations of the evaluations, the Belgian Federal Chamber of Representatives adopted on May 25, 1999 the Federal Law on the Belgian International Co-operation, including a number of major institutional and political reforms.

The law clearly describes the general objective of the international cooperation: "sustainable human development, to be achieved by means of poverty eradication, on the basis of a true partnership and with due observance of the criteria of development relevance". These criteria are (1) the strengthening of the institutional and managerial capacities; (2) the economical and social impact; (3) the technical and financial viability; (4) the operational efficiency; (5) attention for the equality between men and women; (6) respect for the protection or the safeguarding of the environment.

Moreover, interventions are limited to five major fields or sectors: (1) basic health services and reproductive sanitation; (2) education and training; (3) agriculture and food security; (4) basic infrastructures; (5) conflict prevention and society building.

Each intervention will be weighed against three transversal themes: (1) balanced equal rights and chances for men and women; (2) attention for the environment; (3) social economy.

Strategic papers describing more in detail the policy and priorities of each of the different fields and themes are being prepared at present. It will be important to take them into consideration in project proposals since they will be used as a basis for future financing. For instance, the strategic paper on environment clearly states the necessity to protect the mangrove environment, which could interfere with shrimp culture projects.

The *direct bilateral partners* of the Belgian cooperation are limited to 24 countries and one region (SADC) and only four of them were designated in the Asia-Pacific region by the Council of Ministers (Bangladesh, Cambodia, Laos and Viet Nam). Each of those partners has to prepare a country strategic paper indicating their priorities in the selected fields for the next four years.

The *multilateral partners* of the Belgian co-operation are now limited to the European Union, the World Bank, 22 UN organizations, three intergovernmental organizations and one regional development bank. Each of those organizations prepares programmes for collaboration.

Example: FAO, being one of the selected international agencies, has at present two programmes in execution with DGIC: soil management and periurban agriculture. Besides, DGIC also contributes to the budgets of the databank HORTIVAR and of the repertory DIMITRA.

The *indirect bilateral partners* are the NGOs, the universities, the regional development agencies (VVOB, APEFE), scientific institutions (Institute for Tropical Medicine, Royal Museum for Central Africa) and other special programmes. Each of these organizations also submits a programme, harmonising their core activities with the requirements of the law. The selective number of countries does not apply to them.

The Directorate-General for International Cooperation (DGIC)

Another major difference with the past is found in the fact that the former BADC (Belgian Agency for Development Cooperation) is now included in the Federal Public Service (formerly known as Ministry) of Foreign Affairs, External Commerce and International Cooperation as a new Directorate-General (DGIC: Directorate-General of International Cooperation). The task of the DGIC is to focus on the development of the strategy, the policy-making and the evaluation of the international cooperation. The implementation of these programmes was handed over to the newly created BTC (a limited liability company under public law with a social objective) for direct bilateral programmes, to 28 international organizations for the multilateral programmes and to NGOs, universities and other institutions for the indirect cooperation programmes. In order to execute the Federal Law mentioned above, the DGIC is divided into 7 sections:

- D00: General Services, Inspection and Financial Control
- D10: Coordination, Geographical Desks and Statistics
- D20: Strategies, Sector and Thematic Cells
- D30: Indirect co-operation (NGOs, institutes)
- D40: Multilateral Co-operation (UN, CGIAR, EU, WB)
- D50: Emergency and Rehabilitation Aid
- D60: Sensitisation and Information

The total budget for the year 2001 for the DGCI amounted to 567,542,916 EUR and the total budget spent by the Belgian Government on development aid (including regional expenditures, country-to-country loans and other public services in 2001 amounted to 968,429,658 EUR (Table 1).

Table 1: Development aid budget, 2001 (in EUR)

Type of intervention	Amount in EUR	Percent
DGIC Administration Cost	25 308 431,00 €	4
DGIC Bilateral Direct	138 252 029,00 €	24
DGIC Bilateral Indirect	204 904 180,00 €	36
DGIC Bi-multi	69 690 001,00 €	12
DGIC Multilateral Global	129 388 275,00 €	23
DGIC Total	567 542 916,00 €	100/59
Other Foreign Affairs	53 424 106,00 €	6
Other Public Services	347 462 636,00 €	36
Total Public Aid	968 429 658,00 €	100

Role of the subsector fishery and aquaculture in DGCI's Policy

As a result of the reforms, DGCI does not take a specific position on the priority of a subsector anymore for they belong to one of the specific fields and fall within the scope of the strategic notes. Subsectors are considered as tools to deploy activities that eventually will give the necessary results in order to achieve the goal of the law on international co-operation.

However, valuable experiences from the past prove that small-scale fisheries and aquaculture play an important role in the local development of several regions. Therefore it is important that programmes including this subsector should be proposed for financing.

Different financing channels are possible

Partner countries of the direct bilateral cooperation: small-scale fishery and aquaculture are to be included in the country's strategic papers as a tool for poverty reduction, rural development and food security and specific projects are to be proposed during the Joint Commission meetings. The Ministry in charge and the attaché for International Co-operation of the Belgian Embassy prepare the identification of those projects. For instance, at present two rural aquaculture programmes are being executed by BTC, one in Benin and one in Côte d'Ivoire. An important project to improve the small-scale fishery harbours in Surinam has ended recently.

Multilateral organizations should also propose fishery and aquaculture activities in their programmes presented at DGIC. At present, Belgium participates in the UNEP fishery legislation programme and in the IFAD Mozambique fishery programme (through the Belgian Survival Fund). Those programmes are analysed by an Appreciation Committee of national and international experts. In a recent procedure, ICLARM's proposal amongst 36 others within the CGIAR group was not selected as one final three accepted proposals. Because the funds available were limited, it was not possible to accept more proposals. On the other hand, as a member of the CGIAR group, ICLARM receives an unrestricted core funding of 85,000 EUR annually. Belgium also participates in the GEF programme.

Fishery and aquaculture are also included in some of the more than 800 NGO-executed actions co-financed by DGIC. Through the universities, DGIC finances scientific projects (Bénin, Madagascar, Rwanda) as well as international courses (Master of Science in Aquaculture at the University of Ghent; Master of Science in Ecological Marine Management at the University of Antwerp; D.E.S in aquaculture at the Universities of Liège and Namur). Finally, DGIC partly finances the programme of the Royal Museum of Central Africa, which has a well-known fish research laboratory.

Conclusion

Small-scale fishery and aquaculture are valuable tools for poverty reduction, for rural development and for food security preservation in certain regions. In that context, the Belgian Government and DGIC are willing to co-finance activities in those fields. However, the actions have to be presented through the correct channels (programmes of local governments, recognised organizations, etc.) and take into account the objective and the criteria for development relevance described in the Law of International Cooperation. Furthermore, as the strategic papers for thematic and sectoral approach will be available in the near future, the proposals should also take into account their recommendations (for instance, the strategic paper on environment will include mangrove protection, sea life protection and sustainable freshwater management).

Finally, I would like to add a more personal point of view concerning the position of aquaculture. In many countries, aquaculture does not belong to the responsibility of the Ministry of Agriculture, but often to the Ministry of Fisheries or the Ministry of Environment, although the basic concept of fish rearing is in most cases identical to the rearing of other animals. Farmers rear fish. But, in terms of rural development and food security, it is the Ministry of Agriculture, which is often the privileged partner of DGIC. Hence, fish culture is not always presented as a valuable development alternative.

Furthermore fish culture is often considered or presented as a minor activity: in countries with an extended sea fishery, the annual turnover of fish culture is minimal compared to that of the fishery, although in some parts of those countries, the quantity of fish reared in ponds is more important than the meat production. Moreover, because of the rather negative image of the fishery sector in the media (over-fishing, heavy metal contaminations), particularly in Europe, donors may be reluctant to invest in that particular sector.

United States Agency for International Development (USAID)

Renorio B. Acosta, Local and National Governance Advisor, United States Agency for International Development (USAID)/Philippines

USAID support for community-based coastal resources management can be traced back to 1984 when we provided some assistance to the pioneering efforts of Silliman University to help fishers on Apo island protect their coral reefs from destructive fishing practices. A decade later, this pioneering effort evolved into what is now known as the Coastal Resources Management Program (CRMP) developed with DENR under the Natural Resources Management Program.

The program starts off with this premise. The Philippines has highly diverse and productive habitats serving as critical life-support systems for a multitude of aquatic living resources. Our coastal waters are host to more than 500 of the world's 700 known corals and 2 200 fish species. Per hectare, according to Conservation International, the Philippines probably harbour more diversity of life than any other country on earth. The Philippines is one of 17 megadiversity countries around the globe.

However, our biodiversity count is on a downtrend. Only 2.4 percent of coral reefs are in excellent condition. From 450 000 ha in 1918, only 138 000 ha of mangroves remain (as of 1993). The trend is simple as it can get: too many fishers, too few fishes, too far and too expensive.

The use of dynamite, cyanide and fine mesh nets, as well as the intense competition by the commercial and municipal fishing boats, has dramatically reduced fish stocks and catches per unit effort. Fish catch of municipal fishers has declined significantly and is now down to about two kilos per fisher per day. This is comparable to taking a 33 percent pay cut [from 10 years ago].

Over fishing and use of destructive fishing practices threaten the country's food security, increase poverty in rural areas and lead to greater conflict over a dwindling and essential natural resource.

USAID in the Philippines seeks to achieve the following objective: "Revitalizing the Economy and Transforming Governance to Accelerate Sustainable Growth", while contributing to the goals of the broad United States Mission at post for the Philippines.

Nicknamed by their numbers SO, or strategic objective, SO/2 seeks to promote a more favourable investment climate. SO/3 hopes to achieve the desired family size and improve health sustainably and finally our focus for this presentation is SO/4 which addresses the protection of productive life-sustaining resources.

