

Shrimp Culture in Some Areas of Paikgacha and its Surrounding Reality

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Abstract: Shrimp sector stands as one of the vital foreign currency earning commodities of Bangladesh. However, it has immensely bad impact too. The government, policy makers and shrimp traders are encouraging shrimp culture without considering the social, environmental, cultural, political, and many other pessimistic impacts of it. Though shrimp culture is economically profitable for the big farmers, it is increasing landless fellow and local women are losing their traditional jobs. It results ecological, occupational, cultural, power structural and other changes. This sector demands comparative study in the coastal region. Lack of knowledge of the impacts of shrimp culture makes the issue more critical. Therefore, it is necessary to identify the problems and study the grass root level. Nevertheless, there has been a very few studies in this context. Therefore, at present it is very much rational to focus on the changes due to shrimp cultivation

Keywords: Bagda, Gher, Hari, HYV, Khas Land

Introduction

In Bangladesh shrimp is the third largest foreign exchange earning commodity. The farmers traditionally cultivate shrimp and fish by entrapping them in low lying coastal areas with construction of embankments. Starting in late 1950's, many low lying coastal areas have been empoldered under the "Coastal Embankment Project" for preventing saline intrusion in order that paddy can be grown in areas otherwise it is not suitable for rice production. However, because of high financial returns many farmers within the polders have taken up shrimp farming over the last few years. In recent years shrimp culture has been extended even to non-poldered areas and to some extent in areas where mangrove forests have been cleared off. [1]

The conflict arises in Khulna area, where shrimp farms are concentrated and shrimps are cultivated in rotation with paddy. People of these areas opined that apart from reducing paddy production any expansion in shrimp cultivation would decrease the grazing land, most essential for supporting cattle population. Moreover, shrimp cultivation expedites the process of social polarization by reinforcing the position of landlords and entrepreneurs on the one hand and by generating labor displacement and increasing the level of poverty for subsistence and small farmers on the other. In practice, whatever the socio-economic consequences may be, the individual farmers make their decisions for shrimp

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culture in rotation with paddy on the basis of incremental benefit from shrimp culture compared to reduction in value of paddy as a result of using their land for shrimp culture. [2]

The land leasing is another major social problem in shrimp culture. In most cases, the lands from small farmers are taken on lease for shrimp culture and the leasers are mostly from urban areas and as absentee landlords they employ local labor in their farms for shrimp culture. As a result, the small farmers who leased out their lands to live at the mercy of the rich and powerful people with no bargaining power. The owners of the land feel alienated and frustrated for fear of losing physical possession of their lands once leased out to the outsiders. The long-term distance of the worker from family creates several family and social problems. Moreover, the impact of shrimp culture of overall environments is very harmful from social and ecological context and it become threat for the domestic animal and garden. [3]

Objective of the study

The main focus of the present study is to find out the environmental change and the income discrimination among the local people in comparing with the past income resource and the dominant attitudes of gher proprietor to their workers.

The specific objectives of the study are to:

- a) identify the change in present environment in comparison to the past.
- b) investigate the changes in the land using pattern in the study area.
- c) enquire the income variation of people in comparison to the past and present situation.
- d) observe the impact livelihood.
- e) measure the involvement of local politics in gher farming.

The study was conducted in some selected areas of Paikgacha Thana in Khulna district where the number of prawn gher is 2,735 covering land area 16,265 ha and the number of lobster gher is 102.

Methodology of the Study

For the validity of data, both qualitative and quantitative methods applied for data collection. This study conducted through survey method, focus group discussion (FGD) and ethnography on the people of selected areas of Paikgacha Thana in Khulna district.

This study is very heterogeneous in nature. As a result, purposive sampling procedure followed to and the following steps maintained. Firstly, I have selected the most significant area of my study then find out which cases are perfect for my study. Finally, I chose 70 informative cases and started my fieldwork.

Collected quantitative data analyzed in terms of correlation, mean deviation, standard deviation and specially used statistical package for social science (SPSS) program to measure the hypothesis through chi-squared test and data presented through various tables and figures. Follow up studies conducted several times due to reliability and validity of data.

