



NACA Governing Council endorses new work programme, elects Sena De Silva as next Director General

The Governing Council, at its 17th Meeting, held in Tehran, I.R. Iran on 25-28 February 2006 has approved the new work programme for regional aquaculture development and elected the next Director General, Professor Sena De Silva, a Sri Lankan-born Australian national, currently working with Deakin University's School of Ecology and Environment. The theme of the work programme, which the new DG will implement, is "Aquaculture for Rural Development Focused on the Farmer." It emphasizes more active farmer participation and involvement in policy and programme development, and capacity building in voluntary and self-management measures to complement regulation of the aquaculture sector. The tenure of the DG coincides with the life of the work programme, which is now the fourth since NACA became an intergovernmental organization.

Professor De Silva has had a long association with NACA, dating back to 1989 when he represented the IDRC at the meeting in Bangkok where the Provisional Governing Council adopted the NACA Agreement and decided that NACA become a regional inter-governmental organisation. Subsequently he had been working in conjunction with NACA management and scientists in the development and execution of collaborative projects. These have included:

- APEC funded project on "Aquaculture Education in the Asia-Pacific."



DG-elect Professor Sena De Silva (right) being interviewed by the Iranian press with GC Chair Mr Ebrahim Maygoli assisting in translation.

- Conflicts in capture and culture fisheries in Indonesian reservoirs.
 - Limnology and Fisheries in Lake Inle, Myanmar.
 - Dissemination of better practice models in culture-based fisheries
 - Broodstock management of indigenous mahseer species in Sarawak, East Malaysia.
 - Involvement in tsunami relief work.
 - Seed funding for initiating genetic and biodiversity work.
- He also had worked with NACA professional staff in the development of concept papers and projects on biodiversity and conservation, use of GIS as a tool in inland fisheries management, fisheries and conservation of Philippine lakes and attended a number of meetings of the

NACA Governing Council and Technical Advisory Committee.

He was in the Advisory Committee of the NACA/FAO Conference on Aquaculture in the Third Millennium held in Bangkok in 2000 and prepared the Global Synthesis that was one of the main working papers. After the Conference, he was appointed in a honorary capacity as member of a four-person NACA Task Force 2000, which conducted an SWOT analysis for NACA and assessed its functioning. The recommendations of the Task Force were the major basis for the 3rd Five Year Work Programme. Other involvements included contributing to Aquaculture Asia and advice to the Editor on editorial and related matters.

He will succeed the current Director General, Pedro Bueno, who is being appointed as an adviser to NACA with special responsibilities in NACA's programs on inter-regional cooperation and linkages, tsunami rehabilitation and technical services arm.

Below is Professor De Silva's vision for NACA, submitted to the Search Committee in conjunction with his application.

Vision statement

Background

To my reckoning NACA over the years has delivered and facilitated, in more ways than one, aquaculture associated developments, technically, policy wise and societal, in the region in a most admirable manner. My vision therefore, will primarily be to maintain this momentum and to build on these achievements and take it to the next level, perhaps in recognition of new and unforeseen challenges (e.g. tsunami relief), changing geo-political circumstances in the region, population growth, globalization and issues associated with environmental sustainability of fisheries and aquaculture.

My vision for NACA in a nutshell is it to be internationally recognized and supported as the lead regional agency

for coordination and support of aquaculture and fisheries research, development, training and extension, and to make NACA an organization exemplar in the region, if not in the world in this regard. This vision is to be achieved through:

NACA being responsive and innovative to the requests and demands of its member nations in their aspirations and endeavors to develop and sustain the aquaculture and associated fisheries sectors as significant contributors to food fish production, income and employment generation and poverty reduction.

- To implement timely and relevant programs through NACA's extensive networking system, its professional expertise drawn amongst the member nations and collaborative arrangements with other regional and international organizations with similar objectives.
- To provide regional leadership and suitable, timely and appropriate advice to member governments in their endeavors to make aquaculture and related sectors a significant contributor to national, as well as regional, well being.

Strategy for implementation

The above vision, I believe, is not overly different from the current vision and objectives of NACA, and is to be attained through NACA's existing system of action-based programs, but with suitable changes in emphasis and modifications where needed and or desired to address the new and changing circumstances and challenges outlined previously. Foremost, I will endeavor to consolidate, improve upon where needed, and sustain the ongoing primary programs of NACA, which to my understanding have been endorsed and re-endorsed by its Governing Council (GC), as advised by the Technical Advisory Committee (TAC). These are for example, in relation to fish and shrimp health management, education and training, marine aquaculture development, and others.

The next logical steps

Over the last two to three decades the division between aquaculture and inland fisheries, particularly in the Asian context, has begun to get thinner, if not disappear; the interactions between these two sectors are getting greater, and in many instances the underlying issues are getting commoner. Accordingly, in consultation with the TAC and the GC of NACA, I will explore the possibilities of expanding the mandate of NACA to include aspects of inland fisheries, in R & D programs, where relevant and needed.