USAID's response to the environmental situation involves the strengthening of national and local environmental governance and improvement of performance in energy and air quality. USAID's support to CRM belongs to the former result area on environmental governance.

USAID recognizes that the major threats to the country's productive and life-sustaining coastal and marine resources include illegal fishing and over fishing. Through Environmental Governance, USAID will strengthen the ability of local governments to provide basic environmental services. The program will build transparency and accountability in national and local environmental governance in order to improve the management of coastal resources. Assistance will help improve policies, provide training with follow-on technical support and build the political will (through advocacy and coalitions) to carry out needed reforms.

In our assessment of the environment sector, weak governance is a critical constraint to improving the management of forests, coastal resources and solid waste. For example, marine biologists have recommended (given the overcapacity of both commercial and municipal fishing fleets) reducing the level of fishing from 20 to 50 percent in seven of the country's major fishing areas. Licenses for fishing boats are awarded annually without regard to the sustained yield of fish stocks or performance of the fishing boats.

USAID will promote greater transparency, accountability and enforcement by national and local governments and communities in the management of forests, coastal resources and solid waste. Activities will promote good governance (accountability and transparency) in awarding licenses and contracts, collecting and spending revenue and enforcing environmental laws. More specifically, by the end of 2004,

the program hopes achieve the following results: a) strengthen the enforcement of fishery laws; b) continue efforts to develop a policy framework on fisheries and coastal resources; c) promote establishment and operation of at least 100 community-managed marine sanctuaries, and d) improve municipal planning, management of fisheries and coastal resources including delineation of municipal coastal waters (1 000 km of coastline).

Other supportive activities linked to the Environmental Governance Program include: a) training civil servants, judges and prosecutors; b) society and LGUs engaged for advocacy and monitoring, and c) public informed for constituency building. Special emphasis will be on local governments and communities in Southern and Western Mindanao.

The EcoGov project is about ready to assist 49 municipalities institute CRM activities in their respective localities; 18 of which have signed MOAs. Thirty-nine of these are in Mindanao, eight from ARMM, fifteen from Region 9 and five from Region 10. Under CRMP alone, USAID has reached out to 101 LGUs where CRM plans have been adopted, CRM budget allocated, fisheries and coastal management ordinances implemented, coastal law enforcement units operational and marine sanctuaries functional, among others. Process to delineate municipal waters is ongoing. Awareness on issues and solutions to CRM has reached 70 percent.

To end, an increasing number of LGUs, communities and NGOs are now committed to invest in coastal resources management. With the advent of the Fisheries Code or RA 8550, the agenda on CRM and fisheries management has come to the fore of community and LGU development activities. These small wins are essential building blocks for future activities. Hence, I find it useful to consider these key points in advancing the cause for integrated CRM: 1) over fishing is not just a condition but a problem; 2) habitat and protection management must go hand-in-hand with fisheries management; 3) there needs to be a paradigm shift from production perspectives to a management and conservation perspective, and finally, 4) sustainability of environmental quality is a prerequisite to sustainable economic activity.

For more information regarding USAID facilities that may be relevant to Aquaculture and Aquatic Resources Management activities, please visit the following websites or through the official USAID website (<http://www.usaid.gov/>):

East Asia and Pacific Environmental Initiatives (<http://eapei.home.att.net/>)

The East Asia and Pacific Environmental Initiative (EAPEI) addresses critical environmental challenges and opportunities in East Asia and the Pacific in the areas of forest resources management and coastal and marine resources management. The EAPEI works to compliment other US government investment in the region by supporting transboundary, cross-border and regional activities and institutions and by supporting activities in USAID non-presence countries.

The EAPEI follows the Southeast Asia Environmental Initiative (SEA-EI), a one-year program funded in FY 98 to address fire and smoke episodes through collaborative work with nations and other donors in the region. The SEA-EI supported better forest management techniques and policies, improved fire prevention and fighting and improved climate-impact forecasting and environmental monitoring.

Global Development Alliance (<http://www.usaid.gov/gda/index.html>)

The Global Development Alliance (GDA) is USAID's business model for the 21ST Century - our commitment to change the way we implement our assistance mandate. The GDA will serve as a catalyst to mobilize the ideas, efforts and resources of the public sector, corporate America and non-governmental organizations in support of shared objectives.

United Nations Development Programme (UNDP)

Clarissa C. Arida, Program Manager, United Nations Development Programme

Priorities on natural resource management and environment related to aquaculture and other living aquatic resources

In general, UNDP's interventions in agriculture contribute to achieving the Millennium Development Goals (MDGs) particularly on eradicating poverty and hunger and on ensuring environmental sustainability and other relevant international agreements related to agriculture and food.

The World Summit on Sustainable Development (WSSD) has reaffirmed the Millennium Development Goals to "encourage the application, by 2010, of the ecosystem approach for the sustainable development of oceans, among others.

The Plan of Implementation and Political Declaration give a clear mandate to UNDP in the area of capacity building and refer in many instances to the Millennium Development Goals for which UNDP has been appointed Campaign Manager and Scorekeeper. Another important new mandate to UNDP refers to the provision of technical assistance in the area of trade, environment and development, together with WTO (World Trade Organization), UNCTAD (United Nations Conference for Trade and Development) and UNEP (United Nations Environment Programme).

The WEHAB initiative was proposed by UN Secretary-General Kofi Annan as a contribution to the preparations for the WSSD. It seeks to provide focus and impetus to action in the five key thematic areas of water, energy, health, agriculture and biodiversity that are integral to a coherent international approach to the implementation of sustainable development and that are among the issues contained in the Plan of Implementation endorsed by the Summit. UNDP supported WEHAB initiative.

The Framework of Action on Agriculture emphasized the importance of agriculture in stimulating sustainable economic growth and rural employment and as the cornerstone for food security and poverty reduction. The framework likewise recognizes that sustainable agriculture depends on effective management of natural resources and preservation of the biodiversity base. UNDP also launched Capacity 2015 in Bali and Johannesburg to Developing Capacities for Sustainable Communities.

Capacity 2015 is a UNDP effort aimed at developing the capacities of countries to meet sustainable development goals under Agenda 21 and the Millennium Development Goals at the local level.

Among the action areas identified in the WEHAB Framework for Agriculture are:

- Improve opportunities for the poor to strengthen, diversify and sustain their livelihoods by taking advantage of synergies between, fishing, farming, forestry and non-farm activities;
- Promote more ecological practices in agriculture at the local level through disseminating success stories.
- Promote the conservation of aquatic ecosystems and manage associated capture fisheries through co-operation between governments and fishing communities (*e.g.* PEMSEA [Partnerships in Environmental Management for the Seas of East Asia]);
- Enhance capacities, policies and institutions that promote sustainable agricultural practices and systems; and
- Improve access to rural financial services for small-scale farmers and rural entrepreneurs; build viable and sustainable rural financing schemes and banking services (*e.g.* micro-financing).

As one of the implementing agencies of the Global Environment Facility (GEF), UNDP supports the implementation of the 'Regional Programme on Partnership on Environmental Management for the Seas of East Asia'. PEMSEA generates multi-stakeholder involvement and commitment to sustainable development of fisheries, aquaculture, tourism, ports, harbours and other coastal activities. PEMSEA develop and implement coastal strategies, policies and action plans to reduce threats to ecosystems and overcome multiple-use conflicts concerning coastal resources. PEMSEA strengthens capacities in governance of oceans and coastal areas.

PEMSEA developed a functional framework to streamline regional, national and international environmental management efforts: Sustainable Development Strategy for the Seas of East Asia (SDS-SEA). UNDP is using the SDS-SEA as a framework for Capacity 2015 implementation.

The SDS-SEA is seen as an instrument that cuts across all sectors, not just the environment sector. It has evolved to provide a platform for: harmonizing relationships between the economy and the environment as related to the Seas of East Asia; forging operational linkages across national and regional programmes addressing issues such as poverty alleviation, sustainable livelihood, reduction of vulnerability to natural hazards, economic growth and maintaining the health of human beings, ecosystems and the natural resource base; and promoting intersectoral, interagency, intergovernmental and interproject partnerships for overcoming constraints to sustainable development of the region.

The SDS-EAS outlines the desired changes in terms of institutional systems and outcomes. As an example, desired changes include: national coastal and marine policy and supporting legislation adopted and implemented; and area specific institutional arrangements for environmental management of large gulfs, bays, inland seas, international straits and marine ecosystems in place.

In terms of outcomes, those relevant to aquaculture and other living aquatic resources include: aquatic food production safe for human consumption; fish stocks equitably and sustainably used; marine endangered species and biodiversity effectively protected; and protected areas established and managed among others.

The Second Country Cooperation Framework for the Philippines (CCF) outlines the agreement between the Government and UNDP that poverty alleviation shall be the core business of UNDP Philippines with governance intervention as the major means to achieve this goal. The CCF reflects the priorities of the current administration.

The second GOP-UNDP country cooperation framework is founded on the broad strategies of the revised MTPDP and the overarching corporate goal to contribute to extreme poverty eradication through sustainable human development by:

- creating and enabling environment: poverty reduction through governance;
- empowerment of the poor;
- ensuring environment sustainability; and
- establishing the Foundation for Peace and Development.

We build on existing partnerships with national government agencies, LGUs, civil society, private sector, media, academe and other stakeholders to ensure that capacities are developed to effectively participate in various governance processes. Cross cutting issues on human rights and gender are integrated into the framework. There is a need to advance the promotion and protection of human rights as basis for all development initiatives geared towards improving the quality of life of the poor. There are four programmes under the Portfolio on Ensuring Environmental Sustainability.

- ***ENR framework development and implementation***

The ENR framework shall guide planning and implementation of interventions for the protection of the environment and sustainable development of natural resources. The process involves defining the policy environment and capacity building needs to implement such a framework and its corollary plans and programmes.