The hypothesis of the study was - with the invention of the shrimp culture significant changes in different levels of gher oriented rural life and vital degradation of environment.

Category of interviewers:

	Type	Number	Place
1.	Big farmer (over 100 bighas of land)	05	Soladana & others
2.	Medium farmer (50 – below 100 bighas)	10	Paikgacha & others
3.	Small farmer (below 50 bighas)	15	Sorol and others
4.	Worker	20	Masiara & others
5.	Villagers	15	Koruli & others
6.	NGO activists and others	05	Batikhali & others
	Total	70	

Source: Fieldwork 2005

**Presentation and Analysis of Qualitative and Quantitative Data:
Family size of the respondent**

Family member	Number of respondents	Percent (%)
1-2	7	10.0
2-4	14	20.0
4-6	45	64.3
10 above	4	5.7
Total	70	100.0

Source: Fieldwork 2005

Family size according to male:

Female	Number of respondent	Percent (%)
1-2	35	50.0
2-4	31	44.3
10 above	4	5.7
Total	70	100.0

Family size according to female:

Male	Number of respondent	Percent (%)
1-2	45	64.3
2-4	21	30.0
10 above	4	5.7
Total	70	100.0

Source: Fieldwork 2005

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Above tables shows family size of the studied population. The first table shows the overall family size of the respondents. We see population is high in the ‘family member’ group (4-6) and the number of respondents in that group is 45. The second tables show the family size according to male and we see male number is high in ‘family member’ group (1-2) and the number is 45. The third table shows the number of female in the family size group and we see in the ‘family member’ group 1-2 the number of female is high and the total number is 35.

Distribution of age group of the respondents:

Age group	Number of respondent	Percentage
15-20	3	4.28
20-25	11	15.71
25-30	15	21.43
30-35	9	12.86
35-40	8	11.43
40-45	9	12.86
45-50	6	8.57
50-55	3	4.28
55-60	4	5.71
60+	2	2.86
Total	70	100

Religion of the respondent:

Religion	Number of respondent	Percent
Muslim	31	44.3
Hindu	39	55.7
Total	70	100.0

Source: Fieldwork 2005

The above table shows the age distribution of the respondent. We see 21.41 is the highest percentage among the age group 25-30 and in that age group number of respondents is 15. On the contrary, the lowest percentage of studied population in the age group 60+ and the number is only 2. Features of the above table are to show the number and percentage of studied population according to age group. It shows the total respondents are divided into two religious groups that are Hindu and Muslim. The number of Hindu respondents is higher than that of Muslim respondents and the percentage of Hindu population is 55.7%.

Before introducing to shrimp culture:

Occupation of the respondent	Number of respondent	Percent
Agriculture	14	20.0
Service	21	30.0
Business	35	50.0
Total	70	100.0

Source: Fieldwork 2005

Above table shows the occupation status of the respondents before introducing of shrimp culture. It shows 50% of total respondents engaged in business before introducing shrimp cultivation. The lower number of involvement is in agriculture and the percentage is 30%.

Before introducing to shrimp culture: **After introducing to shrimp culture:**

Rice cultivable land (in decimal)	Number of respondent	Percent
No land	10	14.3
1-500	35	50.0
500-1000	7	10.0
1000-2000	11	15.7
2000 above	7	10.0
Total	70	100.0

Rice cultivable land (in decimal)	Number of respondent	Percent
no land	24	34.3
1-500	39	55.7
500-1000	7	10.0
Total	70	100.0

Source: Fieldwork 2005

Above table shows the amount of rice cultivable land of the respondents. It shows 50% of total respondents have rice cultivable land before introducing of shrimp culture. It also shows that only 14.3% respondents have no rice cultivable land in the same duration and 10% respondents have more than 2000(decimal) rice cultivable land. After introducing of shrimp culture 34.3% respondents, lose their total land. On the contrary, large amount of agricultural land gradually decreases. Therefore, shrimp cultivation hampers the ecosystem a lot.

