

Theme for the 4th Work Program

Looking Back: Emphasis on Aquaculture *for* Rural Development Looking Ahead: Focus *on* the Farmer

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I. Looking Back

1. Major movements and subtle shifts

One thread that runs through the three Five Work Programs on Aquaculture Development in Asia-Pacific (1991-1995; 1996-2000; 2001-2005), is the broadening of program focus from one that is on the biological-technical aspects, to one that now includes the economic, environmental, and social. The three Programs coincided with the period in aquaculture development when it was a rapidly growing and increasingly science- and technology-based activity. The rapid growth from the mid-80s carried into the mid-90s, during which early quiet apprehensions turned into strident voices of concerns on the effects of its rapid growth on the environment, resources, other sectors and on people, and therefore on its own sustainability.

On a bright note, at the close of the decade of the 90s a regional aquaculture planning workshop (Kanchanaburi, Thailand, Aug 1999) assessed that aquaculture has become a better-organized economic sector, characterized by stronger private sector participation and increasing state support. The workshop noted a number of fundamental shifts: (i) that farmers' aspirations for higher yields and better returns from innovations in production technology have been tempered with concerns for *sustainability*, (ii) that the aim of gaining higher returns has been joined by schemes to *share benefits equitably*, and (iii) that the primary purposes of producing more food, earning higher incomes and improving economies have expanded to ensuring that enough food is produced and made accessible to the masses and that the poorer participants in the aquaculture sector gain a better livelihood.

The three five-year Work Programs operated in the context of these major developments and subtle shifts in outlook for aquaculture development in Asia.

2. Guides for the Work Program

The aim of the Work Programs, but especially the current one was to support the fundamental purpose of NACA, which is to:

"Assist member governments to improve opportunities for sustainable aquaculture development and to contribute to social and economic development in the Asia-Pacific region."

Based on this basic purpose, the elements and implementation of the Program were geared towards supporting

- cooperation in research and development with a focus on rural development through aquaculture, and
- institutional strengthening and development of policies for sustainable aquaculture.

In line with this statement of purpose, a set of seven principles to guide the development and implementation of the work program was agreed for the 3rd Work Program, :

- i) A broadening of emphasis from aquaculture development to aquaculture for development, and attaining social and economic development objectives.

- ii) Further emphasis on environmental sustainability and efficient use of natural resources through responsible aquaculture;
- iii) Harnessing and integrating science-based and indigenous knowledge to improve aquaculture technology, systems and management;
- iv) Increasing use of information technology to develop and deliver environmentally sustainable innovations in aquaculture and promote wider cooperation and participation in the regional aquaculture research and development efforts;
- v) Strategic shift in the networking structure from institutional to more people-centered networking and broadening of stakeholders' participation in the network;
- vi) Increasing reliance on technical cooperation among states; and
- vii) Greater participation and more active involvement in inter-regional co-operative actions.

3. Deciding on a core business

Recognizing the importance of aquaculture and living aquatic resources for rural livelihoods of people in most countries in the region, and the potential of improved aquaculture and aquatic resources management for poverty alleviation and food security, the Council in 1997 (9th Meeting, Dec 1997, Hanoi) asked NACA to develop a "regional aquaculture for rural livelihoods program". It was to be an umbrella program for the organization. It required strategies to place people as the focal point for planning and development to integrate aquaculture into general rural development program planning, taking into account multi-sectoral views and coordination. It would bring agencies together, raise awareness in other rural development sectors of the potential of aquaculture to improve livelihoods. It would develop and use approaches that enable the active participation of all primary stakeholders in policy-making, planning, implementation and monitoring. And it would document and widely share information on experiences and the adoption of good practices. The 10th GC Meeting (Dec 1998, Colombo) approved the program concept and strategy.