It is in the above context that I will also attempt to impress upon the GC and the TAC of NACA to adopt new programs pertaining to aquaculture and inland fisheries development that take into account the changing regional and or world scenarios and expectations of the public at large, such as for example on genetics and biodiversity, even though monetary returns and or impacts on production of such a program may not be immediately evident. It is also believed that in view of the vast acreage of small, inland waters available in the region, and as done by some member nations, take steps to popularize, and initiate suitable R & D programs on culture-based and reservoir fisheries, a relatively low-cost, rural community activity, in a more planned and an effective manner, perhaps through the initiation of a core program of activity in NACA.

The region has gained production increases over the last two decades through the application and improvement of technologies developed beforehand, in addition to increases in areas under production. The latter is fast becoming a limiting factor, due to increasing competitive use of primary resources. If the region is to continue its momentum in aquaculture production, apart from improvements to existing technologies, fresh innovations are needed; this tantamount to increased research effort in key areas.

Proposed action agenda/ programs

In the above regard I envision NACA playing a key role in not being a major deliverer of research *per se* but more as an effective research facilitator in the region. Accordingly, I see the following priorities as a feature of a program-based action agenda designed to realize the stated Vision and Goals:

- For NACA to make better utilization of the Regional Lead Centers in the overall R & D framework. In this regard, it is envisioned, in conjunction with the GC on the advice of the TAC, to incorporate lead research centers, internationally recognized for their R & D, in selected fields, into the NACA “framework”, in a more “organic” manner, for facilitating its R & D endeavors and activities, and most of all use such centers to provide opportunities for middle level researcher exchanges, amongst member countries, on relatively short- to medium-term basis, to consolidate and improve the “research-base”, where needed. It is envisaged that such a program will lead to enhanced collaboration and cooperation among researchers and research institutes in the region, which will be pivotal for the next stage of improvements in the sectors concerned.
- Over the last two to three decades most donor agencies have been responsible for providing a high level of training to scientists in the region, but with little or no follow-up activity thereafter. In most instances donors still tend to insist on developing R & D programs, incorporating expertise from their own countries in spite of training member country scientists in the same fields of specializations. With the approval of the GC, approach major R & D donor agencies and impress upon them to initiate a scheme(s) of R & D activities, appropriate and needed to in the region to be coordinated through NACA but managed and performed by

member country institutions and scientists, if at all with only limited inputs from donor country counterparts.

- It is my belief that in spite of the great strides made by e-naca that it needs to be developed further to cater to the farming community- the grass root, primary stakeholders. In this regard, it is envisioned that suitable programs pertaining to aquaculture and associated fisheries sectors be developed in conjunction with member countries using more accessible media such as TV and radio. In this regard, NACA will develop the necessary framework for the member countries to adopt and disseminate, and will be done whilst the web based developments are nurtured and improved upon simultaneously.
- We are moving into an era of increasingly stringent regulations, imposed on aquaculture product quality and production modes, and equally increasing market determinants by purchasing nations, justifiable or not. NACA, as a regional lead organization will have an ever-increasing role to keep the member nations, in particular the smaller member nations, abreast of these global developments and trends, and provide relevant and appropriate advice and mitigating measures. I envision, in conjunction with the GC, to establish a suitable sub-program, manned by a professional with suitable expertise on market, governance, global trade and tariff issues and the like to keep abreast of the changing “global requirements” and to interact with member countries in developing suitable ways and means of meeting such needs.
- No amount of vision and dedication will be effective unless the Secretariat functions smoothly. To this end, the format of functioning of NACA will require a review to ensure an appropriate structure and resourcing are provided to enable the organization to continue to function effectively during these

changing and demanding times. Changes to the format of GC and TAC meetings will be a priority to ensure that such activities occur with prior approval of the GC, the details of which I am to elaborate on should I be short listed for the post of DG and face an interview with the GC.

Conclusion

In conclusion, I wish to thank you for giving me this opportunity to outline my vision for NACA. I see this as a unique opportunity for me personally at this stage of my career to work at a key level within such an organization in collaboration, with the many experienced and capable people within the NACA network, and in a way that together we can continue the legacy of NACA, take it to a new level and thereby hopefully make a significant difference to the livelihoods of regional communities in our member countries.

The 4th Five-Year Work Programme

A snap shot of the 4th NACA Work Programme as endorsed by the GC follows below. The full document will be published as a small book and circulated to member governments and NACA Centres as well as made publicly accessible on the NACA website in due course.

One of the distinctions that must be made when referring to the ‘NACA’ work programme is that it is the *collective work programme of the whole network* comprising member governments, participating institutions, partner organizations and the individual people that work in them. The work programme is implemented by people spread over the 17 member countries, where NACA’s technical expertise and human resources are concentrated. The major function of the NACA Secretariat is simply to facilitate coordination between them with policy guidance from the Governing Council and technical guidance from the Technical Advisory Committee.

The work programme has been developed and formulated with the direct participation of and drawing experience from member governments, development organizations, farmer groups, civil society organizations, R and D and academic institutions, and donor agencies; and implemented through collaboration among them. As a “rolling” work programme divided into five-year periods, activities do not necessarily cease at the ‘end’ of each programme period. Rather, they are reviewed and adjusted to address the current and emerging priorities of members.

