

Decreasing Agricultural Land For Increasing Inland Fisheries And Its Impact On The Socio-Economic Development Of Deshapran Block In Purba Medinipur Coastal Area, West Bengal, India

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ABSTRACT: Inland fisheries mainly brackish water shrimp farming (*Penaeus monodon*) has an important role on the socio-economic development of Deshapran Block in Purba Medinipur coastal area. In this study area brackish water shrimp farming is increasing rapidly for more profits. Fishing is not only a source of income but also provider of necessary nutrients to our body, influences national and international income, alleviate poverty through employment, create scope of engagement for the rural and marginal workers, conserves the aquatic ecosystem and biodiversity etc. This paper analyses the impact on socio-economic development due to increasing inland fisheries. Here the main focus is given to how much the socio-economic development of this study area have been done through decreasing agricultural land for increasing inland brackish water fisheries mainly shrimp farming and how increase the soil degradation for brackish water of shrimp farming and its effect on natural environment. And also what will be its possibilities in this regard to achieve the aforesaid goal with proper planning.

KEYWORDS: Biodiversity, Brackish water, Shrimp farming, Socio-economic development, Soil degradation

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I INTRODUCTION

Inland brackish water shrimp farming has shown tremendous development in the last fifteen to eighteen years due to constant increase in shrimp demand and limited supply in the world market. Therefore, the shrimp farming is becoming a new profitable farming for mainly developing countries. India is one of the largest producer and exporter of shrimp in the world. Inland brackish water shrimp farming has been recognized as a powerful source of income and employment generator. It is also the source of the cheapest and most easily digestible animal protein, foreign exchange earner. In fine, it is the source of livelihood and food security for a large section of economically background, landless and marginal farmers of India. In West Bengal, inland brackish water fisheries have been cultivated in the coastal area. So it can be said that inland brackish water shrimp farming has an important role for the socio-economic development of this study area. Therefore, rapidly spread the inland brackish water fisheries, but similarly decrease the agricultural land. Brackish water shrimp culture had resulted in land alienation of poor farmers among other negative effects. Soil degradation due to saline water from shrimp farming had forced poor farmers to sell land to large shrimp companies and rich people. Change in landuse from agriculture to brackish water fish farming had led to loss of employment and income of the sharecroppers. Development of brackish water shrimp farming by large businessmen had led to eviction of tenants and agricultural labours, who were dependent on land for their livelihood. Livelihood security of poor people was adversely affected with the development of shrimp farming in the coastal areas of Purba Medinipur, West Bengal. There was no detailed discussion for shrimp farming in this study area and how the development of shrimp farming changed the distribution of landownership and operational holding. This paper analyses the impact of socio-economic development of Deshapran block in Purba Medinipur coastal area due to decreasing agricultural land for increasing inland brackish water fisheries in West Bengal. Deshapran Block has an area of 170.30 square km. It has 1 panchayat samity, 8 gram panchayats, 128 gram sansads, 169 mouzas and 166 inhabited villages. Headquarter of this Block is at Dholmari. Four coastal gram panchayat out of eight gram panchayats of Deshapran Block are selected for this research. (Bamunia, Dariapur, Basantia and Amtalia gram panchayat)

II OBJECTIVE

All people want to be economically more prosperous. There is a growing tendency towards shrimp farming for people and more profit. As a result, the cultivable land area is decreasing. Selection of this study area depends upon the following points:

1. To identify different types of natural resource of this coastal area,
2. To examine how people utilized these natural resources,
3. To show the nature of socio-economic development,
4. To show how coastal landform have changed,
5. To show decrease the agricultural land for increase of inland fishery and saline water,
6. To identify why poor farmers lease their land?
7. To identify the causes of Environmental pollution, soil degradation and loss of Bio-diversity,
8. To identify why people leave other jobs or business and have been engaged in shrimp farming?
9. To prepare the suitable method for sustainable land use,
10. To give the suggestion for better utilization of land,
11. To show different landuse planning,
12. To show the life-style of the inhabitants etc.

III METHODOLOGY

This study has been done on the basis of intensive visit of study area, extensive literature review, experimental documentary analysis and field observation to know the landuse pattern, socio-economic and socio-cultural condition of this study area. Reports of Geological Survey of India (GSOI) and recent research papers published in different regional, national and international journals and presented in different seminars are very essential and helping tools to prepare this study. Here four gram panchayats are selected out of eight gram panchayats of Deshapran Block in Purba Medinipur coastal area for this study.

IV LOCATION

In the district of Purba Medinipur of West Bengal, Deshapran Block locates along the Bay of Bengal. Deshapran Block is bounded by Khejuri-I and II Block in the north, Bay of Bengal in the south-east, Contai-I Block in the south and Contai-III Block in the west. The latitudinal extension is about $21^{\circ}46' N$ to $21^{\circ}52' N$ and longitudinal extension is about $87^{\circ}50' E$ to $87^{\circ}55' E$.