Before introducing to shrimp culture:

After introducing of shrimp culture:

Shrimp cultivable land (in decimal)	Number of respondent	Percent
no land	49	70.0
1-500	14	20.0
500-1000	7	10.0
Total	70	100.0

Source: Fieldwork 2005

Shrimp cultivable land	Number of respondent	Percent
no land	21	30.0
1-500	7	10.0
500-1000	31	44.3
1000-2000	4	5.7
2000 above	7	10.0
Total	70	100.0

Above table shows that before introducing shrimp culture 70% respondents had no shrimp cultivated land. It means that they have no involvement with shrimp cultivation. It also shows few percent respondents have some relations with shrimp cultivation but that was natural. We can also say that after introduction of shrimp culture 44.3% respondents have medium scale land for shrimp cultivation and they are directly involved with it. From this table we can also observe that the number of landless people increases in that locality.

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Case – 1 Name: Amal Krishna Ray, Age: 60, Village: Soladana, Union: Soladana. Family Members: 20.

Changes in the sources of income of Amal’s family before introducing to shrimp culture and at present (in 2005 price):

Sources of income	Income before introducing to shrimp culture	Income after introducing to shrimp culture	Change
Agriculture	1,20,000	24,000	- 96,000
Coconut + Betlenut	55,000	-----	-55,000
Sale of Livestock	90,000	-----	-90,000
Shrimp + Other fishes	10,000	1,30,000	+ 1,20,000
Sale of milk, egg, poultry (including consumption)	20,000	-----	- 20,000
Sale of ghee	25,000	-----	-25,000
Sale of vegetables (including consumption)	35,000	-----	- 35,000
Total	3,55,000	1,54,000	-2,01,000

Source: Fieldwork 2005

There has been a significant decline in the economic position of Amal’s family since 1984. This was the time from when the shrimp farming was initiated in this area on a commercial basis. Following table gives a comparative picture of the changing income structure of the family.

Even though Amal’s family has not been sub-divided, nor does it disinvest any of its tangible assets yet its income earning capacity has declined drastically. Amal Krishna lost on both counts. His land being saline did not yield enough paddies. Again, he lacked running capital to produce shrimp properly from the farm.

Changes in asset structure of Amol's family (before and after shrimp culture):

Assets	Before introducing shrimp culture	After introducing shrimp culture	Remarks
Agricultural land	10.5 ha	1.5ha	Most of the land has gone under shrimp culture and existence others become barren
Non-agricultural land around homestead	1.24ha	.65ha	-----do-----
Pond	1(.45 ha)	1(.45 ha)	Various carps were produced. There is none now
Buffalo	25	08	Shortage of space and grass land
Cows/ Bullocks	35	06	Lack of open place
Ducks	80	0	Going to die
Chickens	50	15	
Mango trees	32	07	No fruits
Coconut trees	52	17	--do—
Bettlenut trees	120	05	Lack of land and salinity
Banana, papua, other trees	many	0	No vegetable
vegetables	Plenty	0	

Source: Fieldwork 2005

Even if income from both paddy and shrimp remained same, Amal krishna would have still lost income from other sources, which had been affected by shrimp culture. The intensity of the consequences of shrimp culture on the asset portfolio of this family is clear from the table.

Amol is very annoyed at shrimp culture. He thinks it is shrimp, which has uprooted many of the sources of livelihood (e.g. milk, ghee, fuel, vegetables, and fruits) from his homestead. This shrinkage in livelihood capacity has been affecting Amol and his family socially and culturally. These days the family hardly enjoys any of the festival and social functions. The family peace has gone. Social stability has also been destroyed. The family now really has lost intimacy with soil and is not sure how long all its members will stick together in the present status. Many of them may migrate out of the village as well.

Annual expenses of the respondent

Before introducing of shrimp culture:

Food and drinking water	Number of respondent	Percent
5000-10000	31	44.3
10000-20000	7	10.0
20000-50000	14	20.0
50000-100000	11	15.7
100000above	7	10.0
Total	70	100.0

After introducing of shrimp culture:

Food and drinking water	Number of respondent	Percent
5000-10000	21	30.0
10000-20000	17	24.3
50000-100000	14	20.0
100000above	18	25.7
Total	70	100.0

Source: Fieldwork 2005

From the above tables we can say that 44.3% of respondents said that they had to incur expense 5000-10000 Tk. annually for food and drinking water purposes. On the other hand, 30% respondents said that they have to expense 5000-10000 Tk. for this purpose annually. Similarly, when 10% respondents expend over 100000 Tk. for food and drinking purposes before introducing to shrimp culture, 25.7% respondents expend over 100000 Tk. for the same purposes after introducing shrimp cultivation. This data shows that after introducing shrimp cultivation the expenditure is gradually increasing.

