

**Reaching the rural poor: Developing a strategy for the promotion and dissemination of participatory aquaculture research:**

**A case study from Eastern India**

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## **ABSTRACT**

This paper reports on the development of a communication dissemination strategy for aquaculture recommendations resulting from participatory research in eastern India. It focuses on the rural poor who have limited access to resources and no effective aquaculture extension support. Important matters in relation to access to extension messages include socio-economic issues, access to TV and radio receivers, literacy levels and language. The paper shows the relative accessibility of different types of extension media for the different stakeholders. A communications strategy involving dances, songs and drama and different types of media (video and audiocassettes, posters and leaflets) is presented and costed in three stages, together with a design checklist. The importance of links between research and development in the context of extension is discussed.

## **INTRODUCTION**

Aquaculture integrated into existing farming systems has the potential to diversify and enhance livelihoods in the Asian region. However, considerable promotion is required if aquaculture is to fulfil its potential to provide significantly increased food, employment and income (Edwards and Demaine, 1998). In India, aquaculture systems and the way in which they are communicated has tended to favour wealthier farmers, although there is increasing evidence of demand amongst the rural poor (Felsing, 1998).

In 1994, the Overseas Development Administration of the UK Government (now the Department for International Development) developed a new renewable natural resources research strategy (RNRRS). Through this, DFID funds a range of research projects with the overall objective of developing and managing new knowledge about natural resources, for the benefit of the rural poor. ODA's Research Task Group commissioned a study, which concluded that translation of research results 'can no longer be passive, with research products stored 'on the shelf' for subsequent selection by target institutions' (Farrington *et al.*, 1993). The focus was to be on active promotion strategies in which uptake pathways would be clearly identified and planned, from the outset, when projects are being designed (RTG, 1994: 24). Even so, in 1997 most dissemination outputs were still primarily targeted at the scientific community (Henderson and Martin, 1997, quoted in Myers *et al.*, 1998a) in the form of peer reviewed papers in refereed journals, a form unlikely to reach many poor farmers.

The case study presented here details the development of such a communication strategy for an aquaculture research project in eastern India that was, unusually, included from the logical framework stage of the research project plan.

### **The project**

The Eastern Plateau region is characterised by poverty and inequality, land alienation and seasonal migration. Isolated communities of scheduled castes and tribes have limited livelihood options, and are amongst the poorest and most vulnerable groups in India. In many rainfed parts of the states of Bihar, Orissa and West Bengal, fish, though limited in availability to isolated tribal communities, form an important part of the diet. There is an urgent need for the development of aquaculture recommendations appropriate to such groups, to raise awareness about these and to disseminate them effectively. In India, aquaculture systems and the way in which they are communicated has tended to favour wealthier farmers, although there is increasing evidence of demand amongst the rural poor (Felsing, 1998).

The East India Integrated Aquaculture Project<sup>i</sup>, of which this research is a part, aims to select, test and develop integrated aquaculture innovations relevant to local needs and rain-fed conditions. The project area covers parts of Bihar, West Bengal and Orissa and is typical of rainfed farming throughout eastern India and similar to large parts of the semi-arid tropics. The majority of farmers grow paddy, commonly only one crop a year because of limited irrigation facilities. Most water bodies in the area are seasonal, and some of these (e.g. seasonal ponds, water harvesting tanks, and check dams) are suitable for aquaculture activities, as are a number of perennial ponds. Under these conditions, aquaculture recommendations suitable for the rural poor are rare and their development requires close interactions amongst stakeholders.

The project works in participation with farmers' groups, associated with the Indo-British Rainfed Farming Project<sup>ii</sup>, in farm-based trials integrated with on-station research and contextual information collection. Research needs and on-farm trials are identified by Farmers research support committees (Matsya Anusandhan Sahayak Committees<sup>iii</sup>). Research activities include the development with farmers and on-station of a solar-powered portable hatchery suitable for individual farmers, a solar-powered fry transport

system, farmer rearing of fish fry and advanced fingerlings (for stocking into water bodies for rearing), as well as farmers raising fish for eating and selling.

### **Existing aquaculture extension**

Existing aquaculture recommendations in India are mainly derived from research-station based development of technology. Currently this focuses on 'composite carp culture' (a system where fish species with different feeding and/or spatial niches are grown together within a fertilised pond). The most commonly recommended species are Indian major carps (catla, rohu and mrigal) as well as common carp, grass carp and silver carp. Almost all government and non-government extension agents use the research underlying these recommendations, carried out principally by the Central Institute for Freshwater Aquaculture, CIFA. CIFA's recommendations are all pervasive. There has been little institutional pressure to work on behalf of or with poor farmers but there is increasing international and regional pressure. For example the governing council of the Network of Aquaculture Centres in Asia (NACA) is embarking on a regional approach involving mutual learning amongst its 14 members in south, south-east and east Asia. As such regional organisations move towards a more pro-poor agenda<sup>iv</sup> with increasing pressure on members to demonstrate their development objectives for poor farmers.

