

Recipients' Experiences of Services Provided by NGOs in Support of Aquaculture for Poor and Tribal Groups (West Bengal)

Principal Investigators

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A PowerPoint presentation of this Case Study, and a film documentary of this and the next Case Study, are included on the Project CD-ROM. The Case Study text appears on the following pages.

Origin

This Case Study from West Bengal was proposed by:

- Gautam Dutta, Field Specialist Aquaculture GVT West Bengal
- Jhinuk Ray, Community Organizer, GVT Jhargram
- Purnachand Soren, Jankar, Nalbon Village, Midnapore
- Dhiren Singh, Jankar, Banstola Village, Midnapore
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- Sakya Singha Mahato, Jankar, Jabarrah Cluster
- Laxmi Manjhi, Jankar, Banstola Village, Midnapore

Planning discussions with Dr Tripathi during the State-level Workshop included all the above persons.

Duration

Originally proposed to commence in July 2002, the Case Study was to begin in September following its setting up in August. However, it was further delayed and could begin only in late October as decided in the State-level Workshop. The fieldwork ran through October and November 2002, with an opportunity to report progress and get feedback during the Stakeholders Workshop in January 2003. Final presentation of the Case Study was made at the Policy Review Workshop in Noida, Delhi, in April 2003.

Location

The Case Study was conducted in four villages in West Bengal: Kaipara (Bara Bazar Block) and Jabarrah (Hura Block) of Purulia District, and Nardha and Banstola (Jhargram Block) of Midnapore District.

Key Informants

Key informants were GVT Self-Help Group (SHG) members of Mahato Group Kaipara and Jubojagruti SHG:

- Nabo Jubo Sangha, Nabo Tarun Sangha and Mohila Samiti of Kaipara
- Padmalochan, Nabodaya, Mahamaya and Shilawati of Jabarrah

- Nardha Adivasi Gramin Unnayan Samiti and Nardha Adivasi Jiyer Jharna Mohila Samiti of Nardha
- Banstola Krishi Pragati SHG and Banstola Nari Jagorani SHG



Purulia and Midnapore Districts

Method

The GVT Community Organizers know well the individuals and groups in the clusters of villages that have received their support for many years. Instead of their usual work of awareness-raising and building self-reliance to utilize local resources better, this time they “swapped” clusters to document SHGs’ experiences of service provision by GVT. In the State-level Workshop, it was decided that a group of three persons from the two clusters (Kaipara and Jabarrah of Purulia District) would make cross-visits along with the Principal and Co-Principal Investigators. The study team comprised a Jankar, and a representative each of the Gram Panchayat and SHGs. Similarly, cross-visits were organized to Lalbona and Nardha Clusters of Jhargram Block to document their experiences.

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1. Introduction

Kaipara Village, Kaipara Cluster, Bara Bazar Block, Purulia District

The cluster comprises five core villages (Kaipara, Brojarajpur, Khawasdih, Bamu and Khamar Tanr) of which Kaipara is located 34 km south of Purulia and has poor infrastructure in terms of, for example, electricity, telephone and secondary school. Dominated by Other Backward Communities (OBCs) – *Mahatos* – followed by Scheduled Tribes (ST) – Oraons – it has a poor literacy rate. There is no landless household in the village, each one having at least a house if not cultivable land, but 75% of the households are daily wage laborers and many migrate in search of jobs. There is no forest and soil erosion is a major problem.

Kaipara is rich in aquatic resources with a total of 37 ponds, of which nine are large and perennial, excluding a check dam that is leased to a farmer and used for fish culture by farmers' groups, while others are seasonal in nature and not utilized properly.

Jabarrah Village, Jabarrah Cluster, Hura Block, Purulia District

Jabarrah Cluster has seven villages (Jabarrah, Nutandih, Mudidih, Dumurdih, Chitra, Gundlubari and Dumdumi) of which Jabarrah is situated 20 km east of Purulia, about 3 km off the metalled road. About half the land is upland (48%), followed by lowland (31%) and medium land (21%). Though the average rainfall is 1,200 mm, it is unpredictable and drought and floods are of common occurrence. The village is electrified and has a post office too but is unapproachable during the monsoons.