The 12th GC Meeting (Dec 2000, Brisbane) adopted the program with this statement, "To broaden the mandate of NACA, it should incorporate aquaculture and aquatic resources management for rural development and poverty alleviation as a core program for the organization", and asked for detailed plans for implementation. This was done at the 6th TAC Meeting (May 2001, Siem Reap, Cambodia). The meeting detailed a 2-year work plan to initially implement the Program. It also worked on the concept and strategy of an activity that was subsequently called the STREAM Initiative and endorsed it to the Council for incorporation into the Third 5-Year Work Program. STREAM was conceptualized and, after its endorsement by TAC 6, subsequently established in NACA through a consortium composed of NACA, FAO, DFID and the Voluntary Services Overseas, an international NGO. It was formally incorporated into the NACA Work Program by the 13th Governing Council Meeting (Langkawi, Malaysia, January 2002).

This series of decisions fashioned out a Work Program that was set to carry out the core business of aquaculture for rural development, with the following components:

1. STREAM Initiative
2. R & D Cooperation in Inland and Coastal Aquaculture
3. Training and Education
4. Information and communication
5. Aquatic animal health management
6. Policy guidelines and improving support to policies and institutional capacities

4. Carrying out the core business: a review

This section gives a review of the highlights of achievements during the third Five-Year Work Program.

1. The STREAM Initiative has essentially placed the livelihoods approach at the centre of the processes that inform the formulation of policies and development programs meant for poor aquatic resource users. A Pro-Poor Regional Strategy on Sustainable Aquatic Resources Management in Asia-Pacific promoting the use of Livelihoods approaches was recently agreed and endorsed by the Governing Council (16th Meeting, Los Banos, Philippines, march 2005).
2. Through STREAM's research and development efforts around 'Aquatic Resources Management for Rural Development' NACA has worked to promote greater understanding of livelihoods approaches, facilitated institutional development and policy change in support of farmers and fishers who are poor. It has increased the sharing of knowledge within and between countries in Asia-Pacific.
3. Partnership Agreements have been signed and Communications Hubs established in Cambodia, India, Indonesia, Lao PDR, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Vietnam and Yunnan, China, where opportunities exist to support local and regional aquatic resources management, tackle poverty and promote good governance, specifically, through extensive national capacity building programs.
4. Livelihoods Teams have been organized in nine countries and innovative Livelihoods Approaches developed with and shared among large numbers of NGOs, governments departments, international organizations (FAO, EU), sub-regional organizations (e.g. APEC, MRC), national development projects, federations of Self-Help Groups and donors such as DFID and GTZ.
5. Through support to planning and capacity building with Government, NGO and CBOs the Initiative has contributed to the development of institutions to better address the objectives of farmers and fishers who are poor, including the evolution of local institutions that are helping farmers and fishers to draw down the services they need.
6. By facilitating farmers and fishers to have a greater *voice* in policy and legal changes NACA through STREAM takes pride in having played a role in pro-poor policy changes in India and Vietnam with demonstrable impacts on the livelihoods of poor people, and to have played a small role in the decriminalization of subsistence fishers in Cambodia. Through web-based and people-based networks STREAM is promoting knowledge sharing through numerous communications media to hundreds of thousands of stakeholders in 14 different languages.
7. During the past 5 years the R&D Cooperation Program has undergone an extensive expansion in the scope and depth of its work. It has brought many regional and international stakeholders into the wide and growing network to work together on addressing some of the key issues in regional aquaculture development.
8. A highlight of the program is its success in bringing several thousand rural farmers into the shrimp "better practice" program and empowerment of farmers through formation of farmer groups, particularly in India and Vietnam, and the sharing of these experiences across the region. Principles for responsible shrimp farming were developed and their implementation by small-scale farmers was promoted by building awareness of national and local level institutions and through the direct dissemination of Better Management Practices (BMP) among farmer communities and extension workers. Farmers adopting BMP showed a significantly higher probability of making profits, higher production and lower risk of suffering from shrimp mortality.
9. The R and D Cooperation program has remarkably demonstrated the effectiveness of a coordinated and cooperative approach to research and development among institutions?

within well-structured programs, involving existing and new centres, and participation of stakeholders, including the private sector. The approach has emphasized development of technology and farming systems, and better management practices within the context of environmental, social and economic concerns and broader human development objectives. The multidisciplinary approach continued to be adopted, since the basic aim of bringing aquaculture on a par with livestock husbandry demands a continuing inter-disciplinary research thrust and through a well-coordinated research program involving the essential disciplines. An outstanding example of the above approaches is the Asia-Pacific Marine Finfish Aquaculture R and D Network (that began as the Grouper R and D network). It has brought together a wide range of otherwise isolated expertise including those in the private sector, to work in a coordinated R and D program dealing with a broad range of concerns from broodstock to seed, feed, hatchery, culture and post harvest technology, training and extension, to the environmental, social, economic, trade and marketing, and institutional issues. The effectiveness of the "better management practices" approach to aquaculture development project implementation is also being demonstrated by this activity.