V LOCATION MAP OF STUDY AREA





VI REGIONAL SETTING

This study area is accessible by road from Kolkata (160km) by following NH-6 upto Kolaghat, NH-41 up to Nandakumar and SH-4 upto Contai. Deshapran Block has access from SH-4 at Contai. It is located about 60 km from Tamluk, the district headquarters. Now it is very attainable by train from Howrah and Kharagpur via Mechheda or Panskura upto Contai.

VII BASIC SOCIO-ECONOMIC FEATURES OF STUDY AREA

Four gram panchayats are selected out of eight gram panchayats of Deshapran Block in Purba Medinipur district for this research. This four gram panchayats i.e. Bamunia, Dariapur, Basantia and Amtolia are located in the coastal area. This study is carried out among 100 farmers of each gram panchayat. Some questionnaires have been gave them to collect some important answers. This survey query on the basis of fish farmers profile i.e. population, age, caste, occupation, education, family size, social participation, profit distribution etc. On the basis of survey report a concrete concept arise on fish farmer's socio-economic status of Deshapran Block in Purba Medinipur, West Bengal, India.

1. POPULATION

In Deshapran Block, Purba Medinipur, population distribution of four gram panchayats are as follows-

Table 1. Population Distribution of four Gram Panchayats

Population Distribution	Bamunia Gram Panchayat (N=100)	Dariapur Gram Panchayat (N=100)	Basantia Gram Panchayat (N=100)	Amtalia Gram Panchayat (N=100)
Fish farmers	40	38	34	42
Agricultural Farmers	51	52	54	49
Others	9	10	12	9
Total	100	100	100	100

2. AGE

Majority of fishermen belong to the age group of 31 – 40 years. 21 – 30 years old fishermen are also engaged in this primary activity. Fishermen of different age group of four gram panchayats are as follows-

Table 2. Age group distribution of four Gram Panchayats

Age Group (year)	Bamunia Gram Panchayat (N=100)	Dariapur Gram Panchayat (N=100)	Basantia Gram Panchayat (N=100)	Amtalia Gram Panchayat (N=100)
<20	4	2	-	5
21-30	31	36	40	38
31-40	44	45	41	40
41-50	14	10	14	8

51-60	5	4	4	9
>60	2	3	1	-

3. CASTE

Maximum numbers of fishermen belong to Scheduled Caste community (about 50-60%). Fishermen of different caste of four gram panchayats are as follows-

Table 3. Castes of four Gram Panchayats

Caste	Bamunia Gram Panchayat (N=100)	Dariapur Gram Panchayat (N=100)	Basantia Gram Panchayat (N=100)	Amtalia Gram Panchayat (N=100)
General	37	41	36	37
SC	61	53	47	58
ST	-	2	-	-
OBC	2	4	15	5
Others	-	-	2	-

4. OCCUPATION

The primary occupation of all the respondents was observed to be agriculture. But now increase the salinity of soil for brackish water fisheries, peoples move to brackish water fish farming (shrimp). The occupational structure of four gram panchayats are as follows-

Table 4. Occupation of four Gram Panchayats

Occupation	Bamunia Gram Panchayat (N=100)	Dariapur Gram Panchayat (N=100)	Basantia Gram Panchayat (N=100)	Amtalia Gram Panchayat (N=100)
Agriculture	51	52	54	49
Fishing	40	38	34	42
Business	6	5	4	3
Labours	2	3	3	2
Others	1	2	5	4

5. EDUCATION

In this study area, maximum number of farmers are eight pass (about 40%), then secondary pass (about 30%). Fishermen of different educational qualification of four gram panchayats are as follows-

Table 5. Education of four Gram Panchayats

Education	Bamunia Gram Panchayat (N=100)	Dariapur Gram Panchayat (N=100)	Basantia Gram Panchayat (N=100)	Amtalia Gram Panchayat (N=100)
Illiterate	2	-	1	2
Primary	6	8	5	7
Upper Primary	42	37	40	42
Secondary	30	31	30	25
Higher Secondary	12	14	13	16
Graduation and above	8	10	11	8

6. FAMILY DISTRIBUTION

In this study area, the number of members in most families have 5-7 members. Large number of nuclear families are shown (about 60-70%). And also the farmers are widely experienced varied between 10-15 years. Family distribution of four gram panchayats are as follows-

Table 6. Family distribution of four Gram Panchayats

Family Members	Bamunia Gram Panchayat (N=100)	Dariapur Gram Panchayat (N=100)	Basantia Gram Panchayat (N=100)	Amtalia Gram Panchayat (N=100)
<5	22	18	16	16
5-7	47	52	57	60
8-10	28	28	6	20
>10	3	2	1	4
Family Size				
Joint	38	36	32	43
Nuclear	62	64	68	57
Experience				

(year)				
<11	18	16	14	16
11-15	40	42	35	38
16-20	32	30	34	31
21-25	7	6	10	8
26-30	3	2	6	4
31-35	-	2	1	2
>35	-	2	-	1

7. SOCIAL PARTICIPATION

Fishermen of different social participation are as follows-

Table 7. Social participation of four Gram Panchayats

Social Participation	Bamunia Gram Panchayat (N=100)	Dariapur Gram Panchayat (N=100)	Basantia Gram Panchayat (N=100)	Amtalia Gram Panchayat (N=100)
Village committee	42	38	32	41
Youth club	49	54	60	52
Co-operative society	6	3	6	4
Others	3	5	2	3

