

Bay of Bengal Programme

Small-Scale Fisherfolk Communities

SHRIMP SEED COLLECTORS
OF BANGLADESH

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SHRIMP SEED COLLECTORS OF BANGLADESH

based on a study by UBINIG
(Policy Research for Development Alternatives, Bangladesh)

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Thousands of people – men, women and children – in coastal areas of Bangladesh, make a living collecting shrimp fry: some 40,000 in Cox's Bazaar, nearly three times as many in Satkhira and Khulna. Despite the role of these people in sustaining the shrimp industry which generates foreign exchange earnings, they remain poor and under-privileged.

This paper is based on a socio-economic study of the shrimp fry collectors undertaken in 1987 by a voluntary agency, UBINIG (Policy Research for Development Alternatives). The aim is to obtain information and discover strategies to improve the lot of the shrimp seed collectors.

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This document is a working paper and has not been cleared by the Government concerned or by the FAO.

CONTENTS

	<i>Page No</i>
1. Introduction	1
2. Shrimp fry collection	1
3. Off-season employment	9
4. Women in fry catching	10
5. Children in fry catching	12
6. The shrimp fry traders	13
7. What is to be done?	15
 <i>Appendices</i>	
1. Methodology	19
2. The Villages Selected	21
3. Characteristics of the Sample	24
4. Tables	29-33
5. Glossary	33
6. The Calendar	34
<i>Publications of the Bay of Bengal Programme</i>	35

1. Introduction

This study of shrimp seed collectors in two areas of Bangladesh was undertaken by UBINIG as part of a socio-economic and participatory planning study sponsored by the Bay of Bengal Programme (BOBP). The study, it is hoped, will help new policies to be framed for the welfare of the collectors, who are involved in an export-oriented industry. It also lays the foundation for **future research** in this field.

More than 40,000 persons – men, women and children – are associated with shrimp seed collection in the coastal belt of Cox's Bazaar, Chittagong. In the Satkhira/Khulna areas, the number is estimated to be three times as many. They are mostly the landless and the poor who have virtually no other means of income or employment. Very little is known about these people, who provide the seed vital for the shrimp industry. It is to fill this information gap – and to use the information gathered to help improve the lot of the poor shrimp collector – that this study was undertaken. To meet both objectives, the study attempted to:

- a) understand life in the villages, discover strategies to implement ameliorative programmes for the poor, and what problems could arise during that implementation;
- b) identify ways to ensure participation in programmes aimed at helping the shrimp seed collectors; and
- c) initiate a dialogue with the community to get it to participate in the planning of future efforts associated with this project.

Also looked at in great detail, during the course of the study, were:

- i. the role of women in the economic life of the communities;
- ii. the felt needs of various sections of the communities; and
- iii. any socio-economic data about the communities that would help planning.

What emerged from the study was that though these fry collectors contribute substantially to the economy and to a part of the foreign exchange earnings of Bangladesh, they benefit little. Not only have their earnings been meagre, but their needs such as land, credit, technical knowledge, social and civic services, protective shelters and embankments and income during the off-season have not been looked into. They need administrative and organizational help to meet these as well as other fundamental needs. Their plight, it was obvious, deserves the attention of the government as well as of international organizations.

Organizations must be created which will help meet the needs of fry catchers and encourage their future development. The role of such organizations must be to facilitate the association between the catchers and the institutions their work links them with. Such organizations may need some external assistance.

2. SHRIMP FRY COLLECTION

Fry collection from the **sea, called *baish dhora* in Cox's Bazaar and *baccha dhora*** in Satkhira/Khulna, is skilled work that requires hard physical labour. A large number of the poor – **men, women and children** – do such work in these areas.

History

Fry catching as an occupation started in selected villages of Cox's Bazaar only in recent years. Kalatali village is an old settlement, but fry catching started there only three or four years ago.

Charpara, a slum of fry catchers, dates only to this period. In Magnamapara, fry catching has a longer history, perhaps of five to eight years.

The oral histories of fry catching in these three villages are as follows:

In Charpara, “a foreign engineer who looked Japanese” came and “examined the sea water with a machine”. He found abundant fry of Bagda. These fry looked like pieces of thin black thread. When he asked the people to catch them with a net, a new occupation started in Charpara.

In Kalatali, the villagers used to work on the fishing trawlers belonging to Kashem Master's Fisheries. One day, Kashem Bhai, an exporter, told them that they didn't have to go fishing in trawlers, but should do some new work. He gave them nets and asked them to catch fry from the sea. That was in 1982; fry catching has continued since.

In Badarkhali, shrimp culture started in the mid-60's. People would produce salt during the dry season and work with shrimp in the winters. Shrimp fry entering inland channels through sluice gates was the only source of fry supply. In 1978-79, government leased 5000 acres of land to 39 projects. The Janata Bank and the Krishi Bank gave loans, disbursed from Dhaka, for shrimp culture. But these loans all went to other villages, like Beximco. However, Maksud Ahmed Chowdhury of Beximco showed the villagers how they could catch fry in the river with a small mosquito net. Consequently from 1980 fry catching has become a regular occupation.

In Satkhira/Khulna people” learnt to catch shrimp fry from the people on the other side of the Ichamati river”. This river is the border between Bangladesh and India at Debhata. It was after the 1971 ‘war of liberation’ that Hormuz Ali of Basantapur village noticed people on the Indian side “catching something” with a net. Crossing the river, he learned they were catching “something very valuable”, so he studied their techniques, bought a net on the Indian side and began catching fry in the waters near his village. It was Hormuz who introduced the technique of Bagda fry collection.

In those days, shrimp culture projects, locally called *gher*, cultivated only white fry, which grew into the Golda shrimp. They did not know about the black fry or the Bagda shrimp they grew into. Hormuz gave the black fry to a few *gher*, but they were very reluctant to accept them. They thought the “black things” were insects. Hormuz told them that only if the black fry became shrimp need they pay him. When Hormuz was proved correct in 15 days, he received his payment, a mere TK 7-8 per thousand, less than half the Indian price of Rs. 8-10 per thousand.

After Hormuz had demonstrated the technique of fry catching in the river, a new source of income was opened up for the people. But there was not much demand for Bagda fry in the *ghers* of Bangladesh. With prices low, people preferred to sell the fry to India. The border was not very tightly sealed before 1975. But even after the border patrols became stricter, the people continued to sell fry to India.

In Shushilghata, a village to the south of Debhata, there is jungle on the bank of the Ichamati. The fry catchers had contracted with a ferry boatman to keep their fry in a *han* (a cooking pot) in the jungle at a designated place. During the night, fry buyers from India would collect the fry from the pot and put money in its place. The next morning, the catchers would collect their pots of money.

This went on for about a year, till the *ghers* in Bangladesh became interested in buying black fry. As demand rose, so did prices. The present rate is TK 300-400 per thousand. Now the demand for shrimp fry in the *ghers* is met by suppliers from India as the supplies from Bangladesh are inadequate. According to a businessman, 70 per cent of the *gher* will close down if the supply of fry from India is stopped.

In the villages of Shibhata, Batikhali and Paikgacha, fry collection was motivated by the owners of a *gher* in Satkhira. Collection of fry from the river here started in 1981-82. It is also said that a Minister in Zia Ur Rahman's government played an important role in encouraging fry collection in this area. Now there are several *ghers* in the Paikgacha area and large numbers of the poor

collect fry, attracted to the occupation by the cash incomes it brings.

In both areas studied, fry collection became an occupation for large numbers of people only when Bagda shrimp culture proved profitable for exporters. Changing the technique to a manual process of fry collection by net was what created a new occupation for people ready to invest their labour to earn an income. It is interesting to note that the projects in Cox's Bazaar and Satkhira did not ever consider hiring wage labour for fry collection.

Fry catching times

Fry catching is linked with high and low tides during the day and with the lunar cycle during the month.

In Cox's Bazaar they say that fry are abundant in the sea during the Full Moon and New Moon periods, particularly for seven days during each period. Both these high catch periods are called *joa*. On the other hand, during the same lunar month, there is a seven-day scarce fry period around the new moon and full moon. These periods are called *dala*.

Fry are available every day only during high tide, called *Joan*. Fry catchers fish twice a day during the several hours of *joan*. The fry catcher puts his net in the water for a *khep*, for an average of one hour. In one *khep*, the catcher can get an average of a thousand fry during the season, and less than 500 fry during the off-season. During each *joar*, three or four *kheps* are possible, the number and duration of each *khep* varying from catcher to catcher; depending on the age and sex, this variation could be between 20 minutes and an hour.

The knowledgeable state that the maximum number of fry are available (a) just before the shift of high tide to low tide, and (b) just before the shift of low tide to high tide. Fry catchers, however, tend to make use of the entire *Joan* in the hope of getting more fry.

In Satkhira/Khulna, the lunar and tidal relationship is explained differently.

