

STREAM

Support to Regional Aquatic Resources Management



DFID NRSP Research Project R8100
Investigating Improved Policy on Aquaculture Service Provision to Poor
People
March 2002 – May 2003

Rural Aquaculture Service Recipients and Implementers Workshop

Ranchi, Jharkhand
9-10 May 2002

In Association with
Gramin Vikas Trust (GVT)

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Dr Graham Haylor
Mr William Savage

Dr S D Tripathi

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We appreciate the participation of Dr A K Singh, Assistant Professor of Birsa Agricultural University, Ranchi, for contributing his experiences to our workshop discussions.

We were fortunate to be joined by Mr Rakesh Raman, of the Publicity and Extension Cultural Group, who advised all of us on the use of media to document people's lives and experiences.

We thank each participant for working with us in such a productive and collaborative manner, and look forward to continuing our association with these friends and colleagues in Jharkhand, Orissa and West Bengal.

The Workshop

The “Rural Aquaculture Service Recipients and Implementers Workshop” was held from 9-10 May 2002 at the Catholic Charities in Ranchi, Jharkand. It was among the first activities of the DFID NRSP Research Project R8100 entitled “Investigating Improved Policy on Aquaculture Service Provision to Poor People”, and followed an Inception Visit by the authors to Ranchi and Purulia, West Bengal, in March 2002. The report of that visit (available in a separate document) was to be revised based on the outcomes of this workshop and the contents of this report.

Workshop participants (Appendix 1) included GVT staff, officials of Departments of Fisheries in Jharkhand and Orissa, faculty from Birsa Agricultural University, Jankars from villages in Jharkhand, Orissa and West Bengal, and farmers from communities in Jharkhand. Discussions, reportbacks and documentation took place in Bangla, English, Hindi and Oriya.

The contents of this report follow the sessions in the agenda (Appendix 2) of the workshop, the aim and objectives of which were:

Aim

Contributing to “giving people a voice” in policy-making processes that have an impact on their livelihoods

Objectives

Understanding experiences of rural aquaculture services provision from the perspectives of representative recipient groups

Defining a plan, mechanisms and indicators for the assessment of rural aquaculture services critical to the development of rural livelihoods

Understanding a process for transacting institutional and policy change

Opening Remarks

Welcoming the participants, Mr William Savage expressed his appreciation to the assemblage of all those who had made it possible to be present, especially the Director of Fisheries, Mr Rajiv Kumar, Dr Virendra Singh, GVT State Coordinator, West Bengal, and Mr Ashish Kumar, Deputy Director of Fisheries. He also gave a brief on the aim and objectives of the workshop. He hoped that the two-day deliberations would prove highly beneficial and lead to a successful end.

The workshop was inaugurated by the Director of Fisheries, Mr Rajiv Kumar, by lighting the lamp, followed by a speech in which he outlined the role of aquaculture in Jharkhand. With 95,000 ha of water area, the state was quite rich in resources. He opined that the produce of fish from a 0.4 ha pond was sufficient to sustain one family. He laid emphasis on the utilisation of seasonal ponds and production of marketable fish in six months. He also outlined government schemes for the development of aquaculture in Jharkhand, adding that the Tenth Plan had a budget of over Rs 70 million with some special provisions for harijans and tribals in respect of houses and nursery ponds. He also expected that GVT would collaborate with the department in training farmers. He concluded by thanking GVT for inviting him and providing this honour.

Dr Virendra Singh, GVT State Coordinator, West Bengal, proposed a vote of thanks. He cited how the “green revolution” had brought about an unbalanced development in a limited area in the western region, as compared to aquaculture in the eastern region that helps poor people. He suggested that the abundant resource of seasonal ponds in this region should be fully exploited. He outlined the importance of the GVT philosophy of working together. Collaboration with the Department of Fisheries would be further useful as farmers would be able to get subsidies and loans too. He thanked Mr Rajiv Kumar for sparing his time and wished that the deliberations of the workshop would be helpful in developing new policies that would help poor people.

With the inauguration over, Mr Savage resumed to discuss the agenda and the details of the project workplan. He then invited Dr S D Tripathi to present the results of the fieldwork undertaken from 2-5 May in Ranchi and Hazaribagh, Jharkhand.

Note: The Director of Fisheries, Mr Rajiv Kumar, wanted to discuss and exchange his views on certain aspects of fisheries and aquaculture development in Jharkhand. He invited Dr Tripathi during the inaugural function to visit the Directorate after the workshop was over. Accompanied by Mr Ashish Kumar, Deputy Director of Fisheries, Dr Tripathi made it after lunch on 10 May. A summary of their discussion can be found in Appendix 12.

Inception Report

The workshop provided the first opportunity for feedback on the project design from people who live and work in tribal communities in the three states of Jharkhand, Orissa and West Bengal. Three parts of the Inception Report were presented, followed by questions and comments for clarification from participants:

- The project workplan detailing timing, activities and roles and responsibilities (Appendix 3)¹.
- The project flowchart diagramming the process proposed through May 2003 (Appendix 4).
- The final two sections excerpted from the Component Concept Note draft on policy recommendations and development support (Appendix 5). (The full note is included as an appendix in the Inception Report. It was drafted following the March 2002 Inception Visit at the request of the Fisheries Commissioner, Dr Nair, and represents initial ideas for policy change recommendations.)

Fieldwork Outcomes

As can be seen in the project flowchart in Appendix 4, fieldwork was carried out before the Recipients and Implementers Workshop, with an aim to gain an initial understanding of people's experiences of aquaculture service provision. The fieldwork framework (Appendix 6) was progressively developed over the four days of fieldwork. A complete set of notes from the fieldwork activities and discussions appears in Appendix 7. Community colleagues from the fieldwork villages were invited to participate in the workshop, including Jankars from the two GVT-supported villages, recipient farmers from the second government-supported village, and farmers from the village with no support.

An analysis of the fieldwork notes resulted in a presentation of the fieldwork outcomes (Appendix 8), which was written in English, organized for consistency around the draft research questions from the study on "lessons learnt from elsewhere", translated and presented in Hindi.

¹ The numbers in parentheses in the project workplan and flowchart are in reference to the activities in the project logframe, which is included in the Inception Report.

Project Workplan, Draft Policy Recommendations and Indicators

Participants were asked to provide feedback on the project workplan and the draft policy recommendations in the Component Concept Note. A request was also made to propose indicators for the project, by responding to the question: “How will we know if progress is being made towards people’s participation in policy change?”

Six “stakeholder” groups were formed for the discussion so that different perspectives would emerge (Appendix 9). The groups were:

- Field Specialists (GVT)
- Government Officials (DOF)
- Community Organizers (GVT)
- Jankars (West Bengal)
- Jankars and Recipients (Jharkhand)
- Jankars (Orissa)

On the project workplan, significant comments concerned the necessity to hold workshops in each of the three states, especially involving state and district government officials, as well as members of tribal communities, and that this should take place before the Stakeholders Workshop. This was seen as essential for any real change, since it is perceived that constraints to aquaculture service provision primarily lie in implementation processes at district and state levels, although it was acknowledged that efforts towards policy change at central and state levels was also important.

Also on the workplan, another useful suggestion was about the “agreement of a plan, mechanisms and indicators”, presently placed after this workshop and before the start of the three parallel strands before the Stakeholders Workshop. It would be necessary that this be a continuous process, that the plan, mechanisms and indicators be revisited before and during the Stakeholders Workshop “for more feasibility, clarification and changes if required”.

Comments on the draft policy recommendations were of two types: those which are directly related to people’s participation and policy change, and other elements of the recommendations, and those of a more technical nature.

There was some difficulty for the groups to propose indicators for the project’s progress towards people’s participation in policy change. Most of the suggestions are potential indicators concerning the improvement of people’s livelihoods and technical aquaculture, natural resources and socioeconomic changes. These are instructive outcomes: it is perhaps too early to define indicators and perhaps it was beyond the awareness of this group to do so. The indicators will need to be developed “in some other way”, although there were some useful suggestions made by participants.

Case Studies

The “central” of the three parallel strands to follow this workshop, and to inform each other and subsequent project activities, is a set of case studies. A number of these, using a variety of media, will be commissioned (funded by the project) in Jharkand, Orissa and West Bengal.

It was pointed out that the purpose of the case studies is to show people’s experiences of aquaculture service provision from their perspective, about specific issues, with specific groups of fishers, farmers and other relevant “actors”, in Schedule Tribe, Scheduled Caste and “Backward Class” communities. Participants were asked to suggest the sorts of issues which need deeper understanding, the groups whose “voices” would be documented in the studies, the organizations and agencies which could conduct the studies, and the methods and media which could be used.

Participants were re-grouped according to states, with a cross-section of “stakeholders”, since these would be the colleagues who would potentially be working together to carry out the studies. Their responses are in Appendix 10.

The groups came up with numerous issues. These will need to be reviewed as to their relevance to people’s experiences of service provision and the most appropriate ones selected. A contact person will need to be identified to liaise with those organizations, agencies and persons who will collaborate in doing the case studies. In addition to GVT and state Departments of Fisheries, consideration should be given to involving a Ranchi-based NGO that was represented at the workshop, the Organization for Developmental Activities (ODA).

Proposals for case studies should be elicited, with detailed descriptions using the basic framework shown in Appendix 10, with workplans and budgets.

It will be necessary to build on the suggested methods and media in order to develop creative ways of documenting people’s experiences of government aquaculture service provision, beyond the “conventional research methods” of, for example, surveys and questionnaires.

It will also be necessary for time to be spent with the case study teams at an interim stage, to review what has been done and to begin to shape the material. Mr Rakesh Raman may be requested to assist in this task.

Follow-up Actions

The Recipients and Implementers Workshop should be followed up with the actions shown in the table below. It should be noted that if, as strongly advised, it is decided to hold workshops in each of Jharkhand, Orissa and West Bengal, before the Stakeholders Workshop, these will need to be carefully scheduled. Periods which do not conflict with holidays in India are September, 1-5 and 23-31 October, November and 1-21 December.