The village is dominated by OBCs followed by SCs, with a higher literacy rate among men (68%) than women (30%). About 62% of the population are poor; of that about 23% are engaged in wage labor. Agriculture is the main occupation. Cattle and poultry are kept by 52% of the households. There is no pasture and no veterinary doctor in the area. No natural forests exist but since 1991 social forestry has been playing a great role.

Jabarrah is rich in aquatic resources with 16 small, seasonal ponds called *hapas* (average area of 0.06 ha) and 16 large, seasonal ponds (average area of 0.5 ha) that are all privately owned. Of the seven large, perennial ponds (0.6 to 4.0 ha), four covering a total water spread area of about 7 ha were owned by a landlord until 1996, whence these were purchased by the villagers for systematic aquaculture at a cost of Rs 90,000. In addition, the village has three Panchayat (government) ponds, located about 1.5 km from the village, that dry up by December-January. Being away and owned by the Panchayat with no initiative to use them, the villagers have only been fishing there to get some wild fish for domestic consumption.

Nardha Village, Nardha Cluster, Jhargram Block, Midnapore District

Located south of Jhargram and connected by an 8-km *morum* road with National Highway 41, Nardha is a 100% tribal village with 56 households of *Santhals* and *Mundas* with little education, meager resources and poor but hardy people. The land is upland (60-70%) and the rainfall low (1,100 mm). The people mostly migrate out in search of jobs. About 15% of households had taken loans for various purposes from banks and other agencies, of whom more than 60% are defaulters. Natural forest covers about 33 ha where a depression exists that impounds rainwater in the monsoons, but there being no proper dyke, it drains out and dries up.

Banstola Village, Lalbona Cluster, Jhargram Block, Midnapore District

Located 15 km away from Jhargram, Banstola has an area of 178 ha with an undulating topography. The rainfall ranges from 1,200-1,400 mm. About 94 ha of land belongs to the Forest Department. Some of the villagers are involved in the Forest Protection Committee and have played a useful role in checking deforestation. The village has 51 households and except for five Scheduled Caste households, the rest are all tribal people.

2. Group-building and Operation

Kaipara

Naba Juba Sangha

The villagers were neither united nor had made any efforts to come together to take advantage of the available facilities about which they had little knowledge. Following tremendous persuasion by KRIBHCO officers in 1995, a big change was brought about, in that 37 farmers came together and formed a group called *Kaipara Naba Juba Sangha*. The farmers collected admission fees and a monthly subscription that was deposited in the bank and an account opened. Mr Nidhi Ram Mahato was elected secretary and assigned the responsibility to look after all activities. Weekly meetings were held and planning for development undertaken. Initially, the group was involved in forestation to prevent soil erosion but later took to aquaculture as well. The group was reorganized in 2000 to avail of the facilities provided to Self-Help Groups (SHG) with 20 members in *Naba Juba Sangha* headed by Nidhi Ram Mahato and 17 in *Kaipara Juba Sangha* with Sasadhar Mahato as the leader (Jankar).

Kaipara Mahila Samiti

In December 1995, 25 women also formed a small group called *Kaipara Mahila Samiti* and opened a bank account. In March 1996, KRIBHCO provided two goats to each member on the condition that she would return the first-born goats to KRIBHCO. The group was also asked to deposit Rs 100 per member in their account. This not only helped increase the fund but also served as a sort of deposit against defaulters who would fail to return the new-born goats to KRIBHCO to enable further distribution in the village.

In 2000, the group was divided into two groups: one comprising 15 members “above the poverty line” (APL) and called *Kaipara Mahila Samiti* with Sheila Mahato as the group leader, and the other with ten members “below the poverty line” (BPL) and headed by Vandana Mahato. The latter was given a new name and called *Jagarani Mahila Samiti*.

