

## Tribals Develop Fisheries in Dimbhe Dam

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*In the year 2000, the Dimbhe dam inundated 2202 hectare (ha) of tribal land in the Ambe-gaon block of Pune district. The once-green paddy terraces and small, peaceful hamlets with quaint, red-tiled roofs and the bustling market town of Ambe-gaon went below water, and the gentle, soft-spoken tribal people of this area were transported to faraway resettlement colonies with their few belongings and cattle, displaced from their lands and houses, which had been submerged. In all, 1253 families had to shift out, 11 villages were submerged fully and another 13 villages were partially affected. Today 19 villages stand on the fringes of the Dimbhe reservoir, which provides irrigation to about 14,000 ha of land. The face of the command area has changed completely due to irrigation. The fields are lush green round the year and farmers grow all sorts of vegetables, fruit and flowers.*

*Yet development had dealt the displaced and affected families a huge blow. They lost all their best lands near the river and been forced to shift to the hill slopes above the water level, to somehow eke out a living on stony land. But was water as a supportive natural resource for livelihoods only to be used for agriculture? The need for an alternative livelihood for the displaced tribals was therefore the beginning of an exciting eight-year journey in setting up fisheries which have enabled 214 families to harvest up to 27 tonne of fish annually, with the initiative poised to break even within the next three-four years. The producers have successfully used state-of-the-art techniques in rearing fish in floating cages and pens for the past five years. Tribal women are rearing goldfish in cages as well. The tribal fishermen would like to have their own hatchery, about a third of them still do not have boats, the fish have grown too big and their nets are small. However, the endeavour continues and hope burns bright.*

### How it All Began

In the year 2003, Budhaji Damse of Shashwat Trust, a Pune, Maharashtra-based voluntary organisation, observed that 25-40 members of the tribal community displaced by the Dimbhe dam were venturing into the Dimbhe reservoir regularly on truck rubber tubes with a total of about 50 kg of gill nets. However, their meagre catch was not even enough for their own consumption. While the tribals had struck upon an alternate route to a new livelihood, they were unable to build on it. So the Trust started organising the tribals, holding meetings and discussions in all the 19 villages around the reservoir. Friends and fishermen from the Bargi Dam Displaced and Affected People's Association, Jabalpur, provided a guiding hand. The villagers then decided to come together and formed an association with a token membership fee. Shashwat introduced the first three boats of the Madhya Pradesh type, made of galvanized iron sheets fixed over a wooden frame, which were easy to operate and the people chipped in with labour. The tribal women then came together to form 32 self-help groups (SHGs).

Today the 214 members of the **Dimbhe Jalashay Shramik Adivasi Mach-himar Sahakari Society (DJSAMSS) Maryadit, Digad** own around 147 such boats, have over 2,000 kg of nets and have harvested up to 27 tonne of fish annually, amounting to a gross sales of Rs 7.03 lakh.

## **The Dimbhe Reservoir Area Poverty Alleviation Programme**

While working in this remote, hilly, steeply sloping, high rainfall, heavily forested area since 1981, Shashwat Trust had been trying to formulate a holistic area development plan based on the sustainable development of natural resources and the skills and traditional knowledge of the local tribal people. It basically envisaged a catchment development programme for the Dimbhe dam and the main activities included sloping land development for erosion control – paddy field terracing, drawdown land cultivation, fishery, horticulture and forestry. The then divisional commissioner, Pune Division, Pune, P. D. Karandikar, after his visit to the area in February 2004, put most of the suggested activities together, envisaged them into a proper framework for government intervention and then initiated a poverty alleviation programme in 38 tribal villages situated in the catchment area. Fisheries, cultivation of drawdown land, that is, land that becomes available at the edges of the reservoir when the dam water levels go down, and the making of new paddy fields with stone bunds on steeply sloping lands owned by the tribal farmers, were the three main activities taken up as a first step.

