
Protecting small-scale farmers: a reality within a globalized economy?

Expert Panel Review 6.1

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Subasinghe, R., Ahmad, I., Kassam, L., Krishnan, S., Nyandat, B., Padiyar, A., Phillips, M., Reantaso, M., Miao, W. & Yamamoto, K. 2012. Protecting small-scale farmers: a reality within a globalized economy? In R.P. Subasinghe, J.R. Arthur, D.M. Bartley, S.S. De Silva, M. Halwart, N. Hishamunda, C.V. Mohan & P. Sorgeloos, eds. *Farming the Waters for People and Food*. Proceedings of the Global Conference on Aquaculture 2010, Phuket, Thailand. 22–25 September 2010. pp. 705–717. FAO, Rome and NACA, Bangkok.

Abstract

Aquaculture is still the fastest-growing food-producing sector and plays an important role in enhancing global food security and alleviating poverty. Tens of millions of people are engaged in aquaculture production, the majority of whom are small-scale farmers who have limited resources and are faced with difficulties due to increasing globalization and the resultant trade liberalization of aquaculture products. Despite these challenges, small-scale farmers remain innovative and continue to contribute to global aquaculture production.

KEY WORDS: *Aquaculture, Better management practices, Small-scale farmers, Small-scale aquaculture.*

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Introduction

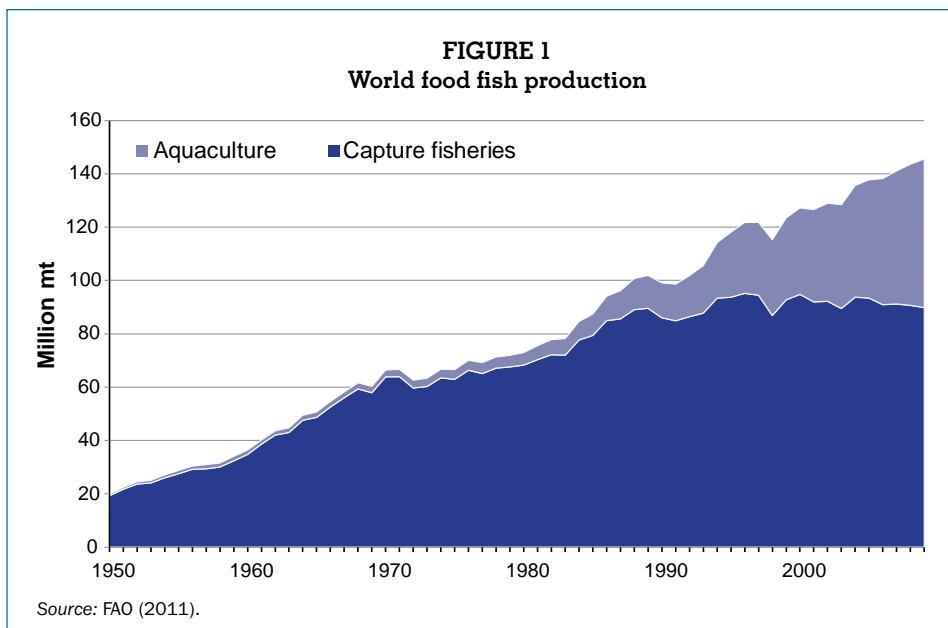
Although the Bangkok Declaration and Strategy (NACA/FAO/DOF, 2000) made no specific mention of the importance of protecting small-scale aquaculture against increasing market-driven forces and challenges, it clearly recognized that the development of small-scale aquaculture would require significant public-sector support. It also stressed the importance of providing longer periods of support for poorer target groups and empowering them to actively participate in policy formulation and decision-making.

Enhancing food security and alleviating poverty are major and complementary global priorities, and aquaculture has a special role to play in achieving these objectives. This is because, firstly, fish is a highly nutritious food that forms an essential, if not indispensable, part of the diet of a large proportion of the people in developing countries. Secondly, while aquaculture contributes to the livelihoods of poor farming households, particularly in areas of Asia where it is a traditional farming practice, there is a huge, unfulfilled potential in most countries, as aquaculture is a relatively recent and underdeveloped sector as compared to agriculture and animal husbandry. Declining wild catches in some countries are also driving interest and investment in aquaculture to plug supply gaps at all levels, from household to national levels. Aquaculture can directly and indirectly improve food security and provide various entry points for contributing to sustainable livelihoods for the poor. The Bangkok Declaration and Strategy further stated that strategies are required to make people the focal point for planning and development for such programmes and to integrate aquaculture into overall rural development programmes.