What	When	Who
Write up workshop report	11 May	BS, SDT
Send workshop report to GVT, DOF, participants and DFID	18 May	BS, GH
Revise Inception Report	24 May	GH, BS, SDT
Send Inception Report to Fisheries Commissioner, GVT, DOF and DFID	31 May	GH
Proposals for case studies submitted	15 June	GH, BS
Finalize participants for state workshops and Stakeholders Workshop	30 June	GH, BS, SDT
Finalize participants in Consensus-Building Process	30 June	GH, BS, SDT
Begin case studies	1 July	GVT, DOF+
Begin planning for Stakeholders Workshop	15 July	GH, BS, SDT
Initiate Consensus-Building Process (three months)	15 July	GH, BS, SDT
Review of case studies	August-September	BS+
Case studies presented at state workshops in Jharkhand, Orissa and West Bengal	September	
Case studies presented at Stakeholders Workshop	November	

Evaluation

Participants were asked to evaluate the workshop by responding to these questions:

- How much have we achieved the objectives of the workshop?
- What do you think about the workshop sessions and methods?
- How do you feel about your own participation and contributions?
- What have you learned over these two days?
- Anything else?

Their responses can be found in Appendix 11.

Changes to the Inception Report

Based on the feedback from the workshop participants, these changes to the project workplan and the Inception Report are recommended:

- The policy recommendations in the draft Component Concept Note may be modified and expanded based on participants' suggestions (Appendix 9), in particular those which relate to people's participation and policy change.
- The project flowchart should be revised to reflect the desirability of having the "Plan, mechanisms and indicators agreed" (Box 1.2), also taking place during and after the three parallel strands (2.1, 1.3, 2.2) "for more feasibility, clarification and changes if required".
- Indicators to assess progress towards policy change, and people's participation in it, will need to be developed "in some other way", although there were some useful suggestions made by participants.
- It will also be necessary for time to be spent with the case study teams at an interim stage, to review what has been done and to begin to shape the material.
- The Consensus-Building Process on "Understanding 'modes and priorities for policy change'" (2.2) should start from 15 July and run for three months.
- State-level workshops should be held in Jharkand, Orissa and West Bengal, especially involving state and district government officials, as well as members of tribal communities. These workshops should take place before the Stakeholders Workshop.
- The Stakeholders Workshop should be held later in the year, perhaps in November or December.

Appendix 1
Participants

	Name	Position	Location
1.	Mr Rajiv Kumar	Director, DOF	Ranchi, Jharkhand
2.	Mr Ashish Kumar	Deputy Director, DOF	Ranchi, Jharkhand
3.	Dr Virendra Singh	GVT State Coordinator	Purulia, West Bengal
4.	Dr A K Singh	Asst Prof, Birsa Agricultural University	Ranchi, Jharkhand
5.	Mr Ranjit Keshari Das	Deputy Superintendent of Fisheries, FFDA	Dhenkanal, Orissa
6.	Mr Prafulla Kr Choudhury	Fisheries Extension Officer, FFDA	Dhenkanal, Orissa
7.	Mr Pabitra Mohan Baral	Pradhan, Batagaon Village	Dhenkanal, Orissa
8.	Dr K P Singh	Field Specialist Aquaculture, GVT	Ranchi, Jharkhand
9.	Mr Gautam Dutta	Field Specialist Aquaculture, GVT	Purulia, West Bengal
10.	Mr B K Sahay	Field Specialist Social Development, GVT East	Ranchi, Jharkhand
11.	Mr K D D Singh	Community Organiser, GVT	Bagda, Jharkhand
12.	Mr Birendra Kumar	Community Organiser, GVT	Hazaribagh, Jharkhand
13.	Mr Gulshan Arora	Community Organiser, GVT	Ranchi, Jharkhand
14.	Mr A G Das	Senior Community Organiser, GVT	Baripada, Orissa
15.	Mr Debapriya Ghosh	Community Organiser, GVT	Keonjhar, Orissa
16.	Mr Keshabananda Patra	Community Organiser, GVT	Baripada, Orissa
17.	Ms Jhinuk Ray	Community Organiser, GVT	Jhargram, West Bengal
18.	Mr Bhukal Singh Munda	Jankar, Merhi Village	Ranchi, Jharkhand
19.	Ms Manjula Topo	Jankar, Ganeshitand Village	Hazaribagh, Jharkhand
20.	Ms Poonam Devi	Jankar, Ganeshitand Village	Hazaribagh, Jharkhand
21.	Mr Md Rustam Khan	Jankar, Lakhnu Village	Hazaribagh, Jharkhand
22.	Mr Ashok Kumar Sahoo	Jankar, Khajuria Village	Dhenkanal, Orissa
23.	Ms Janaki Sahoo	Jankar, Khajuria Village	Dhenkanal, Orissa
24.	Mr Kshetrabasi Naik	Jankar, Rajnagar Village	Keonjhar, Orissa
25.	Mr Raisen Murmu	Jankar, Laxmipasi Village	Mayurbhanj, Orissa
26.	Mr Kuddus Ansary	Jankar, Khawasdihi Village	Barabazar, West Bengal
27.	Mr Purnachand Soren	Jankar, Nalbon Village	Midnapur, West Bengal
28.	Mr Dhiren Singh	Jankar, Banstola Village	Midnapur, West Bengal
29.	Ms Laxmi Manjhi	Jankar, Banstola Village	Midnapur, West Bengal
30.	Mr Bhim Nayak	Farmer, Falwar Toli Village	Bundu, Jharkhand
31.	Mr Krishna Machhua	Farmer, Falwar Toli Village	Bundu, Jharkhand
32.	Mr Rash Bihari Baraik	Recipient, Chotachangru Village	Silli, Jharkhand
33.	Mr Manohar Naik	Recipient, Goradih Village	Silli, Jharkhand
34.	Mr Rakesh Raman	Publicity and Extension Cultural Group	Ranchi, Jharkhand
35.	Ms Smita Shweta	Community Organiser, GVT; co-facilitator	Ranchi, Jharkhand
36.	Ms Pinki Sinha	Asst Field Specialist, GVT; co-facilitator	Purulia, West Bengal
37.	Mr Rajesh Kumar	Senior Computer Staff, GVT	Ranchi, Jharkhand
38.	Dr S D Tripathi	Consultant	Mumbai
39.	Mr William Savage	Facilitator	Bangkok, Thailand

Appendix 2
Agenda

Thursday, 9 May

0830	Arrival and registration	
0900	Welcome and workshop aim and objectives	Mr William Savage, STREAM
	Lighting of the lamp and Remarks by the Chief Guest	Mr Rajiv Kumar, Director of Fisheries, Jharkhand
	Felicitation	Dr Virendra Singh, GVT State Coordinator, West Bengal
	Introductions	Mr William Savage
0930	Overview of the workshop	Mr William Savage
0945	Presentation of the Inception Report	Mr William Savage
1015	Comments from government, GVT and recipient colleagues	
1030	Break	
1100	Presentation of fieldwork outcomes: experiences of services provision	Dr S D Tripathi
1145	Discussion	
1230	Lunch	
1330	Feedback on the workplan and draft policy recommendations, and proposing indicators	Groupwork by stakeholders
1500	Break	
1530	Reportback	
1630	Finish	

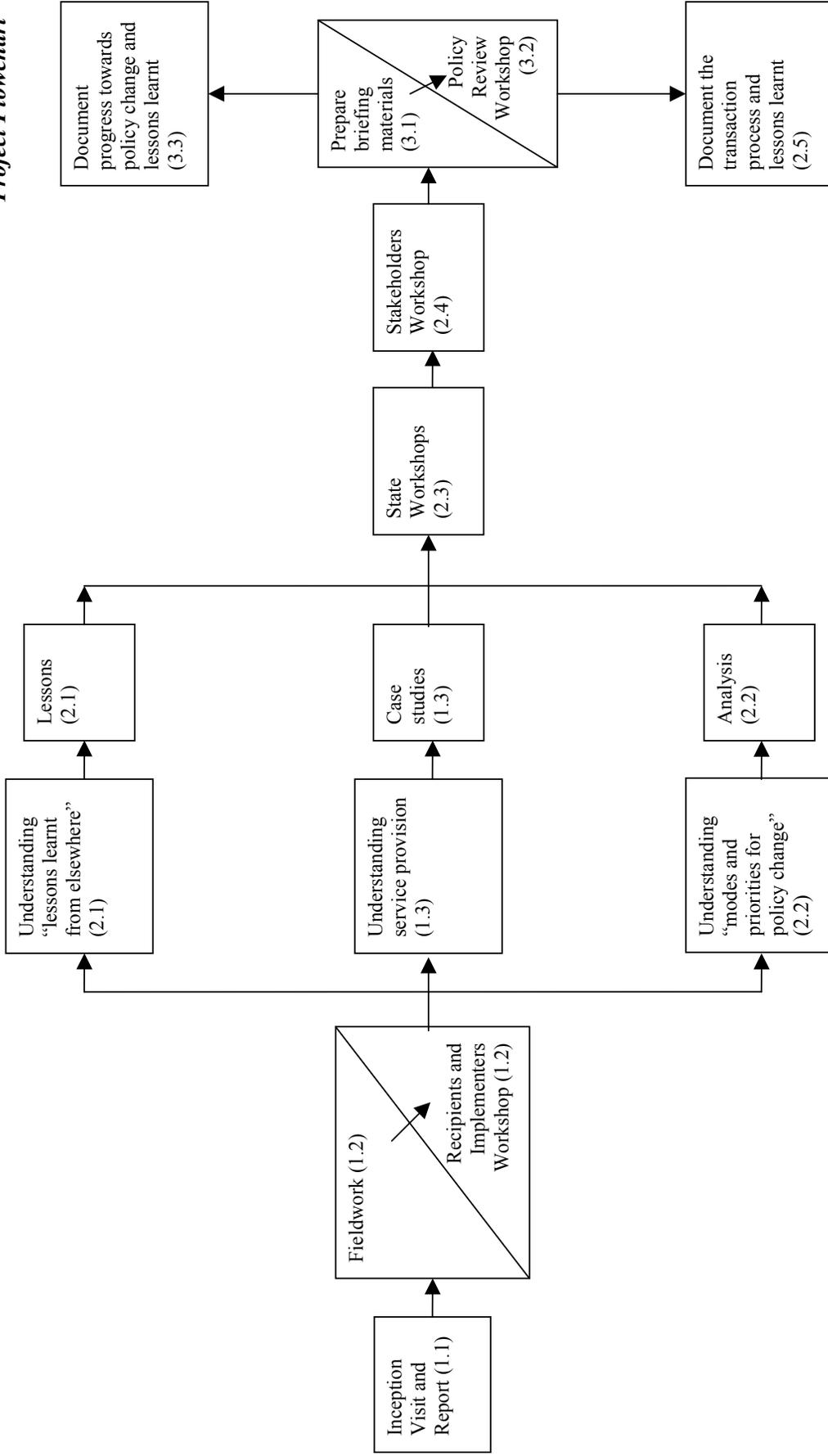
Friday, 10 May

0900	Commissioning “case studies”	Groupwork by state
1100	Reportback	
1230	Follow-up actions from the workshop	Mr William Savage
1245	Workshop evaluation	
1300	Finish and lunch	

