

Contemporary and future issues for the Asian aquaculture sector in a changing world

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Asian aquaculture produces a major share in world aquatic production providing basic food supply and contributing to national economy through livelihoods and foreign earnings. The production quantity from the aquaculture sector in Asia is the largest in the world and still expanding. Not only does it supply a basic food commodity for many people in the region it also supports economic activity through exports within and outside the Asian region.

There is a high demand for aquaculture products in the region, as fish is culturally prized in most Asian food cultures with prices varying with equivalence to pork and chicken at the basic end of the market to highly prized and high-priced delicacies. As global trade in aquaculture products from Asia increases, there are corresponding constraints and standards to be met in order to export outside the region.

The issues facing Asian aquaculture are: (i) increasing intensification of existing systems requires increased demands for manufactured feeds and fishmeal; improved aquafeeds affordable to small-scale farmers; use of new feed resources, (ii) international trade in fishery and aquaculture products will increasingly demand, from both consumers and exporter, high standard of freshness, quality and safety; (iii) organization of small-scale aquafarmers to allow them to

produce quality products and make them competitive in the market and (iv) sector governance, particularly licensing/registration programs to support traceability, certification, zoning and other requirements and sector integration into the broader water, land and other natural resources planning.

The issues facing the expanding and increasingly valuable aquaculture sector in Asia are diverse according to the species and system. In the face of limited areas for expansion, increasing production from the sector is strongly driven by intensification of existing systems, rather than development of new aquaculture sites. This intensification process is leading to increasing demand for manufactured feeds and fishmeal in particular. Modernization and growth in the sector is further somewhat hindered by the fact that many farms are still family-scale businesses with limited economic and technical sophistication, many of these operations being operated through least cost production methods and use of simple feed inputs. Continued expansion of production will therefore demand improved aquaculture feeds at a price affordable to smaller operations, thus maintaining viable economic returns.

There is already a trend that fish feeds based on marine reduction fisheries (e.g. fish meals and low value/trash fish) are commanding higher price. This is being driven by high

demand and increased fuel prices. Furthermore, there is also strong pressure from the international sector to reduce fishing for trash/low value fish, and demands for visible sustainability in marine reduction fisheries, which will further limit supply and drive prices upwards. Recent initiatives and innovative ways to use a higher degree of terrestrial input in feed, can prove to be a way around the problem, but still requires additional research together with significant efforts at popularization. Use of new feed resources (e.g. livestock offals) have enormous potential but raise unique challenges with respect to assuring health and safety both in the aquaculture system and also in ensuring that these products do not enter livestock. When these factors are taken across the aquaculture sector, the scenario is one of rapid change in feeding technologies and the need to restructure farming operations to maintain competitiveness and assure food safety.

The international trade in fishery products (including aquaculture products) has always demanded a high standard of freshness and quality. Thus, there is now more stringent demands for assurance concerning food safety. Aquaculture production presents additional challenges which are not found in the capture fishery sector, since the method of production is controlled by the farmer and inputs to the system through management and also the environment external to

the farm can all influence the final quality and safety of the product. Sustained growth in export-focused aquaculture products challenges Asian countries to systematically address these quality and safety issues, thus the need to regulate this diverse sector. As these new requirements (e.g. food safety, traceability and requirements from importers) will probably prove to be hardest to meet for the small, family-scale businesses, it can be foreseen that there will be a need for rationalization and organization of smaller farm operations, if they are to continue to produce for export.. While these requirements pose a real problem in terms of organizing small farmers into associations or other groupings, long-term benefits such as common investment possibilities, e.g. water treatment plants to meet environmental certification criteria, may be expected. The spatial spread of production facilities for specific products will challenge certain areas of the region where there may already be overcrowding although some may yet benefit from an existing clustered nature of their aquaculture operations. The outlook for smaller operations targeting domestic markets remains positive although even here, there is a trend of rising expectations on quality and safety. The extent to which the aquaculture sector is able to respond to these challenges is highly dependent on strategic support from states in providing appropriate regulatory framework with the sector itself responding with necessary minor investments and rationalization. It is impossible to generalize across the whole of Asia and so it is fair to say that whereas some countries will be seeing a modernization of their aquaculture sector, others may still be at a stage where aquaculture is just starting to take off. One thing is certain and this is that development on one part of Asia certainly impacts elsewhere

and it will be the improvements in the feed sector which will mediate this rate of change.

Regulation of the aquaculture sector needs to be improved in most countries in the region. This is to enable more effective management at watershed/basin or area level. Individual farms have control over their production management, but have little ability to control the aggregated impact of the farms in their area. Equally, they are all vulnerable to impacts or developments in the area, such as agricultural management changes, water management and the other factors which influence environmental quality and particularly water quality. Aquaculture has thrived as a family level small holder type operation and will remain competitive for some time to come, however there is a need for basic levels of farm registration or/and licensing to ensure the implementation of traceability, certification, zoning and other requirements (e.g. environmental) for the continued sustainability of the sector. Aquaculture cannot consider itself in isolation and must fit into broader integrated area planning of water and land, both onshore and in coastal areas.

The region has been very innovative, so far, in tackling these issues; mainly through the flexibility and adaptiveness of small farm operations, a history of innovation and diversification of the sector and the ability to meet international expectations in the production of the key export commodities. There is growing number of species being cultured and especially high value niche species, offering ways for farms to remain competitive. Aquaculture does not easily lend itself to industrial production technology requiring hands-on management, which gives the smaller farm unit an

advantage and limits the emergence of high output industrial-type farms. Nonetheless, the focus on the quality and safety of the products from aquaculture requires farmers to adapt and increasingly professionalize. If the region is alert and willing to change and adopt new requirements, the outlook remains bright for Asian aquaculture to continue to contribute to global production and increase its share of global aquaculture value.

TCP/UZB/3103 (D): TCP Facility “Development of strategic partnerships in support of responsible fisheries and aquaculture in Uzbekistan” approved in August 2007, this project US\$ 101 000 intends to develop strategic partnerships for and to assist the Government of Uzbekistan in the rehabilitation of the national capture fisheries and aquaculture sectors in a structured and responsible manner, with specific emphasis on the achievement of food security and alleviation of poverty in rural areas in which the fisheries sector could play a more prominent role. It is foreseen that the project will produce after a 6-month period a number of outputs, including: a report of a study on fisheries and aquaculture in Uzbekistan, status and prospects to increase the contribution of the sector to food security and poverty alleviation in rural areas, a National Fisheries and Aquaculture Sector Development and Management Strategy, training materials on cage and pond culture, carp culture and restocking of natural water bodies and the competent base of some 40 fisherfolk and aquaculturists on the main aspects of sustainable fisheries and better management practices in aquaculture improved. [Responsible Officers: R Anrooy (FAOSEC) and G Marmulla (FIMF)].