The 4th Five-Year Work Programme contains the same major elements with no fundamental change in structure. However, new areas of work will be integrated into the Work Programme, which were initiated or intensified during the Third Work Programme. These include Trade and Market Access, Genetics and Biodiversity, Inter-regional Linkages and Cooperation, Farmer Organizations and Industry Affairs, and the Special Programme in Response to the Indian Ocean Tsunami (SPIRIT) that was established by the Governing Council in the aftermath of the disaster. Major elements are:

R&D Cooperation

Coastal aquaculture

- *Coastal shrimp culture:* Support to the development and widespread adoption of better management practices for shrimp aquaculture will be continued. The emphasis will be on improving overall management of the shrimp sector, but with particular focus on small-scale farmers.
- *Marine fish farming and mariculture:* The marine fish networking of NACA will be continued, focusing on supporting NACA members to develop sustainable marine fish farming and with more attention in mariculture cooperation.
- *Mollusc aquaculture* will receive increasing emphasis.

Inland aquaculture

- *Upland aquaculture and aquatic resources management:* The initiatives started during the 3rd Work Programme to promote cooperation in upland aquaculture throughout the region will be further supported.
- *Inland lakes and reservoirs:* Progress in improving management of aquaculture and small-scale fisheries in lakes, reservoirs, rivers, and inland water bodies will be further extended, with an emphasis on extending experiences to more NACA members and widely disseminating experiences in better management of such aquatic systems.
- *Inland aquaculture systems:* The development of sustainable inland aquaculture systems will continue with a greater focus more active involvement of the NACA regional lead centres.
- *Better management practices:* Better management practices (BMPs) are a cross-cutting issue within the work programme. More will be prepared through widespread consultation and assistance provided to NACA members to implement and adopt them across a spectrum of aquaculture commodities and systems.
- *Environmental sustainability* will continue to be emphasized. Members have requested particular guidance on aquaculture effluent treatment, environmental indicators and environmental planning, zonation and carrying capacity in marine and freshwater ecosystems.
- *Markets and market access:* The region faces many new challenges in the marketing of aquaculture products, including declining price trends of some commodities, higher food safety standards, certification and market access difficulties. Marketing, quality and food safety issues will therefore be built into the R&D work on development priorities.
- *Poverty and socio-economics:* NACA’s R&D programme will continue to focus on small-scale farmers and poverty reduction,

and will increasingly cooperate with STREAM to ensure these issues are properly integrated in NACA’s R&D activities. NACA members have also requested studies on the impacts of aquaculture on poor people to assist in focusing aquaculture development strategies towards benefiting the poor and longer-term monitoring of communities to assess impacts of aquaculture on socio-economic development.

Food safety and market access

- A series of special activities focused on *assuring food safety* of aquaculture products and improving market access will be conducted with special attention to issues such as coordinating Asian inputs to the CODEX Alimentarius, ensuring that relevant issues for the Asian region and small-scale farmers are addressed.
- *Certification of aquaculture products:* Work on development of a harmonized certification system for aquatic animal products from the region will commence with a view of providing guidelines to countries and their farmers. NACA will also work with interested partners to develop a set of widely applicable and accepted certification standards for aquaculture products.

Genetics and biodiversity

A new work programme component has been initiated on genetics and biodiversity with an emphasis on Asian species and those indigenous to member countries. The programme will address:

- *Capacity building:* Increasing the capacity in member countries in the use of appropriate tools and techniques for incorporating a molecular genetic component into their aquaculture and inland fisheries programs R & D.
- *Domestication and broodstock:* Developing and utilizing improved domestication and broodstock management practices and

efficient breeding plans to improve production in aquatic animals.

- *Aquatic biodiversity*: Exploring opportunities for greater application of genetic technologies and other approaches to the conservation of aquatic biodiversity.
- *Indigenous species*: Research and development concerned with the induced breeding and culture of indigenous fish, including special programmes for the Himalayan and Mekong sub-regions.
- Development of standards (national and regional) on *seed quality and health maintenance*, including the promotion of healthy seed and standards for accreditation of hatchery for supply of quality seed, as well as distribution and licensing mechanisms.

Aquatic animal health management and disease control

The regional aquatic animal health program of NACA will be further strengthened by focusing on implementation of practical aquatic animal health management strategies at farm/local/national/regional levels and through involving primary producers and all other relevant stakeholders. Emphasis will include:

- *Improving regional and international cooperation in aquatic animal health*: NACA will facilitate the working of the high level Asia Regional Advisory Group to provide advice to NACA member countries. Regional and international cooperation will be enhanced to develop and implement joint research and development projects that support and promote risk management in trans-boundary movement and trade in aquatic animals. The already established three tier regional resource base - comprising of regional resource experts, resource centres and reference laboratories will be further strengthened.
- *Developing and implementing practical national aquatic*

animal health strategies to help to reduce the risk of introduction and spread of aquatic animal pathogens.