During a lunar month there are two *gons* and two *maranis*. There is a *pon* around full moon and new moon. Similarly, there is a *marani* around full moon and new moon. *Gon* is when the catch is good while *marani* is when it is poor. Good catches during the full moon and new moon vary according to the *thithi* (the dates of the moon). Thus, the best times for the best catches (*gon*) are:

Full Moon	: <i>Thithi</i>	: Protipod, Ekadoshi, second, third, fourth, fifth and sixth
New Moon	: <i>Thithi</i>	: Ekadoshi, second, third, fourth, fifth and sixth

That means the maximum number of *gon* is only 13. The rest of the days are *manani*.

Time spent fry catching

In Cox's Bazaar, fry catchers go to the sea at least twice a day during high tide to catch fry. They start at 5 am. and stay out till 11 a.m. during the first shift. The second shift starts at 3 p.m. and lasts till 6 p.m. The fry catchers say they "go at the time of the morning prayer call and come back at 9 a.m." or "go at the time of the evening prayer call and return by the night prayer call".

These times are maintained for seven days during new moon and seven days during the full moon period, when the catch is good both during the season and the off-season. During the remaining 16 days, the fry catchers go to sea "merely in the hope of catching a few fry".

In the Satkhira/Khulna areas, they mainly use *apata* net (set net) which is placed against the current during high tide hours to catch fry. During the day, since they use a set net or a push net, they go out to sea at different times. Generally the catchers go out twice a day, usually from 4 a.m. to 10 am. and 3 p.m. to 5 p.m. But during the season, collectors spend whole nights keeping the net out in the river.

Fry collecting

Equipment needed

The standard equipment used by fry collectors in Cox's Bazaar and its estimated cost in 1988 in Taka are as follows:

Net	4 yds	Tk 80
Bamboo	2	15
Float	2	20
Thread	1/16 seer	5
Pot (dekchi)	2	120
Basin		80
Pot (peala)	2	5
Kerosene		5
Torch (bomba)	1	15
Umbrella		120
	TOTAL	1k 465

Most estimates for this equipment vary between Tk 450 and Tk 550. In addition to this equipment, a boat — usually costing about Tk 3,000 — is often needed. These boats are used jointly by five or six catchers to go further Out into the river for other fish.

A family may involve more than one member in catching fry if it has more than one net. But then it will need more basins and pots. So, the number of family members employed in catching is linked with the ability to invest.

In Satkhira/Khulna, on the other hand, two different types of nets are used for fry catching. The *pata*, or set net, is most commonly used by fry collectors. The *the/a*, or push net, is also used.

The cost of a *pata* net and its ancillaries is:

1. Net (Indian)	20 yds	Tk 200
2. Bamboo (small)	1	25
3. Bamboo (big)	1	100
4. Nylon rope	2 seer	140
5. Sewing charge		25
	TOTAL	Tk 490

Costs of other needed equipment:

1. Earthen bowl (khada)	1	Tk 15
2. Earthen bowl (small)	1	8
3. Pot (han)		200
4. Plate	1	18
5. Jhinuk		
	TOTAL	Tk 241

Thus 1k 731 is needed for a complete set of equipment, including a *pata* net whose life is 2-3 years.

In addition, a push net is sometimes used. The estimate for such a net is:

1. Net (Indian)	3 yds	Tk 30
2. Bamboo	2	20
3. Nylon thread		5
4. Sewing charge		5
	TOTAL	Tk 60

If a family has a set as well as a push net, most of the family can work at fry catching. Children mainly use small push nets for fry catching.

Catching fry

In Cox's Bazaar, the catcher goes to the sea with a push net. He or she pushes the net into waist-deep sea water and walks along the shore for at least one *khep* of 30 minutes to an hour. This is hard physical labour. During the season, the sea is usually very rough and catchers are buffeted by high waves; they therefore need strength to keep their bodies straight and push their nets forward.

Sorting

After each *khep* the net and its catch are brought ashore and the fry sorted from other species. This is possible, during the off-season, firstly because the catch is very small, and secondly because the fisherman does not have to rush for another *khep*. During the season, however, the entire family of the catcher has to be on the shore with buckets and basins to help sort out the fry after each *khep*. The time required for sorting is almost equal to a *khep*. If a set net is used, the fry are taken out every 15 minutes for sorting.

Returning non-shrimp fry to the sea

A number of other species, besides the fry of other varieties of shrimp and fish, are caught in a *khep*. The catchers, however, seek only the fry of Bagda chingri, *Penaeus monodon*. So, after sorting the fry, the first task is to "return" the other species to the sea.

The catchers evidently suffer a feeling of guilt. They want to return the sea's resource to the sea if they do not use it. But there is self-interest too. Species thrown back into the sea will grow, boosting future catch and earnings.

In practice, however, the other species caught in the net sometimes die while being sorted, and it makes little difference whether they are thrown back into the sea or not. From the ecological point of view, it is necessary to consider this waste which occurs during Bagda chingri fry collection.

This rate of "wastage" is very high compared to the Bagda chingri fry collected. Though some estimates are as high as 50,000 other fry wasted for every 500 Bagda fry, the general consensus is that about 5,000 other fry are wasted for every 100 Bagda fry. These other fry include Golda chingri fry, *Macrobrachium rosenbergii* (or white chingri) fry and Chaga or red chingri fry. There are also a number of fish fry.

In Satkhira, these fish fry include *paisha*, *chauma*, *tengra*, *bekti*, etc. Some of these fish, if fairly big in size, are eaten, not wasted.

Nursing

Once Bagda fry are sorted, the fry are kept in a *dekchi* (cooking pot) with saline water till the *beparis* come to collect them. The *beparis* are usually about when the fry are caught, but if they are not, then one of the tasks of the catchers is to protect the fry from heat or cold by covering the fry and by changing the saline water at intervals of an hour. Nevertheless, the mortality rate is 2-3 per cent.

To change the water, they need to bring the water directly from the sea every time; sea water cannot be stored for this purpose. This is a hard task and is performed by both men and women. Buckets are used to bring the water.

Fry selling

Fry are sold mainly to the *beparis* on the shore. Ninety per cent of the sample interviewed was sold to *beparis*, and only 5 per cent sold directly to the shrimp projects. About 4 per cent sell to the Kasturi Bazaar and Badar Mokam markets.

The price of the fry is determined by the projects, which buy at wholesale rates from the *bepanis*. The price agreed on by a project is for at least 100,000 fry to be supplied by the *bepanis*, who can obtain them from the catchers. This rate is determined by the supply of fry; when fry are abundant, the price is lower, and during the off-season, when supply is less, the price is higher.

Once the price is fixed by a project, the *bepanis* come to the shore and buy the fry at a lower rate from the catchers. The margin is their cost of transportation and profit. The differences in prices in Cox's Bazaar are shown below:

	Price per hundred	
	Season	Of-season
Project to <i>bepari</i>	Tk 5-6	Tk 17-20
<i>Bepani</i> to catcher	Tk 4-6	Tk 15-18

In Satkhira and Khulna, prices of fry vacillate during four specific phases. Projects start raising fry in the *ghen* from early November. Shrimp grow bigger quickly and get a better price if started at this time. But during this time fry are few in the river. Therefore, the *ghen* is ready to pay a higher price. But when fry gradually increase in the river, that's when the demand for them decreases in the *gher*. The prices during these phases are:

Satkhira	Bepari-Catcher	Gher-Bepari
Early peak season mid-November to mid-January	average catch 250 per day Tk 30 per hundred	Tk 45 per hundred
Mid season mid-January to mid-April	average catch 600 per day 1k 23 per hundred	Tk 35 per hundred
Late season mid-April to mid-May	average catch 300 per day Tk 15 per hundred	Tk 20 per hundred
Last season mid-June to mid-August	average catch 200 per day Tk 9 per hundred	1k 15 per hundred
Khulna	Bepari-catcher	Gher-Bepari
Early peak season mid-November to mid-January	average catch 300 per day Tk 32 per hundred	Tk 40 per hundred
Mid season mid-January to mid-April	average catch 700 per day Tk 25 per hundred	Tk 35 per hundred
Late season mid-April to mid-May	average catch 500 per day 1k 15 per hundred	Tk 20 per hundred
Last season mid-June to mid-August	average catch 200 per day Tk 10 per hundred	1k 15 per hundred

The price depends on the demand from the *gher*, rather than on the supply of fry. During the season, the catch amounts to 1000 to 5000 fry per catcher per day and a catcher can earn Tk 50-250 per day. On the other hand, during off-season, the catch is between 300 to 400 per day, and the earning is only 1k 45-72 per day. During off-season there are also days with no catch at all. This makes earnings very uncertain.

Though catchers receive a lower price by selling to the *bepanis*, they cannot afford the cost of transport to the projects. They also do not want to leave the sea shore where they can increase their catch. However, during the season, the catchers have little bargaining power. The supply is abundant and there are large numbers of fry sellers, but only a limited number of buyers. So it is a buyer's market.