10. The consortium on shrimp aquaculture and the environment has put together a valuable set of studies on better and worse practices at various levels from pond culture to corporate behavior, to policy and governance. In the immediate, these have become useful guidelines to farm and area management and policy. The more valuable and broader impact of the consortium work is the development of a universally acceptable set of standards and principles for responsible management, which will form the basis for voluntary codes of practices, certification, and policies. BMPs on shrimp and on mariculture of finfish are being developed as the program gradually expands to cover new commodities.
11. As the development of aquaculture in rural, inland areas of Asia, is essential for food security, improved livelihoods and diversification of agricultural farming systems, and because of its longer history in Asian countries than coastal aquaculture, emphasis was placed on dissemination of existing experiences and technologies, increasing productivity of existing farms, and increasing the number of farmers involved in aquaculture.
12. Water and possibly land availability for aquaculture had been foreseen as increasingly critical issues in some countries, so that the program placed increasing attention to promoting research cooperation in (i) the development and adoption of the range of species and farming systems in inland areas, building further on the experiences of freshwater farming systems research and development in the Regional Centres and elsewhere; (ii) culture-based fisheries, to provide opportunities for resource poor sections of the population to benefit from relevant aquaculture technologies and permit efficient use of under-utilized, new or degraded resources; and (iii) development of planning strategies to integrate aquaculture into inland watershed management plans and lakes/reservoirs (including cage culture) and (iv) ensuring that aquaculture developments are within local and regional carrying capacities.
13. Very recently, in view of the repeated concerns over genetic resources deterioration, and the growing evidence of biodiversity impacts from, and on, aquaculture, the NACA governments asked to have a program on aquaculture genetics and biodiversity. A program has been developed and now being implemented towards applying aquaculture in conservation of native genetic resources. While it aims to provide train people and provide them tools to manage – which is to conserve as well as better utilize -- aquatic animal biodiversity, the bottom line for this program is to assure farmers a reliable supply of healthy and viable seed.
14. The majority of aquatic animal disease problems are of our own making. Aquatic animal diseases impact not only on the profitability of primary producers but on national economies and international trade. Irresponsible health management practices have a direct bearing on

quality of the produce and safety of the consumer. Trans-boundary movement of live aquatic animals still represents one of the biggest contributors to introduction and spread of serious infectious agents. The risks of aquatic animal diseases can never be eliminated, but minimized when stakeholders at different levels (farm/district/province/national) understand the source and nature of risks and collectively exercise their responsibilities in implementing better management principles and practices. In this regard, the regional aquatic animal health program has been successful in building awareness and capacity at different levels, including farmers, by facilitating flow of science and providing technical assistance for informed decision making.