Organisations involved with aquaculture extension include NGOs, which work in selected areas as well as government coverage, which is district-wise. Districts are split up into administrative blocks (and block offices), each of which may have one Fisheries Extension Worker or a Field Extension Officer; many also have Fish Farmers' Development Agencies (FFDAs).

The ratio of extension staff to farmers, and to geographical area, is very low. Many posts remain unfilled, wages and staff morale tends to be low. Officers at all levels report that their work concentrates on farmers that are 'economically capable' (of operating the aquaculture system advocated by the government).

None of the research organisations carry out on-farm research, but many (e.g. the KVKs<sup>v</sup>) test out recommended practices in farmers' ponds in order to make modifications to recommendations as

appropriate. Although this tends to be conducted unsystematically (without recording tests or results), several modifications have arisen from on-farm testing<sup>vi</sup>.

The current recommendations are outside of the scope of the rural poor because they have limited access to perennial ponds, fish seed or the recommended levels of production enhancing inputs (such as organic and inorganic fertilisers and supplementary feeds).

There is effectively no role for farmers to influence the research, which underlies the extension messages, to define their constraints to undertaking aquaculture and their priorities. There is little scope in the current system to refocus the message with a pro-poor agenda.

#### **Project approach and outputs for dissemination**

The East India Integrated Aquaculture Project used a different approach to develop recommendations appropriate for the rural poor. A number of issue-focused PRAs were carried out at the outset of the project to help to understand peoples resource use priorities, their objectives and their view of aquaculture (see Dutta *et al.*, 1998). In clusters of villages where farmers' groups were interested in aquaculture, the project together with Community Organisers from the IBRFP<sup>vii</sup> encouraged the formation of Matsya Anusandhan Sahayak Committees. These committees identified significant interest in aquaculture, as capture fisheries were diminishing locally. However, most farmers believed perennial water bodies were required and large investments necessary, and there were no extension messages dealing with disaggregated components of aquaculture production (such as producing fish fry or fingerling sized fish over a number of months for stocking in ponds).

To address this knowledge gap, the project used a participatory research methodology, a relatively novel approach in aquaculture, to work with poor farmers within their own particular environmental, social and economic constraints, to develop new recommendations for aquaculture in this area.

As is common with innovative projects, the research project outputs included not only recommendations based on knowledge generated but also methodologies used (Warburton, 1997, quoted in Myers *et al.*, 1998a). The outputs led to three main dissemination messages:

- i. Awareness that aquaculture does not have to be high-input, multi-species systems in perennial water bodies but is quite feasible in seasonal water bodies for poorer farmers.
- ii. Teaching of specific skills (e.g. how to stock, harvest, feed, breed or transport fish) to both farmers and staff from collaborating research or extension institutes.
- iii. The participatory research methodology. Aquaculture research stations and NGOs interested in extending aquaculture should be familiarised with the on-farm research approach used in the project.

The project aim is to disseminate all three types of information to relevant organisations as well as to farmers. To determine how to do this, specific research was conducted into:

- The existing extension system.
- Access to that system for different stakeholders, and access to alternative communication media.
- The preferences of different stakeholders for different media.
- The costing of different media to determine feasibility.

## **METHODS**

A costed needs assessment for the development and testing of dissemination materials related to the project outputs' was carried out over nine days during September 1998 and 11 days during November 1998. Forty-six key-informant interviews were conducted with a wide range of individuals and organisations (see Table 1). These interviews were to establish what methods are currently used within agri- and aquaculture extension and how the findings from the project could best be shaped to fit in with the existing aquaculture extension framework of the project area. Cost-estimates, which are rarely presented or analysed in extension literature, were included.

**TABLE 1: PERSONS INTERVIEWED ABOUT DISSEMINATION METHODS AND MEDIA**

Organisation	Persons interviewed
Government institutions	Production executives and assistants <b>All India Radio</b> ; District Fisheries Officers, in 3 districts of Bihar and West Bengal, Chief Executive Officers of Fish Farm Development Agencies (FFDAs), <b>Department of Fisheries; Krishi Vigyan Kendra</b> (Farm Science Centre), District Development Commissioners (Bihar).
Non-governmental organisations	Project Managers, extension staff, editor-in-chief extension bulletin – <b>Indo-British Rainfed Farming Project (IBRFP); Society for Rural Industrialisation, Rama Krishna Mission, AVIRAM, PRADAN</b>
Research institutes	Aquaculture research staff <b>IBRFP</b> ; Professor Fisheries <b>Ranchi Veterinary College</b> , Director & Senior fisheries staff - <b>Central Institute for Freshwater Aquaculture (CIFA)</b> .
Private sector	Publishers, Local radio stations, video producers, playwright, drama group, TV station.