- ***Mainstreaming sustainable development (MSD) and Philippine Agenda 21 into national, regional and local governance***

MSD programme uses a strategic and catalytic approach to capacity building, harmonization and enhancement of planning and development systems and processes in accordance with SD principles. It aims to institutionalize such systems and enhances processes at the national and local levels of governance.

- ***Environmental programme for industry competitiveness (EPIC)***

EPIC aims to develop an internationally competitive Philippine industry sector. It promotes and institutionalizes Environmental Management Systems (EMS) related tools. EPIC uses eco-Industrial development approaches to foster environmental stewardship by industries and promotes environmental entrepreneurship and finance to encourage environmental investments and integration of environmental costs/considerations in the work of financial institutions.

- ***Renewable energy, energy efficiency and climate change***

This portfolio promotes sustainable and renewable energy systems in off-grid communities in the rural areas and support energy efficiency programmes in the urban areas.

Under the ENR programme various interventions related to aquaculture and marine resources management are undertaken. In the Philippines, the Department of Environment and Natural Resources has embarked on the Development of a National Coastal and Marine Strategy with support from UNDP and PEMSEA. Being an archipelagic state with a coastline of 33 900 km, the Philippines has a large segment of its population concentrated in the coastal area.

The strategy aims to offer approaches to address priority cross-sectoral issues and impacts on coastal and marine areas, leading to reduced multiple-use conflicts, improved governance, resource conservation, environmental improvement, poverty alleviation and better returns on investments for society in the coastal and marine areas.

UNDP supports a number of biodiversity conservation efforts. With the WEHAB framework, biodiversity conservation now becomes a UNDP corporate priority. UNDP supports a number of biodiversity conservation programmes and projects, a large part of which cover coastal, marine, freshwater and wetland ecosystems (GEF OP2) as well as international waters programmes and (IW OP).

Since Rio, UNDP channelled over US\$1.3 billion to developing countries in support of biodiversity efforts – but mostly from GEF. Biodiversity is key to poverty reduction and sustainable development: [from slide: Biodiversity as a key area in natural resources management, Then WSSD boosted global attention to biodiversity as well as water, energy etc] Biodiversity efforts of UNDP are very much linked into; (1) Food Security; (2) Health Improvements; (3) Income Generation; (4) Reduced Vulnerability; (5) Ecosystem Services.

In the Philippines for example, UNDP support biodiversity conservation efforts in critical and globally significant coastal and marine ecosystems: (1) Conservation of the Tubbataha Reef National Marine Park and World Heritage Site with WWF-Philippines; (2) Conservation of the Bohol Marine Triangle with Foundation for the Philippine Environment; (3) other terrestrial-based biodiversity projects in Samar Island, Mt. Isarog, Zambales. UNDP also supports promotion of renewable energy projects for off-grid rural communities.

Useful Websites:

WSSD Plan of Implementation

www.johannesburgsummit.org/html/documents/summit_docs/0409_plan_final.pdf

WEHAB Agriculture

www.johannesburgsummit.org/html/documents/summit_docs/wehab_papers/wehab_agriculture.pdf

WEHAB Biodiversity

www.johannesburgsummit.org/html/documents/summit_docs/wehab_papers/wehab_biodiversity.pdf

Equator Initiative, Biodiversity and Poverty Reduction

www.undp.org/equatorinitiative/pdf/poverty_reduction.pdf

TTF Energy

www.undp.org/trustfunds/Energy-English-Final.pdf

TTF Environment

www.undp.org/trustfunds/Environment-English-Final.pdf

Poverty and Environment Initiative-Brochure

www.undp.org/wssd/docs/PEI-Brochure.p

Equator Initiative (ecoagriculture)

www.undp.org/equatorinitiative/pdf/ecoagriculture.pdf

Equator Initiative

www.Equatorinitiative.org

Summary of UNDP Type II Partnerships

www.undp.org/wssd/docs/Summary-of-UNDP-Type-II-Partnerships.pdf

www.undp.org.ph

Australian Centre for International Agricultural Research (ACIAR)

Reyna N. Reyes, Assistant Manager, Australian Centre for International Agricultural Research

ACIAR's role in supporting the sustainable development of aquaculture and aquatic resource systems in the Asia-Pacific region

Introduction

The Australian Centre for International Agricultural Research (ACIAR) is an Australian Government Statutory Authority that operates as part of Australia's overseas development assistance programme under the Ministry of Foreign Affairs and Trade. ACIAR was established in June 1982 to assist and encourage Australian scientists to use their skills for the benefit of developing countries, while at the same time, work to resolve Australia's own agricultural problems. ACIAR also has responsibility for Australia's contribution to the International Agricultural Research Centres (IARCs). ACIAR is based in Canberra, with country offices in China, India, Indonesia, Papua New Guinea, the Philippines, Thailand and Viet Nam.

ACIAR's Mission Statement is: "To improve the well-being of people in developing countries and Australia through international collaboration in research and related activities that develop sustainable agricultural systems and appropriate strategies for natural resource management." For ACIAR the term 'agricultural research' has a broad meaning. It includes research and development activities relevant to production and management of:

- forestry;
- animals and crops;
- land and water use;
- post-harvest technology;
- fisheries and aquaculture; and
- economic analysis of agricultural and natural resource policies & technologies.

ACIAR does not conduct research itself but commissions research groups in Australian institutions including the universities, CSIRO (the Commonwealth Scientific and Industrial Research Organization) and the State agriculture and fisheries departments to carry out research projects in partnership with their counterparts in developing countries.

ACIAR'S Fisheries Programme

Included in ACIAR's Corporate Plan 2001-06, are a series of focus statements to provide potential research providers with an indication of ACIAR's emphases and priorities for future research projects in particular areas. The statements are grouped under four broad themes, with the first – *Meeting rising demand for animal protein* – having particular relevance to the Fisheries Program. The two focus statements from this theme are:

- Resource assessment and management of capture fisheries
- Promoting sustainability of culture fisheries in Asia and Australia

In line with these statements, the Fisheries Program aims to develop and coordinate a program directed at solving key problems constraining the productive use and sustainability of fisheries and aquatic resource systems in developing countries. It also aims to maximise benefits for target groups in developing countries and to contribute to regional research initiatives.

Fish products are a preferred food for many countries throughout much of Asia and the Pacific Islands and a major source of human dietary protein. With populations and demand rising quickly, even maintaining current levels of food fish availability, particularly for the poorer communities, will be difficult. The potential for further increases from wild harvest fisheries is limited, with catches static or falling. Aquaculture, widely seen as the most likely means of meeting future increases in the demand for fish products, also faces many obstacles (technical, social and environmental) to further growth and sustained production. Australia has the research expertise and the shared interest(s) to contribute substantially to the

solution of many of the defined constraints to sustained productivity increases in both capture and culture fisheries.

ACIAR's Fisheries Program spans a diversity of production strategies and environments, from wild capture marine and freshwater fisheries and issues related to their responsible management, to aquatic farming systems, mariculture and fisheries enhancement. There are 18 active projects involving 60 R&D agencies in 13 partner countries and 27 research teams from 21 Australian organizations. Its major elements are:

Fisheries and aquatic resource management: the assessment and management for sustainability of wild harvest fisheries, including conservation and rehabilitation of the critical habitats that support them. The broad areas of research interest are:

- assessments of stock status/fishing impacts;
- innovative fisheries management strategies;
- improved utilisation of existing harvests; and
- critical resource/habitat/ecosystem linkages.

Aquaculture: productive and sustainable aquatic farming systems, environmental impacts, low-technology mariculture and sea ranching and resource enhancement. Broad areas of research interest are:

- domestication and breed improvement;
- improved nutrition and aquafeed development;
- disease diagnosis, control, prevention;
- aquatic farming systems;
- the reduction of adverse environmental impacts of and on aquaculture; and
- low technology mariculture and the potential for sea ranching.

Current ACIAR Fisheries and Aquaculture Projects

Fisheries and Aquaculture Resource Management	Aquaculture
Large Projects	
97/165 Snapper fisheries (Indonesia, Northern Australia)	96/98 Viral diseases/shrimps (Thailand)
98/24 Barramundi fisheries (PNG)	97/31 Blacklip pearl oyster (Kiribati, Tonga)
01/030 Reservoir fisheries management (Sri Lanka)	97/22 Pond management/acid sulfate soils (Indonesia)
01/058 Spiny lobster (Viet Nam, Philippines) Phase 1 – under development	97/73 Grouper culture (Indonesia, Philippines)
	00/061 Disease/shrimp farms (Indonesia, Thailand)
	02/001 Inland saline aquaculture (India) Phase 1 – under development
	00/065 Mud crab diet development (Indonesia, Philippines) Phase 1 – under development
	02/068 Improving feeds and feeding for small scale aquaculture (Viet Nam, Cambodia) Phase 1 – under development
Medium and Small Projects	
99/038 Community management of Beche de Mer (formerly ADP/1999/038) (PNG) Small project	98/50 Integrated aquaculture (Viet Nam) Small project
000/62 Shark and ray fisheries (E. Indonesia) Medium project	99/76 Mud crabs (Viet Nam, Indonesia) Small project
000/128 Terubuk fishery, Riau Province (E. Indonesia) Small project	01/013 Reservoir development and management (Viet Nam) Medium project
01/059 Beche de Mer survey, Milne Bay (PNG) Small project	01/034 Pond aquaculture (PNG) Small project

Medium and Small Projects	
01/085 Trochus development (Samoa, Vanuatu) Medium project	01/075 Aquaculture research in the Pacific (Pacific regional countries) Small project – under development)
01/079 Tuna research – Indian Ocean (Indonesia) Medium project	
02/019 Policy for illegal, unreported, unregulated fishing (IUU) (Indonesia, Philippines) Medium project – under development	
Restricted Grants to IARCs	
	98/13 Reef fish culture (Solomon Islands) Large Project
	99/25 Sea-cucumber stocking/ranching (New Caledonia) Large project
	96/235 Pilot pearl farm (Solomon Islands) Small project

How to participate in ACIAR Projects

ACIAR welcomes proposals for new projects. Topics for research should broadly fit into the six priority program areas above since they reflect fields in which Australia has expertise of special relevance to developing countries.