15. The health program has addressed all conceivable issues and concerns related to diseases. A remarkable mechanism has been developed, the Aquatic Animal Health Advisory Group, composed of global and regional experts and representing international, regional, national and private institutions, and constituted to provide advice to NACA governments on all issues in animal health but most helpfully in matters that pertain to emergency responses, risk assessments, movements of and trade in aquatic animals, as well as in overall capacity building. The two key international organizations – OIE and FAO – are represented in the Advisory Group, providing the region with a mechanism for links to global standard setting for aquatic animal disease control and trade. The effective implementation of the NACA regional health program in member countries will have a positive impact on rural aquaculture and the livelihoods of farmers who depend on it. Past and ongoing activities are a testimony to this. At bottom, the aquatic animal health program has increased the sector's capacity to minimize the risks to aquaculture crops from diseases.
16. Training and technical exchange continued to be one of major and most active implementation activities in the Program, as it supports all the other program components. Various training and study visit programs, delivered within projects or as stand alone activities, have also addressed new issues. The program element promoting rural development and effective participation of the rural community in decision making has been integrated organically into NACA training program. A cross visit among associations of farmers and small aquatic users in two field projects (of STREAM and Shrimp Management) was successfully conducted, showing the feasibility and usefulness of farmer-to-farmer exchanges.
17. The "integrated fish farming course" based at the RLCC at Wuxi continues to be offered; it is now on its 25th year of yearly offering, making it the only one of its kind in any area of endeavor in the world, attesting to its continuing relevance to aquaculture development. Other centres such as India's Central Institute for Freshwater Aquaculture, Central Institute of Fisheries Technology, Central Marine Fisheries Research Institute, and Central Institute for Brackishwater Aquaculture
18. Two structured courses – shrimp health management and grouper hatchery – and a study program on marine finfish production and marketing (in Southern China including HongKong SAR) have shown the effectiveness of more active participation of national centres in providing training; a better coverage of relevant subject matter; and involvement of the private sector as a partner (i.e. Skretting and Alltech) and as clients. Farmer groups, NGOs and industry are increasingly among the clients of these study programs.
19. On the other hand, initial promising initiatives to develop a network of regional tertiary education providers has not progressed beyond the planning stage. A cooperative mechanism, comprising a formal networking of key aquaculture education institutions in Asia, providing high quality aquaculture education, would be the core of this program component, based on recommendations of the APEC project "Cooperative Education Programme" and an

FAO-NACA working group meeting that followed. A "business plan" was drafted and efforts were made to obtain participation of some institutions in the plan, with little progress. The emphasis made by the Bangkok Strategy on investments in education and the expressed needs of governments and industry makes this effort imperative to pursue.

20. The information and communications technology (ICT) program is providing the integrative mechanism for the information sharing and dissemination of results of the other programs; it has operationalised people-networking; and facilitated interactions for sharing information and experiences, for identifying, crystallizing and proposing solutions to common regional issues. It has placed greater regional if not global awareness of, and widespread access to, the results of the Work Program as well as of NACA itself.
21. The ICT program has developed NACA's capacity in electronic communications. eNACA greatly facilitates the accessibility, distribution, speed and exchange of information throughout the network. The website has become the core of NACA's information system, attracting more than 20,000 visits and 91,000 page views per month. A highlight of the program has been the development of NACA's capacity in digital publishing. Since 2002, important NACA publications have been published in electronic form on the website; more than 140,000 were downloaded in 2004 alone, for free. The program has recently begun shifting emphasis towards establishing an online community where individuals can interact online, and in building the digital publishing capacity of partner organizations, through the provision of technical assistance and training.
22. A key to the growth of aquaculture is the ability of countries and organizations to strengthen policy and institutional capacity to develop and implement policies and regulations that are transparent and enforceable. With globalization and international trading, it is important for the region to develop appropriate policy and a common voice on key issues, to seek to influence global trade discussions as they affect aquaculture.
23. STREAM's R and D activities, the programs on Health and R and D Cooperation, and lately the initiatives on Trade and Market Access and on Genetics and Biodiversity have boosted the role of NACA as an active forum for exchange and cooperation in the development of common stands and views to influence key regional policy discussions as well as global agreements. The activities continued to support the development of technical guidelines and the implementation of the **Code of Conduct for Responsible Fisheries**, and other regional and international agreements affecting aquaculture development.
24. A number of field and grassroots located projects under STREAM, R and D Cooperation, Aquatic Animal Health, and the Marine Finfish Aquaculture Network (some of these requiring the collaboration of two or more program components) are yielding encouraging lessons and experiences in promoting farmer associations and working with them to develop and adopt better management practices. While focused on the farmer, the projects – such as the one with small shrimp farmers in India in cooperation with MPEDA, ICAR and ACIAR -- have engaged the participation of the other stakeholders in the community or other players in the market chain. The purpose is not only to draw everyone's participation but more important, to engender trust and cooperation among them. Evidence from the projects points to the farmer not only becoming more aware of the advantage of being associated but also that in collectively adopting better practices, they have increased their yields and incomes and produced better quality products. Along the market chain, the suppliers and buyers have also benefited. In management language, this is win-win.
25. Finally, the growing network of stakeholders provides the basis for the region to become better organized in projecting its concerns, needs as well as experiences and networking

skills for the benefit of the global aquaculture agenda, particularly for south-south cooperation and global trade standards setting.