- *Improving surveillance, reporting and response to disease emergencies in the region*.
- The *regional quarterly disease reporting system (QAAD)* will be continued and further developed with the aim of providing countries with accurate information regarding the occurrence and distribution of diseases of trade significance to form the basis for providing prevention and control strategies and early warning systems.
- *Harmonization and capacity building in procedures for diagnosis, quarantine, health certification* and approaches to risk assessment will help to achieve consistency in results across member countries and allow for validation and comparison.
- *Widespread promotion of better aquatic animal health management practices*: Activities will be formulated to build appropriate extension capacity and develop aquatic animal health information for responsible health management by primary producers. Support will be provided to raise awareness within the farming sector concerning the food safety issues associated with health management.

Training and education

- The areas of emphasis of the training in the Fourth Work Programme will be towards improving access to existing training courses such as the Integrated Fish Farming course in the Regional Lead Centre for China, Wuxi, and those offered by other institutions; assistance to countries in developing training courses; development of training courses of high priority to the region; maintaining the relevance and improving the sustainability of training courses; utilizing more

effectively training resources in the network; facilitating collaboration and exchange of trainers, students, researchers through a reciprocal exchange program among institutions; developing a directory of training providers and training courses and compiling and circulating a periodically updated Training Calendar.

- Efforts to implement the program that had been developed for a consortium on aquaculture education will be intensified.
- The programme will also help members explore ways to access trust funds that support training and education and identify potential donors and partners to training programs.

Information & communication programme (eNACA)

As a networking organization, nearly all of NACA's information resources and expertise reside in the NACA centres and their staff. The programme will place emphasis on increasing the involvement of the wider network as contributors to the information programme, both at the institutional level and personally; in short, the information programme will continue to pursue a decentralised model. Emphasis will include:

- *Improving the accessibility of information on sustainable aquaculture* through ongoing publishing activities, including through improvement of the NACA website as a platform for free electronic publishing and information exchange.
- *Training of NACA centres and partners in web publishing*: Assisting network partners to develop their own online presence and web publishing capacity is seen as a key activity to increase the distribution and accessibility of aquaculture information at the local, national and regional scales, particularly in local languages.
- *Development of guidelines on digital publishing*: In support of the training initiative, practical guidelines on digital publishing will be developed for the benefit

of institutions with limited resources that are just starting or planning to begin disseminating their publications in digital form.

- *Participation in the development of the “Aquatic Commons”,* a shared, decentralised digital library proposed by the International Association of Aquatic and Marine Science Libraries and Information Centres. This is the beginning of a substantial, open-access digital library that will offer free full-text access to scientific literature for everyone.
- *Expansion of the online community* on the NACA website, as a practical means for network participants in different countries to contact each other and exchange information.
- *Two-way information exchange and discussion fora* established with NACA centres, STREAM Communication Hubs and field-based institutions such as the One-stop Aqua Shops and Self-Help Groups, industry and governments. This is intended as a targeted extension of the online community concept, bringing in the core information providers in the network.
- *Formation of a Regional Network of Website Administrators* to allow participating centres to benefit from each others experience and collaborate in website development, effectively leveraging limited resources while enhancing information accessibility and exchange between centres, countries and the private sector.

Policy development and institutional support

A key issue for the growth of aquaculture will be the ability of countries and organizations to strengthen policy and institutional capacity to develop and implement policies and regulations that are transparent and enforceable. As globalisation proceeds, it will also be important for the region to develop appropriate policy and a common voice on certain key issues, to seek to influence global trade discussions as they affect aquaculture. NACA will assist members to:

- Share information on policies and legislation, rules and procedures that encompass best practices in aquaculture, for example through advice on site identification and selection, planning for integrated development and zoning of aquaculture activities.
- Build capacity of institutions to develop and implement responsible aquaculture development strategies, such as through training, policy advice and regional technical and information exchanges.
- Promote cooperation with regional organizations such as APEC, ASEAN, BOBP-IGO, SAARC, MRC, SEAFDEC, and AIT, amongst others, with relevant international organizations including FAO, WTO, OIE and World Fish Centre, with regional organizations in the other regions, with national and regional farmer organizations including the Federation of European Aquaculture Producers, and with NGOs.

- Prepare policy guidelines and briefing documents/materials for use of member countries, including development and implementation of Codes of Conduct and Codes of Practice, technical guidelines for regulations, Best Management Practices, and guidelines for standards.

Special Program in Response to the Impacts of the Tsunami

Through SPIRIT, NACA supports strategic regional and community development projects designed to help people rebuild their livelihoods and become self-sufficient and self-reliant. Such activities target reconstruction and development of livelihoods that are based on aquaculture, coastal fisheries and other aquatic resources, with a strong environmental restoration and management element. SPIRIT is not a regular component of the work programme and will be sustained for as long as there is need.

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RapiDot Kit – Farmer friendly kit for WSSV detection

The Department of Aquaculture, College of Fisheries, Mangalore, India has developed a simple, farmer friendly, monoclonal antibody based RapiDot kit for field level detection of white spot syndrome virus (WSSV). The simple 10-minute field test does not need any equipment and has sensitivity similar to that of the upper limit of II step PCR and costs only Rs

70 (US\$ 1.7) per sample. The performance of the kit for testing PL, adults and wild brood stock has been evaluated at Pancham Aqua farms, Mumbai; MPEDA brood collection centre, Chennai; Skyline hatchery, Kumta, and Maritech Diagnostics, Chennai with highly encouraging results. The kit allows farmers to check the PL for WSSV before buying.