The projects are the ultimate buyers and really control the price, especially during the season. They lower the prices as the supply increases. The fry catchers report that the projects cheat them while counting fry during the season when the supply is abundant. To avoid discrepancies in counting, the catchers count their own fry when selling to the *bepanis* and *bepanis* do the same thing when selling to the projects. During the off-season, however, the projects do not make “mistakes”; that’s the time they pay higher prices for the small supplies of fry.

Both men and women catchers bargain with the *bepans* on price. In households where both husband and wife catch fry, each sells his or her own fry individually. In Debhata and Basantapur, there were many families where the wives were catchers and the husbands *bepanis*. The women would sell their catch to their husbands (*beparis*) and get their payment from them. But since the husbands knew their incomes, the women lost control over the money and had to spend the whole money on family needs. On the other hand, women who sold to other *bepanis* did not have to hand over the money or spend the whole amount on their families, because their husbands did not know their earnings.

Gender division of labour

The following gender division of labour was found:

- | | |
|--|---|
| 1. Equipment procurement | Men |
| 2. Catching with net | Men, women and children |
| 3. Sorting | Women and children, sometimes men. |
| 4. Disposal of wastes
(“return to the sea”) | Women and children
(those who have done the sorting) |
| 5. Nursing | Women, men |
| 6. Selling | Men, women (those who were involved in catching) |

Earnings are controlled by the catchers, although sorting and nursing are as important as catching itself. Women involved in catching fry also sell them themselves. Labour is thus recognised only at the catching level; all other work is considered subsidiary.

Sorting is a difficult task. Among a variety of fry, the Bagda fry is difficult to extract : it appears as thread-like black pieces. Sorters have to differentiate between the various shrimp fry – a strain on the eye. Sitting for long hours on the shore causes body aches.

Employment and income

Fry collection is seasonal work in Cox’s Bazaar. Fry catching starts mid-February and goes on till mid-August. Thus, there is work only for 84 days (14 x 6) if *Joo* and *dala* are considered. According to 31 households, they worked for less than 84 days each, 13 households reported 90 days of work, seven households 96 days’ work and six households 102 to 180 days’ work.

In SatkhiraKhulna, the season starts in mid-November and lasts till mid-July. Because of *gon* and *marani*, the catchers manage 180 days (20 x 9) of work a year. Some catchers reported that they went out to catch fry every day from February to April, when the availability of fry was greater. Thus, they were employed 210 days in all in fry catching, 90 days from February to April and 120 days from November to January and May to July.

These were families who were always going out to sea or the river with the net hoping to catch fry. This cannot really be calculated as regular employment, for they had no other option but to hope for a catch to earn a living.

The season in the two areas studied may be divided as follows in terms of catch and days of employment:

First Season	Cox’s Bazaar	mid-February to mid-April
	SatkhiraKhulna	mid-November to mid-January

Full Season	Cox's Bazaar Satkhira/Khulna	mid-April to mid-June mid-January to mid-April
Last Season	Cox's Bazaar SatkhiralKhulna	mid-July to mid-August mid-April to mid-August
Off-Season	Cox's Bazaar SatkhiralKhulna	mid-September to mid-January mid-August to mid-October

As will be seen from the table and the preceding statement, fry catching does not ensure full employment to collectors. During the off-season they have to look for other jobs.

The average catch in the respective seasons is recorded in the table below together with incomes that accrue from this catch:

Cox's Bazaar

Season	Area	Average catch per day	Average earning per day
First Season	Charpara	196	1k 40 (at Tk 20/hundred)
	Kalatali	270	Tk 68 (at Tk 25/hundred)
	Magnamapara	218	Tk 60 (at Tk 25/hundred)
Full Season	Charpara	1628	Tk 156 (at Tk 6/hundred)
	Kalatali	2083	Tk 168 (at Tk 8/hundred)
	Magnamapara	1312	Tk 91 (at Tk 7/hundred)
Last Season	Charpara	190	Tk 19 (at Tk 10/hundred)
	Kalatali	250	Tk 32.50 (at 1k 13/hundred)
	Magnamapara	210	Tk 21 (at Tk 12/hundred)
Satkhira			
First (November-January)	Debhata	150	Tk 30 (at 1k 20/hundred)
	Basantapur	100	Tk 25 (at Tk 25/hundred)
Full (February-April)	Debhata	1200	Tk 180 (at 1k 25/hundred)
	Basantapur	1000	Tk 200 (at 1k 20/hundred)
Off (April-June)	Debhata	100	Tk 10 (at Tk 10/hundred)
	Basantapur	150	Tk 22.50 (at Tk 15/hundred)

Khulna

First (Jan-February)	Batikhala	500	Tk 125 (at 1k 25/hundred)
	Shibhata	400	Tk 100 (at Tk 25/hundred)
Second (April)	Batikhali	350	1k 70 (at Tk 20/hundred)
	Shibhata	300	Tk 60 (at Tk 20/hundred)
Last (May-June)	Batikhali	150	Tk 97.50 (at Tk 65/hundred)
	Shibhata	150	1k 105 (at 1k 70/hundred)

Note: The figures for catches and prices recorded above are averages. Several figures for the catches as well as for seasonal prices were obtained from respondents, but the figures accepted were an average of those reported by the majority.

A study of the table shows that the most rewarding time of the season is only three months. The earnings from those three months, however, are not enough for money to be put by to help make life a little easier during the rest of the year.

3. OFF-SEASON EMPLOYMENT

There is no fry catching work from September to February in Cox's Bazaar. During this off-season there are only a few, irregular sources of income. Therefore the fry catchers are usually short of food and indebted to friends, relatives, money-lenders and *bepanis* during this time of the year. This off-season crisis also leads the fry collectors to be obligated to the traders by taking advance payments, i.e. the *dadán*. This reduces their actual earnings during the season as well.

In the three villages of Cox's Bazaar, the off-season occupations are:

Village	Males	Females
Charpara	Net-making Earth digging House construction Day labour Working in hotels	Net-making Firewood collection Grinding spices for hotels Maid servant Making decorative pieces with shells
Kalatali	Agricultural labour House construction	Net-making Wood cutting Making decorative pieces with shells Making garlands with shells
Magnamapara	Rickshaw pulling Fish catching Salt cultivation Wood cutting Earth digging	Net-making Earth digging Salt farming

Net-making was an activity common to women in all three villages, but was not considered a real source of income, because wages for net-making are very low, only about Tk 1 to Tk 2 a day. The income earned making a ten-hand-long net is only 1k 30, yet the time needed to make it is about a month!

All other work mentioned above is also very irregular and does not ensure regular incomes.

In Satkhira and Khulna the off-season occupations are:

Village	Males	Females
Debhata	Daily labour Fishing/Fish-collection Net-making, Blacking	Daily labour, Harvesting Maid servant service Net-making, Kanta-sewing
Basantapur	Daily labour, Harvesting Fishing/fish collection Blacking, Net-making	Daily labour, Harvesting Grinding spices for neighbours/ maid servant service Kanta-sewing, Net-making
Batikhali	Daily labour Mat-making Fishing/fish collection	Daily labour, Mat-making Paddy reaping Removing Bagda heads Maid servant service Grinding spices for neighbours Straw-cutting
Shibhati	Daily labour Net-making Cart-pushing	Daily labour, Mat-making Paddy reaping, Kantha-sewing Peanut frying, Straw-cutting

None of the jobs mentioned above are rewarding nor do they ensure regular employment.

4. WOMEN IN FRY CATCHING

Women take part in fry collection and fry trading either as family labour or as independent catchers. In the patriarchal society of these areas this involvement is not by choice. Social, cultural, religious and economic factors as well as strong patriarchal notions determine the extent of women's involvement, and, more importantly, recognition of this work.

This phenomenon, however, is not unique to fry collection; it is encountered in agricultural work, weaving, fishing etc. However, women's roles in the same occupation vary. In Cox's Bazaar, for example, women were definitely involved in fry collection; the extent of their contribution was determined by the following factors:

- a. The place where the fry was caught;
- b. The time when the fry was caught;
- c. The equipment with which the fry was caught;
- d. The availability of other family members for household work;
- e. The necessity of women's earning for the family; and
- f. General social conditions governing women's work outside the household.

It was found that only women from the poorest families worked as catchers. Where male members earned enough to maintain their families, the women were "not allowed to work outside".

Two patterns of employment emerged. In one, the menfolk and the male children caught fry, and brought them back to the shore or to the house, where women and female children sorted the catch. In the other, both husband and wife went out to sea together to catch fry with separate nets, while the children did the sorting.

Women with no adult male support turned to fry catching to earn their livelihood, despite cultural, social and religious taboos. Necessity forced them to go out and work like men.