## RESULTS

### Current extension methods and approaches

The most common extension methods, used to promote the standard aquaculture model described above, are classroom teaching, with field visits to on-station demonstration ponds for hands-on experiences. Blackboard teaching, posters, slides, booklets and videos are normally used. Farmers training courses (generally 7-10 days) are organised by CIFA or KVKs or other NGOs (including all those interviewed) and are normally exclusively attended by literate male farmers. In addition, the KVKs hold longer (up to six months) training programmes for young male literate representatives from villages 'who then act as extension agents once back in their villages'. Women are rarely targeted in aquaculture extension programmes. It is widely reported, and extension workers tend to assume, that they find it difficult to leave their homes for the duration of the training.

Mass media are also widely used, for example the Veterinary College of Ranchi, Bihar, uses local and national newspaper to spread knowledge about aquaculture. Local radio and television stations regularly broadcast agriculture programmes with the occasional feature on aquaculture.

More unusual and potentially more effective media are being explored by some extension agencies. The Department of Forestry in Bihar as well as some of the KVKs in the project area use techniques such as folk drama, 'Chow dance' (local folk dance) and folk songs in local dialects to disseminate information about forestry and agriculture practices to villagers. These report very good results because of the great enthusiasm for drama, dance and folk songs in local villages. In other states (e.g. Karnataka and Tamil Nadu) agriculture extension has successfully used puppetry for the dissemination of information.

Staff from NGOs, KVKs and projects like IBFRP are trained in aquaculture by CIFA at 24 annual courses at the Trainers' Training Centre (TTC) at CIFA headquarters in Bhubaneswar, Orissa. Trainees are sometimes provided with more detailed literature compilations on topics such as 'Composite Carp Culture', 'Integrated Aquaculture Options', 'Pearl Culture', etc. developed from on-station trials.

#### **Access to different media**

Some important issues in relation to access to extension messages include socio-economic issues, access to TV and radio receivers, literacy levels and language. Most of the project farmers belong to the poorest sub-group of the community. A more detailed description of the important characteristics of project farmers can be found in Dutta *et al.* (1998).

In the project area, most villages have at least one TV. In West Bengal this is commonly donated by the Village Panchayat<sup>viii</sup> and kept in the Panchayat Office. In Bihar no Gram Panchayat elections have been held for 20 years so village organisations tend to have poorer access to Government resources. Radios are generally available in large numbers (25-35 per village). Men tend to watch more television and listen to the radio more often than women. Literacy levels in the project area vary, with women generally having lower literacy levels than men.

Language is an essential issue in terms of access to extension media. In Bihar there are 9 tribal dialects (Nagpuri is the main dialect in project area), but Hindi is widely spoken throughout the state. In West Bengal there are two dialects, Bengali and Santali. Various local areas speak modified versions of Bengali, but in all these areas, Bengali is understood. In Orissa only Oriya is spoken, and this is understood in all villages (J. Purti, Programme Executive, All India Radio Station, Ranchi, pers. comm.).

Existing media and their accessibility to farmers is summarised in Table 2. Table 3 summarises the access of the different target groups to the range of approaches suggested (this includes mass and folk media and face-to face approaches).



**TABLE 2: EXISTING MEDIA AND ACCESSIBILITY TO FARMERS IN THE PROJECT AREA**

<b>Existing media</b>	<b>Literature</b>	<b>Radio</b>	<b>TV</b>
	<p>Pamphlets from KVKs, CIFA, Veterinary college, FFDA, NGOs most often in Hindi or English.</p>	<p>All India Radio (AIR) agricultural programmes 6:05-6:10 (short advice) and 19.00 - 19.30 (specialist interviews) daily in the major language of the region. Topics vary, depending on season. Specialists from KVKs, the Agricultural Universities, IBRFP, etc. AIR tribal language programmes (news and drama) 18.00-19.00. In many villages very small radio stations broadcast only at the village level.</p>	<p>Each state has a number of TV stations. Ranchi TV station broadcasts agricultural programmes (Gramenokelje - programme for rural people) 18:30-19:00 in Hindi (daily) and Nagpuri (Wednesdays), covering livestock, fisheries, poultry, dairy etc. It has two components, a part aimed at farmers (talks by scientists, other experts, and farmers) and a part aimed for development agencies.</p>
<b>Accessibility to farmers</b>	<p>Literacy levels in the project area: 20.9-89% for men (avg. 50.5%), 1.4-51.7% for women (avg. 25%) (Dutta <i>et al.</i>, 1998).</p>	<p>Broadcast radius AIR: 100km. AIR estimate 75% of all farmers listen to evening programme daily. All project villages have 10-15 radios, men listen mainly to news and cricket, women to music. Mainly young men and educated people listen to the radio, the poorest people do not have any spare time.</p>	<p>Ranchi TV Station estimates rural viewing figures at: Ranchi District: 35% of viewers watched agriculture programmes (1998) West Bengal: 1,095,104 Bihar: 841,835 Orissa: 441,650. Only rich villagers (~7%) can afford TVs but some villages have none. TV access for women is restricted<sup>ix</sup>. Irregular electricity supply constrains viewing.</p>

Source: J. Puri, Programme Executive, All India Radio Station, Ranchi, pers. comm.; Prasar Bharati Broadcasting Corporation Ranchi TV Station, pers. comm.; Data survey, Ranchi TV station (1997).; S.N. Sinha, Ranchi TV Station, pers. comm.).