Naba Tarun Sangha

A third group was formed in 1996 in the Khamar Tanr Tola of Kaipara with 25 members that started with aquaculture, goatery, forestry and agro-forestry. The group earned about Rs 11,000 from tomato plantation in 1998 and planted 12 ha of wasteland with tree saplings that now stands with about 40,000 trees valued at Rs 10 lakhs. The group was involved in research on fish breeding, seed production and introduction of exotic species.

Jabarrah

Until 1994, the villagers were neither organized nor knew anything about scientific aquaculture practices. Only 2-3 farmers practiced low-grade traditional fish culture when Hindustan Fertiliser Corporation (HFC) organized a demonstration in the 4-ha *Sayer bundh* employing the three exotic species of carps – silver, grass and common – and showed a high production potential that greatly impressed the villagers. In 1995, KRIBHCO entered into a two-year contract with the landlord, Mr Bijon Babu, but owing to mass poaching of fish, the landlord sold the ponds to the villagers, concluding the contract after one year. KRIBHCO organized training programs in fish culture for a few selected farmers at Purulia and community training in the village itself.

The farmers now decided to form groups. Initially, four groups were formed: *Padma Lochan* (nine members) and *Nabodaya* (10 members) comprising men members, and *Mahamaya* and *Shilawati*, each with ten women members. Later, one more women's group with ten members, *Maa Santoshi*, was formed in 1997. An account was opened in the post office, members were assigned positions in the groups, and rules and regulations framed. Planning meetings were held every week. A central committee – *Jote Solah Anna* (signifying 100% ownership of ponds) – was also formed that overviewed the four groups jointly involved in aquaculture.

Nardha

Earlier attempts by some village leaders at group formation had failed but repeated visits by the GVT team in 1998 persuaded the villagers to form groups when they were convinced that they could develop their own resources by availing of GVT assistance. Facing all the odds that came their way, the villagers did finally come together and the group, *Nardha Adivasi Gramin Unnayan Samiti*, formed in January 1999 with 47 men.

The villagers were now close-knit and ready to help each other. It was evident when one of the “very poor” elderly men suddenly fell ill. Not only was his treatment paid for but he was also shifted to the hospital. When he died, the group helped a widow – who had two children and no means of living – by providing three pigs that proved an asset. She is now making her livelihood through the sale of piglets. GVT was also approached to provide her a house and she was given BLAD (“between life and death”) support.

After six months of formation of the men's group, 43 women formed a group called *Nardha Adivasi Jiyer Jharna Mohila Samiti*. Jankars of both groups are playing an effective role as group leaders, conducting regular meetings every month, looking after different activities, and maintaining registers for proper records and documents.

Both the men's and women's groups are involved in several activities. Besides seed multiplication of *kharif* and *rabi* crops, other activities include forestry, agro-forestry, orchard, vegetable cultivation, aquaculture and other income-generating activities such as piggery, goatery, poultry and duckery.

One of the group members, Mr Rabindra Nath Singh, donated his land that was a 11-m² pond to the *Nardha Adivasi Gramin Unnayan Samiti* for construction of a community hall. The group filled the site where now stands an impressive community hall that shows the collective will and determination of the members who contributed labor at half rates (Rs 15

per day). The community was constructed at a cost of Rs 70,000 for which GVT contributed Rs 20,000, while the groups' contribution was Rs 35,000.

Banstola

The story of Banstola is no different from Nardha where too the villagers came together to form a group in January-February 2000 only when the GVT officers visited them and indicated the advantages of group formation. The first group comprising 16 men members, *Banstola Krishi Pragati SHG*, was formed in July 2000. The project approaches had gradually created an awakening among the women too, who grouped to form *Banstola Nari Jagoroni SHG* with 33 members in July 2000.

The two groups are jointly involved in several activities such as agriculture, horticulture, agro-forestry, soil-water conservation, pond excavation and aquaculture with GVT's assistance. The groups also decided to have a big *kaju bagan* (cashew plantation) and planted 15 ha of wasteland with cashew and other crops. These plants have grown exceedingly well and a net annual income of Rs 100,000 is expected after three years.