Following stocking, farmers can monitor WSSV in ponds. Hatcheries can use the kit to test wild brood stock and for monitoring WSSV in eggs, nauplii and PL. The kit is hoped to contribute significantly towards minimizing the impact of white spot disease in the region. For more information contact Dr K. M. Shankar at: kalkulishankar@rediffmail.com.

Regional mariculture program strengthened

The regional workshop on “The Future of Mariculture: A Regional Approach for a Responsible Development of Marine Farming in the Asia-Pacific Region” was held at the Guangdong Hotel, Guangzhou, PR China, from 7-11 March 2006. The workshop, co-organised by NACA and FAO, and hosted by Guangdong Ocean and Fisheries Administration, China, brought together 46 seafarming experts representing 12 Asia-Pacific states and 14 organizations involved in marine farming in the Asia-Pacific region, providing wide ranging stakeholder input to the development of the regional programme of cooperation on responsible development of marine farming. The workshop also held consultations with aquaculture farmers and traders of live seafood products during unique and informative “farmer dialogue” and “market dialogue” sessions.

There was wide ranging discussion during the workshop and an obvious need for strengthening of cooperation in marine farming in the Asia-Pacific region. The final session from the regional workshop discussed the workshop findings and recommended the development of a regional programme for cooperation in marine farming in the region. FAO was requested to consider a regional Technical Cooperation Programme to provide catalytic support for the development and implementation of the programme.

FAO and NACA are working together on editing of all the workshop papers. The objective is to publish the programme and workshop report in good time for presentation at the COFI Aquaculture Sub-Committee Meeting to be hosted by the Government of India in New Dehli during September 2006. The background to the workshop and presentations are available on the NACA web site.



Above: Workshop participants met farmers from Nan Hu village (front row) to discuss issues in mariculture development, followed by discussions on the state of the trade with traders and managers from the Guangzhou Huangsha Seafood Market (below).



Above: Geoducks. More than 500 tonnes of seafood are sold at the Guangzhou Central Huangsha Seafood Trading Market each day, with an annual turnover of US\$ 1 billion.

Economics and marketing analysis of the live reef fish food trade in the Asia-Pacific

The second workshop of the ACIAR project *Economics and Marketing Analysis of the Live Reef Fish Food Trade in the Asia-Pacific Region* was held at the Gurney Hotel, Penang, Malaysia, from 14-16 March 2006.

This ACIAR project is led by Dr Brian Johnston from the Australian National University and managed by Dr Ray Trewin. Collaborating Institutions include the University of Western Australia, James Cook University, WorldFish Center, Secretariat of the Pacific Community, Bogor Agricultural University, and the Central Research Institute for Marine and Fisheries Product Processing and Social Economics.

The objective of the project was to understand the economic drivers and issues of supply and demand in the Live Reef Fish Food Trade (LRFFT) in the Asia-Pacific region so as to help shape future industry development and inform on social and environmental issues associated with the trade. Possible policy options for a

sustainable development of this sector were also included.

The second workshop consisted of a series of presentations by LRFFT researchers to quantify the short and long term supply and demand, and to measure the key cost and risk components in the marketing chain.

Presentations included:

- Demand for various types of fish in Asia (Dr Madan Dey)
- Asian Fish Model: Outline of structure and approach (Dr Madan Dey)
- Development of the LRFFT sub-model (Dr Roehl Briones)
- Projections on supply, demand, and trade for the live reef fish food market in East and South-east Asia (Dr Roehl Briones)
- Indonesia LRFFT (Dr Sonny Koeshendrajana)
- Indonesian live reef fish modeling (Dr Akhmad Fauzi)
- Trade and management in the Pacific (Dr Being Yeeting)
- Developments in culture fisheries (Dr Mike Rimmer)

- Market chain analysis (Mr Geoffrey Muldoon and Mr Bill Johnston)
- NACA role and contribution (Mr Koji Yamamoto)
- Wholesale and retail demand in HK (Dr Liz Petersen)
- ReefBase: Coral reef fisheries portal (Mr Marco Noordeloos)
- Wholesale and retail price integration in HK (Dr Liz Petersen)
- Market price integration by species and country of origin (Dr Liz Petersen)
- Integration supply and demand analysis for the study of policy options for improved market performance (Dr Liz Petersen and Dr Roehl Briones)
- Survey and taste test in HK (Ms Noel Chan)

The papers presented at this workshop will be summarised into a book of proceedings, which will be made available for download on the NACA website in due course.