Annual expense of the respondent

Before introducing of shrimp culture:

Clothes	Number of respondent	Percent
1-500	17	24.3
500-1000	14	20.0
1000-5000	7	10.0
5000-10000	14	20.0
10000above	18	25.7
Total	70	100.0

After introducing of shrimp culture:

Clothes	Number of respondent	Percent
1-500	14	20.0
500-1000	7	10.0
1000-5000	24	34.3
10000above	25	35.7
Total	70	100.0

Source: Fieldwork 2005

From the above tables we see that before introducing to shrimp culture 25.7% respondents expend above 10000 Tk. for clothing. Besides after introducing to shrimp cultivation 35.7% respondents expend above 10000 Tk. for the same purpose. This data shows that after introducing shrimp cultivation expenditure for clothing increases.

Information about livestock and poultry:

Before introduction of shrimp culture:

After introduction of shrimp culture:

Cow	Number of respondent	Percent
not any	7	10.0
1-5	45	64.3
5-10	7	10.0
10-15	7	10.0
20above	4	5.7
Total	70	100.0

Cow	Number of respondent	Percent
not any	52	74.3
1-5	14	20.0
20above	4	5.7
Total	70	100.0

Source: Fieldwork 2005

From the above tables we see that 64.3% respondents tell that they have cows in the range (1-5) before introducing of shrimp culture. On the other hand only 20% respondents tell that they have cows in the range (1-5) after introducing of shrimp culture. From my field observation, I saw that mainly for the lack of food such a situation created.

Information about livestock and poultry:

Before introduction of shrimp culture:

After introduction of shrimp culture:

Goat	Number of respondent	Percent
not any	63	90.0
1-5	7	10.0
Total	70	100.0

Goat	Number of respondent	Percent
not any	63	90.0
1-5	7	10.0
Total	70	100.0

Source: Fieldwork 2005

From the above tables we see that 10% respondents tell that they have goats in the range (1-5) before introducing of shrimp culture. On the other hand, again 10% respondents tell that they have goats in the range (1-5) after introducing of shrimp culture. From my field observation, I saw that by the home rearing method it is possible to maintain livestock.

Before introduction of shrimp culture:

After introduction of shrimp culture:

Duck	Number of respondent	Percent
not any	10	14.3
1-5	14	20.0
5-10	14	20.0
10-15	14	20.0
20above	18	25.7
Total	70	100.0

Duck	Number of respondent	Percent
not any	45	64.3
1-5	14	20.0
5-10	7	10.0
10-15	4	5.7
Total	70	100.0

Source: Fieldwork 2005

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From the above tables we see that 20% respondents tell that they have ducks in the range (10-15) before introducing to shrimp culture. On the other hand, again 5.7% respondents say that they have goats in the range (10-15) after introducing of shrimp culture. From my field observation, I saw that mainly for the lack of rearing places such a situation happens.

Before introduction of shrimp culture:

Hen	Number of respondent	Percent
not any	31	44.3
1-5	7	10.0
5-10	7	10.0
10-15	7	10.0
15-20	7	10.0
20above	11	15.7
Total	70	100.0

After introduction of shrimp culture:

Hen	Number of respondent	Percent
1-5	14	20.0
5-10	52	74.3
20above	4	5.7
Total	70	100.0

Source: Fieldwork 2005

From the above tables we see that 15.7% respondents say that they have hens in the range (above 20) before introducing to shrimp culture. On the other hand again 5.7% respondents say that they have hens in the range (above 20) after introducing of shrimp culture. From my field observation, I saw that mainly for the lack of rearing places and food such a situation happens.

Are the marginal community and women losing their occupation due to shrimp culture?