When the question of women's involvement in fry catching was discussed at a general meeting in the Cox's Bazaar area the men not only tried to rationalise their reluctance to let women work as catchers, but also questioned the contribution of women. They argued:

1. Women wore sarees, quite cumbersome while catching fry.
2. Fry catching was hard work; one had to combat strong waves while catching the fry.
3. Women were mentally not prepared for such hard work.
4. Pushing the nets caused body-aches.
5. Women can't spare the time needed to catch fry.
6. Men catch fry only because they do not have any other work. Women help them by sorting the fry.
7. It was man's duty to feed his woman, so women should not be allowed to go out of the households after they reached the age of 10. They could sort the fry in their houses.
8. A woman's duty was to look after the household, cook, take care of children, etc. That left no time for fry catching. Sorting, however, could be done in between household chores. During the peak season, men "need two wives to sort fries", some claimed (and seasonal marriages were not unknown).
9. Every fry catcher needed a helper to sort the catch as soon as it was taken from the sea. Women thus automatically became helpers.
10. Women were good at minute work. Since small fry needed careful sorting, women were best suited for such work.

But whatever these male arguments, a few things were clear in the Cox's Bazaar area:

1. There was a division of labour in the family, based on patriarchal notions of what was household work and what was income-generating work. Women were not considered income earners,

even if they did a man's work; their income was only supplementary. Women took over the role of income earner only when there was no man in the family or he was incapacitated.

2. A woman in a typical family with a male head of household, played the role of house manager and did all the work related to house-keeping, cooking and child care. This is, of course, typical of all sectors of the economy and has nothing to do specially with fry collection. The role women played in fry catching work, however, was determined by how much time she could spare from household work. Since fry catching involved much time out of the house, women with greater household responsibilities were less involved in such work.
3. The man who could earn enough to maintain a family did not like to allow his wife/wives to be directly involved in fry catching lest she be considered an independent fry catcher. As long as he could afford to maintain his wife/wives, he preferred to keep his women at home. But as soon as he was unable to maintain a family, he immediately "allowed" his wife/wives to go out and earn an income.
4. A man who collected fry needed somebody to sort the fry on shore, allowing him to return quickly to the sea for another *khep*. More the fry, more the money; all one had to do was catch the fry which come in with the tide. But sorting was a very important function needing some skills, and women and children played a very important role as unpaid family labour on this task.
5. Fry catchers needed to invest in buying nets and other equipment. When there was only one net in a family, then it was the male who used it. The women would use the second net if there was one. The inability to invest in a second net prevented the women from fry catching.
6. Fry catching in the sea, as compared to that in the river, is hard physical work. Most women are not strong enough and their clothing is not suitable for this work. Yet a large number of women do take part in fry-catching.

In Satkhira/Khulna, women lived in more oppressive conditions. Despite hard work in various productive activities, their position in the family and in society was distinctly subordinate. This was so in the poor families too, though the women in these families appeared to be more independent than those in Cox's Bazaar. As for the women in the economically better-off families, they were not allowed to work at all outside their households, just as in Cox's Bazaar. In these families oppression of women was covert, while in the poorer families it was more evident.

A study of women fry catchers from the poorer families revealed the following:

1. Women (particularly wives) were regularly beaten, often for trivial reasons.
2. Many women lived alone with their little children because their husbands had married again and abandoned them. Several of these women were abandoned after one year of marriage and while pregnant. Multiple marriages by men were common (one man having wives in seven different places). Men think they can marry anyone any time.
3. The women worked very hard to help maintain their families. Their work was varied and all-day, all-year round, as this table reveals:

Month	Work
Mid-February to mid-May	Fry catching and house construction, mat-making/peanut frying.
Mid-June to mid-August	Kantha-sewing
Mid-September to mid-October	Mat-making with <i>me/i</i>
Mid-November to mid-January	Fry catching, paddy harvesting, grain collection and straw-cutting.

The last part of the year was the busiest time for women. They went fry catching at night and harvested paddy during the day. As one of those interviewed said, "When I sit down I make a mat; when I get up, I have to twist the *teto* and when I stand up I have to measure the *me/i*". (*Teto* and *me/i* are the raw materials used in mat-making.)

During August-September, women were hired by shrimp processors/exporters to dehead shrimp. But only very poor women accept this work. Deheading is done by hand and the hands are badly

injured by the end of the day. According to one woman, "We cannot eat or work with our hands any more, they pain so much."

While the men generally did not like their women to go to the market to work — unless the family was destitute — women's involvement in fry catching was accepted in Satkhira/Khulna. The technology itself helped make it acceptable. Unlike in Cox's Bazaar, fry are caught in the river with a *pata* net. All they had to do was put the net in the river and remove it at intervals, with the fry. Even when they occasionally used push nets, this was much easier in the river.

Another reason fry-catching by women was accepted in Satkhira/Khulna is that men were not interested in the work. They were mainly engaged in "blacking", taking things in and out across the border. They also preferred selling the fry their women and children caught; it was less time-consuming than fry catching.

5. CHILDREN IN FRY CATCHING

Children in almost all fry-catcher families took active part in catching and sorting fry. Though it is said in these parts that "the child born today begins catching fry tomorrow", the children usually become involved only after they were five years old. They are happy children who consider fry catching fun; but they are in this business because of need.

In Cox's Bazaar, 12 children between the ages of 6 to 16 were interviewed individually and six children participated in a group meeting. Girls, it was found, were allowed to catch fry only till the age of 10 or 11. It was considered improper for girls to work outside their houses after the age of puberty. This is one reason why all the girls interviewed in Cox's Bazaar were below 10 years of age, while some of the boys were as old as 16.

All those interviewed were of school-going age, but were not going to school. Five of the seven boys interviewed had gone to school for a while, up to class 4, while two had never gone to school; three girls had received Arabic education, two had no education at all.

The children were interested in going to school, but their families were too poor "to pay for educational expenses as well as family needs". The children's earnings were necessary for the poorer families, a situation similar to that of other rural poor.

Very few of the fathers of boys and girls who caught fry had regular jobs. They were dependent on wage labour, fish catching, work in shops, work in salt production, etc. Many of the parents of child fry catchers also worked at fry catching.

In the families where parents worked as catchers, the children were mainly sorters. But some of the boys, particularly those over 12, helped out in fry-catching as well.

In Magnamapara, fry catching in the river is easier than at Charpara and Kalatai, where fry are caught in the sea. Children find catching fry in the sea difficult. Nevertheless, a number of children in Charpara helped catch fry.

Although the primary purpose of catching fry was to earn some extra money, it had become a kind of game among the children. Lots of children were attracted to the work because others were doing it. More than half the sample said they were catching fry because other children were doing the same. Fry catching had also become an adventure; children "used to be afraid of the waves before, but now they are used to them".

In poor families, the parents insisted that the children catch fry. In other families, the parents did not put much pressure on the children to catch fry.

Six children reported that they could catch 100-300 fry a day during the season. Others mentioned a figure of 300-500, four others a figure of 900-1,000 fry per day.

In the off-season, the catching ability was lower. Six children did not catch any fry at all, three reported 100 fry a day and three 200-300 fry a day.

A few boys kept some money for their own expenses, such as "to see a film". Some of the girls too kept some money, to buy a trinket.

In Satkhira/Khulna, 16 children between the ages of 6 and 16 were interviewed. There were group discussions with several children too.

As in Cox's Bazaar, girls here too were not allowed to work after puberty. So those interviewed were all below 12. The social situation in Satkhira was even more difficult for young girls. Apparently men proposed marriage to any girl they regarded as suitable. So parents were afraid to let their daughters go out.

Of the children who considered fry catching their main work, seven were going to school, six had never gone to school, two had an Arabic education and the other two had only recently started learning the alphabet.

Those children who went to school caught fry very early in the morning. They went to the river at 4 am. and stayed till 8 a.m. They went to school at 10 a.m.

Among those who did not go to school, one boy's father was too poor to meet school expenses. In another case the father had been convicted in a murder case and was in jail for a long time. So a sister, who had taken over the responsibility of the family, began catching fry and had her brother join her. In a third case, the girl's father died and the mother had to look after the family. While the mother occasionally helped dig government roads, both sister and brother had to catch fry to supplement the family income.

The fathers of 10 of the 16 children interviewed were involved in a variety of occupations, such as fry catching, day labour, agricultural labour, earth digging, or "helicopter* driving," etc. They did not have any regular source of income. This was why the children had to catch fry. It was also noted that when mothers caught fry, the children automatically helped out.

Eight of the 16 children said that they caught fry to help their parents, one boy wanted an independent income, two were doing it to help meet educational expenses and five found the job interesting besides bringing in money. One boy said he was doing it because the others were doing it.

Four children in Satkhira/Khulna said they could catch 200-300 fry a day, three felt they could catch 400-500 fry per day and seven thought they could catch more than 500 fry a day. The average catch was lower in the Satkhira/Khulna area than in Cox's Bazaar. In the off-season, there was no catch at all.