Aquaculture and people

Aquaculture is still the fastest-growing food-producing sector in the world, and over 80 percent of global aquatic produce originates from Asia. Aquaculture now accounts for about 48 percent of the global food fish supplies (Figure 1) and its contribution is expected to surpass 50 percent by 2012. Aquaculture products are now recognized as globally traded commodities. In the coming decades, aquaculture is expected to bridge the global aquatic food supply and demand gap created by stagnant capture fisheries production, in order to feed the continuously growing human population (FAO, 2011).

While food supply and economic output are primary drivers for aquaculture development, the role of aquaculture's contributions to food security, employment creation, income generation and the empowerment of women is an important policy consideration, particularly in the case of developing countries facing the challenges of reducing poverty, increasing rural employment and improving livelihoods. Fisheries and aquaculture provide direct and indirect livelihood support to millions of people around the world. In 2008, out of an estimated



44.9 million people who were directly engaged full time or part time in capture fisheries or aquaculture, an estimated 10.7 million were involved in aquaculture, or about one-quarter (24 percent) of the total number of workers. Of the 44.9 million people employed in capture fisheries and aquaculture, 12 percent were women (this figure is almost certainly an under-estimate). The majority of fish farmers are in developing countries, mainly in Asia, which accounted for almost 96 percent of all people employed in the sector (FAO, 2011).

In addition to fishers and fish farmers involved in direct production of fish, a large number of people are engaged in other ancillary or secondary activities. While no official data exist for such groups of people, it has been estimated that fishers, aquaculturists and those supplying services and goods support the livelihoods (including dependent family members) of a total of 540 million people, or 8.0 percent of the world population (FAO, 2011). Women make up a significant proportion of this group.

According to a recent ad hoc estimation of employment in world aquaculture by the Food and Agriculture Organization of the United Nations (FAO), it has been reported that aquaculture employs about 23.4 million full-time equivalent workers, which includes 16.7 million direct (about 1.2 percent of the population employed in agriculture worldwide) and 6.8 million indirect jobs. The global estimate for employment in world aquaculture was attempted only for 2005, as the most complete information was available for this year. Considering an average family size of five members, it can be inferred that aquaculture contributed to the livelihoods of about 117 million people or 1.8 percent of the global population. As expected, Asia accounts for more than 92 percent of total

employment. In terms of labour productivity, it is highest in North America and Europe, an indication that the sector in these regions is highly industrialized (Valderrama, Hishamunda and Zhou, 2010).

Aquaculture development today faces a number of serious challenges to meet the projected demand and indeed, to continue to provide such social and economic services. A number of over-arching external drivers are threatening the sector, and particularly small-scale stakeholders in poor and more vulnerable communities. These include increasing competing pressure on available land and water resources for expansion, pollution, climate change, natural disasters, HIV-Aids, and local risks associated with increasing globalization. The importance of small-scale aquaculture to the sector as a source of income, food and employment for many poor people is widely promoted and is generally considered to be highly significant, yet its significance cannot be truly estimated due to a lack of available and accessible data.

Small-scale aquaculture and globalizatio

Between 70 and 80 percent of the global aquaculture farmers are estimated to be small-scale farmers¹. This small-scale sector is especially important for rural development, employment and poverty reduction in developing countries. However, while this sector is socially and economically important and continues to remain innovative, for farmers growing some export products such as shrimp, it faces many constraints and challenges in integrating into modern supply chains and dealing with the changing market environment. Nevertheless, the domestic importance of small-scale aquaculture for many small-holders servicing local markets or growing fish as part of a household livelihood strategy, such farming remains highly significant (Belton *et al.*, 2011).

The past few decades have shown a clear growth in overall global food production; however, the per capita gross national product (GNP) increased only in the Organisation for Economic Co-operation and Development (OECD) countries and to a lesser extent in Eastern Europe and Asia. While the numbers of people in poverty have declined in East and South Asia, global poverty has certainly not been reduced, and eradicating poverty and hunger still remains the most challenging and fundamental global humanitarian task. It has been estimated that over one billion people currently live below the poverty line, perhaps having less than one meal a day (FAO, 2011).