Respondent	Number of respondent	Percent
Yes	56	80.0
No	14	20.0
Total	70	100.0

Source: Fieldwork 2005

From the above table we see that 80% respondents say that marginal community and women are losing their jobs. With the increasing of shrimp cultivation, such a situation emerged. Mainly for the lack of rice cultivable land as the main job of rural women was to help men at the time of harvesting rice. Marginal community like potter and hammer loses their jobs due to the lack of necessary needs of agricultural instruments.

Information about the social impact of shrimp culture on rural people:

Do you think that your social status has changed after shrimp culture?	Number of respondent	Percent
Yes	56	80.0
No	14	20.0
Total	70	100.0

Source: Fieldwork 2005

From the tables we see that 80% respondents say that their social status has changed after introducing to shrimp culture. But it does not show positive changes because most of the local folk lose their traditional income sources.

Social problems of shrimp cultivation:

Is introduction of shrimp culture increases social problems?	Number of respondent	Percent
Yes		70

Source: Fieldwork 2005

Increasing social problems as following:

Divorce	Number of respondent	Percent
yes	56	80.0
no	14	20.0
Total	70	100.0

Polygamy	Number of respondent	Percent
Yes	46	65.7
No	24	34.3
Total	70	100.0

Theft	Number of respondent	Percent
yes	35	50.0
no	35	50.0
Total	70	100.0

Rapt	Number of respondent	Percent
Yes	39	55.7
No	31	44.3
Total	70	100.0

Murder	Number of respondent	Percent
no	70	100.0

Robbery	Number of respondent	Percent
Yes	24	34.3
No	46	65.7
Total	70	100.0

Source: Fieldwork 2005

Above tables shows that 100% respondents say that introducing to shrimp cultivation increases social problems. Among various social problems, the rate of divorce is increasing a lot. Beside this, the rate of rapt is also increasing remarkably. For the long distance from the family, such types of problems created. They have reported about several conflicts due to capture and maintenance of gher.

Case – 2 Name: Sondha Rani Age: 45 Village: koruli Union: Loskor Family Member: 3

Sondha Rani was widowed in 1979. She had a son (Ganga) and a daughter (komola). Her husband had 9 bighas of agricultural land. She was only 22 years old in 1979. She decided to live alone at that age as the society provided enough security for her and her family. Other members of her husband’s family helped her in all possible ways including ploughing and harvesting. She had at that time two cows, 3 goats, 10 ducks and a dozen of hens. She could run the family with the earnings from the livestock and poultry. There was regular surplus from the paddy produced in her land. Ganga started going to the primary school, as per wished of his late father. However, this happiness did not last long. Ganga

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stopped going to school from 1986, as shrimp farming began to be a dominant feature in the area. The paddy production, which began to alternate with shrimp culture, suddenly started falling. Ganga’s mother found it very difficult to collect enough fodder and green grasses for the cows once shrimp production became widespread. Milk production too fell. One-day cows and goats were to be sold away. Most of the ducks and hens too disappeared. The paddy production also had to be stopped. Ganga is now 21. However, his mother is anxious about his future. She does not have the guts to get him married as the economic base of the family has been shattered. She cannot repair the old house, how she could erect another for the son.

She still has a few hens, which are so poor in health that cannot lay eggs. The security men of the shrimp farmers have killed all the ducks. Amulla now works as a laborer in a shrimp farm in polder 22 at a salary of only Taka 800 per month. Shandha often collects shrimp fries and sells them for survival. She never thought that her family would be in such a desperate situation. She feels very insecure. In 1992, she received Tk. 8,000 as lease money but could not produce any paddy on that land. Therefore, she has leased out the land for the whole year and got Tk. 16,000 instead. Nevertheless, Shandha thinks cash money cannot match the food, fruit, vegetables she used to produce earlier. All her trees have died. The barren land hots up in the summer and freezes during the winter. In fine, life is never that happy again.