Appendix 3
Project Workplan

Month	Activities	Roles and Responsibilities
March 2002	Inception Visit (1.1)	Co-ordinator (Graham Haylor) and Communications Specialist (William Savage) travel to Mumbai, Delhi and Ranchi to meet Dr Tripathi, Dr Ayyappan, DFID India, Fisheries Development Commissioner, ICAR Deputy Director General (Fisheries), VSO, GVT CEO, GVT Ranchi and West Bengal, and DOF Ranchi Visit tribal areas in Jharkhand and West Bengal to identify specific locations, key actors and processes Plan first workshop (1.2) for May 2002
May 2002	Inception Report (1.1) on feasibility and process for transacting change, drafted	Prepare Inception Report detailing feasibility, process, and a revised project workplan and logframe For feedback and revision at the Recipients and Implementers Workshop (1.2)
May 2002	Recipients and Implementers Workshop (1.2)	Communications Specialist to facilitate in Ranchi, with advance fieldwork in tribal areas in Jharkhand with Dr Tripathi, GVT co-facilitators and DOF Ranchi Submit workshop report detailing agreed plan, mechanisms and indicators
May-December 2002	“Lessons learnt from elsewhere” (2.1)	Co-ordinator to engage a researcher on study of “lessons learnt from elsewhere” Draft to be presented and discussed at Stakeholders Workshop (2.3) for feedback
July 2002 – February 2003	Conduct case studies (1.3) in tribal areas, highlighting service provision from recipients’ viewpoints, and eliciting recommendations for change	In Jharkhand, Orissa and West Bengal, in collaboration with GVT, DOF and FFDA, facilitated so that service recipients “can be given space to explain how it is for them”, using a variety of media and local languages
July 2002 – February 2003	Conduct a process characterized by anonymity of responses and iterative and controlled feedback, with representatives of key stakeholder groups, to arrive at a consensus on “modes and priorities for policy change” (2.2)	Involve key policy actors in a consensus-building process using a Delphi technique and analysis, with inputs from the “lessons learnt from elsewhere” (2.1) and case studies (1.3)
September 2002	State workshops (2.3)	State workshops will be held in Jharkhand, Orissa and West Bengal especially involving State and District Government officials as well as number of tribal communities
December 2002	Stakeholders Workshop (2.4)	Stakeholders engage to agree indicators for assessing progress in the process of transacting institutional and technical change
March 2003	Prepare briefing materials for Policy Review Workshop (3.1)	Prepare briefing materials and plan workshop based on deliverables from activities 2.1, 1.3 and 2.2
April 2003	Policy Review Workshop (3.2)	Facilitate Policy Review Workshop
May 2003	Draft documents (3.3) (2.5)	Report on the progress towards policy change and lessons learnt, and on the transaction process and lessons learnt

**Appendix 4
Project Flowchart**



Appendix 5
Component Concept Note Excerpt

Component Concept Note (DRAFT)
Aquaculture Diversification and Self-help Investment Support
ADIVASIS

2.7 Policy Recommendations

Establish a new component of a scheme called ADIVASIS (Aquaculture Diversification and Self-help Investment Support) based on a participatory approach to understand the strengths, resource use priorities and constraints of (poor) farmers and fishers.

Move towards a process rather than a target-oriented approach so that recipients play a role in defining the services they need (diverse choice in the aquaculture system they employ, control over the supply of inputs, date of harvest, nature of loan or repayment schedule). Key to this will be:

- Capacity building in participatory and livelihoods approaches of fisheries officers
- Awareness raising of poverty focussed aquaculture options among fisheries officers
- Encourage the formation of self-selected Aquaculture Self-help Groups (ASHGs) based on common interests among (poor) farmers and fishers
- Provide support to establish group savings and micro-credit schemes among ASHG

Support the development of innovative extension and communication approaches, including the use of mass media and links with other service providers in Asia-Pacific.

Set up a commission to address disputes over access and leasing rights which constrain aquaculture. Even where leasing is controlled by legal statute, problems still exist.

2.8 Policy Development Support

If the component is proposed for the Tenth Five-Year Plan, the DFID NRSP project and the NACA STREAM Initiative would be able to work with Government of India and selected State governments to define and pilot the component.

Appendix 6
Fieldwork Framework

Fieldworkers	Dr S D Tripathi; Pinki Sinha, Smita Shweta and A G Das (GVT); Ashish Kumar (DOF Jharkhand); Bill Savage
Duration	Thursday-Sunday, 2-5 May 2002
Location	Jharkhand
Villages	<p>Recipients of:</p> <p><i>GVT support</i></p> <p><u>Thursday</u>: Muretha Village, Bagada Cluster, Ranchi District; CO: D D Singh; Jankars: see fieldwork notes</p> <p><u>Friday</u>: Partumba Village, Ganeshitand Cluster, Hazaribagh District; CO: G K Arora (HQ), Virendra Kumar, Vijaya Trivedi; Jankars: see fieldwork notes</p> <p><i>Government support</i></p> <p><u>Saturday</u>: Chhota Changru Village, Panchayat Patrahatu, Silli Block, Ranchi District; Recipient: Rash Behari Baraik</p> <p><u>Sunday</u>: Gomda Toli Village, PO Rahe, Sonahatu Block, Ranchi District; Recipient: Madhav Mahato</p> <p><i>No support</i></p> <p><u>Sunday</u>: Fulwari Toli Village, Bundu Block, Ranchi District; Village “leader”: Bhim Nayak</p>
Key informants	Men, women and youth grouped together or separately as appropriate
Method	<p>Group discussions using a modified combination of these PRA tools:</p> <ul style="list-style-type: none"> ▪ Strength Analysis (to understand community capacity and resources) ▪ Problem Analysis (to understand issues of concern to communities) ▪ Venn Diagram (to understand institutional relationships and service provision) <p>On the first day of fieldwork, the procedure used by the facilitators was documented, and then followed on the second day. Modifications were made to the description of the procedure, resulting in the method shown on the next page.</p>
Content	The content areas for discussion were drawn from the key questions in the research framework of the masters thesis study on “lessons learnt from elsewhere” on transacting policy change. That study’s key questions were modified according to the fieldwork context, as shown on the page after next.

Method

1. Explain that the purpose of the visit and discussions is to learn about:
 - the services and support provided by government, NGOs (GVT) and others
 - changes in people's livelihoods and constraints to the improvement of livelihoods
 - how people have participated
2. Divide the large group into three smaller groups of men, women and youth (10-20 people in each).
 - If there is obviously one person who can guide the group's discussion (and can write), ask them to write down the ideas. (This was the case with a men's group.)
 - For a group in which there is no person to write, the facilitator can lead the discussion and take notes. (This was necessary with a group of women.)
 - If there is a "natural" leader (e.g., a jankar), then they can lead the discussion and take notes. (This was possible with a group of young men.)
3. In each small group, suggest that a diagram be drawn together to show people's perceptions of the different "institutions", and their services and support, and how much they have become a part of the village and peoples' livelihoods.
4. To begin a synthesis of the discussions, the three persons who facilitated each of the three groups can show the diagrams to the whole group, and engage in an open discussion to get an understanding of what was common and what was different across the three groups. (Ensure that women's and youths' views are clearly represented since they may not be as vocal as men in a large group setting.)
5. Ask the small groups to talk about whether there are other "institutions", services and support that they would like to see "in the village". If these are written by a member of each group, they can be asked to read them out.
6. Finally, ask how they would like to see themselves participate in decisions about and processes of services and support from government and non-governmental institutions.

Content

Services and Support

What services and support have been provided by whom and when? Have seasonal variations affected services and support, for example?

What have the services and support consisted of? Has it been advice, and if so, how was this provided, e.g., in written or verbal formats? Were any media used such as radio and newspapers?

If it has been capacity-building or aquaculture techniques, how has this been implemented, and by whom, e.g., local expertise or from other states?

If it has been goods, how have these been provided?

What is the private-public split in terms of information and goods?

How has the provision of services and support differed between the various actors, government and GVT? What have been the similarities? What relationships and lines of communication and contact have people had with the service providers? How have recipients mobilised themselves in these interactions, e.g., an aquaculture expert, or village leaders (not necessarily with aquatic resources experience)?

For people who have had minimal, or no support, do they want it? Have they known about work elsewhere, and how have they felt about not being included? Have any groups been left out completely, and if so, for what reasons?

Other Sectors

What services and support have there been in other sectors such as education and health? What lessons can be learned from these, especially about best practices? To what extent have decentralized services and support made any difference, for example, feedback systems for policy making?

Livelihoods

What can be learned about income levels, or other livelihoods improvements, among the various key informants, as a result of aquaculture services and support? If so, what has made the difference and why? Has it been attributable to changes in policy?

Participation

How, if at all, have recipients contributed to the design of services and support provision? Has there been a feedback loop for people to voice their concerns and have these been heard? If there has been feedback, has it changed anything? If not, why not? What have been the bottlenecks? Has everyone been able to voice their thoughts: what kind of “democracy” is in operation, for example?