On the invitation of the divisional commissioner, Karandikar, the Central Institute of Fisheries Education (CIFE), Mumbai made its first visit to the reservoir area in June 2006. A series of review meetings with the villagers and the departments of Revenue, Cooperatives, Fisheries, Irrigation and Tribal Development led to the convergence of schemes and the enthusiastic participation of the tribals has resulted in the work continuing in the face of many obstacles.

## **Gaining Fishing Rights**

The dam was emptied twice by the irrigation department for operational reasons between 2000 and 2002 and all the fish died. Then the dam was with a private fish contractor from 2003 onwards, who did not do enough stocking. Also, just when the local tribals had started to organise themselves to participate in the fishing activity, the fishery contractor brought in fishermen from outside the state. On both these counts the local fisher-people's organisation opposed the fish contractor through Satyagraha and their objections were upheld by the fisheries department. Kusum Karnik, the founder of Shashwat, helped the community to get the fishing lease in the name of their newly registered fish cooperative society and DJSAMSS was registered on May 29, 2006. At the time of registration, their membership status was as given in the table below:

Table 1: Membership Details

Sr. no.	Particulars	Caste/ Tribe	No. of Members
1	Katkari	Primitive Tribe	68
2	Thakar	Sch. Tribe	11
3	KoliMahadev	Sch. Tribe	76
4	Nav-Bauddha	Sch. Caste	01
5	Muslim	OBC	01
6	TOTAL		157

Initially there was a total of 15 women among the members. Fisherwomen here go out to lay the nets – alone or with their menfolk -- bring the catch in and also participate in selling the catch. Hence the Dimbhe tribal fish cooperative showed gender sensitivity by appointing five women to their first Board of Directors which consisted of 11 members. Recently they have offered membership of the cooperative society to all women fishers of the present member families on a membership fee of just Rs 101 as against Rs 3,500 for others and the number of women members is steadily increasing. Presently the total number of members is 214.

On June 22, 2006, a fishing contract was offered by the district fisheries development officer to the cooperative against a deposit of Rs 1,21,000 towards the contract amount and Rs 36,360 as security deposit, totalling Rs 1,57,360. The Society members had collected Rs. 201 as entrance fees and Rs 800 towards extra shares. Members of the Katkari tribe also somehow deposited the money with great difficulty; some could not but were accepted as members. The money collected was still short, so Shashwat arranged for a loan without interest of Rs 50,000 and for the first time the reservoir came under the control of the local tribals.

## Stocking

As per the fisheries department, fish seed totalling 9,09,000 fingerlings, at a cost of Rs 3.80 lakh was to be released in the reservoir in the first year, i.e. 2006. On the request of DJSAMSS, Shashwat submitted a proposal to the tribal development department for grant of Rs 5,37,360 towards the contract amount, security deposit and fish seed cost. The department sanctioned Rs 3,79,900 towards fish seed cost; Shashwat arranged for a further Rs 41,003 towards beneficiary contribution from SWISSAID. The tribal department sent the amount to the fisheries department and the first fish seed was put in. However, it took three years for the fisheries department to supply all the fish seed.

## Harvesting the Fish

In the first year (2006-'07), the catch totalled 20,530 kg -- 3,670 kg of catla and 16,860 kg of chela in 72 fishing days. The size of the catla in 2006 was about 700 gm. In 2010, the total catch was 24,000 kg, including 4,381 kg of chela and 10,340 kg of Indian major carps (IMCs), in 147 fishing days. The above is the result of aggressive stocking of IMCs (catla, rohu and mrigala) as advised by CIFE. The catch composition is changing. Shashwat has provided a motorboat for transport of the catch from the interior parts of the reservoir. Now the wholesale buyer comes to the dam site to buy the catch. The fish cooperative keeps up to 25 per cent of the catch for sale to the smaller local vendors, as part of its responsibility towards the nutrition of the local poor people. Payments to the fishermen are made every Sunday. Fisher-folk from different villages share the responsibility of checking accounts and being present while making the financial transactions every day of the week. Net size regulation and no-fishing in the closed season are maintained by the community, sometimes even by confiscating the nets and penalising those who break rules. Back in 2003, at a meeting in Digad, the fishermen had resolved that they would not use poison or explosives for fishing, and discipline themselves to net size regulation, and they continue to observe it.