Impact on overall environment:

Do you see any impact on overall environment?	Number of respondent	Percent
Yes	63	90.0
No	7	10.0
Total	70	100.0

Source: Fieldwork 2005

Varieties influence overall environment:

Air and water pollution	Number of respondent	Percent
yes	32	45.7
no	38	54.3
Total	70	100.0

Severe salinity	Number of respondent	Percent
Yes	39	55.7
No	31	44.3
Total	70	100.0

Pollution of water resources	Number of respondent	Percent
Yes	63	90.0
No	7	10.0
Total	70	100.0

Others	Number of respondent	Percent
Yes	21	30.0
No	49	70.0
Total	70	100.0

Less vegetable production	Number of respondent	Percent
yes	70	100.0

Source: Fieldwork 2005

From the above tables we see that 90% respondents argue that introducing of shrimp culture created a lot of negative impacts on the overall environment. Among my respondents 100% respondents argue about the loss of vegetation. On the contrary, 90% respondents tell about the pollution of water resources and 55.7% respondents tell about the severity of salinity. From the overall observation, it seems that natural environment is highly affected as the respondents showed me. Few percent of my respondents argued about the positive impact of shrimp cultivation.

Ecological problem of the locality:

Do you face any ecological problem in your locality?	Number of respondent	Percent
Yes	70	100.0

Source: Fieldwork 2005

Varieties ecological problems as following:

Loss of domestic animal	Number of respondent	Percent	Loss of animal variety	Number of respondent	Percent
Yes	70	100.0	Yes	70	100.0

Loss of fish variety	Number of respondent	Percent
Yes	70	100.0

Source: Fieldwork 2005

From the above tables we see that 100% respondents argue that introducing of shrimp culture destructing the overall ecological environment. Among my respondents 100% respondents argue about the loss of domestic animals, loss of fish variety and loss of animal variety. Respondents also argue that at the time of catching shrimp fry from river, with shrimp fry many other water varieties abolished.

5. Findings

Paikgacha Thana Krishi Officer claimed that most of the crop varieties are going to abolish with the invention of shrimp cultivation and the main factor is the severe use of saline water. Previously Ropa Amon paddy was cultivated about 27000 ha of land. However, at the time of investigation it decreased to 24000 ha of land; even the production was gradually decreasing. HYV paddy was cultivated in 16000 ha land, on the contrary local rice was cultivated in 7400 ha land but the production became very low because of saline water entering due to shrimp cultivation. In this Thana, there are about 27000 cultivable lands but shrimp is cultivated in more than half of the areas. However, by using intensive care method, it is possible to cultivate rice in a few parts of the land but for the unwillingness of the gher proprietors, it is not be possible. In gher introducing

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region most of the fruit plants are going to be abolish. Any types of fruit plant can sustain for 3-5 years. In the near past saline water was protected by making embankment but by introducing shrimp culture saline water occupied maximum area.

He added that vigorous change observed in the gher area during the last 14 yrs. If government could take proper initiative, then rice cultivation also increased with other crops.

At the time of collecting data from Bangladesh Fishery Research Institute Brakish Water Station, Paikgacha, Khulna; scientific officer Mr. Hindol Kumar Pal said that from their observation they find out that this area is covered by saline water from the past naturally, as it is nearer to the Bay of Bengal. However, in gher area people stored saline water for the purpose of shrimp cultivation, it has no vital impact on land. He also informs that at the time of rainy season sweet water covers the gher area and it makes a combination with the saline land and makes thinner the saline level of soil. [4]In the contrary, the reality shows gher owners are not reserve rainwater in the shrimp cultivated land. Owner's brutal decision is intensifying salinity of land a lot.

It is possible to cultivate shrimp and rice in the same land and it will be beneficial for both the sectors. At the time of collecting data from Nigera Koree, Paikgacha Thana Branch, a person opined of the respondent to treat shrimp cultivation as an inhuman business. The logic in favor of this observation was that, with the introduction of shrimp cultivation varieties of ecological problems appeared, such as loss of fish variety, loss of animal variety, loss of domestic animal etc. This person considered shrimp culture to create quarrelsome, terrorism, women exploitation and even introduction of prostitution in the locality. Shrimp cultivation is the only cause for increasing severe salinity in the environs. It increased pressure on Sundarban and made severe saline water stock. This trend of shrimp cultivation makes people dependent as they are losing their traditional jobs. [5] He said in Soladana Union people were self sufficient in growing staple food before introducing to shrimp culture but after introducing this culture, about 85% people have to buy rice. He also argued that worker in shrimp gher is related to various anti social activities as a consequence divorce rate is increasing. Mr. Rahman said they were started their activities here from 1981 and they were able to be making some examples like Goraikhali Union, which is free from shrimp aquaculture and folk are leading happy lives.