Appendix 7
Fieldwork Notes

2 May 2002

Muretha Village, Manjhauli Tola, Bagada Cluster, Kanke Block, Ranchi District

Local Jankar: Mr Bhukhla Singh Munda

Urugutu Jankar: Mr Mahendra Munda

The team comprised Mr William Savage, S D Tripathi, Mr A G Das, Mrs Pinki Sinha, Mrs Smita Shweta and Mr D D Singh, CO Bagada

Mr D D Singh made the opening remarks and indicated that the village has 84 households in six hamlets (tolas), the maximum number (64) belonging to the scheduled castes (*bhoktas*) while the rest comprise scheduled tribes. The village was first covered by developmental activity by Hindustan Fertilizers in 1989 and then continued by Kribhco since 1995. It is now an exit village since June 2001.

Mrs Pinki Sinha introduced the visitors to the villagers and the purpose of the visit indicating that we were there to learn how the interventions of various agencies, be it the government or NGOs, have impacted the livelihood of the villagers and in what way, what lessons have been learnt and what is expected now.

The villagers were divided into three groups comprising 16 men, 14 women and 12 young men (youth).

Mrs Pinki Sinha facilitated the men's group, and those of women and youth by Mrs Smita Shweta and Mr Mahendra Munda.

Men's Group: The men's group discussed the situation before and the changes brought about after the intervention and listed these on a chart paper as follows:

Before intervention	After intervention
Only one crop, felling the trees and selling the wood	Two crops, vegetables also
Main crop was paddy of local variety, maize and minor millets	Improved varieties of paddy, maize, pigeon-pea and other pulses
No wheat or potato	Now wheat and potato also
Poor irrigation facility	Improved irrigation facility, check dams, wells, ponds
Capture of wild fish for domestic consumption	Scientific fish culture now, lucrative and profitable that has helped increase Group Fund
No plantation	5,000 plantation

No other NGO has visited the village except GVT but through it the Block activities have been started. Roads, well, Indira Awas, culvert and school have been the items of support and services provided by the Block. The Forest Dept has also provided 60,000 saplings of Ziziphus, bamboo, jack-fruit and others.

GVT also introduced a new chapter in the village through skills development. Now there are Jankars in the village. The hesitation has gone and the villagers can now talk to anybody without reservation, which shows the result of empowerment. The men wanted training in aquaculture and animal health.

Women's Group: As none in the women's group was able to write, the observations were noted by Mrs Sweta. The women participants mentioned that before the intervention they had neither any knowledge nor skills about the various agricultural or income-generating activities. There was no water and they had to depend on rainwater alone. Wild fish alone was available that was purchased at Rs 40/kg and local variety of paddy cultivated. There was no road. However, after the intervention they have found a number of vocations:

- They have developed skills through training.
- A market is available at Urugutu.
- Water is available for fish culture, irrigation and raising vegetable crops.
- Fish is regularly available for consumption and the Group marketed it at Rs 35/kg.
- Crop yields have improved and good varieties are used.
- Goats are now available with almost everyone.
- Rope-making has become a profitable enterprise as machines are provided.
- Money is saved and deposited in the Group Fund that is provided to members on credit.

It was only after five years of KRIBHCO intervention that, in 2000, the government stepped in. These activities comprise:

- Construction of a retaining wall
- Digging of wells
- Construction of houses under Indra Awas Yojana
- Setting up of kitchen gardens (seed of improved varieties is provided from the Birsa Agricultural University)
- KV pump machines have been provided

The Group wants the road to be cemented to carry the vegetables to the market, knowledge to be imparted, veterinary care and human health care.

It feels that pictures and posters are the best media for information dissemination but these would require explanation. Experts should be made available for capacity building.

As far as fish culture is concerned, they now serve the guests with fish, harvest when required and get a good price. While the Group Fund from all activities has totaled Rs 35,000, aquaculture alone has provided Rs 14,000.

The areas of skills development are rope making, bed making, marketing, seed sowing, aquaculture, use of fertilizers, maintenance of hygiene, awareness towards drinking water and literacy.

Youth Group: The youth group made a comparative study as noted below:

Before intervention	After intervention
No organisation	Group formed and development programmes discussed
Government officers never visited	Linkages established and officers started visiting
Fields were undulating, no technical knowledge about agriculture	Soil conservation work undertaken, technical information provided along with quality seed
Small ponds existed but no fish culture	Training in fish culture organised, quality seed provided that led to good returns and high profits
Cattle died of disease as no provision existed	One person trained in cattle disease in each hamlet and cattle are vaccinated before the occurrence of the disease
No savings	Kribhco advised on the importance of savings and as a result the Group has Rs 50,000 in the bank
No agricultural implements	Hul and water pumps provided
No medical facility	Health camps now being organised from time to time
No irrigation facility	Wells and check dam constructed
No vegetable production	Visits to vegetable gardens organised to enable taking up this activity
No linkages with governments	Linkages established, resulting in road construction, opening a school and construction of a culvert and group housing by the Block Office
Dobas were only source of drinking water, hence diseases	Dobas converted into wells by Kribhco and Block provided hand pumps; no diseases now due to drinking water
No fruit and vegetable cultivation	Kribhco provided plants
For thrashing paddy, one had to cover 20-25 km	Threshers for paddy and wheat provided savings in time and money
No knowledgeable person	Now 12-14 Jankars in a cluster
No training earlier	Various kinds of training programmes being organised now
	Improvement in living standards and also interest in reading and writing such as recording the proceedings of group meetings
	Fish culture helped in improving nutrition as 20 kg of fish was provided free of cost and also building up group funds where Rs 12,000 were deposited
	Collective decisions now based on discussions in the Group and weekly deposit in the fund

The problems being faced even today are:

- No health centre
- No teachers in the school
- Pumps for irrigation required
- Poor road connection
- No electricity
- No anganwadi
- No bank in close proximity

The best way to get information is through Block officers, wall posters and radio.

3 May 2002

Partumba Village, Ganeshitand Cluster, Sadar Block, Hazaribagh District

The village is located about 100 km from Ranchi on Patna Road, 1.5 km off Hardu Chowk, and about 12 km south of Hazaribagh town. It has 26 households comprising 80% Scheduled Tribes and 20% Scheduled Castes.

There are two COs and eight Jankars for different disciplines:

COs

Mr Virendra Kumar (Sociology)

Mrs Vijaya Trivedi (Sociology)

Jankars

Mr Jagannath Oraon, BA, Group Jankar

Mr Jhammu Ram, Accounts

Mr Kartik Oraon, Aquaculture and Forestry

Mr Hemant Oraon, Hand Pump

Mr Krishna Ram, Crops

Mr Baleshwar, Veterinary

Mrs Poonam Devi, Carpet making

Mrs Rajmani Devi, Group Jankar

The participants in the meeting comprised 14 men, 16 women and 6 young men.

Men's Group: The group indicated the following support services that were provided by the Government and NGOs, the latter being GVT alone, although about two decades ago, St Robert Missionary had distributed free rations in the village.

Government	GVT
Well	GPS and GP Fund
Road	Training in different disciplines
Bank loan for agricultural activities	NFE centre
Hand pump	Irrigation facility
Indira Awas	Agricultural implements
	Paddy dehusking machine
	Aquaculture (Indian and exotic carps)
	SWC/WRD/LIS
	Duckery
	Mat weaving
	Leaf plate making machine
	Threshing floor
	Hand pumps

Women's Group: The group had more or less similar observations.

Government	GVT
Well	Aquaculture integrated with duck culture
Road	Leaf plate making machine
Indira Awas	Pump sets (KV pump)
Pulse Polio	Carpet making machine
	Exposure visits
	Seed distribution
	Nursery
	Compost pits
	Soil conservation
	Pond excavation

Youth Group: The group had, as expected, different ideas. The group realised that there was nothing in the village to engage them and they had to go out for employment, there being only one crop of paddy that provided little employment. Despite their keen desire to go to school, they couldn't go as they were poor and the school was located far away. There were few educated people in the village. They did not have enough to feed themselves twice a day. The cattle suffered and died, especially during the summers, as there was no drinking water facility for them and this made agricultural activities all the more difficult. With the coming of GVT, several changes have been brought in the livelihoods. First, they organised themselves in a group, then started depositing Rs 30 per month in the Group Fund. Hand pumps provided good quality drinking water. A pond was also constructed that provided drinking water facility for the cattle besides irrigation and fish culture. A 5-HP pump enabled cultivation of wheat. Improved variety of paddy seed was made available, which resulted in increased production and now satisfies needs for six months as compared to the past when it was barely enough for four months. Rabi cultivation of wheat, potatoes and gram, besides green vegetables and this meets requirements for green vegetables that they did not have earlier. Potatoes are sold too.

With the installation of the dehusking machine, the problem of going to another place and paying money to someone else does not exist any longer and the money thus earned is deposited in the Group Fund. The night school organised by GVT is attracting a good number of students and almost all the village children are now going to the school. Similarly, attention is now being paid to cleanliness and hygiene with

the result that disease occurrence has lessened. Diseases among cattle are also checked by training a person from the village.

A soil conservation program has been highly useful in preventing erosion and improving cultivation.

Future Requirements

Men's Group

- The first and foremost requirement is a school
- Community hall for villagers to assemble
- A big check dam for irrigation
- Good road for commuting to and from the village
- Health centre
- Electricity
- All unemployed young men and women need to be linked with some kind of employment programme
- Deep boring using solar energy
- Solar lamp
- Training for all unemployed youth

Women's Group

- Tube well
- Electricity
- Sewing machines
- Candle moulds
- Repair of the wells
- Biogas plants
- Solar energy
- Exposure visits
- Quality seed for agricultural crops
- Community hall
- Road repair

Youth Group

- Electricity
- Road
- Check dam
- Community hall
- Middle school
- Community tractor
- Compounder
- Boring using solar energy

All of the groups were of the opinion that the share of GVT should be increased to 75% so that the group could save some more money and deposit it in its fund to be used in emergency situations.