## Advanced Fish Culture Techniques -- Cage Culture

In 2007, CIFE introduced the first four floating cages. In 2010, the fishermen of Dimbhe successfully reared 3,90,500 advanced fingerlings in cages and pens and released them in the reservoir. The 1,278 ha of fishing area in the Dimbhe reservoir needs to be stocked with nine lakh fish seed of fingerling size (25-35 mm) every year, as per the contract conditions. However, the survival rates for such small size fish seed in such a large reservoir are barely 10-15 per cent due to high waves and other reasons. If the stocking could be done with fish seed of advanced fingerling size - 100-150 mm -- the survival rates would increase up to 85-90 per cent. Nylon nets of mesh size 4mm to 6 mm, in the shapes of cages three metre long, three metre wide and three metre deep are tied onto floating platforms in deep waters and stocked with about 2,500 fish seed of catla, rohu and mrigala, 30-40 mm in size in each cage. They are fed twice a day with rice bran and groundnut oil cake in proportion to their body weight.



Every week the cage nets must be cleaned with long-handled brushes to ensure good exchange of water inside and outside the cage. In about three months the fish seed grows up to 100-150 mm. They are then carefully taken out of the cages, counted and gently released in the reservoir. It is quite a job to care for the small delicate fish fingerlings in cages floating in deep water. In the rainy season there is so much floating debris that the nets have to be cleaned almost every other day. If for some reason three-four fish seed die, they must be removed immediately or else the others start dying. Floatation is provided by sealed 200 litre PVC barrels. Sometimes the barrels leak or they develop cracks and the waves go over the cage tops. If a small gap develops in the joint of the top and side nets due to carelessness, the inside fish seed floats out and away.

In 2007, CIFE had given the cooperative one broken cage structure and the floats and nets for four cages. Shashwat and the tribal fisherfolk put in a lot of effort to take two crops of advanced fingerlings in the first year itself. Seeing the zeal of the tribal people, CIFE provided another 16 new cages for them. The enthusiasm and keenness of the tribals in working on these cages in 2009 and 2010 were heart-warming.

## **Ornamental Fish**

In 2010, the tribal women put in goldfish in two cages on the suggestion of the CIFE scientists. The goldfish turn a gorgeous shiny red-gold colour after about two months in the Dimbhe waters. By 2011, 37 tribal women had participated in eight trainings at different places in rearing ornamental fish. They have successfully reared goldfish up to 75-100 mm size and provided the same as brooders to CIFE thrice. Ornamental fish are even more delicate creatures, but among them goldfish and angel-fish are somewhat sturdy.

It was in 2009 that Mrs Bababai Wagh, a member of the primitive Katkari tribe and vice chairperson of the fish cooperative, spoke boldly to the director of CIFE. She said: "We have 23 women's SHGs, please give us some work for our hands". It was from this that the idea of ornamental fish rearing by tribal women came. About 50-70 women attended the first training and introduction sessions regarding ornamental fish. The hands of the tribal women are by nature able to handle these delicate ornamental fish very gently. Eight to 10 tribal women at a time started to come and take care of their goldfish in cages. Once a crack developed in the net of one of the cages and many of the goldfish floated away, but the women did not lose heart. Slowly they began getting proficient in cleaning the cage nets, feeding the fish at proper times, taking measurements of length and weight of sample fish periodically. It is a delight to see the shiny red-gold creatures gently moving against the backdrop of the green-blue waters of the dam lake.

The National Fisheries Development Board (NFDB) has recently sanctioned 16 cages for a two-year project through CIFE to give hands-on training to tribal women on rearing ornamental fish, as also another 32 cages to provide an opportunity to the tribal fisher-folk to familiarise them with rearing advanced fingerlings. The first crop of goldfish and angel fish is now to emerge from these cages. A new dawn is breaking over the Dimbhe waters.

