

# Decentralized Seed (Fish) Production in Chitwan, Nepal



**Submitted to**

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## **Introduction**

Fish production in Nepal is entirely dependent on the utilization of its inland water resources and available fish species. The country has far greater relevance to more emphatically embark into the fisheries sector because most population live in the rural areas, fish is one of the choice and cheapest animal protein food and enormous amount of unexploited natural resources are available for the development of aquaculture including fast growing of native and exotic species of fish. Further, it is estimated that roughly over 60% fish in the local market now comes from India.

There exist large scope for increasing fish production by developing aquaculture in existing ponds, exploitation of swamps and harvesting and holding water all along the foot hills by low cost damming and utilization of low lying paddy fields for rice/fish cultivation to meet the growing demand of fish and developing rural livelihood opportunities for local poor communities. All these clearly indicate that fisheries sector can play an important role in providing local and national food security, fighting protein related malnutrition, reduction of poverty by supplementing family income and creating additional gainful employment opportunities in rural areas, and improving the environment by harvesting, holding and proper use of the water resources.

## **2. Introduction of working area**

The internship work was conducted in Kathar and Piple village Development Committee, the eastern part of Chitwan district. In Nepal DSP project expanded in Chitwan and Nawalprasi district including total 84 farmers of rice fish farmers. Out of those only 30 farmers in Chitwan, this consists of three groups in Kathar VDC and only one group in piple VDC. The DSP project has planned to increase Rice-Fish farmer up to 500 in March, 2010. In addition of 84 farmers newly selected 260 farmers from Nawalprasi and 110 from Chitwan. Newly selected site becomes more suited for irrigation point of view in Piple and Bhandara VDC of Chitwan districts. The working areas located nearly about 1 hour motor distance from district headquarter, Bharatpur and is bordered with Chitwan National Park on south. Khairahani VDC on north, Kumroj VDC on east and Bhandara VDC on west. The study site was connected with all season road and a small distance of graveled rural road to district head quarter, Bharatpur. Kathar VDC is densely populated with Tharu community; a marginalized ethnic fishing group of inner tarai and piple VDC consist of Rai community with only three members in group.

The main purpose of this study is to access the status of rice- fish farmers with major emphasis on economic condition and living standard of farmer, animal protein gain from self cultivated fish and generation of supplementary income. The outcome of the study can be used as an indicator and guidelines for other future allied study.

## **3. Methods**

The semi structured pretested questionnaire was used for collecting the information from the fish farmers, interviewed individually during data collection and field observation regularly. The collected information was analyzed by MS-Excel for reaching the statistically valid conclusion.