Both groups now have more than Rs 20,000 in their accounts and are recycling the money by providing loans to outsiders or group members with interest. Optimism and sincere efforts for a bright future are a hallmark of these groups.

3. Initial Size of Aquaculture Operations

Kaipara

Naba Juba Sangha

Traditional fish culture was practiced in two ponds before the introduction of scientific techniques by the KRIBHCO project in 1996. Presently, fish culture is done in a 1.6-ha pond, shared by the two groups, in alternate years. The seed and other inputs are purchased from the group funds and the activity is sustained.

Kaipara Mahila Samiti

Aquaculture was initiated in 1997 before the *Samiti* was divided into two. Later, *Jagarani Mahila Samiti*, represented by Ms Vandana Mahato, that owned two ponds (0.4 ha and 0.3 ha) alone, continued the activity. Ms Vandana and Purnima were trained in fish culture by GVT and despite being novices in the field, the group earned a net income of Rs 10,000 last year against an expenditure of Rs 3,000. They are aware that the government has certain provisions for aquaculture, especially for Scheduled Caste and Scheduled Tribes, but have not availed of such facilities nor have they approached the banks. However, the bank manager is providing them a grant of Rs 10,000 under the *Swarna Jayanti Sahrojgar Yojana* (SJSY) scheme.

Naba Tarun Sangha

From traditional aquaculture that was practiced prior to 1996 in Khamar Tanr, the *Naba Tarun Sangha* also got involved in scientific aquaculture in two ponds (0.4 ha and 1.0 ha)

after receiving training under the KRIBHCO project. The group also undertook controlled breeding of common carp and Indian major carps through hormone administration but could not continue owing to environmental problems.

Jabarrah

To begin with, the villagers collected Rs 300 per family from the 255 families in Jabarrah for purchasing ponds from the landlord, Mr Bijon Babu. In addition, they also had money received from the sale of fish left in the pond where the Hindustan Fertiliser Corporation (HFC) had undertaken the demonstration, as well as from other ponds. They were now in possession of a large property with a lot of fish in the pond and keen on practicing aquaculture in all available ponds, with their morale boosted by possession of technical knowledge. From a small beginning, the group embarked on a massive aquaculture program within a short period of two years with the finance available at hand.

Nardha

Way back in 1994, the Fisheries Department had supported the excavation of small *dobas* for prawn culture and three such *dobas* were done. Prawn seed was supplied but no training was organized nor were any instructions issued as to the rearing methods. As a result, there was no survival and nothing was harvested.

Based on its interest in aquaculture, the *Nardha Adivasi Gramin Unnayan Samiti* organized the lease of the 0.2-ha Panchayat pond for Rs 500 in 1999-2000 and got a man trained in aquaculture techniques at GVT Purulia. GVT supported the venture and provided 7 kg of fish seed besides other operational inputs and a pH meter. Heavy rains damaged the dyke and fish were lost, but the members, ignorant of what had happened, continued to fertilize the pond and feed the fish as some fish were always seen moving around in the pond. When the pond was harvested in December, only 72 kg of wild fish were caught which sold for Rs 2,500. This failure had been a big setback for the group who did not have enough money for operations during 2001-02.

Mr Durga Soren, a blind man identified as a BLAD member, had stocked 1 kg of seed comprising 500 g of silver carp and 500 g of Rohu and Mrigal. No feed or fertilizer was provided except that the pond received kitchen refuse and was used for bathing and washing. He harvested about 25 kg of fish and used it for domestic consumption besides selling a part for Rs 500.

Mr Narendra Singh, who was trained, had his *chingri doba* further excavated to utilize the earth for building a house that increased its size to about 0.04 ha. He stocked about 3 kg of seed and harvested 60 kg of fish. Of that, 30 kg was sold for Rs 1,200 while another 30 kg were used for domestic consumption.

By January 2002, the group extended its activities by excavating a 0.3-ha pond with the help of GVT for Rs 17,000. The group provided labor at half rates in which both men and women members participated. Being a new pond, it is expected to have low productivity and has therefore been stocked only with 500 advanced fry (2 kg).

