

# KEEP ROLLING



Dung beetles will be rolling up the themes again. When we publish a Newsletter on a certain theme, we hope that readers will digest it so that new ideas can emerge. In this section "Keep Rolling" you have a chance to present further information about themes highlighted in previous issues, thus giving still more food for thought and action.

*In the ILEIA Newsletter on "Cutting back on chemicals", Kevin Kamp and colleagues explained how Integrated Pest Management had a positive effect on fish production in Bangladesh. In these articles, Brian O'Riordan and Mohamed Hossein write about further initiatives to increase fish production in Bangladesh. Both initiatives focus on the poorest of the poor.*

## Low-input fish farming

Brian O'Riordan

The large deltaic flood plain of Bangladesh provides the potential for the most productive inland fishery in the world and some of the most fertile agricultural land. Fish accounts for 80% of the per capita animal protein supply, yet current production only supplies 7 kg per year on a per capita basis. This is roughly 30% of the average per capita fish consumption in the rest of Asia (Castillo et al 1991). Even this meagre amount of protein is unavailable to the poorest of the poor. Due to the poverty gap between "haves" and "have nots", 70% of the 115 million Bangladeshi suffer energy and protein deficiency as a daily dietary fact of life.

### Pits, not ponds

Traditional production of fish in ponds accounts for some 15-20% of the total fish catch in Bangladesh. Most ponds are small (less than 0.25 acres) and growing fish is but one of the many activities ponds are used for. Other uses include domestic water use, washing and irrigating the household vegetable garden. These ponds, often mistakenly referred to as fish ponds, are in fact "borrow pits", where earth has been removed for building the homestead. These so called "fish ponds" therefore have many limitations for producing fish. In particular, multiple use and multiple ownership are main constraints.

Traditionally, a variety of local species were used in ponds, mainly carps, caught from the wild as spawn (fertilised eggs) or small fish (fish of 5-20 mm). One of the main drawbacks of this source of supply is that along with the desired fish species come many undesirable ones - often up to 70% of the total.

### Modern hatchery

The development of practical hatching techniques has revolutionised the cultiva-

tion of fish in ponds. Modern techniques allow for careful breeding and selection of desired species. Through selective breeding desirable characteristics can be selected. Although these techniques were introduced to Bangladesh over 20 years ago, only in the last 7-10 years hatchery produced fish have begun to form a significant proportion of the total fish seed supply. In many parts of Bangladesh the stocking requirements are more or less fully catered for by hatchery produced fish. In other parts, for instance in the northwest, the development of hatcheries has been slow and there is very poor and unreliable supply of fish fry and fingerlings at village level. Lack of investment capital, lack of water during the hatching season, conservative habits, reliable supplies of wild caught fish and hatchery supply from other parts of the country are some of the main reasons for this.

With the overfishing of natural waterways, increased pollution through overuse of pesticides and fertilisers, reduction of water flows due to damming, increased water usage and siltation, supplies of wild caught fish are dwindling.

### Fish culture for who?

Although the potential economic and nutritional benefits from fish culture are high, it is a relatively high risk activity. Significant investment is required in ponds (purchase or leasing), in management and purchase of inputs (seed, feed and fertiliser). The period of dead investment is relatively long (6-9 months) and the risks of flooding, disease epidemic, ponds drying out, poaching or poisoning are high. In addition markets are fickle (and debt bondage systems prevail) and a fair return on the investment is rarely assured. For these reasons it is often argued that fish culture is best undertaken by the relatively better off.

### Towards benefits for the poor

However, many NGOs are adopting alternative strategies to minimize the inherent riskiness of fish culture by undertaking action research into low-input systems, low-cost technology, fast growing species and alternative management practices (such as share cropping). In this way, fish culture is becoming a more certain option for food production and income for the poorest. At a recent NGO workshop in Dhaka, Bangladesh, organised by the Intermediate Technology Development Group (ITDG) and the Association of Development Agencies in Bangladesh (ADAB), representatives from 17 NGOs met and committed themselves to poverty focused aquaculture development. The meeting recommended that NGOs should focus their efforts on:

- promoting the decentralisation of fish seed production through the development and widespread introduction of "mini-hatcheries";
- development and dissemination of low-input systems based more on organic and inorganic fertilisation and less on supplementary feeding. Less emphasis on high production systems and more emphasis on profit;
- clearer identification and closer working relationships with the poor;
- closer project performance monitoring;
- assisting and supporting social organisation of the poor.

An important commitment was made to work more closely together in the future, to share skills and expertise and to develop more appropriate training materials, particularly for illiterate farmers. The Government of Bangladesh recognised the important role of NGOs and committed themselves to closer working relations with them.



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### References

- Castillo S, Kamal HJM and Martin T. 1991. *Aquaculture and fisheries in Bangladesh*. CARE Bangladesh.
- O'Riordan B. 1992. *Final report from the NGO fishculture workshop "Towards Benefiting the Poor"*. Copies available from ITDG UK, 103-105 Southampton Row, London WC1 4HH, U.K.