Suggestions may come from individuals, research institutions, or government organizations in developing countries or in Australia. Others may arise from ACIAR-sponsored workshops. However, all proposals must cover topics ranking high among the research priorities of a particular developing country and must be endorsed by the national authorities before the ACIAR Board of Management (BOM) can consider them for approval.

Consultation is a key word for ACIAR. Preparation of projects involves extensive consultation between interested parties in both Australia and potential partner countries. Preliminary projects emerging from these consultations are presented to the ACIAR BOM for approval and may proceed to the detailed development of project proposals. Fully developed proposals are assessed by ACIAR staff and submitted for peer review to independent expert referees before the ACIAR BOM considers the final proposal. More complete information on ACIAR and its operations and program of work are available on the ACIAR website – www.aciar.gov.au

Japan International Cooperation Agency (JICA)

Makoto Imamura, Assistant Resident Representative, Japan International Cooperation Agency (delivered by Masahiko Takizawa)

JICA in the Philippines: Official Development Assistance

Today I would like to make a brief presentation on Japan's ODA, JICA's role and our new approach to technical cooperation and some on-going JICA projects and activities in the Philippines specifically on the fisheries subsector.

Official Development Assistance: categories of Japan's ODA

- Bilateral grant
- Bilateral loan
- Contributions and subscriptions to multilateral donor organizations

Japan's ODA is divided into three categories; bilateral grant; bilateral loan and contributions and subscriptions to multilateral donor organizations.

JICA is a government agency mandated to implement technical cooperation. It also provides technical support to grant aid and bilateral loans through the conduct of technical feasibility studies.

JICA is in charge of technical cooperation and grant aid is administered by the Ministry of Foreign Affairs, but when it comes to implementation JICA conducts the actual design of the [project].

Technical Cooperation

- Technical Training
- Dispatch of Experts
- Provision of Equipment
- Development Study,
- Dispatch of JOCV, etc.

Grant Aid Cooperation

- General Grant Aid
- Grant Aid for Fisheries
- Aid for Increased Food Production

Japan's ODA by Type of Cooperation, 2001

	Amount	Percent
Bilateral Grants		
Grant Aid Cooperation	2 469	24
Technical Cooperation	3 516	35
Bilateral Loans	2 845	28
Contributions and Subscriptions To Multilateral Organizations	1 322	13
Total	¥10 152	100

Units: ¥100 million

The figure shows the distribution of Japan's ODA budget by type of cooperation. In 2001, 60 percent of Japan's ODA was in the form of bilateral grants. Technical cooperation accounted for 35 percent of the total ODA budget.

Japan's ODA by Region (FY 2000)

Region	Amount	Percent
Asia	681.62	43.4
Latin America	311.73	19.8
Africa	241.58	15.4
Middle East	151.73	9.7
Unclassified	86.71	5.5
Oceania	46.90	3
Europe	41.94	2.7
International organizations	9.60	0.6

Units: ¥100 million

On a regional basis the Asia region receives the largest share of Japanese ODA, about 43 percent.

Background

Improved transparency and accountability

- Public disclosure of government/administrative information

Budget cut in Japanese Fiscal Year 2002

- ODA Budget ten percent cut
- JICA Budget five percent cut (¥ 9 billion)

Because of budget constraints and the need to improve transparency and accountability the Japanese Government has decided to adopt a new approach for using ODA resources. In fiscal 2002 the ODA budget was slashed by 10 percent and the JICA budget was reduced by 5 percent.

So in light of the policy of our government, JICA is looking toward the improvement and efficiency of its technical cooperation programs. These are the major considerations in designing the new approach to technical cooperation.

Objectives

Quality improvement of technical cooperation

- Country-Based Approach
- Development Issue-Oriented Approach
- Output-Oriented Approach
- Efficient and Flexible Implementation
- Our key objective is to improve the efficiency and achieve greater flexibility in implementing technical cooperation.

Program approach

Vision

- Medium to long-term framework
- More visible impact at macro level
- Visible input-output relationship among projects

It has a medium to long-term framework. Since our budget is allocated on an annual basis we tend to have stand-alone projects but we are trying to make multi-year allocations for more visible impact at the macro-level and visible relationships among the projects.

In consultation with concerned agencies of the Government of the Philippines JICA has identified three programs through which it can effectively assist the agriculture and rural sectors in the Philippines.

Overall goal: mitigation of disparities

- Poverty Alleviation and Mitigation of Regional Disparities
- Improvement of Living Standards (DAR)
- Agrarian Reform
- Community Support Program
- Rural Growth
- Food Security (DA and NIA)
- RD and E Network Program (Modernization)
- Rural Development System and System Management Program (Sustainability)

Local Government Units and People's Organizations support the DAR, DA and NIA

- Aquarian Reform and Community Support Program
- Research Development and Extension Network Program
- Rural Infrastructure Development Program and Management Program

These two programs aim to address two key issues

- Improvement of living standards
- Food security in the Philippines

Over the long term, it is envisioned that these programs will contribute to one of the overall goals of the Government of Japan's bilateral aid activities in the Philippines that is mitigation of disparities.

Let me point out that JICA is still in the process of consolidating each of the three programs in order to identify appropriate projects that can contribute to the development objectives of the Government of the Philippines for the agriculture and rural sectors.

Activities for aquaculture development under FY 2002

- Dispatch at SEAFDEC of one long-term expert on fish disease from March 2000 to March 2003
- Implementation of Third Country Training Program on Responsible Aquaculture Development (SEAFDEC)
- Fourth year of implementation (1999-2003) of the second phase
- Fourteen foreign participants and two from the Philippines
- General Grant Aid Project (DA-BFAR-SEAFDEC) for the Establishment of Laboratory Facilities for Advanced Aquaculture Technology worth ¥ 895 Million at SEAFDEC, Tigbauan, Iloilo
- Friendship Program for the 21st Century:
 - 22 Philippine delegates from the fisheries sector went to Japan from May 15 to June 6 2002
 - Project to Enhance the Capability to Monitor Toxic Red Tide Phenomenon (BFAR-DA) from August 1999 to June 2002

Conclusion

Finally let me explain JICA's activities the fisheries subsector especially in the field of aquaculture development. At present we have one grant aid project, one long-term expert project and one training program.

The training program is implemented in collaboration with SEAFDEC and this is our fourth year of implementation of the second phase, which is the ninth year in total. Fourteen foreign participants and two from the Philippines are trained yearly.

We have been cooperating with SEAFDEC for quite a long time. There is accumulated expertise in SEAFDEC that we would like to utilize in order to help other developing countries. The idea is the promotion of south-south cooperation.

General Grant Aid Project for the Establishment of Laboratory Facilities for Advanced Aquaculture Technology totals 895 million Japanese yen.

In the near future we will consolidate our Technical Cooperation Program for the fishery subsector. Aquaculture development can be or is one of the potential priority areas and Research Development Extension Network Program of JICA.

Thank you very much.

Norwegian Trade Council-Royal Norwegian Embassy

*Eduardo M. Niala Jr, Commercial Officer, Norwegian Trade Council, Commercial Section,
The Royal Norwegian Embassy*

Good afternoon Ladies and Gentleman. I represent the Commercial Section of the Royal Norwegian Embassy, which is the Norwegian Trade Council in Manila.

For your information, the Norwegian Trade Council is the national body in Norway that promotes the internationalisation strategy of Norwegian companies. What our office does [the Commercial Section] is to promote Norwegian expertise in the Philippines, as well as facilitating better relations between our two countries.

With respect to NORAD, it is the government agency that manages the development aid of Norway. For non-priority countries such as the Philippines, NORAD works through the Embassies in the Philippines. Unfortunately, the Philippines is not considered a priority country at the moment. They [NORAD] are concentrating on some countries in Africa and some countries in Asia.

What is unique about NORAD's involvement in the Philippines is that they have established a mixed credit facility, which is managed by the Development Bank of the Philippines. The Development Bank promotes this US\$25 million facility. The priority sectors include the environment and maritime sectors. The maritime sector includes the fisheries and aquaculture sectors. This is the main involvement of NORAD in the Philippines as far as development aid is concerned.

Our office (the Norwegian Trade Council) [works] in close coordination with BFAR and the Department of Agriculture for some collaborative efforts which are in the 'pipeline' for endorsement to NORAD for funding assistance. I am not at liberty to disclose details of such projects at the moment but our office is closely monitoring developments in the aquaculture sector.

I appreciate the example cited by our Honorable Secretary [Sec Leonardo Q. Montemayor Secretary Philippine Department of Agriculture] when he said Norway is an example where aquaculture was developed into a progressive industry. We would like to say it is a good example of how aquaculture can contribute to the social and economic development of a country and we would like to duplicate the same experience in the Philippines. The way to do that of course is to coordinate our efforts together with the agencies and to provide assistance to proponents whether they come from the public or private sectors on projects that would promote aquaculture and fisheries in the Philippines.

While this is a regional donor consultation please forgive me for not concentrating on the other areas as we are currently involved only with what's happening in the Philippines. We would have to get back to you with further information on NORAD's involvement in the region [if opportunity comes along].

We would like to thank the organizers for inviting us and be assured that the insights we have gathered from this consultation will be relayed back to NORAD for further information and reference.

Thank you very much and I look forward to the meeting tomorrow.

Australian Agency for International Development (AusAID)

Lynnette Perez, Program Officer, Australian Agency for International Development

Short statement on AusAID's development priorities relevant to rural development

The Australian Government's strategy for the rural development sector in the aid program is to focus on reducing rural poverty by increasing opportunities for the poor to generate income. Rural development assistance is provided in agriculture, fisheries, forestry and research. The Rural Development Strategy is designed to offer a range of options to promote income generation that can be drawn on according to the needs of each country.