The average earning was Tk 150 a day during the season, the minimum Tk 50 and the maximum Tk 300 a day. This level of earning was possible only for three months in the year.

Eleven of the 16 children gave their income to the family to help meet its needs, one was saving the money and two were using it for their education.

The urge to meet family needs and keep starvation at bay was very strong; the children were not afraid of going into the river at night. "When we do not have food for the stomach, it is a luxury to be afraid of anything".

6. THE SHRIMP FRY TRADERS

When fry catching caught on, it spurred another occupation: buying fry from the catchers and selling them to a project or *gher*.

After the fry is bought, it has to be kept alive till it is taken to a *gher*. This involves labour, besides some transportation cost.

- A "helicopter" is a bicycle-taxi used to transport people.

The fry business therefore needs some initial capital investment. Cash has to be available to pay the catchers for the fry. Money is also needed to buy equipment to keep the fry alive and transport it. These investors – who come from other occupations – are called *bepanis* or *dalals*. The term *beparis* is preferred in this report. *Bepanis* were interviewed in both Cox's Bazaar and the Satkhira/Khulna areas.

Most of the 33 *bepanis* interviewed were young, below 35 years of age. Twelve were even below 25. Since they had opted for the shrimp fry business in preference to others, they obviously saw potential in it.

The fry businessmen appeared better educated than the catchers, but there were several semi-literates among the former. Besides the fry business, the *bepanis* also engaged in farming, small trades, day labour and other fishery related activities. The *beparis* in Satkhira owned the land which they farmed. Farming being seasonal, the *bepanis* went in for other lines of business as well and the shrimp fry business proved more profitable than others.

Initial Capital Investment

According to capital invested, the *beparis* are classified as big, medium or small. The sample included only small *bepanis*, because they were closer to the fry catchers.

Of the 33 *beparis*, 27 (82%) started the business with less than 1k 5000 capital. In Cox's Bazaar, four *beparis* had an initial capital of 1k 10,000-15,000. These amounts are very low by the standards of other businesses. Besides the cash capital, the *beparis* had to put in physical labour as well.

The sources of the capital were informal, not institutional. Four *bepanis* obtained loans from relatives, six took loans from money-lenders, 15 used savings, including those of their wives, and eight sold their wives' ornaments and other family property.

Though all the sample *beparis* had been in the business for more than four years, they made just enough to maintain their families and repay their loans. They got no real return on their investment.

Eleven *beparis* in Satkhira/Khulna and two in Cox's Bazaar had no operating capital. They had to take a loan before each season and repay at the end of the season, the profit being used for family expenses. Thus there was no accumulation of capital. This was especially so with small *bepanis* and those who had taken loans from money-lenders on interest.

But those *beparis* who started out with bigger capital have watched it grow. Two *beparis* had a capital of 1k 50,000 and 13 had between 1k 10,000 and Tk 20,000. Middle level profit-makers were keen to give a positive picture of their business and did not hesitate to talk about their capital.

Selling the Catch

All the *beparis* in Satkhira/Khulna sold their fry directly to shrimp culture projects. In Cox's Bazaar, there are other options, such as a formal market for fry, the *Ghat*, and bigger *bepanis*. Seven *bepanis* sold their fry directly to projects. It is better to sell the fry directly to the projects than through intermediaries.

Selling fry can be taxing, both physically and financially. First, *bepanis* have to collect the fry from individual catchers. Then they have to keep the fry alive. The fry are kept in a pot of saline water; this water has to be changed several times before the pot is taken to a project. The fry cannot survive in very hot or cold temperatures and have to be protected from both. The risk of mortality is borne by the *beparis*. Finally, they have to transport the fry in pots to the projects, which are often quite far off.

The projects, apart from controlling the price of the fry, do not pay up at once. The *bepanis* have to make several trips to realise their money. On the other hand, the *bepanis* have to pay the catchers immediately. They cannot buy on credit, because the catchers sell only for cash. The *bepanis* have to maintain a good relationship with the catchers. Although the catchers feel they are exploited,

there is co-operation between the catchers and the *bepanis*. During the off-season, the *bepanis* visit the villages, looking for catchers in need of money. They pay such catchers advances on condition that the catchers sell their fry to them during the season. In Cox's Bazaar, the relationship between the catchers and the *bepanis* is closer than in Satkhira/Khulna, where the *bepanis* are more interested in getting fry from India. According to one *bepani*, the supply to 70 per cent of the projects in Satkhira is dependent on Indian fry.

7. WHAT IS TO BE DONE?

Shrimp growth used to be a natural process and did not involve human labour. But once scientific knowledge was disseminated about fry collection, a large number of people took to it as an occupation. This was directly related to landlessness, unemployment, poverty and destitution.

— Many men, women and children now take part in shrimp fry collection, and eke out a bare living. Policy-makers ought to recognize the role of these humble folk in generating foreign exchange earnings.

— The government ought to distribute *khas* land, which landless fry catchers live on and cultivate, to them in accordance with their demand. Both men and women fry catchers should benefit.

— The demand made by families in Charpara for a protective embankment along the sea shore needs attention.

At meetings held in the seven villages, fry collectors made the following specific suggestions about their needs:

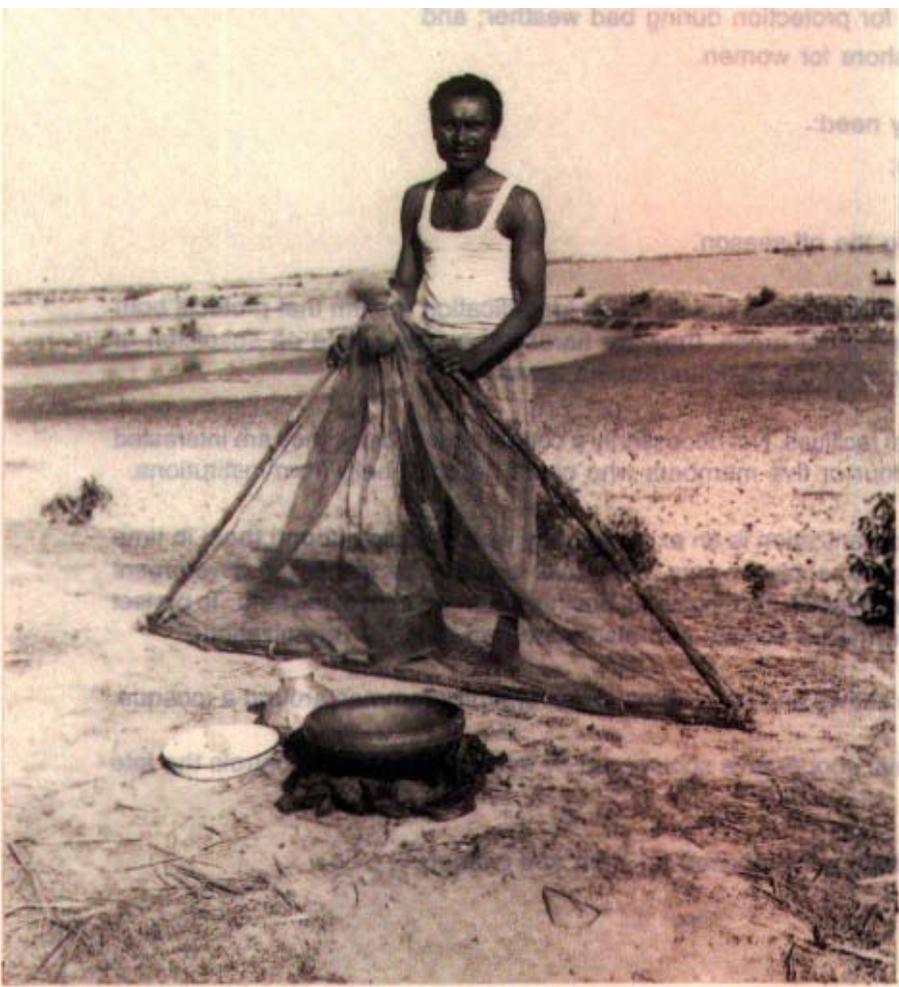
1. For fry collection work:
 - a. Credit to buy necessary equipment;
 - b. Technical knowledge on how to store fry in their households, to improve their bargaining power with traders;
 - c. A shelter near the shore for protection during bad weather; and
 - d. Toilet facilities near the shore for women.
2. For social improvement they need:-
 - a. A school for the children;
 - b. Health services; and
 - c. Sources of income during the off-season.
3. They need administrative backing. There should be an identification system that protects both catchers and *bepanis*. In the border areas, they are harassed by the police on suspicion of smuggling. This is specially so in the Satkhira/Khulna areas.
4. They also need organizational facilities. Not necessarily a cooperative society; they are interested in forming small groups of four or five members who could get joint help from institutions.