4 May 2002

Chhota Changru Village, Panchayat Patrahatu, PO Bara Changru, Silli Block, Ranchi District

The village is located 70 km from Ranchi on the Patna road, 10 km from Silli. The whole village is tribal with 50 households in Chhota but another 50 in Bara Changru that has a general population. Mr Rash Behari Baraik is a leading light involved in commercial aquaculture. He supplies about 30 million (three crores) fish fry in the neighbouring areas including Bihar and West Bengal. He has taken ponds on long-term lease where he raises the fry. Presently he has two ponds from the government and one from a private farmer on lease. The DOF has also constructed two nurseries for him and provided a net. He has two large tin carriers for transport of fry and a mini-truck that enables him to deliver the fry to farmers in distant places. He also takes contracts for fishing in the ponds on a commission basis sharing 25% of the catch for big carps and 50% for small fishes. The spawn is purchased at Rs 200/*bati* (30,000 spawn). The leftover seed is sold at Rs 40/kg while the big fish is sold at Rs 50/kg in the market.

Mr Baraik was complaining about the poor quality of seed from the Sone, Kosi, Gandak Damodar. He uses mustard oilcake, rice bran, *chura*, groundnut oilcake (rarely) as feed and cow dung, urea and super phosphate as fertilisers. To control diseases, 300 g of tetracycline is mixed with 50 kg of mustard oilcake and provided in 0.4 ha of pond area for 7-10 days. Trash fish are eradicated using a commercial product ENDOCEL from Excel Industries which has endosulphan (35% mm) as an active ingredient. (This is not a good substance and can cause convulsions in human beings that could be controlled by phenobarbitone.) The fish are killed in less than two hours and are eaten too. He employs about 50-60 persons during the summer and monsoon for about five months.

The discussions were organised in two groups.

Men's Group

What is already available in the village:

- 40 houses constructed under the Indira Awas Yojana
- Four wells
- Two nurseries for fry rearing
- Old age pension for three persons
- Ponds on long-term lease
- Community hall

What is now required:

- Electricity
- Pump sets
- Health centre
- Bullocks and goats
- Old age pension for over 20 people
- Primary school
- Free books and stipend for school children
- Plantation for individual farmers
- Additional wells (7-8) for irrigating the land of poor farmers
- One large pond additionally as the village population has increased
- Renovation (desilting) of the existing village pond
- Road to the cremation ground
- Village lane to be converted into PCC road
- Long-term lease of additional ponds to find employment for villagers
- Demand for free seed as provided earlier
- Government should purchase all surplus seed from the village
- Hatchery for fish seed production

Women's Group:

There were 36 participants. The facilities provided by the government are:

- Primary school
- Panchayat Bhawan
- Wells (six)
- Houses (60) under Indira Awas Yojana
- Pond
- Loan from IRDP for 80 households (30 repaid, rest defaulters)
- Anganwari Centre but not functioning well

Aquaculture is their main activity that engages 50-60 households; others go for agricultural or daily wage labour. Ten to twelve households migrate to Kolkata and Patna for brick-making and stay there for six months. About 90 households go for seasonal labour.

There is no electricity nor enough water, hence they want:

- Electricity
- Wells
- Hand pumps
- Primary health centre
- Additional houses under IAY

In addition to government schemes for employment to raise their standard of living, they would like to have goatery, duckery, and also manually operated paddy dehusking and mixture making machines.

5 May 2002

Gomda Toli Village, PO Rahe, Sonahatu Block, Ranchi District

The village is located about 50 km from Ranchi and has 315 households with 50% of the population belonging to the backward class, 20% Scheduled Caste, 10% Scheduled Tribes and 10% general caste.

Men's Group

The group comprised 20 persons and provided the following information:

The villagers were greatly suppressed until 1955 but saw a ray of hope when Zamindari was abolished in 1955 and some developmental activities initiated. Food for Work program was undertaken, providing the village tank but that dries up after the monsoons and the road that is in a poor state today. The village was electrified, hand pumps installed that have run dry and soil conservation program taken up. A canal was dug that does not provide any water and houses under Indira Awas Yojana constructed but not for the poor and needy. The Health Centre does not have a doctor and the Ration Shops no rations. Those below the poverty line have not been given Green Cards. The Adivasis are not being allowed to fish in the tank despite the fact that they are the members of the Cooperative Society. Mr Gajadhar Mahato (BC), former chairman of the Fishermen's Cooperative Society, was quite vocal as he had lost his position. Mr Madhav Mahato has the ponds on long-term lease.

The group felt that there is a great need of improvement on all fronts and listed the following areas:

- Improvement of the road from Harijan Mala to Prajapati Mala
- Construction of a drain in the Harijan Mohalla to ward off disease occurrence
- Membership for Harijans in the Matsyajibi Sahyog Samiti Ltd
- Provision of nets for the Harijans
- Provision of drinking water facility in the Harijan Basti
- Provision of a well in Harijan Tola
- Construction of a shed and road to the cremation ground
- Feed and medicine for increasing fish production
- Ban on culture of Thai magur that killed even a buffalo
- Training in aquaculture
- Provision of good quality seed as Ramsagar seed is not good
- Deepening of ponds to retain water throughout the year
- Construction of houses under the Indira Awas Yojana
- Old age pension
- Provision of a doctor at the Health Centre
- Community hall

Women's Group:

The group felt that their poverty was exploited to the maximum extent and they had to work for Rs 15-20 per day with no red card, no electricity, no medical facility, and no water in the tank where the fish die, putting them at a great loss. The benefit from aquaculture is rather limited; the fish is sold at Rs 30/kg. Their needs are as below:

- A school
- Road
- Construction of the canal
- Houses
- Pond excavation
- Repair of the well
- Children's education

The young men's group comprised 13 youth (10 ghasi, 2 mahato and 1 sav) of which six were illiterate while others had studied up to class X to XII. They had the following views:

The group indicated that a school existed since 1925 while the road and hand pumps were recent additions. Old age pension is being given to five persons while IRDP loan for lac and dehusking machines was given to four persons of which only two refunded the loan. The village is involved in the leather business. Owing to unemployment, at least 50 families leave the village every year. But the village has also produced a doctor, an engineer, a Telephone Exchange Officer and some other qualified persons.

The suggestions for improvement included:

- Pucca houses
- Repair of ponds (2) and new constructions (10)
- Wells (15)
- Establishment of a centre and training in shoe and chappal making
- Training, provision of funds and machine for washing lac
- Business of fish seed
- Construction of road and drain in Harijan area

Fulwar Toli Village, Bundu Block (notified area), Ranchi District

The village is about 35 km from Ranchi, comprising 100 households belonging to the fishermen community (*Ghasi*) who are classified as Scheduled Castes. The majority of them are landless and make their living by beating drums in marriages and festivals or by fishing or raising pigs. The income from drum beating that engages about 50-60 boys is about Rs 2,000/year, from pig rearing Rs 2,000-3,000/year and from fishing Rs 8,000-9,000/year. The villagers have had no support from the government or from any other quarters so far. A cooperative society was formed in 1952 but the members left the village and all the papers are lost, hence it is difficult to even revive it, though efforts are on by a selfless village elderman.

Poverty and the feeling of belonging to a lower caste have been a bane with these people who have no say anywhere. Despite this, the determination shown by the men and women of the village, especially by Mr Bhim Nayak – who has sacrificed his family life for the sake of young children, teaching them to appear for matriculation and intermediate exams – is remarkable. He himself is appearing for an MA in Political Science from Ranchi University.

What the village got from the government is no special favour but the routine infrastructure such as wells and hand pumps that do not work except 55 houses from the Fisheries Department. There is no road, no school, no health centre and no community hall.

These people, in general, are mainly dependent on fishing in the 32 ha village tank that is getting choked with water hyacinth. The fish that are found in the tank are catla, rohu, mrigal, moi (chital), jhinga, getu (*M. pancalus*), which is highly priced and sells at Rs 80/kg, and gainchi (bami, *M. armatus*). The most important predator boali, Wallago attu, is also caught in the rainy season. Fishing methods employed are gill nets, drag nets, cast nets, scoop nets and long-line.

Men's Group

The men's group, that also included some young men, felt that since they have been dealing with leather, rearing pigs and catching fish, it would be highly appropriate to engage themselves in the same trade to alleviate their suffering and find satisfying employment.

Thus, their requirements were summed up in three demands:

- Training in leather processing and establishment of a tannery
- Training in pig farming and establishment of a modern pig rearing farm as the local breeds dirty the whole village
- Training in fish culture and scientific management of the tank fisheries

In addition, the routine requirements of essentials were suggested as follows:

- Primary school
- Health centre
- Hand pumps
- Separate transformer for electric supply
- Training for livelihood activities

Women's Group

The women's group had these observations:

- About 15 women purchase fish from the tank and sell it in the market
- No school in the area and the children have to go outside the village
- Poor wages for jobs
- No health camps; pregnant women die without treatment
- Red card given to only a few
- Tube-wells not working, municipal water not available

Suggestions for improvement:

- Employment for literate women
- School for children
- Drinking water; well and tube-well
- Health centre with facility of a doctor and nurse
- Clearance of aquatic weeds from ponds

Mr Bhim Nayak seemed happy to meet us and enjoyed the discussion we had with him. He was greatly touched by our appreciation of the sacrifices he was making for the sake of his people. We learnt that he had not married and whatever he was earning he was using to support the young boys for their education. Some of the boys had matriculated while others were studying to reach that goal. One boy had passed the intermediate exam. Mr Nayak also mentioned that one of the village mates was settled in Mauritius and the other in England. These people had come to India some time ago and had a desire to do something for the improvement of the village. He had a vision and wanted to see an end to the kind of humiliation that he and his people have to suffer on account of their poverty, backwardness and, especially so, the caste.

He felt greatly indignant about the situation in the country and put to us a question as to how with nepotism, provincialism, casteism, favouritism and corruption in every sphere of life, we are justified in calling India a great country? Isn't it a shame on us that such things should be happening in this country even after 50 years of independence? Whither are we going?

Appendix 8
Fieldwork Outcomes

Services and Support

What services and support have been provided by whom and when? Have seasonal variations affected services and support, for example?