The three components of the overall program are: increasing agricultural sector productivity, stimulating rural non-farm employment and managing natural resources sustainably.

On the first component, it is recognized that more efficient farming, forestry and fisheries are needed to improve food security and incomes of the rural poor, as are improved marketing practices and more favourable policy environments. Aside from providing assistance through improved farm management practices, Australia also provides support to partner countries to diversify agriculture, fisheries and forestry products to meet evolving market demands.

The second focus of the rural development strategy promotes policies to stimulate non-farm development, which is expected to offer greater income potential for the poor than agriculture.

Under the third component, Australia's aid program will give priority to promoting sustainable forestry and fisheries practices that balance income generation needs with resource sustainability. Australia takes a three-pronged approach to working in partner countries:

- assisting partner governments to develop and administer policies that will promote income generation;
- working directly with rural communities on income generating projects; and
- developing collaborative partnerships in agricultural research for development.

Complementing the specific income focus of the rural development sector, the aid program also targets basic needs and services in rural areas through education, governance, health and infrastructure activities.

The Australian Government delivers the aid program through Australian businesses, NGOs and research and development organizations as well as multilateral and international organizations. It works with partner countries and the international donor community to provide aid. As discussed earlier, the Australian Centre for International Agricultural Research (ACIAR), which is the agricultural research and development arm of the Government's aid program, develops international agricultural research partnerships that reduce poverty, improve food security and promote sustainable natural resource management in developing countries.

In the Philippines, Australia's Aid program provides support to AusAID's initiatives aimed at developing the rural sector. A number of projects have been implemented over the years in support of Australia's Development Cooperation Program goal in the Philippines to reduce poverty and promote sustainable and equitable development. The Philippines-Australia Community Assistance Program (PACAP) directly supports community-based projects through directly funding Philippine NGOs and People's Organizations.

Australia has also collaborated with the FAO on a Foot and Mouth Disease (FMD) Project to enable the Southern Philippines to be declared free of the disease. Australia also supports the Water Supply and Sanitation Sector Performance Enhancement Program (WPEP) that aims to enhance access of the under-served rural and urban poor to adequate water and sanitation services on a sustainable basis. It is a structured learning program that uses field-based action research.

In 1999, the Philippines-Australia Local Sustainability (PALS) Project commenced implementation to assist Local Government Units (LGUs) and local communities to plan and manage sustainable activities to

improve the livelihood of the rural poor in the province of Misamis Occidental. These include the development and implementation by targeted local communities of microproject undertakings including on agriculture, fisheries, forestry, education, health and others.

Meanwhile, the Philippines-Australia Technical Assistance to Agrarian Reform and Development (PATSARRD) will be executed by FAO and is expected to commence early next year. It is designed to assist agrarian reform beneficiary families to improve their economic and social conditions.

Agenda

27 November 2002 (Wednesday)

- 08.30-09.00 Registration
- 09.00-09.30 Opening of the Regional Consultation
- Welcome Remarks
Rolando R. Platon SEAFDEC/AQD Chief
 - Message
Leonardo Q. Montemayor, Secretary
Philippine Department of Agriculture
 - Rationale of the Consultation and Introduction of Speakers
Simon Funge-Smith, Aquaculture & Inland Fisheries, FAO/RAP
 - Opening Speech and Opening of the Consultation
Sang Mu Lee, FAO Representative in the Philippines
 - Photo Session
- 09.30-10.30 Role, Potential and Needs of Aquaculture and Aquatic Resource Management in Asia Pacific Region
- FAO Simon Funge-Smith
 - NACA Pedro Bueno
 - SEAFDEC Rolando Platon
- 10.30-11.00 Coffee break
- 11.00-12.30 Role, Potential and Needs of Aquaculture and Aquatic Resource Management in Asia Pacific Region (continued)
- WorldFish Center Paul Teng
 - MRC Jeanineke Dahl Kristensen
- 12.30-14.00 Lunch
- 14.00-15.30 Short presentations and statements of donor development priorities relevant to rural development, living aquatic resource management and aquaculture
- EU Gildo Pivetta and Daniel Plas
 - GTZ Rudolf Hermes and Marc Nolting
 - DGIC Luc Risch
 - USAID Rene Acosta
 - UNDP Clarissa C. Arida
 - ACIAR Reyna N. Reyes
 - JICA Makota Imamura, delivered by Masahiko Takizawa
 - NORAD Eduardo M. Niala Jr
 - AusAid Lynnette Perez
- 15.30-16.00 Coffee break
- 16.30- 17.30 Discussion on priority areas, points for action and opportunities for support

28 November 2002 (Thursday)

09.00-10.30 Discussion on priority areas, points for action and opportunities for support (continued)

10.30-11.00 Coffee break

11.00-12.30 Discussion on priority areas, points for action and opportunities for support (continued)

12.30 Lunch

Conclusion and Closing of Regional Consultation. A study tour was organized by SEAFDEC/AQD to enable participants to visit Iloilo to see examples of small-scale aquaculture development in the Philippines and further review a number of aquatic resource management issues.

Opening Statements of the Consultation

Welcome address

By Rolando R. Platon, SEAFDEC/AQD Chief

Good Morning, Ladies and Gentlemen. It is with great pleasure that I welcome you all to this Regional Donor Consultation on the *Role of aquaculture and living resources: priorities for support and networking*.

Recognizing the important role, potential and needs of aquaculture and aquatic resources management in the Asia-Pacific region, the relevant regional and international organizations, namely, FAO, NACA, WorldFish Center, MRC and SEAFDEC/AQD agreed to hold this consultation.

This consultation is convened to discuss with donors the role that aquaculture and aquatic resources management play in rural and coastal livelihoods and the regional development requirements for this sub-sector.

We very much appreciate the presence of representatives from various donor organizations. We thank you very much for accepting our invitation and for your precious time to be with us.

As you can see from our Provisional Agenda and Time Table, we will have a relatively hectic schedule in the next three days; one and a half day of discussion here at the hotel, one-half day allotted to travel to Iloilo and a full day of field trip in Iloilo; although I understand that not all will be joining the trip to Iloilo.

On behalf of the collaborating institutions, I extend to you our warmest welcome and we hope to have a fruitful consultation.

Thank you

Message

*Leonardo Q. Montemayor, Secretary, Philippines Department of Agriculture
(delivered by Rolando R. Platon, SEAFDEC/AQD Chief)*

Good Morning. It is an honor to be part of this consultation/meeting. I would like to extend a warm welcome to our foreign guests from prestigious international organizations. On behalf of the department of agriculture (DA), I hope your stay in the Philippines will be enjoyable and memorable.

It has been said that aquaculture had its beginnings in Asia. When Ferdinand Magellan landed on our shores five centuries ago, milkfish was reportedly being grown in brackish water fish ponds. With such a head start, you would think that we should now be one of the leaders in marine fish production. Yet today, we see that Europe is the leading fish producer in marine waters.

Thirty years ago, the Philippines were already producing more than 200 000 tons of milkfish while Norway's salmon production was only 8 000 tons. Now, Norway produces nearly half a million tons of Atlantic salmon annually while total Philippine milkfish production is less than half of Norway's salmon production from sea cages. Obviously, we have a lot of catching up to do to improve our aquaculture production. And we can do it if we can fully exploit the potentials of our aquaculture industry.

With our fast dwindling marine resources, aquaculture is now our last resort and hope for increasing our fish production and helping it catch-up with our growing population and food demand. Indeed, aquaculture is the wave of the future. Last year, Philippine aquaculture contributed 38 percent of the total fisheries production and a 10.9 percent increase from the 2001 output. Of this figure, seaweeds made up 64 percent and fishes only 18 percent. In the first nine months of 2002, aquaculture grew by 6.2 percent but its gross value declined by 5.18 percent.

In the long run, the need to boost aquaculture production will greatly rely on environmentally sound practices. Improving production requires recognition of the carrying capacity of an ecosystem and a thorough understanding of the environmental consequences of aquaculture operations. It is therefore reassuring that groups such as the Southeast Asian Fisheries Development Center (SEAFDEC) continue to initiate projects and programmes that push the frontiers of local aquaculture's development.

SEAFDEC has already identified and can now replicate the sequence of milkfish DNA responsible for growth hormone production. I have been told that the application of such hormone will hasten the growth of milkfish. This has also been done for the rabbitfish or "siganid" and other species such as the grouper. Needless to say, such development will mean improved profitability, more investments in fish culture and increased revenues especially in the country's fishing municipalities.

By next year, thanks to the Government of Japan, the advanced aquaculture laboratory within the SEAFDEC Aquaculture Department premises in Tigbauan, Iloilo will be fully operational. This will greatly impact on local aquaculture research and development especially in biotechnology. Among other research activities lined up are the formulation of cost-effective and environment-friendly feeds, development of disease-resistant fish and shrimp stocks and development of fish vaccines.

SEAFDEC has already initiated the mass propagation of high-value but fast disappearing marine organisms- such as the seahorse, abalone, windowpane oyster and top shells to rejuvenate depleted natural stock. This activity hopes to provide livelihood alternatives for local fishers. On our part, we at the Department of Agriculture through the BFAR, continue to promote aquaculture as a means of diversifying fishery production, boosting our fisherfolk's incomes and allowing our depleted fishery areas enough time to recuperate.

Toward this end, we hold nation-wide technology caravans to promote aquaculture in lowland and upland communities. We have established seaweeds village ecozones in Davao and Zamboanga del Norte. Through these seaweed projects, we hope to generate some 2 000 jobs. We put up mariculture parks. We have seen the benefits of these parks in Samai Island in Davao. Right now, five other mariculture projects are at various stages of implementation. By this years end, an estimated 2 600 jobs will be generated from these projects.