When I went to Fishery Office of Paikgacha Thana, Thana Fishery Officer Mr. shahidul Sardar told me that he saw no problem with shrimp cultivation. For reasons he said that, shrimp cultivation not only makes people economically solvent, it also creates many job sectors. Those who say that this culture hampers the environment is not true as it is very simple as a coastal area the saline level of water will increase day by day.

Mr. Shahidul argues that shrimp cultivation does not hamper rice cultivation rather it is possible to cultivate rice with shrimp by using HYV paddy. But reality shows in intense saline water crop production is not possible.

Income status of the worker of gher per month:

Category of job	Amount of salary (per month)
Muhuree	2000
Cooker	1600
Goiman	1500
Labor	1300
Sideman	1000

Source: Fieldwork 2005

One of the workers Jalil, said that he has been working there for 18 years. He came from Tala Thana and when he first came, green villages surrounded this place. He complained that they do not get enough leave to meet their family. They get leave only for 3 or 4 days in a month. With the small amount of payment, it is not possible for him to maintain his family properly.

A portion of proprietors of gher is unwilling to cultivate both shrimp and rice at a time, but clay land is more productive for shrimp production. However, for rice cultivation, they have to decrease the water level of the gher which lessens the clay level of land that hampers shrimp production.

Before shrimp culture, local farmers allowed livestock to graze upon the paddy stubble left in the field. The post harvest fallow period has now been substituted by shrimp culture posing an acute problem to the supply of cattle feed. Cattle are of crucially important as a source of draught power in rural agriculture. Due to the shrinkage of rice acreage with the expansion of shrimp acreage, there has arisen an acute shortage of paddy straws causing great sufferings to the poor families in respect of cattle rearing, cooking etc. On the other hand, due to salinity, the banana leaves also become unsuitable for cattle feed. As a result, domestic animal is decreasing day by day for the lack of food source.

In shrimp area, green plants beside roads at present are very rare. It is painful for a man, when go through his village road and see the roads and fields without shining grass and charming birds.

A remarkable change occurs in the field of biodiversity. It not only creates hazard for the present ecology but also making a hopeless environment for the future generations.

Conclusion

Shrimp culture in coastal areas needs to be further analyzing for the extension of a particular social economy. Under the present conditions there is no doubt that it is benevolent for a margin group of people, but it is a matter of concern for the great majority of people. Shrimp culture can be advocate only when it ensures welfare to the majority of people. Shrimp farmers should be encouraged to adopt semi-intensive mode of shrimp farming rather than horizontal expansion as this farming pattern may lead to the permanent destruction of agricultural lands. The

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catchers, however, are more interested in *P. monodon* fry. The other species caught in the net sometimes die while being sorted, and scarcely thrown back into the water. [6] From the ecological point of view, it is necessary to consider these colossal wastes, which occur during shrimp fry collection. Policy makers ought to recognize the role of these poor people, who play a key role in generating foreign exchange earnings. Keeping all these in view, the following

recommendations made;

The shrimp farms (ghers) are scattered everywhere in the locality. Even at the homestead areas, it affects the natural inhabitants. The farms should therefore, be operated in some designated areas of the coastal regions.

Shrimp culture should not allow to any land where it would pose a threat to the existing coastal environment. Making of smaller farms of 0.5 ha or less to 1.0 ha of land can be less destructive for other local species. Farms on co-operative basis should be set up.

Shrimp farmers have to be encouraged to adopt semi-intensive and intensive shrimp culture in brackishwater areas. In case of leasing out Khas lands for shrimp culture, the landless people should get topmost priority.

Government should fix up proper salary for the workers of the gher as they could be able to maintain their family with that amount. Owners of the gher have to give attention to the dwelling and health condition of the workers and have to make sure necessary amenities for maintaining minimum standard of life.

Policy makers should create alternative occupational activities for the folk. Due to the environmental law, necessary steps should take to protect the biodiversity.

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