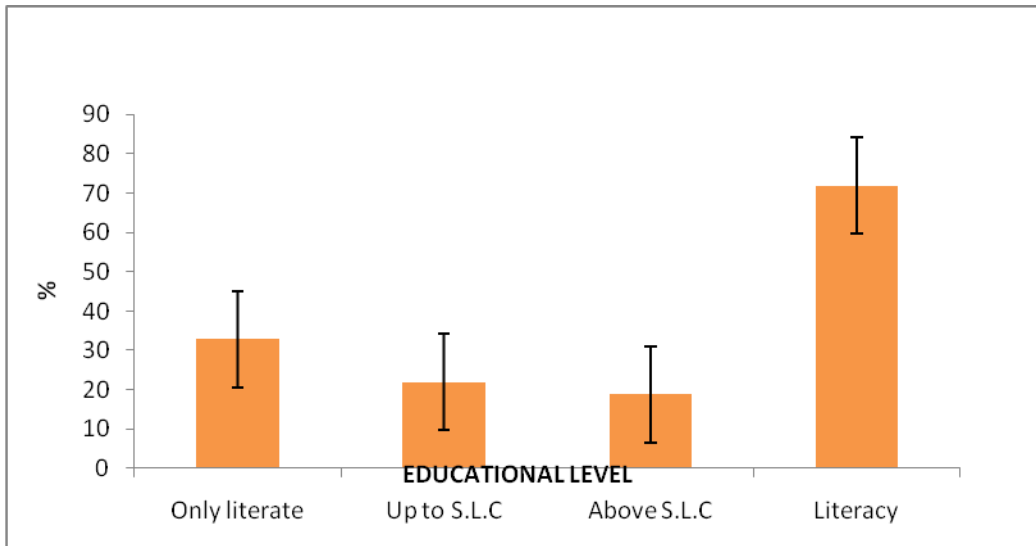
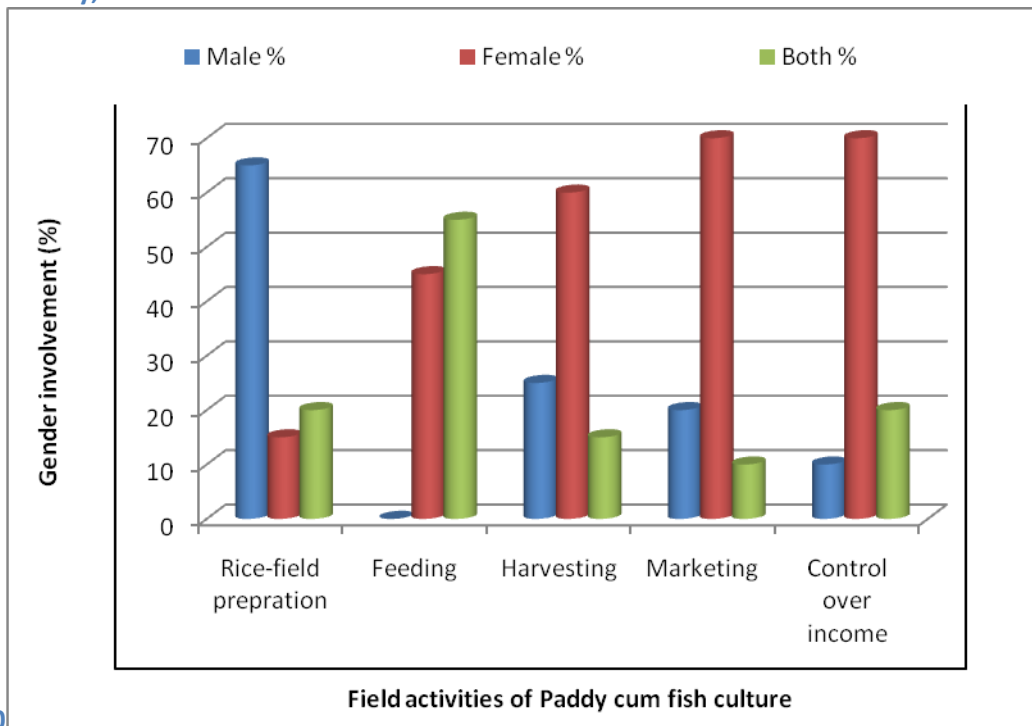


Figure 1 Educational level of farmers in Kathar and Piple Village Development Committees of Chitwan, Field survey,



2010

Figure 2 Gender role in Rce-Fish culture in Kathar, Piple of Chitwan, Field Survey, 2010

Table 1 Location of the farmers group involved in rice-fish culture in Chitwan, field survey, 2009

District	VDC	Village	Group Name	Total HH (No.)	Total Plot Area (m <sup>2</sup> )	Av. Plot Area (m <sup>2</sup> )	Range Plot Area (m <sup>2</sup> )
Chitwan	Kathar-1	Kushahana	Devithan Mahila Samuha	9	6295	699.44	271-1132
Chitwan	Kathar-1	Kushahana	Annapurna Hariyali Mahila Samuha	9	9170	1018.88	186-3600
Chitwan	Kathar-3	Kathar	Shrijanshil Mahila Samuha	9	5397	599.66	119-1445
Chitwan	Pipley-1	Jitpur	Jalpari Rai Mahila Samuha	3	4843	1614.33	480-3131

Table 2 Total Production of rice in different group.