## Towards More Cost-effective Techniques

Pen Culture was first tried by the fisherfolk in 2009 at Bendharwadi. They tied a long four-metre high nylon net across a depression between four-five fields near the edge of the reservoir using a framework of bamboo and wooden poles. When the water level rose, the water came towards that side of the pen enclosed by the net. Thirty-three thousand fish seed were released into the pen and given the same feed. But in 2009 the dam did not fill to capacity and the water entered the pen only to a height of two to three feet. Soon the waters of the dam were released for irrigation through the canals and the reservoir water started receding. The fishermen were left with barely 21 days for the fish seed to grow. Still the fish seed increased in size from 25-35 mm up to 70-75 mm. The net was then lifted at a few places and the large-sized fish seed went into the reservoir by itself.

In 2010, the cooperative set up four pens in the villages of Bendharwadi, Digad and Savarli. Again this year the dam filled up late, but due to heavy rains, the water overtopped the net in one pen, hence stocking of this pen got delayed. The tribals run a net across the pen a few times to promote growth. Every three-four weeks samples of fish seed are taken out and their length and weights recorded, but this task is more difficult to carry out in the pens. Pens are less costly than cages but there is an element of uncertainty about when the water will flow into the pens erected and to what level it would stay for how many days in dam reservoirs.

## Reservoir Fisheries Contract

We would like to share here the details of a three-year long effort for rationalisation of the reservoir lease amount in Maharashtra.

Table 2: Value of Fisheries contract for Dimbhe Reservoir since 2005

Sr. No.	Year	Amount of Reservoir Fisheries Contract
1	2005-'06	Rs 54,000/-
2	2006-'07	Rs 1,21,000/-

The GR of the fisheries department dated May 31, 2006 stated that the contract amount may be the offset price or the amount of the last contract paid by the contractor, whichever is higher.

During 2002-'07, the fishing contract vested in a private contractor of Pune. He violated several contract conditions. Hence the regional deputy director, fisheries department, Pune, cancelled his contract on June 21, 2006 and the contract was then offered to DJSAMSS on June 22, 2006. The cooperative had to deposit Rs 1,21,000 towards the contract amount and Rs 36,360 as security deposit totalling Rs 1, 57, 360.

## **Review of amount of fisheries contract for Dimbhe reservoir**

### **Offset Price**

In Maharashtra, the offset price for fishing lease of a reservoir is calculated on the basis of:

- 1) Estimated annual fish production,
- 2) Market rate of fish, ( Rs 25 per kg as per GR ref. (iii) ) and
- 3) Percentage of total value of fish production (1% as per GR ref. iii).

### **Estimated Annual Fish Production**

Since 2001, the fisheries department has been calculating the estimated annual fish production as per the formula mentioned in ref (iv). As per this formula, the estimated annual fish production for Dimbhe and some selected reservoirs should be as follows:

Table 3: The estimated annual fish production for Dimbhe reservoir

Sr. No.	Reservoir	Average Area in Hectares	Expected Fish Production (kg)	Expected Fish Production Kg/ hectare	Actual Fish Production
1	Dimbhe (dist. Pune, Mah.)	1,280	126000+ (1280-300)x150 =2,73,000 kg <hr/> 1,27,000 kg*	213.28 <hr/> 99.37*	11.54 kg (2009-10)  26.6 kg max (2008-09)
2	Aliyar (TN)	650	126000+ (650-300)x50 = 1,78,500 kg	274.62	194 kg
3	Tawa (MP)	12,145	646000+ (12145-5000)x50 =10,03,250 kg	82.30	32.37 kg max (1998-99)
4	Bargi (MP)	16,030	646000+ (16030-5000)x50 =11,97,500 kg	74.70	33.00 kg max. (1998-99)
5	Gandhi Sagar (MP)	40,200	646000+ (40200-5000)x50 =24,06,000 kg	59.85	16.41 kg (2001-02)  82.87 kg max. (1994-95)

Note: \* The estimated annual fish production for Dimbhe reservoir is 1,27,000 kg, as per letter no. ji ma pu/ ta./ dimbhe/ 668/ 05 dated 21/5/05 of the Dist. Fisheries Dev. Officer, Pune, addressed to the Dy. Commissioner (Dev.) Pune.