Banstola

A 0.4-ha pond belonging to a *zamindar* was forcibly taken over by the two groups for village development and excavated thrice using Panchayat funds and is now perennial in nature. Fish culture was started in this pond in 2000-01 with GVT assistance in terms of seed and all operational inputs and guidance. Besides community training, two Jankars were also trained before the initiation of the program. The production was satisfactory and the group had a good harvest that was sold for Rs 8,500, besides an equal amount for fish that was used for consumption by all members. This year (2001-02), the men's group purchased seed and all inputs from its own funds and also a net for Rs 5,000 for fishing in the pond. The group members are engaged to net the pond and paid wages at Rs 25 per day. The groups are expecting an income of Rs 40,000 from this year's sale.

GVT also provided funds for digging a pond (*Maa dighi*) that was done by both groups on a share basis but could not be completed as hard *murram* appeared at the bottom and the work for wages earned was becoming expensive. The group approached the Panchayat to provide some assistance that has been promised and the work will be completed in 2002-03.

A 0.2-ha pond called *Kajal dighi* has been dug by the Forest Department as part of the services rendered by the village for forest conservation and the women's group is operating it exclusively.

4. Risk and Risk-taking

Kaipara

No risks were involved initially for *Naba Juba Sangha* as GVT supported the entire activity. The group is now aware of the techniques and is managing it properly. However, *Jagarani Mahila Samiti* did have some risk, as based on training alone and with no previous experience, they invested Rs 3,000 in aquaculture that helped earn a net profit of Rs 7,000. *Naba Tarun Sangha* also took some risk and indulged in fish breeding and seed production but faced certain problems for want of proper training and background information about climatic conditions.

Jabarrah

The villagers took considerable risk in allowing angling in the ponds but finally found it to be quite remunerative, not only in terms of increasing funds but also productivity indirectly through feed material used by anglers. The group took a risk of introducing an exotic fish, *Barbodes javanicus*, that did not find favor with the consumers and its culture was finally given up.

Nardha

The loss of fish from the Panchayat pond – developed with GVT support – due to flooding was a big setback for the group who could not approach GVT for similar support the second time. However, after the men's group repaired the damage done to the dykes, the group decided to lease the pond once again and stocked it with 2 kg of seed purchased at Rs 100/kg.

Unfortunately, the dyke was washed this year too and wild fish will once again constitute the catch in the coming months.

Banstola

There has been no risk so far. The plantations have come up well and so has the aquaculture program that would get a further boost with the two ponds dug recently.

5. Extension Processes (Training, Materials and Other Media)

The GVT pattern of organizing the training, in general, has been:

- Community training in the village itself, three or four times in a year
- Training of selected members called Jankars at headquarters at Purulia

Advanced training for Jankars at aquaculture institutions such as the Central Institute of Freshwater Aquaculture (CIFA), Bhubaneswar, and the State Training Centre of SRI (Society for Rural Industrialisation) in Ranchi.

Further, the GVT also supplied equipment (e.g., balances, pH meters), nets, *hundis* and also feed, fertilizers and seed to all the groups in the first year.

6. Marketing Processes

Kaipara

The quantity fished out being small, marketing has been no problem as it is generally sold locally or taken to Purulia on *hat* (weekly market) days by *Naba Juba Sangha*. Mr Bharat Mahato controls fishing and excess fish is not taken out. For *Jagarani Mahila Samiti*, Vandana's husband takes the surplus outside the village. *Naba Tarun Sangha* takes out 20 kg on *hat* days.

Jabarrah

The merchants or their agents come from Asansol, Adra and other centers and fix the rate and quantity to be purchased in advance. The fishing parties then arrive just 2-3 days before *Saraswati Puja*, normally in February, and fish continuously to collect the required quantity that is kept alive in nets to be taken on the auspicious day when prices are high and demand is great. It being a special day when fish must be eaten, 1 kg of fish is also given to each of the 255 families in the village who are joint owners of the ponds. Since the villagers are not involved in fishing, a considerable part of the income goes away as netting charges that amount to 30-40% of the catch.