To most of the fry catchers, an organization is an external body which would support them in time of need. In Charpara, especially, the people are very vulnerable: landless, dependent on government land, and constantly under threat of attack from powerful businessmen who covet the land. To protect themselves, the people have formed a society and also joined an external organization.

In Kalatali, religious groups are active, and have taken up several programmes around a mosque.

In Magnapara, an old colonial cooperative society run by influential persons controls the fate of the landless.

In Debhata, separate associations are proposed for men and women.



Above and left: Gears to catch shrimp seed.
Opposite page:
Top - Transport of shrimp seed by boat.
Below - Buying and selling of shrimp seed.



In Paikgacha, the women are demanding a co-operative that can take up problems and encourage savings. They especially want credit support, training and technological support.

An external organization would have to consider these factors before moving in. It would have to gain the trust and confidence of the people and carry out some participatory experimental work before formulating programmes to help the collectors.

Appendix 1

1. METHODOLOGY

Since no other study on the shrimp seed/fry collectors or catchers of Bangladesh had been carried out earlier, a literature survey was not possible. This study started with preliminary discussions with BOBP and personnel of the fisheries department in the respective areas.

Thereafter, three different but complementary methods were used to get information on the fry catchers and their technological and economic conditions:

- i. An open-ended questionnaire to a selected number of fry catchers;
- ii. Observation of selected fry-catching households from morning till evening,
- iii. Meetings with the villagers where they were asked specific questions on the technology they used, the fry catching situation in general and organizational support to improve their condition.

All three methods were used in the seven villages selected for the study. But the households interviewed were different from the households observed. At the meetings, however, most of the families selected both for interviews and for observation were present, besides other villagers; but here they discussed general issues rather than family issues.

The open-ended questionnaire sought information about the social and economic conditions of the fry catchers, the background to fry catching, technical aspects of fry catching, the needs of the fry catchers and the possibility of forming an organization. The questionnaire was prepared before the interviews, but, the research team was free to add any vital question while the interviews were on. This question was then added to the questionnaire for other interviews.

Besides noting down answers, the investigators kept diaries of their daily work in which they elaborated information they felt was important. These diaries were found very useful at the time of report writing.

The questionnaires were used separately for:

- i. Adult fry catchers (male and female) in a household;
- ii. Children who caught fry as individuals; and
- iii. *Da/als*, or *bepanis* (the middlemen) as individual businessmen.

Several related organizations and individuals were also interviewed so that information obtained from the primary sources, could be understood better.

The observation study was conducted in the households of various fry catchers. An investigator (male or female), called at a household with an observation form, explained the purpose of his visit and sought permission to stay for the whole day. He then sat in a place from where the household's activities could be observed and noted whatever he saw in his form.

Each household was observed for about eight hours a day, it was not possible to stay the night. The observations were restricted to a few households because, October was the off-season for fry collection and not many activities related to fry catching could be observed.

The mass meetings with villagers were held after the interviews and observations had been completed. During the interviews and observations, personal relationships had been developed with the fry catchers and *bepanis*. The trust thus built up among the people ensured a good response to the call for meetings. The participants themselves felt that a number of issues required to be discussed at open meetings. A particular advantage of these meetings was that the fry catchers were able to openly debate their needs and arrive at the most realistic consensus.

Problems faced

Several problems, were faced while collecting information and during the discussions. To illustrate:

Fear and mistrust of outsiders

The fry collectors were the poorest and most exploited people in areas studied. Their past experience of outsiders was of government officials and business executives attempting to oust them from the land they were occupying. This had made them wary of white-collar people. They were especially sensitive to questions on land and fry catching.

In one village, the people even denied that they caught fry. People in some other villages got scared when asked about fry collection. An extra effort had to be made to develop good personal relationships with these people to gain their confidence. In the end, the research team left as friends sure of a welcome if they returned.

Language (the Chatgaiya dialect)

The language at Cox's Bazaar was very difficult for the investigators to understand in the beginning. The dialect is entirely different from Bengali.

To get over this, the investigators had to learn some key local words like *baish* (fry), *goar* (labour), *mura* (forest), *joo* and *dala* (the high and low catch period during a month).

Though the language problem was acute in Satkhira, the investigators needed to become familiar with local terms such *ajon* (labour), *baccha* (fry), *gon* and *marani* (the high and low catch times during a month).

The gender relationship

In conservative Chittagong, male interviewers had problems interacting with female respondents. This was not so in Satkhira/Khulna where the women worked outside their homes and thus regularly met people and were therefore more outgoing.

Expectations of the people

The rise in the expectations of the people following questions about their problems and needs made the interviewees hopeful that "something good was going to happen". It was difficult for the team to discourage such hopes. This problem is likely to become more acute in future if nothing happens in the areas investigated.

The season

The fact that it was off-season when the interviews were conducted was both an advantage and a disadvantage. The advantage is that the fry collectors could spare time to answer the detailed questionnaire, which took an average of two hours in each household. (During the season this would have been impossible.) On the other hand, actual fry catching could not be observed.

Appendix 2

THE VILLAGES SELECTED

The study was undertaken in Khulna/Satkhira and Cox's Bazaar/Chokaria. These two areas, just off the Sundarbans and the Bay of Bengal, are known for shrimp culture.

The following criteria determined the selection of villages in these areas to fulfil the objectives of the study:

- a. Distance of fry collectors' houses from the sea;
- b. Whether there is any embankment;
- c. Whether there is any *khas* (government) land;
- d. Whether there is any shrimp culture project; and
- e. The kind of technology used for catching fry.

The villages finally selected were:

1. *Charpara* (Zilongzha union, Sadar upazilla, Cox's Bazaar district).
2. *Kalatali* (Zilongzha union, Sadar upazilla, Cox's Bazaar district).
3. *Magnamapara* (Badarkhali union, Chakaria upazilla, Cox's Bazaar district).
4. Debhata (Debhata union, Debhata upazilla, Satkhira district).
5. *Basantapur* (Debhata union, Debhata upazilla, Satkhira district).
6. *Batikhali* (Godaipur union, Paikgacha upazilla, Khulna district).
7. *Sibhata* (Godaipur union, Paikgacha upazilla, Khulna district).

Profiles of these villages follow.

Charpara

Charpara, just by the sea, is a newly settled 350-acre char (slum). To its south is the fisheries hatchery of the Asian Development Bank, to the north the Nuniachora village and the Moheshkhali channel. To the east is Cox's Bazaar aerodrome and to the west the Bay of Bengal.

Charpara was barren land five years ago. But when fry catching became popular, large numbers of landless people from Chakaria, Moheshkhali, Chittagong, Satkhira, Barisal and Khulna moved in. When they started building houses and began living as a community, the settlement became a Village and called itself "*Charpara*". Settling here was easy because the newcomers found that this was the only land not yet leased to a landowner.

According to the villagers, there are 170 households in Charpara, seven of them Burmese. But the investigators found only 60 households. This, was due to frequent attacks by landowners from nearby areas; about 50 households had been destroyed in such attacks by landowners as well as by the district administration and a business house. The fry catchers now stay in nearby areas in rented houses, but hope to return as soon as the problems subside.

The village is more crowded during the season because people come from different areas to catch fry, staying only for the season. The main source of livelihood of the people of Charpara is fry catching. There is no agricultural land nor is there any scope for any other business. There is no school, health centre or even a shop.

Kalatali

Kalatali, the biggest village in the Cox's Bazaar area, is situated by the Bay of Bengal. Extending two miles, it is divided into South Kalatali, Karachi Para and Laboni Charpara.

The village was settled over 20 years ago by migrants from Barisal, Patuakhali, Khulna, Kushtia and various other places in the Cox's Bazaar district. Several Burmese families live peacefully

here with the “locals”. There are 170 families in the three paras, including 70 Burmese families. Because of “anti-Burmese” sentiment in Cox’s Bazaar, the latter were reluctant to admit that they were Burmese.

The owners of the land in Kalatali are the Parjatan Corporation and the Forest Department. The village itself was a part of the forest when it was first settled.

In South Kalatali, people farm government land. The people in possession of land are better off compared to others in the village. These “owners” of land have built houses and allowed other families to stay on their land. This is to ensure possession of the land.

On the other hand, people in Karachi Para and Laboni Charpara are mainly involved in fish and fry catching. These two *paras* are so named because according to villagers, the people of Karachi Para at one time used to go to Karachi very frequently while, Laboni Charpara has developed on land near the Parjatan Hotel “Laboni”.

Most of the fry collectors in conservative Kalatali are men and children. Only 10 per cent of the women – widows, very poor married women and small girls – collect fry, whereas 60 per cent of the men and 30 per cent of the children do.

The village, which is dominated by Muslims, has a number of mosques. The villagers are very religious and contribute to the salaries of the *muezzins*.

There is a small market near the village and a road to Cox’s Bazaar. The people have access to a school in the village on the other side of Kalatali.