¹ The term “small-scale farmers” is not well defined, but is considered here to encompass people involved in a spectrum of household-managed farming activities ranging from “subsistence” farming to more commercially oriented micro and small-scale enterprises. Small-scale farming may be characterized by smaller land area, being predominantly managed by families and having limited access to services. Small-scale aquafarmers are resource-poor individuals or groups of people involved in small-scale aquaculture production, i.e. having aquaculture production facilities and processes with small production volume, and/or relatively small surface area and typically lacking technical and financial capacity (see FAO, 2011 for further details).

Aquaculture has the potential to play a more important role in contributing to the daunting task of reducing global poverty through provision of nutritious food for the poor, as a source of livelihood for the many producers and people involved along the aquaculture value chain, and as a source of wider economic growth, stimulating growth in other sectors through production and consumption linkages.

The positive impacts of globalization include worldwide marketing of goods and services; increased economies of scale; and corporate governance of the industrial food production sectors taking advantage of inexpensive labour, capital and technology. There is, however, good evidence that while the industrial and corporate sectors continue to benefit from globalization, small-scale producers are slowly being pushed out of business due to competition.

The combined effects of trade liberalization and globalization have increased economic differentiation among communities and households. In addition, state withdrawal from agricultural marketing has contributed to a highly uncertain environment in which input and output prices are determined by the market, often favouring large-scale producers who are better equipped to manage price variability and/or absorb price shocks and to gain through efficiencies of scale in commodity production.

It is clear that increasing globalization and the resultant trade liberalization of aquaculture products is leading towards the marginalization and exclusion of individual small-scale producers, who face major challenges to remain competitive and to participate in modern value chains, globally. The situation is particularly serious in Asia, due to the large numbers of people involved, but the trend affects farmers across the aquaculture-producing regions. This is partly due to integration of production-distribution chains and coordinated exchange between aquaculture farmers, processors and retailers, and is evident in the higher-value internationally traded export species such as shrimp, although this trend is now also affecting low-value species such as catfish and tilapia in some countries.

Challenges facing small-scale producers

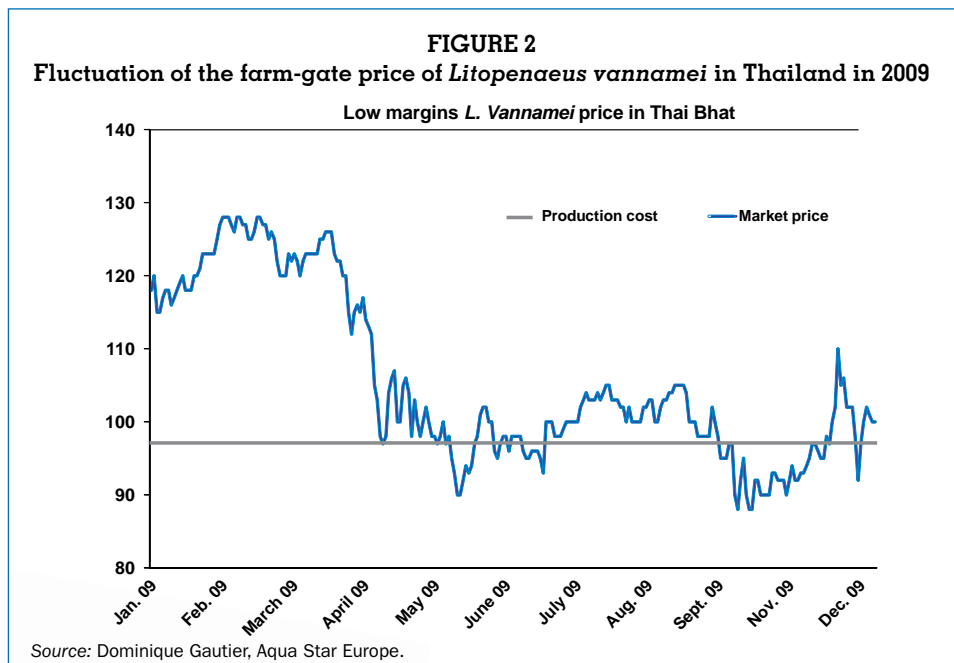
Small-scale producers face challenges related to the changing preferences of consumers for safer, healthier, better quality food produced in environmentally sustainable and ethical ways. This has resulted in increased demand for food safety and environmental standards, or “niche” products that have special characteristics based on their quality, farming practice and origin. These characteristics are strongly linked to how products are being produced rather than to the end product itself, thus, putting greater emphasis on traceability. Growing customer awareness has also led to the development of several aquaculture certification schemes, making it no longer enough for aquaculture