Government	GVT (NGO)
Ponds	Ponds
Nurseries and nets	Check dams
Seed	Seed
Subsidy	Jankars
Training and exposure visits	Operational inputs (1 year)
Bank loan	
Operational inputs (1 year)	
Special subsidy of 40% on sale of seed to STs	

It is the other way round, services and support have to be according to seasons such as seed is supplied during monsoons and ponds are constructed during the dry season.

What have the services and support consisted of? Has it been advice, and if so, how was this provided, e.g., in written or verbal formats? Were any media used such as radio and newspapers?

Government	GVT (NGO)
Infrastructure, subsidy, loan and training	No subsidy or loan
Training with some reading material	Hands-on training and exposure visits
Research wing does soil and water analysis	
Supervisors meet the farmers and advise them	
Radio talks are broadcast but hardly anyone in the rural areas profits from them.	
Newspapers hardly have an impact	

If it has been capacity-building or aquaculture techniques, how has this been implemented, and by whom, e.g., local expertise or from other states?

Government: The DOF organises training programs that include demonstrations, lectures and field visits at various centres where the fish farmers come for a period of ten days and get a stipend of Rs 600. Some pamphlets are also provided. It is all local expertise.

GVT: The Jankars are trained at CIFA, Bhubaneswar, who in turn train the fish farmers through hands-on programs and demonstrations followed by exposure visits to other centres such as SRI and CIFA. The DFID experts have also provided some inputs in upgrading the training programs. The COs, Aquaculture Specialists and others also had an exposure to CIFA and some centres in UK and Thailand.

If it has been goods, how have these been provided?

The goods such as seed, feed, fertilisers and lime, have been provided in all cases in kind through local officers or Jankars.

What is the private-public split in terms of information and goods?

This is difficult to identify except that the information and goods in the case of private are supposed to be of reasonably good quality and provided on time without any hassle while the same from the government always take time and are provided after much running about.

How has the provision of services and support differed between the various actors, government and GVT? What have been the similarities? What relationships and lines of communication and contact have people had with the service providers? How have been recipients mobilised themselves in these interactions, e.g., an aquaculture expert, or village leaders (not necessarily with aquatic resources experience)?

- The provision of services and support from the government is based on special favour to certain classes of people such as the SCs and STs or BCs but it is not so in case of the GVT. It covers all classes of people.
- The similarities are in terms of transfer of the same technology and the same provision of services and support for it.
- In the DOF, the farmers have to approach the DFO through Extension Officers or Supervisors and the relationship is quite formal. The farmers in the GVT-supported villages have an informal and easy approach to the COs or through them to the Aquaculture Specialist.
- The recipients have mobilised themselves based on their interest, capabilities and expertise in a particular discipline. The resources available with the recipient also play some role.

For people who have had minimal, or no support, do they want it? Have they known about work elsewhere, and how have they felt about not being included? Have any groups been left out completely, and if so, for what reasons?

Yes, they want it. They have heard or seen the work being done elsewhere and have always felt sore about being neglected for some or the other reason such as religion, caste, poverty, political leanings, backwardness or absence of clout.

Other Sectors

What services and support have there been in other sectors such as education and health? What lessons can be learned from these, especially about best practices? To what extent have decentralised services and support made any difference, for example, feedback systems for policy making?

Government	GVT (NGO)
Well	Check dams
Tube-wells	Wells
Hand Pumps	Ponds
School	KV Pumps
Health Centre	Paddy dehusking machine
Houses (IAY)	Leaf plate making machine
Ponds	Carpet weaving machine
Community Hall	
Road	

The construction of roads and houses, wherever done, has improved living conditions in the villages, however partially though. The ponds have provided a place to bathe and wash and also for watering the cattle, reducing the incidence of mortality amongst them. Health centres too have contributed significantly in lessening the sufferings of the poor people who have no money to go to the cities for treatment. Wherever fully established and properly equipped, the Primary Health Centres have appeared a boon. Similarly, schools have contributed to the spread of education though it has not made any significant contribution.

But in most cases, the problem is that the health centres are without doctors, nurses or compounders or else have no supply of medicine. Similarly, schools are without proper buildings, teachers or in some cases even students. Perhaps, the best cases of support could be found in agriculture alone though not so laudable as they ought to have been with the amount of money the government has been pumping in and the priority given to it.

Perhaps, no lessons can be learnt from the education or health sectors. One lesson that can be learnt from the agriculture sector is that there is one window for the supply of all inputs. If it is similarly organised for aquaculture too, it would probably lead to much faster progress.

Livelihoods

What can be learned about income levels, or other livelihoods improvements, among the various key informants, as a result of aquaculture services and support? If so, what has made the difference and why? Has it been attributed to changes in policy?

Wherever proper services have been available, low-input aquaculture has made tremendous progress and production has ranged from 700-1000 kg/ha (Rs 10,000-15,000/ha) in seasonal and 1200-2000 kg/ha (Rs 20,000-35,000/ha) in perennial ponds.

The difference is due to timely supply and quality of inputs.

No, not due to any change in policy as there is no change yet.

Participation

How, if at all, have the recipients contributed to the design of services and support provision? Has there been a feedback loop for people to voice their concerns and have these been heard? If there has been feedback, has it changed anything? If not, why not? What have been the bottlenecks? Has everyone been able to voice their thoughts: what kind of "democracy" is in operation, for example?

As far as the government is concerned there has been no contribution of the recipients to the design of services and support. The government formulates a policy based on the recommendations of the Planning Commission and that is carried out.

The farmers have certainly voiced their concern and do so time and again before committees and ministers. The recommendations made at various seminars or symposia for aquaculture development both in the states and on the national scene have also voiced the concern of the farmers but no one has heard these or paid any attention.

Fisheries has the least priority amongst the scheme of things under agriculture.

Yes, people are able to voice their thoughts freely and there is complete liberty of expression in writing or speech. It is total democracy with little accountability.

Appendix 9
Project Workplan, Draft Policy Recommendations and Indicators

Feedback on the Project Workplan

Field Specialists (GVT)

- Case studies should be specific and structured, about government and NGOs (GVT), policy and process. Topics may include:
 - Participation
 - Distribution
 - Use of pond and timing (period)
 - Process (individual/group)
 - Impact of activity
- On the consensus-building process: include technical experts, social scientists and government officials
- Influencing policy not only in the five-year plan, but also state-level policy and strategy

Government Officials (DOF)

- Some ST and SC areas of Orissa and West Bengal may be identified and visited and included in these activities
- More fishers should be involved to participate to find out the real difficulties at field level
- Lessons learnt from other sectors in service provision may be taken, e.g., agriculture, veterinary
- Suggestions for change in policy may be collected from different sectors involved in fishery industries and aquaculture
- Some workshops should be commenced in each state with people from finance institutions, implementers, NGOs and recipients
- Approach is good and practical, but we should take more villages and case studies to get the real picture

Community Organizers (GVT)

- Box 1.2 (Plan, mechanisms and indicators agreed) should also come after the three parallel strands (2.1, 1.3, 2.2) for more feasibility, clarification and changes if required

Jankars (West Bengal)

- Must be in a participatory way
- Planning is not the last word – for proper implementation, workshop needed
- Maintaining time
- Need for wide spreading about the policy
- Should have clear idea about the proper utilization of water bodies
- Need the participation of government
- Formation of cooperative or committee at district level is needed

Jankars (Orissa)

- Supply of fry and fingerlings should be in time
- Good quality of fry and fingerlings should be provided
- Preservation of fish in rivers, streams and natural water bodies is the need of the hour
- Fish rearers cooperative societies need to be formed at every Panchayat and block level and should be handed over a fish breeding centre for supply of fingerlings in time
- Government should take initiative to hand over the existing Panchayat ponds to the fish rearer societies and provide loans to dig more ponds
- Wastelands in the hilly terrains can be converted to ponds by constructing low-cost check dams or cross dams

Jankars and Recipients (Jharkhand)

None

Feedback on the Draft Policy Recommendations

Field Specialists (GVT)

- Package for fish farming in rainfed area based on seasonal ponds
- Participation of women through self-help groups (SHG) and capacity-building
- Capacity-building of Jankars for sustainable development

Government Officials (DOF)

- Old and silted tanks of Panchayat should be renovated and settled to aquaculture self-help groups (ASHG) on a priority basis
- News ASHGs should be provided water area (ponds, tanks, nets and first year inputs)
- Provision of post-harvest fisheries should be provided to farmers
- Provision of preservation of unsold fish (smoking, drying)
- Provision for fish processing and packing plants
- Creation of village-level post like VAW (Village Agriculture Worker and VFW (Village Fisheries Worker)

Community Organizers (GVT)

- Capacity-building in all approaches of SHGs in villages besides fisheries officers
- Infrastructure development at block level and “100 ha of water area”
- Leasing of pond should be given to groups and lease period should be a minimum of 3-5 years (current policy prevents lessees from extending, which is a problem since their livelihoods come to depend on the leased pond)
- Adoption of insurance policy
- Acceptance of GVT approach for optimizing rural aquaculture
- Providing support in loans and cash “on time” (in terms of seasonality)

Jankars (West Bengal)

- From district to Panchayat continuous discussions for each and every step is needed (including loss or profit)
- Policies and rules must be considered area-specific
- Clear and right idea on pisciculture considering as profitable business or employment
- Need more training and workshop for proper implementation
- Responsibility for proper inspection and evaluation can be given to any NGO or private agency as helping hand of government
- The whole activity must be taken care of seriously and under proper coordination

Jankars (Orissa)

- Fisheries societies need to be trained for doing advanced agriculture
- Government should take initiative in supply of fry and fingerlings to the societies in time by constructing breeding centres at block level
- In tribal areas, there is a need to have a minimum support price for the capture fishes

Jankars and Recipients (Jharkhand)

- The policy of the newly created state of Jharkhand on fish culture has not registered any change.
- Jharkhand is a hilly state where the ponds retain water for 6-8 months only.
- There is hardly any interest in the culture of exotic species such as silver carp and grass carp on account of their poor keeping quality and low price in the market.
- Natural fish food organisms are in abundance in Jharkhand ponds.
- It is necessary to de-silt the ponds after five years as considerable quantity gets deposited due to run-off.
- Participatory support is the key to development.
- Inlets and outlets are a must in the ponds in Jharkhand.
- Government participation in fish culture is necessary as deepening of the pond, supply of fish seed and provision of technical experts is in the hands of the government.
- Government needs to change how information is made available to farmers, since information on its schemes to support fish culture are required to be known to the farmers.
- Training in fish culture needs to be organised from time to time.
- The same pond cannot be used for agriculture and fish culture.
- Integrated fish farming with poultry, duckery and piggery is necessary for improvement in the quality of life of the individual and the society.
- It is necessary that a survey of all the ponds in Jharkhand is conducted and these are then handed over to the NGOs.