Magnamapara

The Badarkhali union was established by High Court order to distribute government *khas* land among the landless. The area belonged to the forest department. After the court order, the forest was cut down to make the land suitable for habitation. The Badarkhali union comprises 12 *paras* in three blocks. Magnamapara, a part of the third block, was established in 1935. The people of Magnamapara came from an area called Magnama in Moheshkhali. The land here was distributed among 131 families, each getting 10 acres. The landless families each paid 1k 15 for the land, but were loaned 1k 306 to prepare it.

Magnamapara is three square miles in extent and has 452 households. According to estimates by the villagers, about 300 families are primarily fry collectors, about 100 families consider it an additional source of income, while the rest are only occasional fry collectors.

The collectors are boys and girls below 12 (70 per cent), young men under 30 (15 per cent), older men (10 per cent) and women mostly widows and destitutes (5 per cent). The men here are very conservative about women working outside the house. They do not allow girls over 12 to go out.

The area is served by a co-operative society called the “Upanibeshik Samabay Samity”, or Colonial Cooperative Society. This society was constituted by the landless in 1935 and the responsibility of land distribution given to it. According to its constitution, the society is the owner of all land in Badarkhali. The people have the right to possess land but cannot sell or transfer it. Those in possession of land pay *Khazna* (land tax) to the co-operative society and the society pays the Revenue Department.

The society claims that it becomes the owner of any new land thrown up by the river. But, after 1960, this rule does not appear to hold good; a private company engaged in export and import got 400 acres of land for 10 years directly from the revenue department. Some members of the society appear to favour this move.

Debhata

Debhata is the administrative centre of Debhata upazilla, but the commercial centre is Parulia. The relationship between the two centres is not cordial.

There are in Debhata 80-90 households. The village has a primary school, a high school, a mosque, a Swami Akulananda Temple, a police station and the headquarters of the Bangladesh Rifles. There is also a market in the village. Only 25 households, all poor Muslims, reported fry collection as their main occupation. The landowners and the rich are Hindus. People who are well off are farmers, not fry catchers.

Basantpur

This village, adjacent to Debhata, is one mile long and comprises Muslim Para, Hindu Para and Rishipara.

There are about 100 households in the village, a primary school, a mosque and two *madrastas*.

Batikhali

This is the main village in Paikgacha upazilla. Its name derives from the actions of a Hindu priest of Shibmandir who used to announce evening prayers by lighting a candle (*batti*) in the temple.

The village, two miles long, is situated by the river Shibsha. This river was the only means of communication with Khulna before the road was built.

There are 400 households in Batikhali, of which 150 are settled here only temporarily. There is also a migrant population comprising the staff in the upazilla and some private offices as well as the poor and the landless seeking employment.

Seventy per cent of the population of Batikhali is Muslim, the rest Hindu. Economic disparities in the village are grave, the few rich owning most of the resources. More than 60 per cent of the residents are landless. Ten per cent have leased *khas* land. Since the village is an upazilla headquarters, it has a primary school, high school and college as well as a government hospital.

Shibhata

This village, adjacent to Batikhali, is 1.5 miles long and has 65 households, of which only ten are Muslims, the rest being Hindus. Just five families possess most of the land in the village, while 15 families are totally landless. Houses have been built by the side of an embankment constructed on the bank of the Ichamati river.

There is no primary or high school in the village; the children go to Paikgacha school 1.5 miles away. There is no road, except the embankment, and when, during the rainy season, the embankment becomes muddy, getting to Paikgacha becomes a problem.

There is no health centre in the village. There is no tubewell either. The villagers use pond water for drinking. Most of the women walk to Paikgacha every day to bring water. According to the chairman of the union parishad, the water level is too low for a tubewell.

The energetic women of Shibhata engage in several productive activities and contribute to the economy of the village in various ways.

Appendix 3

CHARACTERISTICS OF THE SAMPLE

The interviews were conducted by meeting a sampling of families in two areas. A general profile of the families in each area follows.

Cox's Bazaar

Education

About 75 per cent of those interviewed were illiterate. Among the men, 55 per cent were illiterate and 17 per cent had had a primary education; 91 per cent of the women, on the other hand, were illiterate and 4 per cent had only a primary education. Only one person, a male, had a higher secondary education. Male literacy in the sample was better than the national average, but female literacy wasn't. This reflected the conservative attitudes of the Chittagong – Cox's Bazaar area.

The high illiteracy rate among those interviewed was not, however, a major handicap; it was the lack of confidence among them, especially among women when faced by so-called educated interviewers, that made interviewing difficult. The women at first did not even think they could answer the question correctly.

Occupation

The major occupation of the respondents was fry catching or fry sorting. All the men interviewed, except one, were involved in fry catching. Among the 44 women interviewed, 28 were involved in fry sorting, eight in fry catching, two in both fry catching and sorting, and six did only household work.

The 10 women fry catchers hailed from Charpara, indicating that women there, unlike in the other two villages, were not bound by the traditions of a patriarchal society. Being poor, they had no other option but to work. Also, since the men of Charpara depended solely on fry catching, they involved women in this work to increase the family earnings. In Kalatali and Magnamapara, on the other hand, the women could go to the main village for post-harvest agricultural work or for household work.

Heads of households

In the sample of 31 males interviewed, 25 were heads of households. There were two women heads of household in the sample. Asma Khatun, 50, a widow lived with a 70-year-old brother who was unable to work. Her two sons, 18 and 20, were involved in fry catching. Asma was acknowledged as the head of the family because she contributed to the family's income.

Fatema Begum, a young divorcee with a daughter one year old, was the other woman heading a household. She earned her livelihood partly as a fry catcher and partly as a maid servant.

The educational level of the male heads of household was found to be higher than that of others interviewed. Fry catching was the main occupation of most heads of families. Among the rest, five worked as day labourers, seven were unable to work because of sickness or old age, and nine were engaged in a variety of occupations such as masonry, business, teaching, rickshaw pulling, etc.

Family size

The average family size of the fry collectors was 6.4. The minimum number of family members was 2, the highest 11. The large families were joint families or polygamous households.

Children

The average number of living children was 3.7. In 58 per cent of the sample households, the number

of living children was below 4, in the rest it ranged from 5 to 8 children per couple. The number of children was higher for households where there were two wives.

Land-ownership

None of the fry catchers had any land of their own. They lived on *khas* land. Only three had land on lease from the government. The land was used only as a homestead, most fry catchers having built a one-room house on it.

Housing

The houses were of bamboo, thatch, paddy straw, polythene, paper and any cheap material available. The materials used were responsible for the very poor conditions of the houses.

The houses in Charpara had no courtyards, were scattered far apart and had no trees or vegetable gardens, unlike houses in the other two villages. 89 per cent of the houses had only one room; in the rest there were two rooms each. The average sizes of the houses were: Charpara 10 ft x 8 ft., Kalatali 12 ft x 6 ft and Magnamapara 14 ft x 9 ft. These differences in size reflected differences in land-ownership patterns in the three areas.

In the absence of latrines, the families used vacant spaces near the sea or eased themselves behind the bushes or the fields. Only 33 households (or 44%) had private latrines of sorts. These were holes dug in the ground, with fences built around them for privacy. Women faced a lot of hardship in the absence of private latrines, and restrained themselves during the day. This, affected their health in the long term.

Drinking water was obtained from other people's tubewells in the two bigger villages. In Charpara, a hole was dug in the sand and filled with fresh sweet water for drinking.

Livestock

Raising livestock was a common practice among the sample households of Kalatali and Magnamapara. In Charpara, a few households kept poultry. The situation in Charpara, unlike that of the other two villages, was not favourable for livestock keeping because fodder was scarce in the surrounding area. Poultry was reared in 44% of the households in the three villages and animals like goats and cows (in addition to poultry) were kept in 24% of the households.

The poultry, goats and cows, generally kept by the women and children, helped earn additional income. They also meant the occasional luxury of protein food. The women tended the livestock as a part of their household work.

Indebtedness

The fry catching families were indebted in two ways: (i) Loans, and (ii) *Dadan*.

Loans, with or without interest, were taken from friends and relatives to meet family expenses and occasional needs. When loans were taken from money-lenders, the interest rate was about 10-20 per cent a month.

Dadan is not so much a loan as an advance payment fry catchers get from *beparis*. The *beparis* buy the fry from the catchers for cash and sell them to the shrimp culture projects. During the off-season, or when catchers are in need of money, the *beparis* offer advances on condition that the catchers sell the fry to them at rates less than the existing market price — usually Tk 1-2 less per hundred fry.

Dadan is advantageous for the *beparis* as the interest rate works out very high. The catchers often try to avoid *dadan*, but during the off-season, if they have no other source of income, this is the only way to get money to meet family needs. On the other hand, *dadan* is an investment for the *beparis* in anticipation of a profit during the season.