Table 4: Period required for Fish production: As per the GR dated June 29, 1995.

Reservoir area	Improved procedure of awarding fish contract
For reservoirs of area 201 ha and above	Reservoirs falling in this range are large and the expenditure required for their development is also high. It takes three years to get the expected fish production. Hence fishing contracts for such reservoirs should be given for five years at a time, for stocking large numbers of fingerlings, making rearing ponds etc.

The cooperative therefore requested that:

- The amount of fishing contract for Dimbhe should be the offset price as per the GR dated 4th Jan. 2002. For Dimbhe this amount was Rs 54,000 per annum.

- A review of the formula for calculating the offset price may be considered, as per mentioned earlier.

It was also suggested that the expected annual fish production for Dimbhe may be based on the actual fish production of reservoirs of similar average area in the nearby areas. Some of these are as follows:

Table 5: Average area of reservoir

Sr. No.	District	Name of Reservoir	Average area (hectare)
1	Pune	Dimbhe	1280
2	Pune	Khadakwasla	1255
3	Pune	Varasgaon	1178
4	Pune	Yedgaon	1498
5	Solapur	Javalgaon	1250
6	Nagpur	Nand	1340

The cooperative's submission was supported twice by the Divisional Commissioner, Pune Division and the Regional Dy. Commissioner Fisheries, Pune, but the government expressed its inability to agree. Shashwat persisted in its support of the cooperative's efforts through media, memorandums and meetings at the secretary level in the government. Shashwat was given to understand that few other representations were also being made by others. Senior government officials however told Shashwat that theirs was the only representation on technical grounds. Finally, in 2009, the government rescinded its order of May 31, 2006 for new reservoir lease contracts to be awarded, thus reverting to the old reservoir lease amounts. Fisher-folk in the whole state benefited from this effort. However, it took another two years before the tribal fishermen of Dimbhe could benefit from this reduction in the lease amount. The new fishing lease for Dimbhe, for the period 2011-16, was offered to the Dimbhe Tribal Fish Cooperative Society in June 2011 at the reduced rates of Rs 54,000 annually and has been signed by the society.

## **Fish Cooperative Society Gets New Board of Directors**

The five-year term of the first Board of Directors of the Dimbhe Tribal Fish Cooperative Society ended in June 2011. Elections for the next Board of Directors were announced by the Asst Registrar (ADF) Pune. The cooperative department on its own decided to appoint Mr. Budhaji Damse, Project Coordinator of Shashwat, as Election Officer and the fish society members recently elected their new directors entirely unopposed. While the cooperative department can appoint non-officials as election officers to conduct and oversee the elections, it is a rare occurrence. This also helped the tribal community to save almost Rs 50-60,000 towards election expenses.

## Net Aquatic Productivity

Scientists from the Central Institute of Fisheries Education, Mumbai, visited the Dimbhe reservoir on June 8-9, 2006 for a preliminary survey of the reservoir. They were of the view that the aquatic productivity of this reservoir was about half the good productivity levels. Some extracts from their study report of June 2006 are as follows:

Table 6: Comparison between existing and ideal productivity levels

Sr. No.	Parameters	Existing Range	Ideal range
1	Net Primary Productivity	230-260 mg c/M3 / day	500 mg c/M3 / day
2	Alkalinity	27-30 mg/l	50 mg/l
3	Total hardness	35-38 mg/l	50 mg/l

Plankton: The population of zooplankton was scanty. Among the phytoplankton, mainly chlorophyceae members were present but almost in negligible quantity. Therefore it appears to be very low productive water.<sup>1</sup>