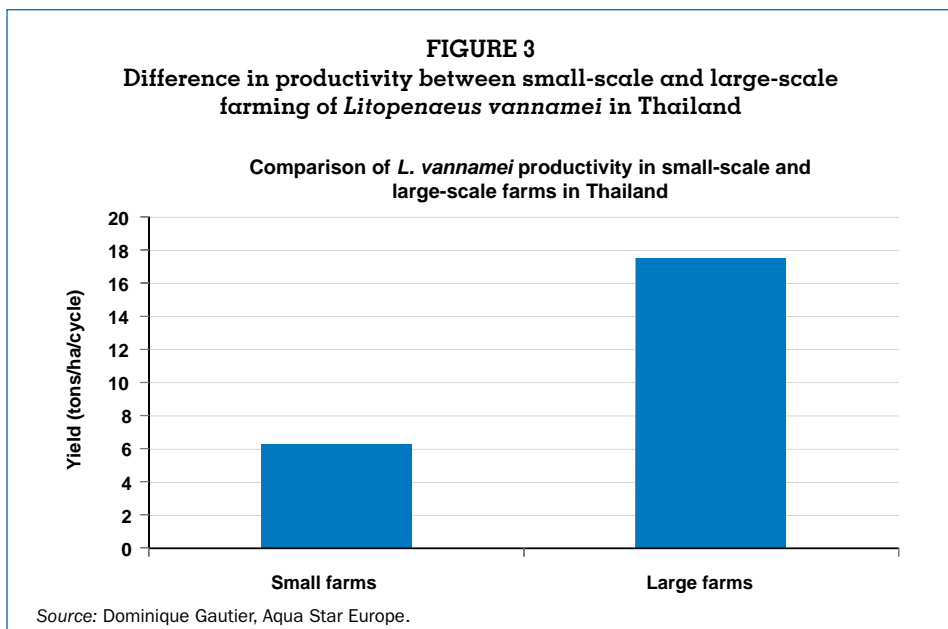
farmers to pay attention solely to efficient production. These increased demands for meeting food safety standards, traceability, certification and other non-tariff requirements are driving risks and costs down the market chain to the farmer, favouring medium to large-scale, capital-intensive operations that can afford such extra costs and excluding small-scale farmers who have limited resources and capacity to meet these requirements.

To remain competitive, there is a need to change the management of both large and small-scale producers. Large-scale farmers have a much higher adaptive capacity to benefit from such trends than do small-scale farmers. Small-scale aquaculture farmers are not only exposed to increasing market risks, but also face enormous constraints in accessing markets and services and integrating into modern supply chains. In many cases, they are ill-equipped to benefit fully from the new market environment and knowledge because of lack of public and private policy and services to support investment and change, resulting in potentially significant social risks for many rural producers.

If we take *Litopenaeus vannamei* (whiteleg shrimp) farming as an example, the market price fluctuates tremendously as production volume increases, thus making it difficult for small-scale farmers to make a profit from small-scale production. Figure 2 shows how the farm-gate price of *L. vannamei* in Thailand fluctuated in 2009.

Besides farm-gate price, there is a significant difference in productivity between small-scale farmers and large-scale corporate farms. In Thailand, the difference





in productivity between small-scale and large-scale farming of *L. vannamei* is almost three times (Figure 3). The low productivity of small-scale aquaculture producers compared to larger enterprises has also been noted in various studies (e.g. Brummet, Lazard and Moehl, 2008).

