

Strategic review of aquaculture extension in Tanzania

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INTRODUCTION

Aquaculture is an activity of growing importance for families and investors living along the coastline and inland areas of Tanzania. As the economy evolves to meet the needs of the 21st Century, aquaculture is receiving increased attention from the public sector for its positive economic and social potentials. As well, aquaculture receives significantly greater attention from investors as prices for aquatic products increase and it becomes an increasingly attractive business opportunity. To support this growing interest and to provide guidance for sustainable development and attribute roles and responsibilities to major stakeholder groups, the Government of Tanzania has developed a National Aquaculture Development Strategy - NADS (Box 1). A National Task Force undertook this activity with assistance provided under an FAO TCP Facility. Within the context of NADS, a major challenge facing the expansion of the sub-sector is that of designing and implementing sustainable and cost-effective aquaculture extension.

GOVERNMENT EXTENSION

Since 1961, aquaculture extension services have been mainly provided by the government with the intent

Box 1. The Tanzanian National Aquaculture Development Strategy (NADS)

The purpose of the NADS is to provide a framework in which the aquaculture industry in Tanzania can be developed in an economically, socially and environmentally sustainable manner. The main purpose is to increase the levels of production and benefits from the aquaculture industry. The strategy covers a period of 15 years and is expected to play a role in meeting national objectives including National Strategy for Economic Growth and Poverty Reduction (NSEGPR) which aims at reducing poverty through increased income and food security of the Tanzanians.

The vision of NADS is to:

Establish vibrant diversified sustainable aquaculture businesses which will last for 15 years, starting from 2008/09 to 2022/2023.

The mission of NADS is to:

- Promote private - public - government partnership which will expand aquaculture sub-sector hence creation of employment
- Develop sustainable aquaculture business which will contribute to social-economic welfare of national and coastal communities

that increased production would lead to increased food availability, lower purchase prices, increased returns for the government through subsequent taxation. Aquaculture development efforts focused on public infrastructure (e.g. stations, hatcheries or centers) to serve as hubs around which aquaculture would develop. The stations were to provide inputs, be the base for extension support, serve as training and demonstration centers and undertake research. Additionally, government extension agents were trained to transfer the acquired knowledge through field visits undertaken with transport provided by extra-budgetary sources. Prior to 1990, aquaculture or fisheries officers

existed in all regions and districts, down to the village level.

Although this approach was able to increase and solicit some modest increases in aquaculture production, it proved to be unsustainable. The costs of operation were high and, in the absence of external support, after 1990, the government was unable to keep the programme functioning. Moreover, when limited public resources were available, these were at times used for other purposes. The situation was exacerbated following retrenchment in 2000, leaving only District Fisheries Officers existing in most districts combined with a very low priority given to fisheries extension by District Councils. As a result, fish farming declined.

DONOR-FUNDED EXTENSION PROGRAMMES

Extension support has been received from a variety of external sources. The FAO ALCOM¹ Programme, for example, tried to improve aquaculture extension by using general agriculture extensionists. However, in spite of some isolated successes, this did not provide a sustainable solution. Donor-funded programmes in general have been instrumental in supporting and even fostering aquaculture extension, but have been accompanied with a number of problems that may have actually created more harm than good. Most of these programmes focused on poor farmers who did not have resources required to establish and sustain aquaculture. They introduced showcase programmes on the community using material and equipment that were not available to the villagers and introduced a technology that was not compatible to the existing farming system. In addition, donor-funded programmes were short-lived and created “dependency syndrome”. They mistakenly provided inputs in cash or kind which could not be obtained locally or were not necessary. Extension agents were paid high allowances and farmers were paid allowances to attend their own training and field visit. Furthermore, the programmes provided inputs like shovels, pickaxes, wheelbarrows, measuring tapes and PVC pipes for pond construction even when they were not needed. This type of assistance did not complement, rather it substituted local people’s efforts and was unsustainable. It has now been realized that such donor-induced strategies have eroded farmers self-help spirit.

FARMER-TO-FARMER EXTENSION

The combined problems of the above extension approaches meant that a more cost-effective and sustainable extension system was needed. Farmers rather than professional extensionist or researchers, were sought to meet that end through the promotion of farmer-to-farmer methodologies. However, like other systems of extension, farmer-to-farmer extension failed to meet its objectives. The main reasons for the failure of the system are: farmers selected for training were based on favoritism rather than model farmer, long served and trusted by other farmers; farmers were selected early before their interest was properly known; operation of extension system was based on volunteerism (i.e. religious impetus) and status rather than economic motivation; and lack of strong support from the government to the system.

ALCOM experience (Box 2 and 3) has shown that when farmers are trained and supported, they could disseminate new technologies and production methods to other farmers in a sustainable manner and at lower operation costs. For instance, although ALCOM field activities were suspended in the study area, two years later, new fish ponds were still being constructed

and distribution of fingerlings continued normally. This means that farmer-to-farmer extension established under ALCOM project continued without any external help.