## Experimentation for Increasing Aquatic Productivity

The net aquatic productivity of the Dimbhe waters being much less than required, the people and Shashwat decided, after consultations with the director CIFE, to plant fields which are submerged every year under the dam waters with the green manure crop, *Taag/Dhencha*. The seeds were planted just after the first rains in 2007 and the crop grew up to knee and waist height at five different locations across the reservoir, before getting submerged under the rising waters of the dam. Soon the fishermen found that large-mouthed fish – catla – were coming to eat the leaves of these plants. When the waters went down due to canal releases, these lands emerged out of the water and the farmers who farmed these draw-down lands sowed wheat, which is the normal practice here. The yield was significantly higher. Dhanaji Bharmal of Fulawade harvested 500 kg from his field planted with dhencha as compared to the previous year's harvest of 350 kg. Soil analysis of dhencha-planted fields by CIFE scientists, together with neighbouring fields without dhencha as control, has revealed the following picture:

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(Ref: Preliminary Survey Report on fisheries and socio-economic condition of Dimbhe Reservoir, Dist. Pune, Maharashtra, June 8-9, 2006), by CIFE, Versova, Mumbai).

Table 7: Changes in soil properties after planting of Dhencha/ Taag

S. No.	Particulars	Field with Dhencha	Field without Dhencha	Field with Dhencha	Field without Dhencha
		Year of sampling: 2007		Year of sampling: 2010	
1	Colour of soil	Dark brown	Light brown	Blackish Brown	Blackish Brown
2	Soil pH	7.5	7.4	7.0	6.8
3	Water retention capacity (%)	54.0	44.0	42	40
4	Organic Carbon (%)	1.54	0.14	1.52	1.05
5	Organic Matter Content (%)	2.58	0.24	2.62	1.81
6	Total Nitrogen (mg/100 mg)	1.50	0.14	152	105
7	Total Phosphorous (mg/100 mg)	6.5	2.0	6.25	5.96

*Note: Extract from report of soil samples taken in 2007 and soil samples taken in 2010.*

The experiment proved quite popular and in 2009-10 the fish cooperative paid for half of the 20 quintals of dhencha seed planted by the farmers who cultivate such drawdown lands on the edge of the Dimbhe reservoir. Extensive plantation of dhencha/taag has been carried out here in 2010 under the CIFE-led, on-going NFDB-funded action research project.

## Roadblocks

There have been many heart-breaks, and difficulties galore have hounded the efforts of the tribal fishermen. In 2008 a pest attack on teak trees around the reservoir resulted in their green leaves dropping into the water and forming a sticky mass; the resultant effect was that the nets put in the water by the fishers would get stuck together like ropes and no fish would get caught. It would take the people a couple of hours of daily scrubbing and washing with detergent powder before the nets were loose enough to be laid in the water again. The problem reduced after the water level fell considerably due to canal releases. Perhaps due to environmental considerations, the catch reduced substantially in 2010, when even 40 kg of nets laid out would not get even four kg of fish catch. In 2009 and 2010 the dam did not fill to capacity, reducing the water volume available for growth of fish.

Very recently on August 28, 2011, all five gates of the Dimbhe dam were opened for about one-and-a-half days due to heavy precipitation and this has led to a loss of about three tonne of fish, with the fishermen incurring a revenue loss of about Rs 2.5 lakh. The morning after the gates were opened, people were lined up all along the river almost up to Gangapur, about five-six km downstream of the dam and were collecting fish which had come down with the water. The fish died due to the impact after falling down the 72 metre high spillway. People holding three to five fish each weighing four to six kg were a common sight that day. Budhaji Damse (co-author of this paper) saw one person with a silver carp so large that it was difficult to carry. It must have been 12-15 kg, and several others were carrying fish in sacks on their backs. It was a big loss for the people.

Unprecedented rains across western Maharashtra in 2007 led to severe loss as the fishermen's nets were washed away in heavy floods. It was at this time that floods inundated a large number of villages and towns of Sangli and Kolhapur districts. On the request of the divisional commissioner, Pune Division, a group of 12 fishermen from the Dimbhe dam area went with 10 boats to the flooded areas; they were among the first to reach, transport having been provided by the revenue department. They saved over 700 people from the flood waters in the most remote villages in the first two days before the speed of the flood waters became too much for the flat bottomed manual boats.