**TABLE 3: MATRIX OF RELATIVE ACCESSIBILITY OF MEDIA TO THE KEY STAKEHOLDER GROUPS FOR INFORMATION DISSEMINATION.**

Accessibility of:	Farmers		CIFA	NGOs	KVKs	FFDAs
	Male	Female				
Computers / internet	Low	Low	Moderately high	Medium	Medium	Low
TV	Medium	Low	High	High	High	High
Radio	Medium	Low	High	High	High	High
Newspapers	Moderately high	Low	High	High	High	High
Textbooks	Low	Low	High	Moderately high	Moderately high	Moderately high
Leaflets	Medium	Low	High	High	High	High
Video	Medium	Low	High	High	High	Moderately high
Cassette player	Medium	Medium	High	High	High	High
Drama performances	High	High	Low	Low	Low	Low
Fairs / exhibitions / forums	High	Low	Medium	High	High	High

Sources: Personal communication with: Dr. K. Kumar, CIFA; Dr. Moharty, Principal Scientist, CIFA; Dr. S.K. Sarkar, Senior Scientist, In Charge of KVK & TTC, CIFA; Mr. B.N. Baskey, DFO, DoF, Purulia; Mr. A. Kumar, DFO & CEO, FFDA, Ranchi; Mr. S.P. Singh, FEO, Ranchi; Mr. R. Nishad, fish farmer under FFDA project, Karra block; Mr. Maharaji Dibyan KVK Ranchi; Mr. Madan, SRI, Ranchi; Mr. D. Masih, Secretary YMCA, Ranchi; . IBRFP staff: Ms Pinki Sinha, CO; Mr Shyam Lal Yadav, CO; Mr Subudra, CO; Gautam Dutta, Aquaculture Research Team; Mr Natrajan, Aquaculture team.

## DISCUSSION AND CONCLUSIONS

Dissemination will need to be targeted toward a number of different groups. Most of the extension institutions who participated in the study expressed interest in the project technical or practice-related findings and suggested ways in which these could be made available in a format useful for integrating into existing systems. Suggestions included the production of video programmes and booklets for farmers as well as the arrangement of training of staff and farmer-to-farmer interaction meetings such as fairs or workshops, in which farmers themselves could exchange information. The Veterinary College of Ranchi, Bihar suggested that exhibitions featuring video information programmes be held at local schools to enhance general knowledge of aquaculture options. Local radio and TV would be a potentially important uptake pathway for any aquaculture research findings from the project (see Table 2). Radio and TV stations would not accept ready-made programmes but would cover any event they think interesting free of charge. Other suggestions include the production of folk dances, folk songs and folk drama for general orientation of villagers of aquaculture options or for the dissemination of specific messages such as stocking or harvesting practices. Although puppetry is not a practice commonly used in Bihar, West Bengal or Orissa, many organisations agreed that it would certainly attract a lot of interest from villagers.

Some extension agencies expressed interest in the procedure for establishing farmer-led research and suggested that extension staff, farmers and researchers should all meet at workshops for the exchange of information on how to carry this out.

Catering for the different needs and preferences of such a wide range of target groups means selecting approaches and media based on knowledge of their differing access (Table 3).

### **Communications strategy check list**

A checklist was constructed to enable effective development of the media and implementation of the strategy. It is based on existing literature and extensive discussions with extension specialists<sup>x</sup>.

- The format and content of extension material should be tailored to the needs and characteristics of the target audiences, i.e. the male and female farmers belonging to different social groups, and the aquaculture extension agencies of the region (KVKs, FFDAs, CIFA, SRI, YMCA).
- In order to ensure maximum and efficient spread of information, collaboration between aquaculture research bodies (CIFA, agricultural universities), extension agencies (NGOs, KVKs, FFDAs) and technology development centres (SRI, CIFA) should be established by arranging meetings and common forums. Co-ordination and co-operation between extension providers at local level should be facilitated by exposure visits for extension staff to the IBRFP project.
- Rather than a rigid 'technology package' a range of flexible technology options or practices (including information on the economic implications, risks and uncertainties of any suggested strategies) should be presented to farmers for them to adapt and modify as appropriate.
- To increase the uptake of information, end-users should be involved in the production of extension materials so that information is as relevant to other needs as possible. All material developed should be pre-tested on representative sample of the target audience before mass production.