A fisherwoman of the village, Ms Thanda Mahato, purchases fish from ponds where fishing is conducted, besides the fish caught by her husband from different ponds, and sells it at a premium of Rs 10-15/kg and earns Rs 100-150 a day, 3-4 days a week. She deposits this money in the post office and uses it for running the expenses of the family.

Nardha

The quantity being small, there is no problem and it is sold like hot cakes in the village itself at a sufficiently low price of Rs 30/kg. Most farmers collect fish from one or the other source almost every day for their domestic consumption. The demand thus exists for any future supply.

Banstola

The fish is sold locally in the village itself at a sufficiently high price of Rs 50-55/kg and has a ready market, the demand being higher than supply.

7. Timeliness of the Provision of Inputs and Services

Training was always organized first before the fish culture program was started. Besides community training that was given repeatedly on each aspect in advance, specialized training was organized at research and development institutions. Further, training was not confined to aquaculture alone but included all aspects for integrated village development.

The inputs and services were always organized in time. All the inputs were supplied through the community center while the seed was made available at the pond site well in advance. As the nor'westers fill the shallow ponds in May itself, a fast growing period is available both for the seed as well as for the fingerlings in the stocking ponds.

8. Accountability of Group Members

Kaipara

Bharat and Nidhi Mahato have been sharing the main responsibility in *Naba Juba Sangha*. Discussions are held in weekly meetings and responsibility for whatever work is required to be done is given to the person who can discharge it most efficiently. Each one is accountable for the duties assigned to him. *Jagarani Mahila Samiti* has a number of Jankars, at least one for each activity such as aquaculture, forestry, poultry, crops and soil-water conservation. They have their own associates with whom they share responsibility for the entire activity and are thus accountable for their area of work. The members of *Naba Tarun Sangha* are active, cooperative and accountable to the Jankars.

Jabarrah

The kind of sincerity and seriousness with regard to work, a rare combination to be found even in "educated" classes, is to be experienced in this village. Each group member feels that he is accountable to himself and to the group as well. There is a considerable "fellow feeling" among the group members. Jankars decide responsibilities to be assigned for the different activities. One person each has been given the charge of feeding the fish, monitoring the water quality and marketing, while two persons look after the watch and ward, and monitor the health and growth of fish, the accounts being the responsibility of the entire committee.

Recently, CIFA and GVT have signed a Memorandum of Understanding for research on the productivity of fish ponds in laterite soils. While CIFA will provide inputs and seed, farmers whose ponds are covered under the program will provide cow dung and rice bran. This is likely to provide a new and specific package to farmers.

Nardha

There are regular weekly meetings on Mondays and the program decides who would do what. Mr Singrai Hazda, who has studied up to class VI and is the only person who can read and write, maintains all accounts of the group's activities efficiently. Others are assigned roles of feeding, netting and watch and ward.

Banstola

The group shares responsibilities and each one is accountable. If anybody's cow is ever found in the plantation or cultivated fields, a severe fine of Rs 95 is imposed immediately. There is no poaching either of fish or any other product. The honesty and sincerity of the group members needs a special mention. There has been no government help for aquaculture. As the nearby village was not only provided nets, but also got a road constructed, the Banstola group also contacted the Panchayat but it was clarified that such groups alone are helped by the government that depend exclusively on fish.

9. Recommendations for Change

Kaipara

Naba Juba Sangha

- Expansion of its aquaculture activity and lease of the two Panchayat ponds
- Build up further assets through government assistance and training

Jagorani Mahila Samiti

- Training in fish culture and government assistance for scaling up

Naba Tarun Sangha

- Training for each individual so that each one is aware of what is to be done and when
- Availability of the Fisheries Extension Officer (FEO) at his headquarters at least twice a week

Jabarrah

- Information regarding the services provided by the Fisheries Department
- Posting of a Matsya Sahayak (MS) in each Panchayat on the lines of agriculture that has a Krishi Prajukti Sahayak (KPS) to fill the gap owing to vacant FEO positions
- Discussion on aquaculture rarely held at the meetings of the Gram Sansad and the Panchayat Samiti. All planning for the village to be initiated at the Gram