To sum up, the experiences and achievements of the past five years have set the stage for a major initiative for wide spread application of better farming practices across the region – for [new commodities] and in more countries – to take aquaculture for rural development forward. This time it would focus on empowering and enabling the active participation of the rural farmers in the networks' activities and in rural development processes.

II. Looking Ahead

1. Focus on the Farmer: back to basics

Development plans invariably stress that the farmer is both the reason for and the key player in rural development. This suggests that s/he has the final word on what s/he wants and needs, how s/he wants to go about meeting them, and if s/he needs help, only then should it be offered. To see how the elements of the work program are supporting the farmers toward this ideal state, let us consider what a farmer's basic goals could be. These are, as one:

- Higher yield
- Lower costs
- Better economic returns
- Less risk

In addition, s/he must satisfy the basic demand of the consumer for a product that is safe, at a price that is affordable, and supplied in enough quantities at a time that they are needed in the form and state that are wanted. On top of these, society requires that s/he produces without polluting the surroundings, without exploiting farm workers, if any, and as much as possible without tampering with other living things in the wild. Other conditions are in the horizon that include keeping the fish in comfort.

From a sector perspective, the forces that drive aquaculture cover a wide spectrum, from the needs of local people for employment, food security and more income, to the needs of industries with emphasis on productivity, profitability and consistent quality products (Report of the Conference on Aquaculture in the Third Millennium, 2000).

How then is the Work Program helping the farmer achieve her/his basic goals and coping with the rest of the requirements? The corollary question is does it help him with the market? To answer these, it is necessary to likewise translate the Work Program into how it basically seeks to help the farmer. In simple terms, it

1. reduces the risk of losing a crop from pest and disease
2. reduces the risk of losing money from ill-informed choices of what to farm, how to farm and how and when to sell, in what form
3. assures the farmer a reliable supply of preferably hatchery-bred viable and healthy seed
4. informs him of other ways of farming that offer the prospect of raising a bigger crop, and potentially earning more money from it
5. offers a range of practices to produce and sell fish that is wholesome and safe to eat
6. opens opportunities to work with other farmers and other workers to better comply with safety requirements on his fish and the manner in which they are farmed
7. offers options for producing fish that leave the surroundings clean
8. provides the skills to do the above, and further opportunities to improve those skills
9. strengthens his and his fellow farmers' collective ability to deal with suppliers of farm inputs and buyers of his product

10. involves him and his fellow farmers in the development of better ways of managing their farms, and harvesting and marketing their products
11. provides the opportunity to work with others in identifying his production problems and the ability to find or work out solutions for them
12. gives him the skills and tools to determine what is the best option for him and his family to earn a living
13. offers an opportunity to express his views in development planning

These 13 opportunities that the Work Program offers the farmer form a combination of essential and enabling support. The essential support are those that make it possible to satisfy the basic goals. It may be argued that all are essential since the absence of one would preclude the attainment of one or more of the basic goals. For instance there is no point investing more to increase yield if the market cannot give a fair price, or in investing money and effort on farming if there is no assurance that the investment is protected. The enabling support therefore is what creates the conditions for attaining the basic goals. On the other hand, there are also requirements the program cannot directly provide or create the conditions for compliance, such as access to land and water and easy access to capital, nor even the assurance that the market accepts a product or gives a fair price. It would be the enabling elements of the program that can give the farmer a better capacity to deal with these constraints.

2. Core objective -- staying in business

From society's standpoint, the purpose of helping the farmer is to continuously enjoy the supply of his produce; it is in the interest of society to keep the farmer in business. By the same token, it is in the farmer's interest to satisfy what society requires. But apprehension has been expressed, at the Aquaculture Trade and Market Access Workshop (Manila 2003), that the increasing number and stringency of market requirements could drive the poor, small farmers – unable to comply with all these -- out of farming. This raises the spectre in Asia (where more than 80% of fishfarmers are small) of hundreds of thousands of displaced and unemployed farmers, or farmers who are now laborers in what used to be their farms now consolidated by some corporate giant.