- To ensure efficient extension to women, the extension material should be adjusted to their level of literacy and domestic obligations. Female extension workers and mechanisms such as group formation and mass media should be used deliberately to direct extension efforts at women.
- To ensure as broad coverage as possible, it is recommended that a variety of media be used for information dissemination. TV, video, radio and bulletins are useful for broad orientation of farmers and extension workers. Databases, email networks and journal articles are useful for communicating findings to other research institutions or scientists.
- On-farm research functions as an extension tool in itself because the farmer learns by doing and the pond serves as a demonstration of techniques to other farmers. Farmers are often some of the best extension agents, and farmer-to-farmer extension should be facilitated by arranging meetings between farmers of different areas e.g. in the form of village fairs, produce exhibitions etc. Extension agents used should take an active part in the research to ensure they possess the expertise needed for effective extension.
- Impacts of extension materials should be evaluated by follow-up studies.

### **Recommended strategy**

Based on analysis of information from key stakeholders and discussions with extension specialists, a three stage strategy for dissemination was decided on and key media were selected and costed. The strategy detailed below links the research outputs to specific target groups.

### **STEP 1: AWARENESS CREATION**

The first project output is the message that aquaculture does not have to be high-input, multi-species systems in perennial water bodies but is quite feasible in seasonal water bodies for poorer farmers. This message is not intended to teach farmers how to carry out aquaculture, but simply to create awareness that aquaculture could present a strategy for diversifying livelihoods, an extra income or an extra food source, and to point those interested in the right direction for seeking further advice. Target groups for this

information include both farmers (end-users) and all aquaculture research institutions / aquaculture extension agencies (intermediate users). Recommendations are shown in Table 4.

**TABLE 4: COSTED RECOMMENDATIONS FOR AWARENESS CREATION FOR FARMERS AND AQUACULTURE EXTENSION AGENCIES. COSTINGS BASED ON ESTIMATES OUTLINED IN APPENDIX 1.**

Recommendation	Cost	Total	
		(Rs)	£
Project findings (research methodology and specific recommendations) published in both international and in-country scientific journals by the end of the project	1.5 months * one full time staff @ Rs 60,000 per month	90,000	1324
Meetings between project staff and ICAR institutes to ensure that local research institutes are aware of approaches taken by the project (the project is already co-operating with CIFA, DoF, Agricultural University, SRI).	1 trip to CIFA HQ Bhubaneswar @ Rs 600 * 5 IBRFP Aquaculture staff = Rs 3000	3000	44
A local drama group with tribal actors commissioned to write a play on aquaculture as an option. Performance in 20 villages in project area.	Rs 15,000 for play  Rs 1500 per performance*20 = Rs 30,000 plus transport and accommodation for actors @ Rs 200 p.p. * 15 actors * 20 nights = Rs 60,000	105,000	1544
Performance of the play for recording on video in Hindi and English Video taping of play Translation of video into Bangla, Oriya, and Hindi  100 copies of video Demonstration of video to farmers in Bihar, Orissa and West Bengal on the communal TVs present in most villages. The video should be made available to CIFA, the FFDAs and the KVKs and NGOs of the region.	Rs 5000 * 2 languages = 10,000  Rs 100,000 Dubbing studio at Rs 200 *10 hours * 3 languages = Rs 6000 Rs 200 * 100 copies = Rs 20,000 4 full-time staff @ Rs 300 per day * 5 days each = Rs 6000.  1 full-time staff @ Rs 300 per day * 5 days = Rs 1500.	143,500	2110
Folksongs in Nagpuri and Hindi with aquaculture message recorded 250 copies of tape made Songs played on radio stations and at market fairs and sold on cassettes to farmers in village stores Copies distributed to the FFDAs, the KVKs and the NGOs of the project area.	Rs 3500 * 2 languages = Rs 7000 Rs 20 * 250 copies = Rs 5000  1 full-time staff @ Rs 300 per day * 5 days = Rs 1500	13,500	199
Fairs and markets arranged to increase the opportunities for farmer communication and thereby the dissemination of information.	Rs 5000 * 9 fairs (3 in each project state) = Rs 45,000	45,000	662
<b>Total</b>		<b>400,000</b>	<b>5883</b>

#### STEP 2: SKILLS TRAINING

The teaching of specific skills (e.g. how to stock, harvest, feed, breed or transport fish) will be required both for farmers and for staff from collaborating research or extension institutes. This requires more attention to details and personal contact, plus the development of a variety of teaching aids. Research

institutes will need detailed information in print, training, and tested support material for training farmers. Farmers and extension workers should work together to develop visual training materials which will be interesting and relevant to the local communities.