Workshop on molecular techniques in aquaculture and seafood safety, Mangalore, India

An international workshop on “Molecular techniques in aquaculture and seafood safety” was held at the UNESCO Microbial Resources Center (MIRCEN), College of Fisheries, Mangalore, India from 13-17 February, 2006. The workshop was sponsored by American Society for Microbiology (ASM) and Food and Agriculture Organisation (FAO) of United Nations. 22 participants from different countries in the Asia-Pacific region including Sri Lanka, Bangladesh, Vietnam, Cambodia, Malaysia, Maldives and India took part in this “hands on” workshop. The workshop consisted of lecture and practical sessions on

detection of pathogens such as choleraenic *Vibrio cholerae*, pathogenic strains of *Vibrio parahaemolyticus*, *Salmonella*, pathogenic strains of *Escherichia coli* using colony hybridization, polymerase chain reaction (PCR), molecular typing of pathogens using ribotyping, random amplification of polymorphic DNA (RAPD), restriction fragment length polymorphism (RFLP), use of molecular techniques like DNA microsatellites in population discrimination, detection of various shrimp viruses by PCR, cloning and expression of genes of interest, detection of toxic dinoflagellates by

PCR, detection of shellfish toxins, antibiotic residues by antibody based techniques, liquid chromatography – tandem mass spectrometry techniques for detection of antibiotic residues in seafoods. The participants were from Department of Fisheries of different countries, researchers and medical diagnostic laboratories. One of the objectives of the workshop was to strengthen the capability to perform microbiological risk assessment in the Asia-Pacific region both in terms of human health risk from pathogens associated with seafood and risk of crop losses in aquaculture due to disease.

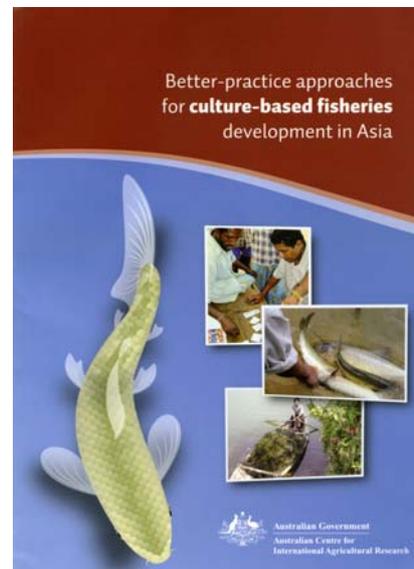
Better-practice approaches for culture-based fisheries development in Asia

The primary objective of this manual is to provide guidelines for attaining better practices in culture-based fisheries, an emerging practice in rural areas in the Asian region. It deals with the principles of culture-based fishery practices, primarily based on relatively long-term experiences in Sri Lanka and Vietnam. It is not only targeted at researchers per se, but also at stakeholders at the grass root levels, as well as planners and policy developers, particularly those of Asian nations embarking on culture-based fisheries as a strategy to enhance fish food production in rural areas. As such, the manual does not deal with the dynamics and interactions of stocked populations. It deals with the gross factors that are applicable to improving fish yields and therefore revenue; and sustaining culture based fisheries as a development activity in the long-term. The manual addresses the constraints to culture-based fisheries development in the region, and

provides guidelines on ways and means of overcoming such constraints. The manual is the final compilation of the experiences in Sri Lanka and Vietnam, together with the discussions that occurred at the three workshops held in the three Asian countries in October 2005. The manual is divided into two parts:

- Part 1 provides general information on what is called 'better-practice approaches' to culture-based fisheries; and
- Part 2 provides experiences from Sri Lanka and Vietnam and includes a marketing study.

The manual is aimed at a variety of readers, including farmers, extension workers and policy makers. It is available for free download from the NACA website at: <http://www.naca.org/modules/mydownloads/singlefile.php?cid=152&lid=843>



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High-level Bahrain fisheries delegation visits Iran

A high-level fisheries delegation from Bahrain, led by Dr. Jassim A. Al Qaseer, Director General of Marine Resources, visited Iran on Sunday 9 April. The Bahraini mission held discussions with Dr. Rezvani, Shilat Deputy for Aquaculture, Engineer Mojabi, Deputy for Fishing & Fishery Industries and Dr. Motallebi, Head of the Iranian Fisheries Research Organization, along with visits to aquaculture facilities in the north of the country. The Bahrain delegation also met Dr. Nezami, Head of Shilat (Iran Fisheries Organization) for discussions.

In this meeting, Dr Nezami welcomed further cooperation with Bahrain Fisheries in all aspects while stressing the need to continue existing collaborative activities between the two countries. A Memorandum of

Understanding was signed between the Agriculture Ministers of both countries, covering the following areas:

- Exchange of information on aquaculture, particularly on common and native species; cage culture, and hosting of training courses by Shilat.
- Implementation of common projects on artificial habitats, enjoying Iran's experience in this regard to carry out common studies and operations on determining appropriate fisheries management arrangements including seasonal closures in the Persian Gulf and exchange of information and experience in the planning and construction of processing plants.
- Research cooperation, particularly on resource

assessment in the Persian Gulf and promotion of expert exchange visits between the two countries.

Since the Bahrain mission was highly interested in raising fish for caviar production, Shilat authorities arranged a trip for them to the Shaheed Beheshti Fish Aquaculture Center, the International Research Institute of Caviar Fish in Rasht and the UNIDO project in Anzali.