S.N.	Group Name	Tot. HH No.	Avg. Area (kat)	Total production of rice(two crop)	
				Tot. Prod. (Qt.)	Prod./katha (Qt.)
1	Devithan Mahila Samuha	9	2.98	31	1.65
2	Annapurna Hariyali Mahila Samuha	9	3.05	36	1.45
3	Shrijanshil Mahila Samuha	9	1.80	24	1.45
4	Jalpari Rai Mahila Samuha	3	4.84	20	1.40

Table 3 Production range of Fingerlings in different group.

S.N.	Group Name	Member size	Fingerling harvest		Range of fingerlings production	Termination of DSP
			Total no.	Total wt.(g)		
1	Devithan Samuha	9	3821	19288	321-795	2
2	Annapurna Hariyali Samuha	9	2655	12935	215-543	2
3	Shrijanshil Samuha	9	6473	32615	455-1685	2
4	Jalpari Rai Samuha	3	1329	5458	332-555	0



Plate 1 Harvesting fingerlings for count and growth performance.



Plate 2 After counting of fingerlings again stock in ditch.



Plate 3 Brood Tilapia supply to farmer in 2010.



Plate 4 Duck, searching food materials along with fishes.

## 5. Constraints/Problems faced by Rice-Fish farmers

The most common and univocal constraint, the fishing community is facing, is the poor water source which cannot supply adequate amount of water round the year. The water problem is most serious particularly in Kathar and Gathauli village during the winter season, especially Chaitra and Baishakh months. These two villages are feeder by the water from Sano Rapti River and as water level goes down in winter months in river, water problem becomes serious during this season.

The other problem, the farming community is facing, is theft problem, time to time occurrence of different fish diseases; their management & treatment and increased population of predators like snake, frog and birds (Mainly Duck, Bakulla, kingfisher etc.) and weed fishes and improper market facility. Some farmers also put their views during interview that dike erosion, oxygen deficiency and Rice- Fish plot management from pest. The new problem farmer identified more recently is the flooding of pesticide mixed water from rice field during Jestha and Ashad into Rice-fish plot which recently result in higher mortality fish.

## 6. Conclusions and Recommendations

I was found from survey report rice production with fish and without fish were not significant changes in production but surplus of fish consumption. The production rate of rice ranges from 4.14 to 11.52 kg/m<sup>2</sup> (for two crops) and fingerlings density 0.82 to 10.70 /m<sup>2</sup> of rice plot area. The main aim of this project is to increase number of fingerlings for stocking in pond and selling to raise economic status of family. For fingerlings production Devithan Mahila Samuha ranges from 321 fingerlings to 795, Annapurna Hariyali Mahila Samuha ranges from 215 to 543 fingerlings, Shrijanshil Mahila Samuha ranges from 455 to 1685 fingerlings and Jalpari Rai Samuha ranges from 332 to 555 fingerlings only culture practices. Two member of each group of Kathar VDC becomes not continue this culture. The following four major conclusions can be derived logically from the due support of the data collected:

- Rice- Fish culture concepts and activities initiated and supported by DSP project & Aquaculture department of IAAS Rampur have play positive impacts on Rice-Fish farming community of Chitwan and Nawalprasi districts.
- Farmers' living standard, concern on health, nutrition and education is improved after adopting the Rice-Fish culture practices.
- Have better know-how to culture Rice- Fish farming and getting dual benefit Rice as well as Fish with less effort.
- To easily production of Tilapia fingerlings in rice field which is used for selling and stocked in pond for culture practices.

Following recommendations have been made based on the study of Rice-Fish culture in Kathar and Piple VDC :

- Short term training on Rice-Fish plot management, predator control of duck and fish disease management for farmers would be beneficial. Use of local traps should be encouraged to catch Frog and snake.
- Proper management of ditch dike management during using of pesticide in Rice-Fish plot.
- Rice cum Fish farming plays most important role in family income and livelihood plus significantly address the animal protein linked malnutrition.