**TABLE 5: COSTED RECOMMENDATIONS FOR SKILL TRAINING OF FARMERS AND AQUACULTURE EXTENSION AGENCIES. COSTINGS BASED ON ESTIMATES OUTLINED IN APPENDIX 1.**

Recommendation	Cost	Total	
		(Rs)	£
Staff from the FFDAs, SRI, the KVKs and YMCA trained in specific techniques (e.g. hatchery operation, fry transport) by IBRFP project staff.  Development of slides for teaching and illustrated training manuals by current staff Testing of teaching materials with target organisations	2-day training courses * 5 full-time staff @ Rs 300 per day = Rs 3000. Rs 200 for food and accommodation * 2 days * 5 participants * 6 organisations = Rs 12,000  2 * full-time staff @ Rs 300 * 2 days * 6 organisations = Rs 3600	18,600	274
Task-oriented colour posters targeted at farmers developed in co-operation with project farmers  3 task-oriented video-films targeted at farmers featuring and developed with project farmers  Translation of videos into Hindi, Bangla and Oriya 200 copies of each film Pre-testing of materials on target farmers	Rs 6000 printing charge 500 copies + 1 full-time project staff @ Rs 300 * 3 days = Rs 6900 + Rs 500 composing fee * 10 posters = Rs 5000 Rs 100,000 * 3 films = Rs 300,000 Dubbing studio Rs 200 * 10 hours * 3 languages = Rs 6000 Rs 200 * 3 languages = Rs 600 Rs 200 * 200 copies = Rs 40,000 1-day workshop at Rs 2000 * 3 states = Rs 6000	364,500	5360
<b>Total</b>		<b>383,100</b>	<b>5634</b>

### STEP 3: SPREADING THE PROJECT APPROACH

Aquaculture research stations and NGOs interested in extending aquaculture should be familiarised with the on-farm research approach used in the project. This could be done by information exchange visits and meetings for officials and farmers alike, as well as booklets explaining the participatory research process.

**TABLE 6: COSTED RECOMMENDATIONS FOR EXTENSION OF FARMER PARTICIPATORY RESEARCH FRAMEWORK TO FARMERS AND AQUACULTURE EXTENSION AGENCIES. COSTINGS BASED ON ESTIMATES OUTLINED IN APPENDIX 1.**

Recommendation	Cost	Total	
		(Rs)	£
Exposure visits of Fisheries Extension Officers and NGO staff to project clusters	Rs 2 full-time staff @ Rs 300 * 2 days visit * 3 countries = 3600 + jeep hire @ Rs 900 * 2 days * 3 countries = Rs 5400	9000	132
Production of 300 copies of 3 languages 20-A4-page colour leaflet handbook in Farmer Participatory Research theory and practice	Composing fee Rs 100 * 20 pages = Rs 2000 + art paper front & back pages Rs 900 (all languages) + Maplito paper 200 copies (2 A4 pages) * 3 languages = Rs 3300 + printing charges Rs 800 (4 A4 pages) * 5 (to 20 pages) = Rs 4000 + Rs 1000 printing charge front pages block colour * 3 languages = Rs 3000	16,800	247
Distribution of printed materials	3 full-time staff @ Rs 300 * 5 days each = Rs 4500		
Farmer exposure visits to IBRFP project villages	Rs 150 food & transport * 100 farmers * 3 states = Rs 22,500	22,500	331
Forum for NGOs, KVKs, ICAR, DoF and others to meet and share experiences	Rs 5000 * 2 forums * 3 states = Rs 30,000	30,000	441
<b>Total</b>		<b>78,300</b>	<b>1151</b>

### The selected strategy

The relative accessibility of different types of extension media for the different stakeholders, combined with information on literacy rates, the range of target groups for dissemination activities, and the costs and feasibility of production, led to the choice of the following media:

- Video: local video producers quoted prices for the production of video programmes, which could be used by project staff or others in the local villages, most of which have community televisions in the Village Panchayat offices.
- Audiocassettes: can be produced locally and played at meetings as well as sold cheaply in local village shops.
- Posters and leaflets: local publishers can produce posters and leaflets for exhibition and distribution at villages meetings as well as larger more detailed booklets for extension staff.

- Folk drama, dances and songs: can be produced in the local dialects in each of the project states.

### **Broader issues**

There are a number of policy implications for the process of participatory research and development, the role that each play in extension and the linkage between the two. Developing a communication dissemination strategy for the promotion and dissemination of participatory aquaculture research is an essential component of the research itself. The cost is justified, though significant, and should be considered as a fundamental part of research project budgets. The cost of a communication dissemination strategy will vary with the professionals involved, the location, the nature of the project and the strategy. The aquaculture extension framework detailed above can be conducted for under £6000. The cost of researching and developing the strategy was in this case also approximately £6000. This in total represents about 6% of the research budget allocated to the project.

In broader terms, there is considerable agreement about the value of links between research and development organisations (of government, NGOs or donors). Extension represents an area of overlapping responsibility where linkage may bring mutual benefit. For example, research projects (commonly funded over a period of 3 years or less) that research directly with farmers, risk raising development expectations, which working alone they may not fulfil. Links with development agencies can help to satisfy expectations of continued support and ensure that messages are appropriate for the organisations that will extend and develop them. Equally, an important feature of participatory research, and the key to its sustainability, is the value of the process. Linkage between research and development and extension organisations facilitates the incorporation of participatory research into the mechanism of development.

