



Aquaculture Extension in Sub-Saharan Africa

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As part of a regional review of aquaculture being undertaken by the Food and Agriculture Organization of the United Nations (FAO) Regional Office for Africa in Accra, Ghana, a review of the recent history of aquaculture extension in five representative countries of sub-Saharan Africa was undertaken. The activity was initially done in collaboration with the World Fish Centre (WFC) with the original text prepared by Mr R. E. Brummett and V. Poumogne. This text was revised by Mr A. E. Coche and is now available as FAO Fisheries Circular No. 1002. In this process, country reviews were commissioned, analyzed and synthesized. A number of extension guides, field manuals and dissemination tools were compared.

Each of the reviewed countries has a similar history of aquaculture development, beginning with colonial experiments in the 1950's, through a period of neglect following independence in the 1960's, a period of intense international involvement in small-scale rural development (including aquaculture) in the 1970's and 1980's ending in a period of reflection on results in the 1990's. Many of these past projects were driven by foreign donors interested primarily in poverty alleviation and working on the basis on national food security targets, ignoring the desires and constraints faced by would-be producers and beneficiaries. Working within the broader context of rural development, rather than the somewhat simpler world of commercial aquaculture, technology has created problems for poorly trained and motivated extension agents. New participatory paradigms have been incorporated into policy and planning, but are generally not reflected in the day-to-day work of either research or extension, leading to low rates of adoption and project sustainability.

As the predominant research/extension methodology in sub-Saharan Africa, the Training and Visit (T&V) approach must be considered the baseline against which to compare and contrast newer approaches. The T&V approach relies heavily on good quality and properly equipped extension staff that can transfer technical information generated at research stations or universities to less well educated farmers. These extension agents must be able to read technical journal articles and then condense the key elements based on personal experience with local farm conditions into information packages that are understandable by farmers.

Unfortunately, this critical component of the system is usually lacking or available only for short periods of time while donor-supported projects are fully functional. Only a complete reform of the extension service that would substantially improve remuneration packages and reward extension agents for success by promoting them within the field of extension rather than moving them up and away from contact with farmers is likely to render this system functional. Cosmetic alterations based on short-term, in-service or overseas training have made no fundamental changes to the productivity of aquaculture extension.

On the other hand, progress has been made in several countries based on a re-structuring of the relationship between research, extension and farmers. In Madagascar, instead of attempting to directly assist large numbers of small-scale rice farmers to add fish, attention was focused on a much smaller number of individuals who: 1) had some experience with aquaculture, 2) had some education and capital assets, and, 3) were interested in assisting their fellow farmers. Working with these individuals was much easier and more effective because the number of extension agents could be effectively reduced and those remaining were better trained and equipped. With this approach, both numbers of farmers and production per farm has increased, albeit at the cost of a relatively long-term commitment from external donors.

In Zambia, a longer-term commitment to participatory development paradigms has paid off in terms of steady, if not staggering, progress. Without large training or equipment budgets, highly generalized and relatively simple technology was easier for extension agents and impoverished farmers to implement. This focus on process rather than technology is now coming to the fore in many countries. However, most of the gains have been in terms of numbers of farmers, each of whom produces relatively few fish with minimal overall impact on national poverty alleviation and food security objectives.

A third approach that has shown promising results in Cameroon is based on the adaptation of more advanced technology to increase both adoption and yield, while remaining within the national budget. In this system, researchers who normally concentrate on controlled experiments and journal articles, are attached to small teams of extension agents who carry-out participatory trials and/or experiments aimed at adapting aquaculture to fit specific

farming situations. Rather than working with farmers to comprehend complex systems and then adopting them wholesale, participatory research is evolutionary and comes up with a slightly different technology for each farm. This approach can be highly flexible and usable under a wide range of conditions. By enlisting the direct engagement of researchers, the cost of the overall extension system is somewhat higher, but only marginally so when compared to the low cost-effectiveness of the T&V system currently in place.

Based on this review, a number of key issues have been identified that should be considered when planning aquaculture development:

- Accurate and current information on aquaculture technology must be available to research and extension. Libraries and information access are crucial components.
- General extension materials have limited usefulness for extension. More illustrations make them better for farmers, but the emphasis should be on adaptation of technology rather than memorization.
- If credit is a constraint, commercial bankers and/or local credit agencies should be enlisted as partners; extension *per se* should not be engaged in allocating or monitoring credit.
- Research must be actively engaged with both farmers and extension agents to ensure that: 1) research relevant to user's needs is being conducted; and 2) the best available information and technology are made available to farmers.
- Experiential learning and participatory methods can be effectively used to improve the adoption of technology and should be compared for cost-effectiveness.
- Rural development is good for business and opportunities should be found to link the private sector with public development goals.

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