We promote urban aquaculture. We hope to promote fish tanks and fish condominiums in her urban communities such as in Bgy Del Pilar in Las Pinas. We have enacted appropriate Fisheries Administrative Orders to insure sustainable aquaculture practices. Likewise, we have also formulated measures to mitigate fish kills and lessen of the impact of El Nino.

To ensure the proper management of fish health, BFAR has established the Regional Fish Health Laboratories and White Spot Syndrome Virus Monitoring Centers. We have also initiated the accreditation of quality seeds produced in shrimp hatcheries. We continue to strengthen BFAR's research and development capability. Water quality is being monitored as well as the environmental assessment of farming areas. There is also the ongoing practice of selective breeding of carps and tilapia through genetics and hybridization. The R&D thrust is not confined to enhancing production but in ensuring environmental sustainability as well.

BFAR is also taking the lead in implementing foreign funded projects such as the Network of Aquaculture Centres of Asia-Pacific (NACA) coastal management [project] implemented in the province of Antique and the Asian Development Bank (ADB) Management (ICCAM) stock assessments which is a joint project of BFAR and UP Los Banos. Two other major aquaculture projects are the United Nations Development Funds Milkfish Breeding Project implemented in Dagupan City and the CIRAD-PCAMRD Genetic Breeding of saline tolerant tilapia implemented by the BFAR-NIFTDC in Dagupan. BFAR and SEAFDEC are implementing the Joint Missions for Accelerated Nation-wide Technology Transfer Project as a means of minimizing organic pollution through the use of reservoir, sedimentation ponds and finfishes as biomanipulators.

In closing, let me reiterate that aquaculture will play a major role in our pursuit of food security. The programmes and projects spearheaded by SEAFDEC and DA-BFAR are all geared to hasten Philippine aquaculture's development and enable it to reach newer heights. Through collaborations among our own

institutions and the international organizations that our foreign guests represent, we hope to realize our vision of a vigorous aquaculture industry geared towards food security, employment generation and poverty alleviation.

Thank you very much. Mabuhay kayong lahat!

Rationale of Consultation and Introduction of Guest Speakers

By Simon Funge-Smith, Aquaculture and Inland Fisheries, FAO/RAP

On behalf of FAO Regional Office for Asia and the Pacific, I would like to welcome everyone here today to this Donor Consultation and take the opportunity to briefly explain the scope of the Consultation.

During the next couple of days we aim to discuss and raise awareness of the role that inland fisheries, aquatic resource management and aquaculture play in the livelihoods of the people of this region as well as describe the role of collaborating regional institutions. We would like this Consultation to be an opportunity for the regional institutions and donors to get feedback from each other.

We will try to explain some of the opportunities that exist for assisting the livelihoods of people that rely on aquatic resources and their management as well as indicating some of the issues and highlight some of the areas where we think there are needs for intervention and assistance [that currently threaten this important resource]. We will also address the important regional policy and development issues that relate to aquatic resources and their management.

Again, I would like to reiterate my welcome to all of you and hope we have an active and frank discussion over the next couple of days.

Thank you

Opening statement

By Sang Mu Lee, FAO Representative in the Philippines

Distinguished Delegates and Observers, Excellencies, Representatives of Regional Fisheries Institutions, Ladies and Gentlemen. It is with immense pleasure that I welcome you, on behalf of FAO to Manila and to this Regional Donor Consultation on the *Role of aquaculture and living aquatic resources: priorities for support and networking*.

FAO is grateful to the Southeast Asian Fisheries Development Centre, Aquaculture Department, for hosting this consultation and to the collaborating partner institutions: the Network of Aquaculture Centres in Asia-Pacific, the Mekong River Commission and the International Centre for Living Aquatic Resources Management [WorldFish Center] for their participation.

I am pleased to welcome the representatives of international and national donor agencies, who have taken the time to participate in this consultation. I am convinced that we can expect a fruitful dialogue over the next couple of days with the participation of a diverse group of fisheries institutions representing regional networks, with areas of competence covering freshwater fisheries, aquatic resource management and research and aquaculture development.

During the course of this consultation, we will address important regional policies and development issues relating to aquatic resources and their management. This consultation will hopefully serve to increase awareness of the crucial role that inland fisheries, aquatic resource management and aquaculture play in the livelihoods of the people of this region and will present an opportunity for the regional institutions involved to get feedback from the donor community.

Excellencies, Ladies and Gentlemen. Aquaculture and inland fisheries are vital components of rural livelihoods globally, but in particular in many Asian countries. Asia's consumption of fish comprised two-thirds of the world's total of 94 million tons. Close to 50 percent of protein is derived from fish consumption in Bangladesh, the Democratic People's Republic of Korea, Indonesia, Japan, Cambodia and

the Republic of Korea. In addition to providing quality protein, essential dietary micronutrients such as calcium, vitamin A, omega-3 fatty acids, lysine and iodine together with vital opportunities for employment, cash income and foreign exchange are also derived.

Unfortunately, the livelihood and national economic benefits of these sectors are often hidden from view, overlooked by agricultural economists and marginalized by export-focused policies. Yet the reality is that the contribution to national economies is undeniable, particularly for the poorest members of society who are reliant on the open access resources of inland fisheries and small-scale aquaculture for household income generation.

Export-oriented, industrial and commercial aquaculture brings foreign exchange, revenue and employment. More extensive forms of aquaculture benefit the livelihoods of the poor, through improved food supply, reduced vulnerability to uncontrollable natural crashes in aquatic production, employment and increased income.

As you are aware, management of living aquatic resources has many forms ranging from collection of fish in rice fields, to huge trap fisheries on inland water bodies, to fishery enhancements using hatcheries-produced fry and fingerling for stocking into natural waters, or habitat improvements such as enclosing coastal bays and lagoons and adding of brush or other substrates. Stocking of ponds for aquaculture is a small part of this overall diversity of activities that is encompassed by aquaculture and inland fisheries, which provide important livelihood opportunities and benefits for resource-poor people from the enhanced use of aquatic resources.

Historically, most aquaculture practices around the world have been pursued with significant social, economic and nutritional benefits and with minimal environmental costs. The culture of many herbivorous and filter-feeding aquatic species has been an effective means of producing high quality protein. However, the sector has also been the focus of recent public debate related to negative environmental and social impacts.

There is some basis for these allegations. In certain parts of the world and in certain aquaculture sectors, there have been some inadequately planned and inappropriately managed forms of aquaculture that have created significant social and environmental problems. Typically, these impacts often arise from weak regulatory frameworks and the too rapid development associated with the great commercial potential of some high value species. It is our responsibility to take collective measures to improve our understanding of the real impacts and causes in order to make the aquaculture sector more environmentally sustainable and socially acceptable.

The Bangkok Declaration and Strategy adopted during the 2000 FAO/NACA Conference on Aquaculture in the Third Millennium emphasized that aquaculture should be pursued as an integral component of community development and recognized that there is a need to create enabling environments for optimizing the potential benefits and contribution that aquaculture and culture-based fisheries can make to rural development, food security and poverty alleviation. Aquaculture policies and regulations should promote practical and economically viable farming and management practices that are environmentally sustainable and socially acceptable and equitable. Furthermore, in an era of globalization and trade liberalization, the envisaged changes should not only focus on increasing production. They should also focus on producing a product that is nutritious, affordable, acceptable, safe to eat and accessible to all sectors of society. The third Five-Year Work Programme of NACA, which aims to set the stage for aquaculture in the region for the next 20 years and beyond, incorporates these precepts.

Over the past decade, aquaculture's increasing contribution to human development has been duly recognized and one of the most significant endorsements of this recognition is the establishment of the FAO Sub-Committee on Aquaculture of the Committee on Fisheries in Beijing this year. More recently, recognition of the role of fisheries in the region was embodied in ASEAN Resolution on Fisheries and Food Security and the Plan of Action on Sustainable Fisheries for Food Security adopted by the Ministers of the ASEAN-SEAFDEC member countries responsible for fisheries. The just concluded "Fish for All Summit" coordinated by ICLARM about which you will shortly be hearing more of, is another step in the process of advocating fisheries issues.

While fisheries management has featured as a critical theme in major national and international policy declarations, the role of inland fisheries, small-scale aquatic resource management and aquaculture have tended to be ignored. There are few opportunities for dialogue and mutual learning and sometimes poorly coordinated efforts to inform policy-makers of the important role of aquaculture and aquatic resource management. As a result, awareness among policy-makers is low and this has been reflected in the lack of donor intervention in the sub-sector.

The concerns of sustainable fisheries and coastal development prominently figure in Agenda 21 of the Earth Summit in 1992 and this was reiterated at the recent Johannesburg Summit on Sustainable Development. This Summit recommends assistance to developing countries in coordinating policies and programmes at the regional and sub-regional levels, aimed at the conservation and sustainable management of fishery resources and implementation of integrated coastal area management plans, including the promotion of sustainable coastal and small-scale fishing activities. Although the interpretation of this would include inland fisheries and living aquatic resources, the focus of the Summit's recommendations was more concentrated on marine systems, possibly underlining the lack of awareness globally of the importance of these inland resources.

The Johannesburg Summit did also recognize the need for the sustainable development of aquaculture, including small-scale aquaculture, given its growing importance for food security and economic development. Reference was also made to the promotion of the conservation and sustainable use and management of traditional and indigenous agricultural systems and to the strengthening of indigenous models of agricultural production. The Johannesburg Summit also encouraged efforts to support effective coordination among the various international and intergovernmental bodies and processes working on water-related issues. In this region of Asia so dependent upon rice-based ecosystems, we cannot talk about agriculture without involving the living aquatic resources, which are so intimately connected to these ecosystems.