It is important to reiterate that improved market access remains very important for small-scale producers and for rural development in general. Markets can often seem to be part of the problem rather than part of the solution, and in the real world, markets do not function in the perfectly competitive way that they are shown to in neoclassical economic theory. In developing countries, especially in poor rural areas, markets are often thin (with low volume of trade or a low number of transactions) or fail completely due to the high costs and risks of participation. However, avoiding markets is not a realistic solution for most small-scale producers, particularly those who seek commercial income gains from their investments into aquaculture ponds. With small-scale producers facing many general challenges (including limited land and capital, dispersed locations, limited transport and communications infrastructure, poor health and social and political marginalization), markets have the potential to help them overcome these challenges by providing income, generating employment, reducing poverty, empowering small-scale producers, fostering self-reliance and promoting pro-poor economic growth through enabling consumption linkages resulting in multiplier effects on growth (Penrose-Buckley, 2007).

Despite these challenges, the aquaculture sector is growing; small-scale aquaculture remains highly innovative and contributes significantly to global aquaculture production, although increasingly less so for many export products.

There are many opportunities to improve management and governance, thus increasing social and economic benefits to small-scale farmers. One such opportunity lies in promoting collective action among small-scale producers to create efficiencies of scale, orient investment and support empowerment of farmers through self-help groups, clusters or societies.

Supporting small-scale aquaculture

Better management practices

Low-yielding and unproductive small-scale aquaculture provides opportunities for improvements, although in some cases, opportunities or indeed the need for improvements may not be applicable, depending on household and other circumstances. Recent experiences show that application of better management practices (BMPs) through the establishment of farm clusters and farmer societies is effective in improving aquaculture governance and management in the small-scale farming sector. This approach enables farmers to work together, improve production and develop sufficient economies of scale and knowledge to participate in modern market chains and to reduce vulnerability. Such governance and management approaches improve the economic performance of the sector and strengthen producers' ability to participate in decision-making and self-regulation. Once such approaches are established and strengthened, a competitive and sustainable small-scale farming sector will become a reality.

Farmer organizations and lessons learned

Despite the market access and financial viability challenges, the aquaculture sector is growing, and small-scale aquaculture in Asia remains highly innovative and makes a significant contribution to global aquaculture production. An important opportunity to improve the governance and management of the aquaculture sector and thus increase the social and economic benefits to small-scale farmers might lie in promoting and developing collective action among small-scale producers in the form of producer organizations, cooperatives or other collective arrangements. Farmer cooperatives in agriculture have been universal mechanisms to facilitate the access of agricultural smallholders to better markets, although with mixed results in some countries.

There is little documented information on collective farming by more commercially oriented small-scale aquaculture producers and related aquaculture institutional arrangements. Nonetheless, the lessons learnt from recent experiences in the field show that promotion of cluster farming in aquaculture and managing these clusters using appropriate BMPs can improve aquaculture governance and management in the small-scale farming sector, enabling farmers to work together, improve production and develop sufficient economies of scale and knowledge to participate in modern market chains and reduce vulnerability (Boxes 1 and 2). This governance and management approach is a way of

improving the economic performance of the aquaculture sector and increasing producers' ability to participate in decision-making and self-regulation.

BOX 1. Farmer societies and the National Centre for Sustainable Aquaculture, India

In 2000, the Network of Aquaculture Centres in Asia-Pacific (NACA) began cooperating with the Marine Products Export Development Authority (MPEDA) of India's Ministry of Commerce, providing them with technical assistance for a "Shrimp disease control and coastal management" project focusing on giant tiger shrimp (*Penaeus monodon*), to address increasing anxiety over disease and the sustainability of the shrimp sector. The MPEDA-NACA project team developed better management practices (BMPs) to address the key disease risk factors along with food safety and environmental risks. The BMPs included recommendations for good pond preparation, high-quality seed selection, water quality management, feed management, health monitoring, pond bottom monitoring, disease management, emergency harvest, food safety and environmental awareness. The BMPs were disseminated through farmer meetings, regular pond visits, training of extension workers and the publication of ten brochures on BMP adoption, along with booklets on shrimp health management and extension.

Farmers were organized into self-help groups, originally called "aqua clubs" and now legally registered as farmer societies, which have joined to form "clusters" (groups of interdependent shrimp ponds situated in a specified geographical locality, typically comprising farmers who share resources or infrastructure such as water sources). The cluster concept was found to be a practical and effective way to improve management, provide risk management measures to farmers and thereby maximize returns. Thus, the organization of farmers into groups and clusters was used to facilitate the effective dissemination of BMPs among group members and also to enable them to more easily address the social and financial risks associated with small-scale shrimp farming and increase their access to input and output markets and services.