Although this work deals with aquaculture extension in the context of participatory aquaculture research currently being conducted in eastern India, the method for identifying a participatory dissemination strategy; and the strategy itself has a generic element appropriate to the changing demands of natural resources research. It has contributed to and been developed in conjunction with the best practice guidelines for improving communication strategies (Norrish *et al.*, 1999a; Norrish *et al.*, 1999b).



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## Appendix 1: Extension material development costing

### TV and radio

To orientate the rural population about aquaculture, video films about aquaculture options (species, practices etc.) could be produced, and shown in village Panchayat offices, at farmers' fairs, in local schools for children of the 8<sup>th</sup> standard (12-13 years), etc. Such videos should be produced in the local language. The video should be short enough to keep attention focused (max. 45 minutes) and if targeted at children should include e.g. cartoons and popular songs.

Item	Cost (Rs)	Source
20-30 minute betacam*/u-matic video master copy	60-70,000	Mantrana Group
15-20 minute betacam/u-matic video master copy:		At a Glance
Shot in studio (over 2-3 days)	125,000	
Shot in field (one visit)	140,000	
Each subsequent copy	200	Mantrana Group & At a Glance
VHF master copy	2500-3000	YMCA
Each subsequent copy	200	
VHF video documentation		M/S Multi Media
Daily charge for 6-hour day	3500	
Rental of 4-wheel vehicle per day**	350	
VHF video reporting, per visit	5000	
15-30 minutes VHS video film (one visit)	15,000	
For every additional minute add	5000	
VHF press release section, per month	7000	
Audio-video library, per month***	5000	

\* Betacam video produces better quality master copies than VHF, which often cannot be played more than a couple of times before the tape disintegrates.

\*\* For out-door shooting the project must provide accommodation, food and a 4-wheel vehicle (alternatively the vehicle can be rented).

\*\*\* A room and other facilities for library must be provided by the project.

### Photographs, picture library

At fairs and exhibitions, photographs can be used to show project approaches.

Item	Cost (Rs)	Source
Still photography, colour, 5"×7", per photo*	60	M/S Multi Media
Photo feature, per album	1000	

\*A minimum of 15 photographs per visit are required.

### Cassette and radio

Item	Cost (Rs)	Source
Master copy folk song cassette	2-3000	Kalyan KVK, Purulia
Broadcast quality master cassette (2 songs)	3-4000	Mantrana Group
Each subsequent copy	15-20	
Small battery driven radio	150	All India Radio Station, Ranchi

The cost of broadcasting songs varies between radio stations. If the project aquaculture extension material included folk songs, they could be broadcast from the Ranchi Radio Station free of cost. However they have to pass an auditory test to get on the air. Frequently hosted by the All India Radio Station in Ranchi are stage shows held at different locations within the broadcast zone, lately in the heartland of the tribal zone. Shows feature light Indian music, and are held late in the evening (when all villagers have completed the day's work) about 2-3 times per year. Shows are extremely popular, with women, men and children attending often until late at night. Folk song shows are also held about 4-5 times per year. The theme of most folk songs are development issues, seasons, ceremonies and farming activities, and the format and content of these songs varies from region to region (Joseph Purti, Ranchi All India Radio Station, pers. comm.).

### Drama, dance and folk songs

Drama groups traditionally consist of youths from the villages. For the drama to be entertaining and relevant, it is important to consider the target group and the topic. Drama can be performed in selected small villages where villagers from neighbouring villages can come along to watch, about 2 villages in a cluster should be sufficient to cover everybody. For the recording of folk songs, the project can either provide the singer and the lyrics and record in a studio (e.g. with the Mantrana Group in Ranchi), or provide ideas to a producer who can then help write the lyrics and the music. These are relatively cheap to produce because of the short time frame involved (see section on radio for price details).

Item	Cost (Rs)	Source
Chow Dance*	10-15,000	Kalyan KVK, Purulia
Drama**	10,000	Mantrana Drama Group & M/S Multi Media****
Each subsequent performance***	1-2000	

\* Time-frame approximately 30-45 days.

\*\* Time frame approximately 10-30 days.

\*\*\* Depends on the number of actors (normally 10-15).

\*\*\*\* The group would require transport and accommodation for performances.