Dr. Alqaseer was accompanied by Dr. Abdulredha J. Shams, Director of Marine Resources, Mr. Hussain A. Al-Hindi, Chief of Culture Section, and Mrs. Ebtessam A. Khalaf, Executive Coordinator of the DG Office. *Report by Vahid Tofighi. Visit the Iranian Fisheries Organization website for more information: <http://www.iranfisheries.net/English>.*

Recent activities in STREAM

First monthly meeting of fish farmers at One-stop Aqua Shop in Punjab Pakistan

The first meeting of fish farmers was held recently at the One-stop Aqua Shop (OAS) Alipur, Punjab, Pakistan, presided over by Mr Ansar Mehmood Chatha, the officer in charge of the nearby Chanawan Fish Hatchery. During the meeting Mr Chatha took part in a question and answer session where he offered technical solutions to fish farmers' problems. Mr. Chatha also took the opportunity to assure farmers that the co-operation between the provincial fisheries department and the OAS would continue. The meeting also served as a forum for farmers to discuss and share their experiences and insights into aquaculture practice with each other, and it was acknowledged that the meetings were an ideal way to achieve this. Farmers agreed that future meetings would be held on a monthly basis.

At the conclusion of the meeting Mr. Nadeem Sharib, the operator of the OAS announced that a bulldozer was now available to assist in fish pond construction and a free "Medical Camp" was planned for the 8th March 2006 to be attended by Dr Syed Shabab Haider, Neuro-Psychiatrist MD USA, Dr. Sulman Abdullah Dar ENT Specialist and Dr. Huma Hamad, Gynecologist. Local livestock farmers were also in attendance and were able to discuss their problems with the veterinarian Dr. J.A. Khan.

The meeting was attended by Hajji Shaukat Hayat, Mian Farooq Zahid, Bisharat Ali Cheema, Fiaz Ahmed Dar, Syed Farasat Ali Shah, Muqem Dar, Ch. Iftikhar Ahmed Chatha, Ghulam Nabi, Sana Ullah Chatha, Qaiser Ahemd Tarar, Wajeeh Haider Bhindar, Syed Hassan Mehmood Zaidi, Waqar Ahmed Chatha, Ch. Bashir Ahmed Chatha, Syed Razi Haider Zaidi, Syed Ghulam Abbas Zaidi, Shahbaz Ahmed Chatha, Mian Mehmood Iqbal and others.

Fish breeding training program for farmers of OAS, Kaipara

Following discussions between the ICAR institute at Kalyani, and the STREAM Initiative in India a fish breeding training program has been designed for the farmers associated with the One-stop Aqua Shop, Kaipara, West Bengal, India. The training program which focussed on the hapa breeding technologies of Indian Major carp species Rohu, Catla, Mrigal and also Common Carp ran from 30 March to 5 April in Kalyani, West Bengal. The program was attended by five farmers including farmer's leaders with the plan that they will use the techniques learned in the hapa-based hatchery they are developing in Kaipara and to further train other farmers in their villages.

Provincial workshops on National Fisheries Policy and Strategy Framework held in Punjab and Sindh, Pakistan

STREAM Communications Hub Manager Junaid Wattoo and Communications Specialist Kath Copley recently facilitated two workshops on the emerging National Fisheries Policy and Strategy Framework in Pakistan. The workshops are the latest activities in the FAO Technical Co-operation Program Support to Fisheries Sector Policy and Strategy Formulation.

The first workshop held in Karachi from 1-2 March 2006 brought together stakeholders from fishery related ministries and departments and the private sector from Sindh and Balochistan provinces. The second workshop was held from 6-7 March 2006 in Lahore and was attended by representatives from relevant ministries, departments and the private sector from Punjab and NWFP provinces.

These workshops are part of a series of consultations with stakeholders as part of the development of the first National Fisheries Policy for Pakistan, being drafted by the Government of Pakistan with support from FAO, Poseidon and STREAM.

Monitoring and evaluating the impacts of aquaculture on the agency and well-being of women

The objective of this recent study "Talking with Women" was to explore the ways in which aquaculture has been incorporated into the activities of Women's Self-Help Groups in two districts of Western Orissa, Bolangir and Nuapara, and in the context of gender equity in development to try and understand how aquaculture impacts the agency and well-being of women.

Talking with Women was conducted in conjunction with the Western Orissa Rural Livelihoods Project (WORLP) by the STREAM Initiative.

STREAM welcomes AYAD volunteer

STREAM is pleased to welcome its latest Australian Youth Ambassador for Development (AYAD) Ms. Melissa Tipping, who will work with STREAM in a program development capacity over the coming year.

Melissa joins STREAM from AusAid, the Australian Development Agency and has several years experience in the international development sector, having worked on rural development in East Timor and the tsunami response in Aceh, Indonesia. Prior to this Melissa worked for the Australian government on international climate change negotiations.



Melissa (back row with the sunglasses!) with Dinas Perikanan extension officers in Bireuen, Aceh, during her prior work with AusAid.

To learn more about the Australian Youth Ambassador for development Scheme please visit <http://www.ayad.com.au/public/home.aspx>. For more information about the STREAM activities mentioned above, visit the STREAM website and virtual library at <http://www.streaminitiative.org>.