To continue the project, a separate semi-autonomous governmental agency called the National Centre for Sustainable Aquaculture (NaCSA) was created in 2007, with the approval of the Government of India. NaCSA not only facilitates the formation of farmer societies but builds their capacity and supports their activities to maximize their chances of success in achieving sustainable and profitable shrimp farming. The project has made significant progress, with the number of farmers adopting the cluster management approach growing exponentially from five farmers in 2002 (covering 7 ha in one state) to over 11 000 farmers in 2011. The production of BMP shrimp through the project has increased from 4 tonnes in 2001 to 4 160 tonnes for the first crop of 2009.

The NaCSA model has often been described as a success story of collective action and cluster management for sustainable small-scale aquaculture development. This is understandable given the numerous achievements of the project, including reduced disease incidence; increased productivity and quality; increased access to good-quality inputs; increased profit through reduced production costs; improved market access through increased ability to meet market requirements such as organic certification, traceability and eco-friendly sustainable production; and through linking societies to processors and retailers, revival of abandoned ponds, increased food security and sustainable livelihoods, and empowering small-scale farmers by giving them a "voice".

Source: Kassam, Subasinghe and Phillips (2011).

BOX 2. The Samroiody Shrimp Farmers Cooperative, Thailand

The Samroiody Shrimp Farmers Cooperative, located in Prachuap Khiri Khan Province in Thailand, was established in 2006 by shrimp farmers to help them respond to the decreasing international price of shrimp by increasing productivity through group-regulated production, provision of financial support, and enabling farmers to access sustainable output markets offering higher and more stable prices. The cooperative has been supported by the Network of Aquaculture Centres in Asia-Pacific (NACA) since 2008.

Cooperative membership currently stands at 158 members (115 men and 43 women). Members are mostly small-scale farmers with one or two ponds. Conditions of membership include farm registration, a minimum purchase of 200 cooperative shares and a small administration fee. Regardless of how many shares or how many ponds a member has, each member is only allowed to access cooperative services for one pond. Members also have to agree to follow the cooperative's regulations, established by the Executive Committee in order to increase the productivity and quality of shrimp, which is maximized when all group members follow the regulations. The regulations, which are similar to better management practices (BMPs) promoted by the National Centre for Sustainable Aquaculture (NaCSA) in India and by NACA elsewhere in the region, include maximum stocking densities and prohibited use of banned chemicals and certain antibiotics. The cooperative provides members with a number of important services, including credit for farm inputs, provision of technical advice, a computerized traceability system, increased market access through developing links with processors and buyers, and improved quality and safety of shrimp (through an internal control system).

A major achievement for the cooperative is increased market access due to its collaboration with a local processing plant and a European Union (EU) buyer. This partnership between the cooperative, processor and buyer is under consideration for Fairtrade certification and, if successful, will mean the cooperative will be producing the first-ever Fairtrade certified shrimp product. The cooperative has also increased members' access to good-quality inputs through negotiation of various partnerships and agreements with input suppliers and has improved the production and income of members.

Source: Kassam, Subasinghe and Phillips (2011).

Aquaculture farmer producer organizations or collective arrangements may have an important role to play in the sustainable development of the small-scale aquaculture sector through such actions as:

- enhancing participation and consultation of all stakeholders in the planning, development and management of aquaculture, including the promotion of codes of practice and BMPs;
- facilitating mechanisms for voluntary self-regulation for attaining best practices such as the cluster management concept;
- promoting the appropriate and efficient use of resources, including water, sites, seed, stock, finance and other inputs;
- developing human resource capacity by facilitating the provision of training, technology transfer and access to information;
- increasing market access through enhanced ability to meet market requirements, increased negotiation and bargaining power and economies of scale;

- facilitating the provision of extension services, credit and market information;
- developing government communication and consultation processes and promoting comprehensive policies and a supportive legal and institutional framework that support sustainable aquaculture development; and
- building partnerships with government to progress and implement policies and programmes, making government efforts and the use of scarce resources more cost-effective (Hough and Bueno, 2003).