Information and statistics on inland fisheries and aquaculture have often been inadequate and unrealistic, even though this underpins policy formulation and planning. The purpose of this Regional Consultation is to orient institutions and donors on the role, needs and potentials of the sub-sector on aquaculture development and living aquatic resources management for the Asia-Pacific region. The year 2003 has been designated the International Year of Freshwater, so it is therefore timely for this consultation to take into account this largely unsung sector which is the lifeblood for so many of the people of this region.

Excellencies, Representatives, Ladies and Gentlemen. I hope that over the next few days, you have the opportunity to gain insights into the rich diversity of issues that relate to fisheries and aquaculture. With this, it is my pleasure to declare this consultation open and to wish you success in your discussions and deliberations.

Thank you and good morning.

Multiplier Effects of NACA's Coordinating Role

Assistance to Safe Transboundary Movement of Live Aquatic Animals in Asia (with FAO and OIE)

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)

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 (Viet Nam) but in other countries as well.

Tropical Coastal Ecosystems Project (DANCED)

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, a technical problem that has 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.

Programs/Projects with NACA as Major Participant 1990-2002

The following provides a list of the regional, sub-regional as well as national projects and activities undertaken by the Intergovernmental NACA Organization. The FAO/UNDP Regional Seafarming Project Phase 2 (Jan 1990-Dec 1991) provided assistance to the then newly independent NACA organization.

1. 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.
2. 1992-94. Regional study and workshop on the Taxonomy, Ecology and Processing of red seaweeds, with FAO, the Government of France and Kasetsart University.
3. 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.
4. 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.
5. 1994. National Workshop on Aquaculture Development and the Environment with Govt of Viet Nam and participation (sourced and arranged by NACA) of FAO's legal office, FAO RAPA, EU-project for returnees in Viet Nam, Mekong River Commission, CP (private sector) and "Feed the Children" Programme.
6. 1994. Capacities and Needs Matching in Sustainable Coastal and Inland Fisheries and Aquaculture Management with UNDP and Myanmar.
7. 1994-95. Environmental Assessment and Management of Aquaculture Development, with FAO (A Regional TCP).
8. 1994-95. Regional Study and Workshop of Aquaculture Sustainability and the Environment, with ADB (Regional Technical Assistance).
9. 1994-96. Key Research Issues in Sustainable Coastal Shrimp Aquaculture with ACIAR, CSIRO, Kasetsart University and DOF, Government of Thailand.
10. 1995-97. Master Plan for Coastal Aquaculture Development for Sabah, Malaysia with the Government of the State of Sabah, Malaysia and UNDP.
11. 1995-96. Establishment of Aquaculture Microprojects in Myanmar under the Human Development Initiative Programme of UNDP (with FAO, UNDP and UNOPS).
12. 1995-96. Survey of Aquaculture Development Research Priorities in Asia, with FAO.
13. 1995-96. Survey of Water Pollution Sources and Coastal Aquaculture in Thailand, with the Department of Pollution Control.
14. 1996. Regional Workshop on Aquaculture and Management of Coral Reef Fishes and Sustainable Reef Fisheries with UNDP and Government of Sabah, Malaysia.

15. 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.
16. 1996. Regional Workshop on Legal and Regulatory Aspects of Aquaculture in India and SEAsia, with International Law Institute, Rockefeller Brothers Fund and Kasetsart University.
17. 1996-97. Phase 1 of Mangrove Mixed Farming Systems (Socio-economic study of integration of shrimp culture with mangrove ecosystems in the Mekong Delta of Viet Nam) with ACIAR, AIMS and Government of Viet Nam; Phase II was finished in 2002 and developed a programme to extend the research results of Phase 1 through training, information and extension activities.
18. 1997. Epidemiological study of EUS, Pakistan with AAHRI ACIAR and DFID.
19. 1997. Study of Mangrove Aquaculture Interaction, with Government, Academic, Private Sector and NGO participation).
20. 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).
21. 1997-99. Danish/South-East Asian Collaboration in Tropical Coastal Ecosystems Research and Training Project.
22. 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.
23. 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.
24. 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.
25. 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 February 1999.
26. Assessment of socio-economic costs of aquatic animal diseases in aquaculture with FAO.
27. "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.
28. Workshop on Aquaculture Nutrition and Environmental Health Management for the Sustainable Intensification of Freshwater Food Fish Production in South Asia, scheduled for November 2001, with NACA, FAO and India's CIFA.
29. 1998-2000. Regional Technical Cooperation Programme "Assistance for the Responsible Movement of Live Aquatic Animals in Asia" which has catalysed the regional programme 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).

30. 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.
31. 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 programme 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.
32. 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 Overseas. This had its genesis from the 1998 NACA-initiated concept "Aquaculture for Sustainable Rural Livelihood Development (ASRLD) that FAO supported.
33. 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).
34. 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, Thailand and supported by various organizations that included WWF, IUCN Nepal, EU projects in Nepal, a Professional Fishery Association and FAO and NACA.
35. 2001. Intensification of Food Production through Freshwater Aquaculture. The expert consultation, held in October at NACA's regional lead centre 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.
36. 2002. Regional Workshop on Focusing Small-Scale Aquaculture and Aquatic Resources Management on Poverty Alleviation, with FAO RAP.
37. 2002 Study of the Commercialisation of Aquaculture Development with FAO. This will describe and analyse the factors that facilitated (or impeded) the development into commercial level of the culture of certain species in selected countries.
38. 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.
39. 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.

40. 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 programme. 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.
41. 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.
42. 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.
43. 2003 (Feb 3-7). 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.

Participating Members of NACA

NACA Member Governments

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

Participating Governments

- Lao PDR: engaged through the Alliance for Aquaculture involving NACA, AIT, ICLARM-WorldFish Center and AAHRI
- Iran: membership approved by Government and in the process of executing accession to the NACA Agreement
- Indonesia: membership endorsed by the Ministry of Marine Affairs and Fisheries
- Singapore: participating in selected regional activities
- Brunei: participating in selected regional activities
- RO Korea: membership understudy

Host Government

- Royal Thai Government

List of Participants

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH (ACIAR)

REYNA N. REYES

Assistant Manager, Australian Centre for International Agricultural Research
The Australian Embassy
5/F Salustiana D. Ty Tower, 104 Paseo de Roxas Corner
Perea St., Legaspi Village, Makati City, Philippines
P.O. Box 1071 M.C.P.O. 1250
Makati City, Philippines
Tel: (+632) 7546241; 7546209
Fax: (+632) 8928646
E-mail: Reyna.Reyes@dfat.gov.au

AUSTRALIAN AGENCY FOR INTERNATIONAL DEVELOPMENT (AusAID)

LYNNETTE PEREZ

Program Officer, Australian Agency for International Development
The Australian Embassy
5/F Salustiana D. Ty Tower, 104 Paseo de Roxas corner Perea Streets
Legaspi Village, Makati City
Tel: (+632) 7546286
Fax: (+632) 8135473
E-mail: lynnette.perez@dfat.gov.au

BUREAU OF FISHERIES AND AQUATIC RESOURCES (BFAR)

NELSON A. LOPEZ

Chief, Inland Fisheries and Aquaculture Division
Bureau of Fisheries and Aquatic Resources
860 Arcadia Building, Quezon Ave.
Quezon City, Metro Manila 3008
Tel: (63-2) 3730792
Fax: (63-2) 3730792
E-mail: aquaroc@edsamail.com.ph
ifad@bfar.stream.ph

MELCHOR M. TAYAMEN

Center Chief, BFAR National Freshwater Fisheries Technology Center
Muñoz Science City, Nueva Ecija, Philippines
Tel: (63-44) 4560671, 4560670
Fax: (63-44) 4560671
E-mail: nfftrc@mozcom.com

DIRECTORATE GENERAL FOR INTERNATIONAL COOPERATION (DGCI) OF BELGIUM

LUC RISCH

Program Officer D31, Directorate General for International Cooperation
Brederode Straat 6
1000 Brussels, Belgium
Tel: (+322) 5190515
Fax: (+322) 5190530
E-mail: Luc.Risch@diplobel.fed.bc

DUETSCHGE GESELLSCHAFT FUR TECHNISCHE ZUSAMMENARBEIT (GTZ)

RUDOLF HERMES

GTZ-Project Advisor

Visayan Sea Coastal Resources and Fisheries Management Project

c/o BFAR Region VI, Muelle Loney St.

Iloilo City 5000 Philippines

Tel.: (+63-33) 3362708

Fax: (+63-33) 3362708

E-mail: hermes@mozcom.com

MARC NOLTING

GTZ-Project Advisor, Leyte Island Program

Integrated Community Based Coastal Zone Management Silago Bay (ICOM)

c/o Office of the Vice-Governor, Capitol Building

Maasin City, Southern Leyte, Philippines

Tel: (+63-53) 5708497

Fax: (+63-53) 5708487

E-mail: mnolting@mozcom.com

EUROPEAN UNION (EU)

GILDO PIVETTA

Development Counselor, European Union (EU)

Delegation of the European Commission to the Philippines

7/F Salustiana D. Ty Tower, 104 Paseo de Roxas corner Perea Street

Legaspi Village, Makati City 1200, Philippines

Tel: (+632) 8126421 Loc. 207

Fax: (+632) 8126466/812 6429

E-mail: gildo.pivetta@cec.eu.int

DANIEL PLAS

Sr. Programme Officer, European Commission

Delegation of the European Commission to the Philippines

7/F Salustiana D. Ty Tower, 104 Paseo de Roxas corner Perea Street

Legaspi Village, Makati City 1200, Philippines

Tel: (+632) 8126421 Loc. 207

Fax: (+632) 8126466/812 6429

E-mail: daniel.plas@cec.eu.int

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO)

SANG MU LEE

FAO Representative in the Philippines

NEDA sa Makati Bldg.