### Printed material

Item	Cost (Rs)	Source
1000 one page A5 low quality paper leaflet printed one side only	350	Mantrana Group
1000 four page A5 (up to 18" by 22" or one side print on A3)	750	
1000 four page A5 low quality paper leaflet	400	Doranda Press
Four page A5 colour leaflet (up to 18" by 22" or one side print on A3)		Sumudran Publishers
Composing fee per A4 page	750	
Black and white photos or sketches/line diagrams (each)	100	
Eight pages A4 Krimof paper (both side printing of 1 page A3)	80	
Folding charge (per 500 copies)	500	
	100	
<u>Posters:</u> for 500 black and white copies*	600-700	Sumudran Publishers
Printing charges for multicolour (4 colours)	6000	
<u>Newsletter / bulletin:</u>		
Front & back page 75% picture	750	
50% picture	600	
Whole page picture	1000	
1 colour block (2 A4 pages)	150	
Art paper (New Scientist type glossy thin coated paper) for front and back pages for all four language editions	900	
Black and white photo processing charge per picture	80	
Maplito paper (white good quality paper) superprinting 200 copies 2 A4 pages	50	
Krimof low quality paper (greyish thin) per language	100	
Printing charge: same prices for 100-3000 copies		
Cover 4 colours (4 languages)	6000	
5th colour per language	1000	
Black and white pages (per 4 A4 pages)	800	

\* Does not include processing fees - which depend on the job.

### Fairs, meetings, workshops and exhibitions

Fairs and aquaculture produce exhibitions can be held a number of times a year for farmers to exchange ideas and advice. Smaller meetings to direct the research (Matsya: Anusandhan Sahayak Committee (MASC) or Farmer Research Support Committee meetings) are already held regularly at village level, and in most areas there are regular village *harts* (markets). Larger fairs can be held at development block level, in block office common halls or the like. Here exhibitions or other aquaculture activities could be advertised beforehand, to attract farmers and research institutions, banks, government bodies, NGOs etc.,

for open discussions. In this forum farmers could raise their questions and give feedback directly to scientists, as well as discuss opportunities for institutional and financial support with the relevant organisations. The cost of a fair is likely to be about Rs 5000 (Dr. A.K. Singh, Ranchi Veterinary College, pers. comm.).

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<sup>ii</sup> The Indo-British Rainfed Farming Project in Eastern India is a bilateral development project supported by DFID to initiate a process of widespread and sustainable RNR development using flexible, cost effective and participatory approaches to improving livelihoods of poor women and men in rainfed upland area in West Bengal, Bihar and Orissa. The project has three main components:

- a. the integrated development of farming systems in 250 'core' villages, involving identifying and testing technologies to meet the needs and priorities of poor men and women farmers; design, construction and management of productive assets and undertaking of other activities in groups; and generating institutional capacity in villages to ensure long-term sustainability;
- b. spreading easily transferable technologies to 550 surrounding villages, using different extension methods and agencies;
- c. creating awareness, changing attitudes and developing skills in state government agencies to enable them to work together, and with NGOs, in a participatory way with poor men and women farmers.

It is a process project in which the activities undertaken are decided by farmers as the project proceeds.

<sup>iii</sup> The Matsya Anusandhan Sahayak Committees or Farmer Research Support Committee role is to plan, manage and report farmer research, to identify need for and request outside support, to host village based open days. Membership includes: 1 Members of farmers' group, 2 Chair of farmers' group, 3 Community Organisers from the Indo-British Rainfed Farming Project., 4 Aquaculture Research team members.

<sup>iv</sup> E.g. programmes such as Sustainable Aquaculture for Rural Development

<sup>v</sup> KVK: Krishi Vigyan Kendra (Farm Science Centres)

<sup>vi</sup> These include the stocking of only three species of carp rather than seven if only three are available, or the use of mustard oil cake in place of groundnut oil cake for feed if the latter is unavailable.

<sup>vii</sup> IBRFP: Indo-British Rainfed Farming Project

<sup>viii</sup> The Panchayati Raj enacted by the Government of India aims to install a tier of local democratic governance at village level with access to some funds and power to control resources.

<sup>ix</sup> In some villages the village Panchayat (local governing body) has supplied a TV, which is kept in the Panchayat Office, and often used in social clubs for men only. Women can however access the television if they want to see something in particular.

<sup>x</sup> A recent study Norrish, P., Morgan, K. L., and Myers, M. (1999a). "Improving communication strategies for the promotion and dissemination of NR research outputs to intermediate and end users." DFID & SEM.; Norrish, P., Morgan, K. L., and Myers, M. (1999b). "Best practice guidelines for improved communication strategies for the promotion and dissemination of natural resource research outputs." DFID SEM. pulled together the previous work examining uptake and impact and used it as the basis for research on improving communication strategies for the promotion and dissemination of NR research outputs to intermediate and end users. The research team carried out a series of in-depth case studies and from those has developed a set of best practice guidelines for programmes and projects (Norrish *et al.*, forthcoming). Their recommendation is that good dissemination and promotion has to be part of a well-defined communication strategy, which is put in place at the design stage of a project. The strategy operates at two levels. At the overall project level, concern is with all forms of communication needed for a variety of purposes, with and amongst a range of different stakeholders, and in relation to each communication activity (PRAs, meetings, workshop, farmers days) or 'product' (posters, leaflets, training materials etc). For the strategy to work the project needs to be participatory and based on the real needs of users.