An increasing number of programmes and projects are designed to explore and expand this successful “bottom-up approach” of empowering small-scale producers through farmer organizations. An example of such a project planned for implementation to support the small-scale farmers in Bangladesh is presented in Box 3.

BOX 3. Supporting small-scale farmers in Bangladesh

Building on lessons learnt from India, Indonesia and Thailand, a new project is being initiated to help facilitate the transfer of relevant experiences to Bangladesh. This project, funded by the European Union’s (EU) Standard Trade Development Facility (STDF), will empower 800 small-scale farmers to organize into manageable clusters and to develop and implement better management practices (BMPs), thus reducing the risks of antimicrobial contamination in shrimp and prawn products, and empowering them to better export. This will subsequently develop effective “bottom of the pyramid” solutions for compliance with the World Trade Organization’s agreement on the Application of Sanitary and Phytosanitary Measures (WTO SPS agreement) and related Codex Alimentarius and World Organisation for Animal Health (OIE) standards. As an end result, the concept of BMPs and cluster management to accomplish responsible and sustainable farming will be further strengthened, risks to food safety will be significantly reduced and small-scale farmers will secure better markets, thus improving their social welfare. The project, which is implemented by the Food and Agriculture Organization of the United Nations (FAO), is executed by the Department of Fisheries (DOF) in Bangladesh in close collaboration with the WorldFish Centre (WFC). Relevant industry organizations, including the Bangladesh Shrimp and Fish Foundation (BSFF), partner the project.

Source: Rohana Subasinghe, FAO.

What needs to be done?

An enabling environment including favourable business development policies, macroeconomic performance and legislation can have a strong influence on the success of a farmer organization. If government policies are not conducive to growth, there may be little point in investing resources in farmer organizations that focus on marketing interventions, which may provide some cushioning from the effects of bad policies but do not address the fundamental need for policy reform. Burnett and Greenhalgh (2002) make a number of suggestions on the kind of policy measures that can improve the functioning of markets to the

benefit of small-scale farmers and, in turn, farmer organizations highlighted in Kindness and Gordon (2001) as follows:

- Policies need to be adopted in industrialized countries that do not distort smallholder competitiveness in developing countries.
- Developing-country governments should be encouraged to adopt macroeconomic policies, particularly monetary and fiscal policies, that do not distort economic activities.
- Trade policy needs to be considered within a wider development context; better governance and reforms are needed to attract investment and trade opportunities.

Other issues related specifically to state support of small-scale aquaculture farmers that need to be addressed include the development of policy that is more favourable to the small-scale sector based on the requirements and realities of the small-scale aquaculture farmer; policies and incentives that encourage private investment in small-scale aquaculture production and services; provision of technical and marketing services that are more oriented towards small-scale aquaculture producers, as well as the small-scale traders and businesses associated with the sector; provision of social safety nets for the most vulnerable producers and traders; facilitation of access to financial and insurance services in rural aquaculture farming areas; and the provision of information services that cater to the needs of rural farmers (Kassam, *et al.*, 2011).

Aside from policies that constrain growth and do not address the needs of small-scale producers, in many countries, legal and regulatory frameworks can also constrain the operation and development of farmer organizations themselves through complicated administrative and bureaucratic procedures. Farmer organizations often lack the support and recognition of the state and are discriminated against and excluded. Simplifying administrative procedures and allowing easy, affordable and rapid registration and decentralizing administrative and legal procedures to regional or local levels are some of the ways in which governments can develop an institutional environment that is favourable to the free and effective functioning of farmer organizations. Governments should also accept the full operational autonomy and private nature of farmer organizations and recognize their positive contributions to rural and national development (SARD, 2007).

Inadequate infrastructure and transport can also be important constraints to the agricultural marketing activities of farmer organizations and small-scale farmers generally, particularly in remote rural areas. Even though this may not be part of the institutional environment, these issues fall under the wider enabling environment and must also be addressed by government if farmer organizations are to be able to achieve their objectives and be successful.

Conclusions

In summary, having established appropriate policy and legal frameworks to provide an enabling business environment, further efforts should be placed to build the capacity of small-scale farmers and their organizations. This might provide opportunities to build more equitable relationships with business, to minimize risks faced on both sides of the transactions, create synergies, and build confidence and trust between partners, and thereby promote a business model that would be sustainable and equipped to face the challenges of globalization.

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