106 Amorsolo Street, Legaspi Village

Makati City, Philippines

Tel: (+63-2) 8171507, 8020611 to 25, 8939593

Fax: (+63-2) 8171654

E-mail: FAO-PHL@field.fao.org

SIMON FUNGE-SMITH

Aquaculture and Inland Fisheries Officer

FAO Regional Office in Asia and the Pacific

39 Phra Atit Road, Bangkok 10200, Thailand

Tel: (+66-2) 6974149

Fax: (+66-2) 6974445

E-mail: simon.fungesmith@fao.org

PORNSUDA DAVID
FAO Regional Office in Asia and the Pacific
39 Phra Atit Road, Bangkok 10200, Thailand
Tel: (+66-2) 6974146
Fax: (+66-2) 6974445
E-mail: Pornsuda.David@fao.org

GERMAN DEVELOPMENT SERVICE (DED)

KARSTEN SCHROEDER
German Development Service
2/F Alumni Hall, University of Southern Philippines
Salinas Drive, Lahug, Cebu City, Philippines
Tel: (+6332) 2310040
Fax: (+6332) 2318570
E-mail: schroeder_kph@yahoo.com

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

MAKOTO IMAMURA
Assistant Resident Representative
Japan International Cooperation Agency (JICA)
12/F, Pacific Star Building
Sen. Gil Puyat Ave. cor Makati Avenue
Makati City, Philippines
Tel: (+632) 8938031 loc. 271
E-mail: imamura@jica.org.ph

MASAHIKO TAKIZAWA
Japan International Cooperation Agency (JICA)
12/F, Pacific Star Building
Sen. Gil Puyat Ave. cor Makati Avenue
Makati City, Philippines
Tel: (+632) 8938031
E-mail: takizawa@jica.org.ph

MEKONG RIVER COMMISSION (MRC)

JEANINEKE D. KRISTENSEN
Program Manager
Fishery Programme
Mekong River Commission
P.O. Box 112, 364 M.V. Preah Monivong
Phnom Penh, Cambodia
Tel: (+855-23) 720979 ext. 4012
Fax: (+855-23) 720972
E-mail: jeanineke.dk@mrcmekong.org

NETWORK OF AQUACULTURE CENTRES IN ASIA-PACIFIC (NACA)

PEDRO B. BUENO
Director-General, NACA
P.O. Box 1040, Kasetsart Post Office
Bangkok 10903, Thailand
Tel: (66-2) 5611728 to 29
Fax: (66-2) 5611727
E-mail: Pedro.Bueno@eNACA.ORG

MICHAEL J. PHILLIPS
Environment Specialist, NACA
P.O. Box 1040, Kasetsart Post Office
Bangkok 10903, Thailand
Tel: (66-2) 5611728 to 29
Fax: (66-2) 5611727
E-mail: Michael.Phillips@eNACA.ORG

BIENVENIDO ROLA
Adjunct Professor
University of the Philippines at Los Baños
College, Laguna, Philippines and
Senior Adviser, NACA
E-mail: jessrola@hotmail.com

NORWEGIAN TRADE COUNCIL-ROYAL NORWEGIAN EMBASSY

EDUARDO M. NIALA JR
Commercial Officer, Norwegian Trade Council
Commercial Section, The Royal Norwegian Embassy
12/F The World Centre, 330 Sen. Gil Puyat Avenue
Makati City, Metro Manila, Philippines
Tel: (+632) 8678127-29
Fax: (+632) 8678131
E-mail: eduardo.niala@ntc.no

SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER (SEAFDEC)

POUCHAMARN WONGSANGA
Policy and Program Coordinator, SEAFDEC Secretariat
Suraswadi Building, Kasetsart University Campus
Bangkok 10900, Thailand
Tel: (+66-2) 9406326 to 29
Fax: (+66-2) 9406336
E-mail: pouch@seafdec.org

SOMNUK PORNPATIMAKORN
Administration and Finance Coordinator, SEAFDEC
Suraswadi Building, Kasetsart University Campus
Bangkok 10900, Thailand
Tel: (+66-2) 9406326 to 29
Fax: (+66-2) 9406336
E-mail: somnuk@seafdec.org

THE AQUACULTURE DEPARTMENT (AQD)

ROLANDO R. PLATON
Chief, SEAFDEC/AQD
5021 Tigbauan, Iloilo, Philippines
Tel: (63-33) 3362965; 3362937
Fax: (63-33) 3351008
E-mail: aqdchief@aqd.seafdec.org.ph

CLARISSA L. MARTE
Head, Research Division, SEAFDEC/AQD
5021 Tigbauan, Iloilo, Philippines
Tel: (63-33) 3362965; 3362937
Fax: (63-33) 3351008
E-mail: clmart@aqd.seafdec.org.ph

ZUBAIDA U. BASIAO
Head, Binangonan Freshwater Station
Binangonan, Rizal, Philippines
Tel/Fax: (63-2) 2891886/6520077/6523099
E-mail: zbasiao@aqd.seafdec.org.ph

LUIS MARIA B. GARCIA
Scientist
5021 Tigbauan, Iloilo, Philippines
Tel: (63-33) 3362965; 3362937
Fax: (63-33) 3351008
E-mail: weegee@aqd.seafdec.org.ph

SUSANA V. SIAR
Head, Socio-economics Section
5021 Tigbauan, Iloilo, Philippines
Tel: (63-33) 3362965; 3362937
Fax: (63-33) 3351008
E-mail: siar@aqd.seafdec.org.ph

VIRGILIA T. SULIT
Special Assistant to the Chief
5021 Tigbauan, Iloilo, Philippines
Tel: (63-33) 3362965; 3362937
Fax: (63-33) 3351008
E-mail: vtsulit@aqd.seafdec.org.ph

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT (USAID)

RENERIO B. ACOSTA
Local and National Governance Advisor
USAID/Philippines
8/F, PNB Financial Center
Roxas Boulevard, Pasay City, Philippines
Tel: (+632) 5529829
Fax: (+632) 5519297
E-mail: racosta@usaid.gov

UNITED NATIONS DEVELOPMENT PROGRAM (UNDP)

CLARISSA C. ARIDA
Program Manager, United Nations Development Program
7/F NEDA sa Makati Building
106 Amorsolo Street, Legaspi Village
Makati City 1229, Philippines
Tel: (+632) 8920611
Fax: (+632) 8164061
E-mail: clarissa.arida@undp.org

WORLD FISH CENTER

PAUL S. TENG
Deputy Director-General (Research), WorldFish Center
Jalan Batu Maung, 11960 Bayan Lepas
Penang Malaysia
P.O. Box 500, GPO, 10670
Tel: (604) 6261606
Fax: (604) 6265690
E-mail: p.teng@cgiar.org

PRESS

DIVINE L. REYES

Producer/Program Assistant

DWAN and Columnist

Pilipino Magazine

DWAN, Broadcast City

Capitol Hills, Quezon City, Philippines

Tel./Fax: (+632) 9318751

E-mail: prmphils@yahoo.com.ph

ARTURO "THOR" S. ORIG

S&T Correspondent Manila Bulletin

c/o College, Laguna 4031, Philippines

Tel: (+6349) 5360144

Fax: (+6349) 8277511

E-mail: thorig10@hotmail.com

RUDY FERNANDEZ

Journalist, Philippine Star

Tel: (+6349) 5277901

THE LOCAL SUPPORT STAFF

ANNA MARIA JOSEFA F. ORTIZ

Senior Administrative Assistant

SEAFDEC/AQD, Manila Office

#17 Times St., West Triangle 1104

Quezon City, Philippines

Tel: (63-2) 3723980 to 82

Fax: (63-2) 3723983

E-mail: aqdmanila@aqd.seafdec.org.ph

CORAZON P. CENDAÑA

Senior Administrative Assistant

SEAFDEC/AQD

5021 Tigbauan, Iloilo, Philippines

Tel: (63-33) 3362965; 3362937

Fax: (63-33) 3351008

E-mail: rrplaton@aqd.seafdec.org.ph

ISIDRO T. TENDENCIA

Senior Administrative Assistant

SEAFDEC/AQD

5021 Tigbauan, Iloilo, Philippines

Tel: (63-33) 3362965; 3362937

Fax: (63-33) 3351008

ROLANDO P. ELIZON

Senior Financial Assistant

SEAFDEC/AQD, Manila Office

#17 Times St., West Triangle 1104

Quezon City, Philippines

Tel: (63-2) 3723980 to 82

Fax: (63-2) 3723983

E-mail: aqdmanila@aqd.seafdec.org.ph

SALVE C. GOTERA
Senior Administrative Assistant
SEAFDEC/AQD
5021 Tigbauan, Iloilo, Philippines
Tel: (63-33) 3362965; 3362937
Fax: (63-33) 3351008

EARL G. LEONOR
Acting Administrative Assistant
SEAFDEC/AQD, Binangonan Freshwater Station
Binangonan, Rizal, Philippines
Tel: (63-2) 2891886/6520077/6523099
Fax: (63-2) 2891886/0912-3533906
E-mail: bfs@aqd.seafdec.org.ph

ROSARIO B. ABASTILLAS
Clerk
SEAFDEC/AQD
5021 Tigbauan, Iloilo, Philippines
Tel: (63-33) 3362965; 3362937
Fax: (63-33) 3351008
E-mail: vtsulit@aqd.seafdec.org.ph

WILSON C. PANOY
Driver
SEAFDEC/AQD, Manila Office
#17 Times St., West Triangle 1104
Quezon City, Philippines
Tel: (63-2) 3723980 to 82
Fax: (63-2) 3723983

NOEL V. CLAUDIO
Driver
SEAFDEC/AQD, Manila Office
#17 Times St., West Triangle 1104
Quezon City, Philippines
Tel: (63-2) 3723980 to 82
Fax: (63-2) 3723983

NESTOR R. DE LA CRUZ
Driver/Mechanic
Binangonan Freshwater Station
Binangonan, Rizal, Philippines
Tel: (63-2) 2891886/6520077/6523099
Fax: (63-2) 2891886/0912-3533906