Between satisfying his needs and meeting the demands of the consumer and the rest of society, stands an economic mechanism called the market. Its basic function is to make compatible the goals of the producer on one hand, and the needs of the consumer and requirements of society, on the other. Globalization however has raised the question as to whether the market mechanism alone can enable this compatibility, without distorting its mechanism, to favor the farmer. A subsidy for instance. As market distorting gratuities are being discouraged, the acceptable way to go is for farmers to have a better capacity to comply. Better capacity suggests collective and democratic action, a condition that can be attained by being organized, by having the ability and opportunity to take part as a major stakeholder in development planning and decision-making processes in the community or the country. It also means acquiring the tools to anticipate problems and work out solutions to deal with them.

3. Program emphasis: empowerment and reward

In this regard, the work program could continue to emphasize and strengthen the system of support that enables the farmer to play a stronger and more active role in and better control over the social and economic processes that impact on his livelihood and welfare. The end purpose of such support is not alone to empower the farmer but to assure that for staying in business, he is justifiably rewarded.

4. A checklist of emphasis

This broad and rather theoretical guideline that the foregoing discussion has arrived at, and indications from the experiences in the current work program, suggest this checklist of support areas that the next work program could give further emphasis:

1. enabling real and a strong sense of ownership of programs by the farmers,
2. promoting associations of farmers and aquatic users, working towards their being more strongly represented in policy-making and, in the long term, owning and operating their own extension and field research teams,
3. more adoption of voluntary codes of conducts and practices, and best management practices, which suggests a program that would limit the need for more rules and regulatory controls, which aquaculture legal experts describe as "blunt instruments" (Howarth, 1998), as well as restrictive of healthy development if carried to the excess and not enforced efficiently.
4. direct participation or at least representation in regional and global discussions of agreements and policies, suggesting a regional federation of aquafarmers (and representation in the NACA Governing Council),
5. stronger and wider cooperation with other players in the market chain in developing and adopting better practices (for instance, better marketing practices).

This set is not meant to supplant the 13 areas of support described previously, rather it is suggested to be focus of support that the next work program proffers to aquaculture.

5. From the rural development arena to the global market place

At bottom, placing the farmer in the context of the market place means more than helping him stay in business. He must also be competitive. It means being able to attain higher yield and productivity, obtain better economic returns; greater ability to avoid or manage nature-spawned and economic risks, and a stronger capacity to comply with regulations, adopt codes of practices and address market access requirements and barriers to trade. These all add up to better competitiveness in the domestic but especially international market place. Again these underline the importance of their being organized. Being organized to attain economy of scale and acquire a stronger power to transact with suppliers and buyers is now seen as essential to the survival of small and poor producers in developing countries where the market chain is usually fragmented. It is also considered necessary for large producers in both developing and developed economies (AquaMarkets 2003).

Following the adoption of the Code of Conduct for Responsible Fisheries, specific issues and challenges for attaining the long-term sustainability of aquaculture have been recognized. These include several areas where organized farmer and producer groups have an important role to play, as follows (Hough and Bueno 2002):

- Comprehensive policies and a supportive legal and institutional framework that support sustainable development cannot be developed without communication and consultation with among major stakeholders and players.
- Enhanced participation and consultation of all stakeholders in the planning, development and management of aquaculture, including the promotion of codes of practice and best management practices.
- Promotion of the appropriate and efficient use of resources, including water, sites, seed stock and other inputs.

- Human resource development and capacity building, where training, technology transfer and the provision of and access to information are the most important components.
- Voluntary self-regulatory mechanisms for attaining best practices.

To sum up, for farmers, and users and gatherers of aquatic resources, being organized into a formal association or a self-help group is to collectively achieve a strong capacity to enter and stay in aquaculture, effectively demand and absorb institutional services and technical assistance, cope with natural hazards and economic risks, address barriers to property and financial access, and acquire and effectively use capital and operating assets (ADB, 2005).

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