## Conclusion

It has been an exciting time, the coming together of tribal fisherfolk -- women and men -- a voluntary organisation, various government departments and scientists of a national level research institute. Together, they seem to have made a difference to the situation.

The fish of Dimbhe reservoir is completely free of pollution, as the upstream areas are all well forested and practically no chemical fertilisers or pesticides are used. So this fish catch should really fetch higher prices. Sixteen to 17 local fish species existed in the area before the dam construction, but are slowly getting extinct or have lost their taste. Further there are no takers in the market for special local species like *Kolas* and *Loli* as they have many bones, and local species like *Humbli* are popular only among the poorest slum dwellers because they are cheap.

There is a still long way to go. With fish catch increasing, the fishermen of Dimbhe are now thinking of their own small hatchery, how to get funds for a small cold storage of their own, another motor boat to transport the fish catch in time, among other things. About 50 of the poorest primitive tribal fishermen still do not own boats, all of them also need large size nets - they are now getting fish weighting around seven kg and their nets have remained small. Infrastructure support for stocking for the next three-four

years seems to be very necessary, as also space and working capital for the ornamental fish business of the tribal women. While the Dimbhe fish cooperative society seems now well set on the road to self-sufficiency, it shall still be another three-four years before they are able to meet all their costs and carry out fish seed stocking in the reservoir. Shashwat would like to expand operations and hopes to be able to help the fisherfolk of the six medium dams within a 30-40 km range to increase their fish production and also to better their lives.

Inland fish production in India today has a share of 55 to 59% of the total annual fish production of 76.2 lakh metric tonne. Maharashtra has a total fish production of 5.96 lakh tonne, of which fresh water fish accounts for barely 1.32 lakh tonne (2007). There is a huge scope for improvement. Large inland reservoirs today have an average production of 10-16 kg per ha per year and this could be increased up to 200 kg per ha average fisheries area per year with aggressive stocking of good quality fish seed of advanced fingerling size at the proper times. Training of personnel at the field level is an absolute necessity. It needs the will of the government, the determination and full involvement of the local fishermen and continued support by voluntary organisations together with resourcing organisations. Shashwat feels that the expansion of such a livelihood initiative could make a difference by providing a good protein diet for the poor in the country at affordable prices and put smiles on the faces of women and children.



Fisherwoman in Dimbhe  
May 2011



2003, Boats in Dimbhe

**Dimbhe Jalashaya Shramik Adivasi Macchimar Sahakari Sanstha Maryadit, Digad, Tal.****Ambegaon, Dist. Pune Comparative Draft Financial Performance**

Year	Total Fish Catch (Tons)	Chela (Tons)	Catla (Tons)	No. of fishing days	Wage rate for Chela Rs. per kg	Wage rate for Catla Rs. per kg	Gross Sales lakh	Wages Paid to fisherfolk Rs. lakh	Business Profit Rs. lakh	Net Profit Rs. lakh	Net Loss Rs. lakh
2006-07	20.53	16.86	3.67	72	8	15	5.19	1.96	1.87	1.94	
2007-08	34.02	23.78	10.24	139	8	15	7.69	3.61	1.60		0.43
2008-09	27.83	16.26	11.57	175	8	15	7.03	2.99	3.01	1.84	
2009-10	14.75	4.34	10.4	145	10	18	5.48	2.28	2.03	0.32	

## Reference

- i) GR no. matsyavi 1206/ pra. kra.105/ paduma-13, dated May 31, 2006
- ii) GR No. matsyavi 1206/ pra. kra.105/ paduma-13, dated April 24, 2006
- iii) GR No. matsyavi 1201/ pra. kra.224/ paduma-13, dated January 4, 2002
- iv) GR No. matsyavi 1199/20/ pra. kra.8/ paduma-13, dated October 15, 2001
- v) GR No. matsyavi 1261/CR135/ paduma-13, dated June 29, 1995 of the Department of Agriculture, Animal Husbandry, Dairy Development & Fisheries, Mantralaya Vistar, Mumbai.