Asian Federation for Information Technology in Agriculture (AFITA) 2006 in Bangalore

The Indian Society of Agricultural Information Technology (INSAIT) will organize the Fifth Conference of the Asian Federation for Information Technology in Agriculture (AFITA) from 9-11 November, 2006 at the National Science Seminar Complex, Indian Institute of Science, Bangalore.

The main theme of the conference is "Agricultural Information Technology for Rural Development". The Asian Federation for Information Technology in Agriculture (AFITA) was formed on January 24, 1998 in Wakayama city, Japan. For further information and updates please visit the INSAIT website at: <http://www.insait.org>.

Workshop to strengthen aquatic animal health capacity and biosecurity in ASEAN

NACA and AusVet Animal Health Services held the first policy review and development workshop of the project *Strengthening Aquatic Animal Health Capacity and Biosecurity in ASEAN (370-021)* at the Maruay Garden Hotel in Bangkok in Thailand on 3-6 April, 2006. The opening ceremony was attended by the Director-General of NACA (Mr Pedro Bueno) and the Secretary-General of SEAFDEC (Dr Siri Ekmaharaj) and the keynote address was delivered by the Director General of the Thai Department of Fisheries (Dr Jaranthada Karnasuta). In his key note address, the DG stressed the need to develop harmonized approaches to aquatic animal health management in ASEAN. The DG-elect of NACA, Dr Sena de Silva, also attended the opening session. Eighteen delegates from all ten ASEAN countries participated enthusiastically in the workshop. The workshop was supported by six resource people and facilitators from NACA, AAHRI, SEAFDEC and AusVet.

The project goal is to enhance the capability of ASEAN member countries to develop harmonized national aquatic animal health strategies to manage risks to the biosecurity of fisheries industries, particularly those related to trade and impacting on the poor; and to improve capacity to implement the harmonized health and biosecurity strategies.

Before the workshop, each country had provided information on its current capacity and management of aquatic animal health and this was collated, summarised and distributed to participants as background material.

At the workshop each country also presented an overview of its present situation against standard headings as well as clarifying some aspects. After resource papers and country presentations on aquatic animal health management, two working groups addressed technical and policy aspects of the key elements of the Asia Regional Technical Guidelines over two days before reporting their recommendations on the fourth afternoon. The key elements considered for working group discussions included (a) surveillance and reporting (b) health certification (c) quarantine (d) contingency planning (e) import risk analysis and (f) zoning.

The two working groups identified and agreed on several practical key action plans that would be implemented in all the participating countries over the next 12 months. Most of the action plans identified were simple and practical and could be implemented with the existing in-country resources. Implementation of some of the identified action plans would form the basis for harmonized approaches to aquatic animal health management and biosecurity in ASEAN. The 18 representatives from all 10 ASEAN countries developed a high degree of ownership of the workshop and its outcomes. The workshop concluded in a very positive note on the afternoon of 6 April with a commitment of ongoing support from NACA, AusVet and encouragement for countries to work directly with one another and with institutions such as SEAFDEC. The same delegates from 10 ASEAN countries will come together in May 2007 for the second

policy workshop, which will facilitate adoption of some of the agreed harmonized approaches within ASEAN.

The project is funded by AusAid, under the ASEAN-Australia Development Cooperation Program's Regional Partnership Scheme (AADCP-RPS). NACA and the Australian implementing partner,

AusVet Animal Health Services have been coordinating the implementation of this project since January 2006. Other partners for the project include the ASEAN Secretariat, Aquatic Animal Health Research Institute (AAHRI), Thailand and Department of Agriculture, Fisheries and Forestry (DAFF), Australia. As part of the AADCP-RPS, the project is being managed by Cardno Acil Pty Ltd.



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Aquaculture rehabilitation project launched by Indonesian Minister of Marine Affairs and Fisheries



Indonesian Minister of Marine Affairs and Fisheries Freddy Numberi hands over a water pump to a tsunami affected farmer from Pidie district, Aceh. On right is Arun Padiyar.

Aceh - some 650 aquaculture farmers are rehabilitating their fish/shrimp ponds, known locally as *tambaks* and will fully resume farming by June 2006 with FAO assistance.

US\$ 500,000 of agro-inputs will be provided by FAO thanks to funding from the European Commission's Humanitarian Aid Department. This material aid includes starter fish, feed, lime, fertilizers, nets, water pumps, sluice gates and water quality test kits.

The aquaculture rehabilitation project covers 12 villages in the districts of Pidie and Bireuen along Aceh's east

coast and Aceh Besar in the north, according to an FAO statement.

Freddy Numberi, Indonesia's Minister of Marine Affairs and Fisheries launched the new project in a ceremony on 13 February attended by affected fish farmers from Aceh.

Farmers benefiting from the project will also receive training in better management practices, establishment and management of cooperative farmer groups ('aquaclubs'), how to make use of banking services and similar issues.

At the same time, debris will be removed from their *tambaks* (ponds), which cover over 500 hectares, and dykes and water gates will be repaired via a cash-for-work programme and mechanical excavation service contracts worth US\$ 150,000.

More than 15,000 ha of *tambaks* were damaged by the tsunami and about 40,000 households dependent on aquaculture were directly affected. Until now less than 10 percent of the *tambaks* have resumed operation.