8. PROFIT DISTRIBUTION

Most fishermen earn annual profit of Rs.140000-180000. Profit distribution of four gram panchayats are as follows-

Table 8. Profit distribution of four Gram Panchayats

Profit (annual/family)	Bamunia Gram Panchayat (N=100)	Dariapur Gram Panchayat (N=100)	Basantia Gram Panchayat (N=100)	Amtalia Gram Panchayat (N=100)
<60000	16	10	12	8
60001-100000	18	15	19	20
100001-140000	16	14	22	15
140001-180000	20	23	24	20
180001-220000	21	27	15	26
>220000	9	11	8	11

VIII IMPACT OF BRACKISH WATER FISHERIES ON SOCIO-ECONOMIC DEVELOPMENT

Brackish water shrimp farming has a significant role on the socio-economic development of Deshapran Block in Purba Medinipur coastal area. Inland brackish water fisheries are a provider of source of income, employment, necessary nutrients, engagement of rural and marginal workers, livelihood for farmers. It makes a valuable achievement to social and economic development of this study area. Most of the peoples are engaged in fishing activities i.e. net weaving, repairing, fish feeding, distribution of small shrimp, reformation of water bodies (pond), import of feed and export of shrimp business etc.

I have tried my best to show the important contributions of this primary sector and it will help variously in socio-economic development in this study area-

1. Necessary nutrient supply to our body (fat, iron, calcium, phosphorous etc.),
2. Protein supplement,
3. Source of income (national and international money),
4. High profitable farming,
5. More profits in less time,
6. Contribution of the local economy,
7. Alleviate poverty through employment,
8. Economic development,
9. Improve the standard of living,
10. Infrastructural development (construction of road, house, building of fish market etc.)
11. Establishment of training center,
12. Development of ancillary or secondary industry (ice factory, packaging industry, fish processing industry etc.)
13. Import of seeds and export of shrimp business

IX ANALYSIS OF THE PROBLEMS FOR INCREASING BRACKISH WATER FISHERIES AND DECREASING AGRICULTURAL LAND

For the socio-economic development of this study area, many associated problems are shown in the natural environment-

1. Decreasing agricultural land,
2. Increase the salinity of soil,
3. Production of paddy and other crops are decreasing, resulting in shortage of food.
4. The rich people are getting richer,
5. Illegal farming system,
6. Workers are losing jobs, resulting the workers' immigration is increasing,
7. Crop production is not good for the increasing of soil saline, so poor farmers forced to lease the land,
8. Often, the pressure of politician or large businessman, land owner is forced to lease the land,
9. Antibiotic use for shrimp disease,
10. Ecosystem is being interrupted,
11. As this shrimp is mainly exported, in local market shrimp deficit is going on,
12. Unconsciousness to fresh water fish farming for low profit,
13. Increasing shrimp disease for the attacking of virus and bacteria,
14. Primary cost is much higher, so shrimp farming is not possible by poor farmers,
15. Lack of trained labours etc.

X SUGGESTIONS FOR FUTURE BETTERMENT

For the socio-economic development of Deshapran Block in Purba Medinipur coastal area, many problems have created and also pollute the natural environment. In this situation, the suggestions for future betterment are given below.

1. Permission of Government for brackish water shrimp farming,
2. Without permission no fishing pond will make,
3. The Government will have to be more strict about giving permission,
4. To provide training to the workers,
5. The use of antibiotic will be reduced,
6. Fresh water shrimp culture should be increased gradually,
7. How to increase income from different crops should be arranged,
8. Different livelihoods should be arranged,
9. Must specify specific places for brackish water farming, where only this will be cultivated,
10. Where the cultivation is good for fertile soil, there is no brackish water fishing to cultivate,
11. To increase awareness among the people,
12. The project to supply the equipment for fisheries (net, pipkin etc.),
13. Reformation of water bodies,
14. Testing of water and soil,
15. Banking and insurance system for fishermen,
16. Inland brackish water fish production data will be collect from fishermen, this will help to take better policy decisions,
17. Providing training and credit for non-fish related source of income in order to maintain the diversity of livelihood of the people,
18. Established Fisheries Resource Centers (FRCS) in this study area to provide technical support

XI CONCLUSION

Therefore, it can be clearly conducted that inland brackish water shrimp farming can also play an important role in the socio-economic improvement of a developing country like India. But now due to the rapid growth of brackish water shrimp farming, the amount of agricultural land is decreasing and soil salinity is also increasing. So, the production of crops is rapidly decreasing. As a result, the overall income of the people is increasing because shrimp farming yields more than other crops. There is no shortage of food grains in the near future, brackish water shrimp and crops should be cultivated separately and keeping an eye on preserving fertile soils to maintain the balance of the environment and ecosystem. So, the economic activities like brackish water shrimp farming along with agriculture can contribute something worthy to the socio-economic development of Deshapran Block in Purba Medinipur coastal area, West Bengal.

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