There are no other NGOs in the village except GVT. During training organized by GVT, farmers had learnt from fisheries officers who were invited as guest speakers, of the facilities provided by the state Department of Fisheries. Based on the directions, an application was given in September last year by each of the 14 groups now existing (the four groups formed initially have been reorganized now into 14 SHGs with 10-20 members in each) to the Panchayat Samiti and forwarded to the Block Officer through the FEO. Verification of their ponds was done and the groups informed by the Sabhapati that an amount of Rs 11,000 was approved for the renovation of the ponds. He also added that later, seed, nets and other materials would also be provided, but to their utter surprise they were told after repeated visits that since they were involved with GVT they could not be given this help.

This year, 12 groups made an application once again through Gram Pradhan to the Sabhapati. Repeated enquiries elicited no information. It was, however, learnt that the funds were given to a farmer, Kula Badal, in Sabarpeta Village in October.

- Sansad and then taken up at various levels through Panchayat, Block and Zila Parishad
- While ponds are excavated under various schemes, no provision exists for their use for aquaculture. This needs to be rectified.
- The government should provide relief to fish farmers too, as is the case of other farmers, in the event of natural disasters such as floods, drought and disease, and make a provision for insurance.
- The activities of the government should be publicized through posters, leaflets, brochures and films so that special provisions made for Scheduled Castes, Scheduled Tribes and OBCs are availed of by the respective communities to improve their lot and economic condition.

Nardha¹

- The Panchayat pond needs to be renovated and leased on a long-term basis.
- The newly excavated pond needs to be deepened for year round fish culture.
- To create a resource for aquaculture and crop irrigation, the Irrigation Department may harvest rainwater on the western side of the village that is under the control of the Panchayat, where water gets collected annually in the existing depression but dries up after two to three months.

Mr Kajal Mahato, belonging to a nearby village called Patashimul, has a 1-ha pond in the vicinity of Nardha. This pond is in excellent condition and Mr Mahato has invested over Rs 60,000 in seed (including the freshwater prawn, *Macrobrachium rosenbergii*) and feed, but the fish are not growing. He therefore visited the *bundhs* wherefrom he was getting the seed and found that the broodstock of most fish was small (about 500 g) in size, Catla being about 1 kg. This was the reason for the poor growth of fish in his pond. Sources of good quality seed in this region need to be explored. He has had no training nor traditional experience, but is a keen farmer who appears to be following the various steps remarkably systematically.

¹ Mr Purna Chandra Soren, *Juba Jagrata SHG*, Lalbona, and Mr Jagdish Singh, Jankar, *Krishi Pragati SHG*, Banstola, who had accompanied the team on a cross-visit, were unhappy to note the poor results despite the sincerity and enthusiasm of the group members in Nardha. They strongly felt that besides the problems of poor quality seed and lack of proper resources, there is a strong case for further training to take up aquaculture on scientific lines.

- Besides community training, 3-4 Jankars should be given at least 15-day intensive training in various aquaculture operations.
- As good quality seed is not available, the Fisheries Department may organize such supplies through reliable hatcheries early in the season.
- The facilities available from the government for Scheduled Tribes should be properly publicized and poor, illiterate and “backward” people helped through periodical visits by officers of the Fisheries Department.

Banstola

- Training in breeding and seed rearing both for men and women is felt necessary.
- Extension through NGOs alone can result in widespread dissemination and adoption.
- Gram Sansad should discuss the aquaculture programs so that they are strongly supported and extension at the lower levels made possible.
- Village groups should have an easy and direct approach to government officials through the Panchayat Pradhan. The process needs to be simplified.
- A cooperative society or an apex body is planned to stay together since the groups have broken into SHGs that have a limited membership.
- Non-availability of quality seed is a great impediment and the group expects that its supply should be organized either by GVT or the government.
- Relevant information and procedures need to be provided to avail of the facilities for Scheduled Tribes offered by the government.