How will we know if progress is being made towards people's participation in transacting policy change?

Field Specialists (GVT)

- Information and feedback from different stages: community, implementing agencies, government departments

Government Officials (DOF)

- Landing of local fishes in the village market
- Increase in the number of bank accounts and SHGs in the bank
- Increase in the number of children in school
- Improvement of general health condition
- Increase in the sale of fish and freshwater prawn seed

Community Organizers (GVT)

- Increased number of ASHGs
- Utilization of more water bodies
- Increased group fund
- Export
- Availability of fresh fish in local markets
- Recovery of loans on time
- Reduction of migration and wage labourers

Jankars (West Bengal)

- At village level due to formation of group an environment of participatory approach may be found
- Employment
- Group Fund
- Usefulness of group activity
- Linkage formed with government officials in better way
- Enhancement of livelihoods
- Socioeconomic development
- Good relation with government officials

Jankars (Orissa)

- The team should visit many number of villages covering every district of three states and interact with fish producers and traders

Jankars and Recipients (Jharkhand)

None

Appendix 10
Case Studies

Jharkhand

Issues

- People's participation
- Distribution of materials
- Use of ponds
- Women's involvement
- Lease process
- Extension process
- Research facilities
- Marketing process
- Sustainability
- Present level of knowledge
- Local guide (specialist assistant)
- Government regulation of water retention
- Unauthorized exotic species
- Survey of ponds
- Impact on other villages
- Impact of activity

Groups

- Fish farmers and fishers
- Fish farming groups
- Women in fish culture and sale
- Local retailers and wholesalers
- Cooperative societies
- Sample size: Jharkhand, 5 districts, 3 blocks in each district, 3 villages in each block = 45 villages

Organizations and agencies

- Jankars
- Fisheries experts and social scientists from universities and NGOs
- Extension officers of GVT

Method

- Questionnaire
- PRA
- Photographs
- Village meetings

Media

- Video interviews
- Skits and street plays
- Radio interviews
- Newspaper

Orissa

Issues

- Involve SC, ST and fish farmers in preparation of policy and plan, to start plan from grassroots level
- Advance technology from lab to land
- Get TVE approach from financial institutions towards pisciculture and culturists
- Get assistance in time like finance, input and advice
- Create more water area in every block under different schemes like food for work and JRY

Groups

- SC, ST, OBC and OC and farmers by caste and profession
- Farmers having and without having their own tank
- Farmers doing culture in groups, individual and cooperative societies
- Farmers of different groups: full-time, part-time, occasional

Organizations and agencies

- Case studies should be conducted in collaboration with DOF, NGOs (GVT) and post-graduate sociology students from different universities

Method

- Random sampling villages (cluster and scattered)
- Questionnaire
- Survey of villages with perennial and seasonal tanks

Media

- Conducting awareness campaigns in remote villages with leaflets, photographs and slides

West Bengal

Issues

- Clarity about markets
- Monitoring and inspecting
- Raising awareness
- Dishonesty of group members
- Dependency
- Planning
- Scientific training
- Lack of cash
- Lack of knowledge of government schemes
- Lack of widespread government policies
- Communication

Groups

- “Backward Classes” must be in priority basis

Organizations and agencies

- GVT, other NGOs and private agencies
- Jankars
- Social scientists
- Pisciculture scientists

Method

- PRA process
- Meetings
- Workshops

Media

- Leaflet distribution
- Exhibitions

Appendix 11

Evaluation

Note: Responses with the same number are from the same person.

How much have we achieved the objectives of the workshop?

1. People from all the sectors were participated and discussed about various constraints in fisheries (aquaculture) and from this, we could able to know the actual picture of all the three states, i.e., Jharkhand, Orissa and West Bengal. It seems like people's participation in a smaller way so we could march forward for preparation of case studies and plan, programme and policy.
2. The objective of the workshop in understanding aquaculture services provision by the recipients group has made a beginning.
3. The objectives of the workshop in policy-making process have been achieved partially because I think for more assessment we need to organize workshop state-wise with gathering of more Jankars and government and NGO officials.
4. We have achieved 90% of the objectives mainly rural development service.
5. Yes, we have achieved 70% of objectives of this workshop. It can be achieve more if details of workshop (why was the workshop organized) came to known by the participants few days before. If this things happen, then some more new opinions. Suggestion can come into light and it will become fruitful.
6. This workshop is a first step of achievement of objectives. In my opinion, the object of this workshop is to make some modification after taking case studies from grassroots level. By which SC and ST and other "backward classes" will get some facilities.
7. This type of workshop conducted in each state separately.
8. This is my first workshop in aquaculture program. It is really very important for me about more idea on fish production and how can be grown in scientific type or method.
9. This is a good workshop provided scope to community, implementing agency, GVT, Jankar and government, to put in the planning process for influencing policy in favour of the poor.
10. 75% -- the issues should be discussed finally so that a common agenda can be prepared immediately in the next workshop.
11. The objectives of the workshop will be achieved only when a practical methodology for group study will be developed. As far as I understand, the workshop has enough material. What is needed is its critical evaluation and thoughtful analysis that would result in the development of a scientific methodology. It will succeed in this.
12. About 80%
13. It has achieved almost all its objectives as all levels of officers and farmers from the three states have expressed their views without any hesitation.
14. The main objective of this workshop was the evaluation, visit and analysis of the fish culture regions of the three states. We have got some valuable information from this workshop. We have had the opportunity to understand in great details the impact of rural aquaculture on the livelihoods of the farmers.
15. The farmers, Jankars and the officers of the Department of Fisheries from the three states have had detailed deliberations on various aspects on how to do fish culture in an improved manner along with members of the "backward", scheduled caste and scheduled tribe communities.
16. The "Q" for the unemployed is lengthening in our country. In such a situation, the work of the GVT in providing knowledge, support and confidence to the poor fishermen and fish farmers will certainly strengthen them economically and enable them to cross the poverty line. From utter desperation in life to economic strength is the lesson learnt from this workshop.

17. –
18. The main objective of this workshop is to encourage fish culture in Jharkhand. The solution to many problems should be found out and fish culture should be done.
19. I have learnt a new technique for fish culture such as culture of exotic carps, silver carp, common carp and grass carp in ponds that retain water for six months where they grow well in a short period.
20. New and simple techniques of fish culture should be employed in Jharkhand so that they grow well and support the poor and unemployed. The objective is achieved.
21. Government officers, Jankars and others from the three states participated in this workshop. Possibilities of fisheries development according to the conditions obtaining there were learnt. The objective of the workshop for the development of a collaborative policy was achieved.
22. I am very happy with this workshop.
23. The objective of the workshop was fulfilled, it was very successful and helped me to learn and understand a lot.
24. Interoperation of the workshop details in our mother tongue had helped me to understand 60% objective of the workshop. The focal point of the workshop was on the policy changes and success indicators.
25. The objectives of the workshop was very beneficial. I think this is our first step towards this direction. At this place we have become very successful, but in true sense it will become successful when you will work with all the rural aquaculture groups.
26. We came here and could learn a lot about fish culture.
27. In this workshop participants from different sections and states of Orissa, West Bengal and Jharkand participated and have benefited to all sections.
28. –
29. We will be learning much more from this workshop.
30. We could understand 80% from this workshop.

What do you think about the workshop sessions and methods?

1. Very interesting – the method is very easy and adoptable, but the session is very short.
2. The methods applied in the workshop are very much participatory to get the participants' views.
3. The sessions and methods of workshop are very systematic and time-bound. So we've enjoyed and participated actively.
4. Workshop would be organized in state-wise because the situation and problems vary state to state and more village people should be involved.
5. The sessions and methods is good, but organizers should try to make this type of session more easy as the participants from villages (Jankars) didn't heard anything about "plan, indicators, case studies, policy change". These are new for them. They participated but not fully because of short time and lack of knowledge.
6. I think workshop sessions was very effective and the methods were very impressive – will be fruitful in future.
7. I have learned a lot of things but three languages used in the workshop sessions, it is a lengthy process. Group tasks and participation is very good.
8. I think this workshop should be more than four-day program because new state (Jharkhand) is very new approach about grassroots (ST and SC) people. Method is good.
9. Good and systematic one – provide opportunity for all layers of people.
10. Excellent
11. This has been a small session. It needs a longer period for this kind of an exercise to yield the desired results.
12. The number of farmers should have been larger. Session and methods were otherwise satisfactory.
13. The workshop was well organised and the objectives achieved.

14. Such workshops should be organised from time to time so that the people do not turn idle and the work is done in a perfect manner.
15. In this workshop, the NGOs and government officers should think together and decide on strengthening fish culture technique to give it a greater scope.
16. Despite being only a 2-day workshop, a lot of useful things were learnt from various people who had different ideas. This was a simple and systematic method of communicating. Understanding and learning is easy. Everyone will find it easy to learn and to make others learn.
17. –
18. It is a good method. The group discussions brought about a number of problems relating to fish culture in Jharkhand. These were discussed threadbare.
19. This method should help improve the lot of poor and unemployed in Jharkhand.
20. I think that poverty and unemployment should be eradicated from Jharkhand through such workshops.
21. Case studies and policy planning for the government schemes is an important step.
22. After this workshop sitting ideally will not work, we have to work with the Gramin Vikas Trust and government.
23. After this workshop we have to step forward with GVT.
24. Methodology adopted in the workshop have created a vision for our better future.
25. I have attended so many trainings programmes but this was very good and I like the methodology of the workshop.
26. The way of teaching was very good, if the different means of audiovisual aids have been used it would have given us an additional help.
27. If the farmers are being trained by different means of extension media and are provided with different variety of seeds it will be good for them.
28. Participants from different departments such as NGOs and government participated which was quite interactive.
29. I like this workshop because in future it will help me.
30. –

How do you feel about your own participation and contributions?