Nevertheless, fifteen years after ALCOM activities were terminated most of the field activities were no longer in operation or were operating at a very low level. This is believed to be a common phenomenon in most farmer-led extension, whereby sooner or later, farmer extensionists start feeling that they had done their share and that the community needed to continue on their own. Farmer extensionists interviewed indicated that they stopped doing extension work because they lacked time and because they were not paid. Experience has shown that very rarely volunteer extensionists continued to work for more than five years. Often they get discouraged if not supported and/or visited by outsiders.

PRIVATE EXTENSION SERVICES

Production of high-value crops that are grown in well-defined areas can be assisted by private companies dealing with the marketing of these products. Marine products are particularly suitable to these arrangements as the producers are concentrated among the coastline as opposed

Box 2. Case Study: the Seed-Supplier Extensionist

In the villages in Mahenge District, there was a farmer who did a lot of fish farming extension. A follow-up on the issue revealed that he was doing it because he earned considerably more income through selling fingerlings than through selling food fish or other farming activities. Later, however, as more ponds were stocked and demand for fingerling decreased, so did his extension effort. Lack of consistent demand for fingerlings has been a hindrance to development of private fingerlings producers and distributors in many areas. In the present case, this lack of a sustainable demand also affected extension support. This case demonstrates the need to address practical issues when implementing strategic approaches such as those defined in NADS. Whilst private fingerlings (seed) production and distribution are certainly the order of the day, those providing these inputs need to be able to make a profit. This means that a supplier must have enough customers to make his seed business profitable and it also implies that farmers must be receiving the right extension support to harvest their ponds on a timely bases thereby increasing their own profits as well as ensuring the required consistent demand for the seed supplier.

Box 3. Case Study: the Net-Maker Extensionist

In the district of Mbozi, a farmer was making seine nets from worn out tire ropes. At that time, there was only one seine net at the district headquarters and therefore any farmer who wanted to harvest fish had to travel to the district headquarter to borrow this net. Farmers were not certain if they would get the net when needed and some farmers traveled to the district headquarters several times without getting the net. An ALCOM team observed that the net maker encouraged farmers to start fish farming, and actually visited fish farmers more often than the government extension officer because of economic motivation of ultimately having them as customers for his nets.

to being scattered within the locality. Tanzania has long been the Region's principal seaweed producer and the strong global market for seaweed products has promoted export companies to support village growers (Box 4). Mud crab, a luxury product in demand in international markets, is another marine crop where labour-intensive and technologically simple village-level culture systems are being extended to produce a high-value crop. At present, extension work is being undertaken by NGOs that are introducing and supporting crab culture. In the medium term, other extension arrangements will be needed, perhaps similar to those for seaweed. Other marine crops that attract attention of the private sector are pearl oysters and penaeid shrimps. In the aggregate, the extension experiences for mariculture demonstrate how geographic concentrations of high-value commodity producers can facilitate extension and outreach support.

A NEW APPROACH TO AQUACULTURE EXTENSION

Faced with so much local and external financial uncertainties, the aquaculture sub-sector through NADS, had to devise a sustainable and cost-effective extension approach which will operate on its own with far less external support. This is based on the principle that aquaculture extension should operate as a business rather than a totally government-supported activity.

To achieve the above goal, there is a need to move beyond subsistence aquaculture and to deal with aquaculture as a business. This change in focus requires a shift in extension approach. The roles and responsibilities of the public and private sectors must change significantly. The government needs to divert expensive infrastructure and undeliverable services while establishing ways and means to control quality and impacts. The private sector, at all levels, needs to assume responsibility of delivering information in terms of quality, appropriateness, accessibility and cost.

CONCLUSION

For an effective and sustainable aquaculture system, the government will maximize extension benefits by focusing extension activities on farmer-to-farmer extension. Thus, the Department of Aquaculture extension should first design and support an institutional mechanism through which farmer-to-farmer extension will operate. The mechanism should incorporate profit motivation. Secondly, the department should strive to strengthen the capabilities of farmer-to-farmer research and extension through short- and long-term training programmes. The government and other organizations which previously dealt with extension should support farmer-to-farmer extension through sponsoring workshops, local study tours, further farmer organization and networking, publication of extension materials and technical training.

¹The SADC Regional Aquaculture for Local Community Development Programme (GCP/RAF/277/BEL and GCP/INT/555/SWE)

Box 4. Case Study: Seaweed Farming in Tanga

Experience has shown that private sector can play a role in provision of inputs and extension advice to farmers. Companies dealing with seaweed farming enter into agreements with some villages and independent producers; legally binding producers through technical production assistance, inputs supply and sales contracts, providing farmers with inputs including ropes, tie-ties, floats, as well as extension assistance. In turn, producers agree to sell their entire seaweed harvest exclusively to the company; the latter bearing the risk of production. The price paid to farmers is determined mainly by the costs incurred by the companies.

When entering into such agreements care should be taken to avoid exploitative relations. Farmers do complain that they are paid low prices for their products but feel they are tied to the companies in order to obtain needed inputs. Since most seaweed farmers operate in groups, the solution is to find out how much farmers will lose or gain if they buy their own inputs or depend on companies and then choose whichever is best.

As seaweed farmers become more productive and generate more income, it is anticipated that they will have the ability to become independent producers, negotiate better prices and secure micro-credit loans. However, to date, the provision of services by companies has been regarded as a driving force behind the development of seaweed industry in Tanzania.