1. I could represent my state (Orissa). I could put forth the actual difficulties and took active part to enter deep into the subject.
2. I am satisfied with my participation and contribution in the workshop.
3. I think it's at par. I've participated enthusiastically.
4. I came to know the different problems and many issues from three states. I tried to highlight the problems and issues of my state.
5. I am satisfied with my own participation and contribution. I think I can do more if objective of workshop could bring into my knowledge before the workshop.
6. I feel well about my participation and contribution.
7. I feel that it was a great opportunity to me to attend this type of workshop due to it is a policy issue and stakeholder participation workshop.
8. We are different background and different states so participation is good.
9. Able to put our view successfully and interested for involvement in future to make and strengthen our voice as person from social service.
10. Satisfactory.
11. Very happy. Given more time, I would have done better.
12. Participated to the best of my capacity.
13. Got an opportunity to gather information from participants from various states and also put forth my own ideas.
14. I am satisfied with my participation and contribution.
15. I feel that fish culture should be extended all over Jharkhand.

16. Highly satisfied with my participation and contribution as I have learnt a lot from all those who are knowledgeable and I feel that I would be able to do something for my own people and share this information and knowledge with them.
17. –
18. I shall encourage women to take up fish culture and provide them all information.
19. I would like the organisers to look at our proposed plan.
20. I would expect a support for our proposed plan.
21. I hope the poor farmers can achieve satisfactory production by solving their problems in fish culture.
22. –
23. After this workshop I feel that we should raise our hand for all time cooperation is needed.
24. In participation with three states of GVT will help to move forward in the policy changes in aquaculture.
25. I have a separate identity in the village and I felt same here. Before coming here I was suffering from fever. I remove all the hurdles which comes on my way, when the subject of aquaculture comes.
26. All the fish farmers and GVT staff were cordial and I feel good about the discussions, which were done in the course of the workshop.
27. My knowledge got developed which will help me to develop our farm pond in better way. Best suggestions will be followed when we reach the village.
28. Gain of the knowledge.
29. Liked the suggestions.
30. We were very much attentive in two days of workshop.

What have you learned over these two days?

1. I learned how to interact with different sectors of people, so that I can work more for fishermen of our area.
2. I have learned the process that are being followed to record the people's voice in aquaculture services available to them.
3. We've learnt about policy-making process which would be taken up in care of STREAM and government of India in this concern. I've bagged a lot of information state-wise from different voices.
4. I have learned the policy matter of aquaculture and how to overcome the problems and gender issue and aquaculture is the main supporting activities of improving the livelihoods of resource-poor people.
5. As I am from different background and I am attending first time in this type of workshop, I learned many things from the workshop from organized other officials, through group meeting and discussion.
6. I learned that the policy should be made taking the voices from the grassroots level.
7. I have learned lot of things: aquaculture planning, policy issue, government policy, NGO working pattern and beneficiary problems.
8. We are very sorry because unfortunately we attended only one day. But program is very useful for us how we approach to villager and how to check his or her needs.
9. A strategy to influence the different layers and policy which is also a target or goal and role of social scientists.
10. Participatory approach and taking the views of grassroots level people; documentation techniques.
11. Participatory work can solve problems of all kinds.
12. This programme can successfully evaluate the development work of the government in rural areas.
13. Fish culture is beset with many problems and it is necessary to solve them so that the economic lot of the very poor could be improved.

14. Learnt a lot about fish culture and the centres of activity. Got the ideas from the participants from various states and learnt the methods.
15. Exchanged ideas with all the Jankars and COs from other states.
16. Learnt a lot about fish culture, fishing methods and market demand besides fish disease control that is useful for me.
17. I have also known what government support is available for fish culture.
18. The information that culture of exotic fishes that are fast growing is profitable in ponds that dry up early and that we could get government support.
19. Poverty and unemployment can be eradicated from Jharkhand.
20. Fish culture can help remove poverty and unemployed from Jharkhand and the government should make new policies for that.
21. Learnt about the work of various organizations; collected information on fish culture activities; who does what? And who should be approached to get things done?
22. –
23. Time to time this type of workshop at Panchayat level will fulfill the good of the workshop.
24. This type of workshop will increase our knowledge and let villages to understand everything.
25. After coming in this workshop, I came to know what is cooperation, what is honesty, what is participation.
26. –
27. If the farmers are trained, fish farming activity will work better.
28. –
29. The farmers from three different states have shared their ideas and views in common platform.
30. –

Anything else?

1. –
2. This type of workshop needs to be conducted in every state to get more clear ideas through participation processes.
3. –
4. –
5. –
6. In my opinion, the case studies should be done seriously before the proposal given to policy makers to change in it.
7. Many, many thanks for William Savage, Dr S D Tripathi and GVT also.
8. I requesting you please involve other institutions in such type of program.
9. Functions of GVT and government should highlight way of GVT function, should highlight in favour of poor and “hunger” – process of GVT is more effective.
10. Well presented and hope it will achieve its objective.
11. Methods of study should be simple, intelligent and useful and should have a wide coverage. It is necessary that communication between the target group and planners should be simple and correct. A slight mistake on the part of the translator can cause irreparable damage. This needs to be taken care of and hence proper people should be selected.
12. An opportunity to know about the central government schemes would have been there, had the representatives of the GOI were also present at the inaugural function.
13. Necessary information should be provided to all the participants from time to time after the workshop and definite arrangements should be made to convey the results.
14. Such workshops should be held every three months so that we may collect the information and go to the people and present it to them.
15. Wishing this workshop a great success.

16. The objectives of this workshop should be conveyed to the poor harijans and tribal fishermen to wake them up from sleep and enable them improve their economic status. The objectives should reach the masses so that they may benefit from it. This is my hope and these are my humble ideas.
17. –
18. The women should be provided practical hands-on training in fish culture. Check dams should be constructed to create more water bodies for fish culture.
19. If the government of Jharkhand puts our proposals in practice, then the poor people of the state can be rid of poverty and unemployment.
20. Poverty and unemployment can be banished if the government adopts our proposals.
21. Farmers' experience coupled with the use of modern scientific methods is necessary to increase fish production. This would result in the development of the village and also the lives of the fish farmers.
22. Time to time this type of training is very good.
23. –
24. –
25. –
26. –
27. –
28. –
29. –
30. –

Appendix 12
Discussion with the Jharkhand Department of Fisheries Director

Use of Seasonal Ponds

On use of seasonal ponds for improved productivity, Mr Kumar had two things in mind: one, to stock stunted fingerlings in seasonal ponds so that they achieve a marketable size in six months or so, and two, to utilise the seasonal ponds for monoculture.

I suggested that stunting fingerlings requires great expertise as otherwise it would result in considerable loss of seed material. Moreover, it would require a perennial pond with sufficient depth of water to tide over the Jharkhand summer. It should then be possible to harvest all these stunted fingerlings and transport them to the required sites for stocking during July when the temperatures are still reigning high. Transport costs coupled with mortality of large-sized seed may prove uneconomic.

His plan for monoculture using fingerlings of common carp was a good idea. The price of common carp is not low and the fish is in demand. The fish breeds in February-March and large-sized fingerlings are available that would register high survival and good growth even without supplementary feeding, provided the pond is well fertilised. With a little supplementary feed, the fish could grow to as much as 750-1,000 g in 6-8 months. Harvesting the fish is quite easy in seasonal ponds.

Capacity-building

Mr Kumar's other interest was capacity-building of his officers and farmers. I suggested a 15-day programme for the officers involved in aquaculture, ten days at CIFA, Bhubaneswar, followed by a visit to Vijaywada to see aquaculture practices in Andhra Pradesh that are unique in the country today. Similarly, a programme was suggested for the officers involved in reservoir fisheries to be conducted at Barrackpore/Bangalore and to be coordinated by Director, CICFRI, but including a visit to Tungabhadra reservoir for a study of pen culture practices for both fry and fingerling production. The large-sized fingerlings for stocking the reservoirs in Jharkhand could then be produced right within the reservoir, economising on the cost of transport and also avoiding mortality. A programme for progressive farmers for a period of seven days, inclusive of a visit to CIFA and Andhra Pradesh, was also suggested.

Hatcheries

Mr Kumar was critical of hatcheries without sheds that experienced heavy mortality during heavy rains. This is true and a thatched shed would keep the temperature low besides avoiding the impact of rainwater.

Supplementary Feeds

Formulated feeds are not available and even if these were, they would be beyond the reach of farmers. Since rice bran is not available, though mustard oilcake is, farmers are not in a position to provide supplementary feed to fish, especially in seasonal ponds where it is desired to get marketable fish in a short time. It was suggested that an elite or progressive farmer, or an entrepreneur, could be asked to bring rice bran from outside and provide it to farmers at reasonable rates. Some publicity as to its availability could be given that will result in quick sales.

Reservoir Fisheries Development

Mr Kumar mentioned the steps taken by him to initiate reservoir fisheries development by proper stocking of two reservoirs with large-sized fingerlings. How long should such measures continue and what should the fishing policy be?

It was suggested that fish naturally occurring in reservoirs may be fished first. No fishing should be allowed during the monsoon so that all the species get an opportunity to reproduce. Fishing with nets having a mesh size of 25 mm should not be permitted during the first three months after stocking. Once the Indian major carps have grown, fishing could be done with small meshed nets as well to fish for minor and medium-sized fishes. The stocked carps would start breeding in the reservoirs in the third year provided they find good breeding grounds. If so, their breeding grounds would need to be protected or eggs collected and hatched and restocked after rearing in pens. In that case, supplementary stocking would be necessary only when recruitment fails. Experimental fishing may help to determine the size of fishes available in the reservoir to decide on the mesh size. It would always be desirable that rohu and mrigal smaller than 2-3 kg, and catla smaller than 4-5 kg, are not harvested. Mesh size may be fixed accordingly if the stock so permits.