Dadan works in this fashion. If, for instance, Naju takes Tk 200 as *dadan* from Karim *bepari* during the off-season, he has to repay it during the season by selling the fry at Tk 3/hundred whereas the market price is Tk 5/hundred. Thus, if he catches 2,000 fry, at market prices he should get Tk 100; but he gets only 1k. 60.

His next catch of 3,000 fry fetches Naju only Tk 90 instead of 1k 150. And for his third catch of 2,000 fry he gets only Tk 60 instead of Tk 150. Thus, Naju loses Tk 140 out of the Tk 350 he should have earned from the three catches. Calculated as interest on the *dadan* payment, the rate works out to an exorbitant 40 per cent! There are, however, some *beparis* who charge only 20 per cent. The *beparis* demand this high interest because they give the money at a time when the catchers have none. If the catchers are not always able to repay the whole amount in a season, the situation can become very complicated.

The catchers try their best to avoid *dadan* relationships with the *beparis*, but the *beparis* like the relationship, though it is at times risky. The catchers often break the agreement and sell their fry to other *beparis*. To reduce this risk, *beparis* maintain a friendly relationship with the catchers.

The *dadan* relationship was found mainly in Charpara, where the fry catchers lived in a slum, completely isolated from other areas. They had few options of getting loans from money-lenders or villagers. The fry catchers in Kalatali and Magnamapara, on the other hand were close to the rest of the village, and *beparis* therefore did not have much of a role here.

About 26 per cent of the sample households had no loan or *dadan*. That, however, was not a positive indicator. The poorest of the poor get no loans because they are just not credit-worthy.

Over half the loans — 56 per cent — were in the range of Tk 500 to Tk 2000.

Why did the fry-catchers take loans ? Just to survive. Of the households who had taken loans, 44 per cent cited family needs, 13 per cent house construction, and 18 per cent various other needs, such as medical treatment, business, education, etc. Only 3 per cent of the families had taken loans for fry catching purposes, such as to buy equipment, etc.

The loans were taken from relatives, neighbours and friends (32%), *beparis* (16%), grocery shops (8%), money-lenders (7%) and from banks, co-operatives, etc. (6%). Institutional loans were limited and did not reach these people.

Food

In Charpara, the sample households had two meals of rice a day and one of bread in the morning, usually eaten with vegetables. Fish and meat were an occasional luxury.

In Kalatali, the sample households enjoyed three meals of rice a day. They got fish from the sea. They also ate vegetables. But meat was eaten only once a month. This was the case in Magnamapara too, though more fish was eaten here, the river being a more abundant source.

The intake of food increased during the fry collection season : three meals a day, some times more. The quantity of each meal was also greater. This meant the fry catchers had to spend more on food during the season.

Fry collection as an occupation

It's clear that only the poor and the landless were engaged in fry collection. Reasons:

- 1 *There were no better employment opportunities.*
- 2 *Fry catching offered more money than other activities*
- 3 *It required only a small investment, and an immediate return was possible.*
- 4 *Fry catching could involve all the family members, including women and children, in an independent occupation; and*
- 5 *As self-employed people, the catchers could determine their own levels of earning, by working more or less.*

In general, the sample fry collectors in the Cox's Bazaar area suffered from want and privation. Fry catching attracted them because of its high seasonal earnings, even though insufficient to sustain them throughout the whole year.

Satkhira/Khulna

Education

The illiteracy rate among males and females was 76 per cent; among women alone it was 82 per cent. Among the literate males and females interviewed, the highest level of education was up to the secondary grade.

Occupation

In 29 of the 30 sample households, fry catching was the main occupation. This was true of both men and women. Only one woman was a housewife, but her husband was a collector.

Heads of households

Among those interviewed nine were heads of households, three of them females. In the 30 households interviewed, seven were headed by women. The percentage of female-based households in this area was perhaps higher than this figure indicates; men here practised polygamy and often abandoned their first wives, leaving them to bring up children on their own.

Most of the heads of households were below 45 years of age. Seventy-three per cent of them were illiterate. Those who were literate had been educated up to the primary or secondary level.

Among 18 male heads of households in Satkhira, 11 worked mainly at fry catching, but they did other work as well. This work included 'helicopter' driving, agricultural labour, non-agricultural wage labour, etc. The others held jobs, ran small businesses or pushed carts.

In Khulna, the male heads of household were either employed or in business. Only one household was involved with fry collection. Among female heads of households, on the other hand, most of them were engaged in fry collection. One held a job, the other did only household work.

Family size

The average family size was 5.1. The minimum number of family members was 2 and the highest number 10. The larger families were in polygamous households.

Children

The average number of living children per household was 2.8. Only seven households out of 30 had more than four children per household. Despite polygamy, the number of children was not high.

Land-ownership

Unlike the land-ownership pattern in Cox's Bazaar, most fry collectors in Satkhira (76 per cent) owned the land on which their homes stood. Of the 23 households owning land, 10 had migrated from India and settled here after buying pieces of land. Seven households had migrated from other villages. Only six households were native to the village.

Six households had built homes on land belonging to others, who might or might not have been relatives. The two households living on land belonging to non-relatives were allowed to stay on condition that they worked for land-owners without wages. If they did not work, they would have to leave. In one of these families, the head of the household could not work for a few days and the family was asked to leave.

Only one household was found living on *khas* land. In Paikgacha, there appeared to be enough *khas* land, but the rich had taken it all. If one of the poor tried to live on this land, he was imprisoned and cast out of society. No one should talk to a person who settles on *khas* land, the influential

people of the area had proclaimed. The poor called this *ek ghore kora*; for them it meant no work and no help, so they had opted not to live on *khas* land.

Housing

In Satkhira and Khulna, one noticeable aspect of housing was the height of the floors above the ground. Asked about this, the villagers replied that they have been building this way for a long time, but “did not know why”. The research team found it most odd that the villagers had not even thought about it. Perhaps it is because of the number of snakes in the area.

The houses had mud walls and roofing of tiles, thatch or *gol pata* leaves. Seventy per cent of the houses had only one room, 23 per cent two rooms. There was a small yard in front of each house.

Eighteen of the 30 households had permanent latrines, which merely meant in each case a hole in the earth with a coconut leaf fence around it. A jute bag served as a door. The others went into the bushes, near the river or to the open fields. One household shared its neighbour's latrine.

Fourteen of the 30 households used tubewells belonging to neighbours. Nine families walked long distances to bring water from the government tubewell in Paikgacha. Those who shared a neighbour's tubewell also shared the cost of its maintenance by paying half or one taka whenever the tubewell was out of order.

Livestock

Except for three households, all the sample households had at least one or two kinds of livestock. Thirteen households kept only poultry, six households had a goat as well, one household had a cow and a horse. The rest had a combination of poultry, goats, sheep and cows. This was possible, unlike in Cox's Bazaar, because they had homestead land and there were, in the village, places for grazing.

Livestock keeping was primarily a job for the women and children. Poor families needed to keep livestock for additional income. Goats and sheep also needed special care, to ensure that they did not go into the fields of the land owners. If they did, the land owners put the goat/sheep into *khoar*, temporary detention. To release the animals from *khoar*, a penalty had to be paid in cash.

One researcher recorded the story of Solaiman, who had told his wife to keep their goat tethered so that it did not stray into the fields of Nadibabu, a Hindu landlord. The wife, busy with her work, forgot to do this and the animal strayed. Nadibabu put the animal in the *khoar*. Solaiman, when he returned, was, extremely angry, beat his wife and pushed her out of the house. Eventually, Solaiman's sister provided the money to pay the penalty for the release of the goat.

This incident is important because it is almost a regular phenomenon in the life of the poor. The paradox is that, on the one hand, the poor need to keep these animals, yet they do not own any grazing land.

Indebtedness

The fry collectors of Satkhira and Khulna had mainly taken loans on interest from neighbours and friends. Here the neighbours and friends played the role of informal money-lenders. They gave loans at an interest of 10%-15% a month. Seven families had taken loans without any interest from relatives.

The average loan taken was Tk 1267. The majority of the loans were between Tk 500 and Tk 1000. Nine families had taken loans between Tk 2000 and Tk 4000.

Fifteen families (50%) had taken loans to meet day-to-day family expenses. These loans were not very high, but in the absence of secure and regular incomes, the families remained permanently in debt. The other reasons for loans were medical treatment, house construction, a wedding, business, purchase of a van or a cow. These loan amounts were higher. The *dadan* relationship

was very limited here. But unlike in Ccx's Bazaar, *beparis* paid the catcher the market price even if he had taken an advance. Through *daden*, the *bepari* could ensure fry for sale. The average amount of *daden* taken by a catcher was found to be only Tk 300. This amount was not taken at one time. It was the sum of amounts taken at different times, Tk 25 to 30 a time, during the off season.

Food

Three meals of rice were usual for the sample families when they earned regular incomes from fry catching. But when incomes were low, they just ate one or two meals of bread. The poorer fry collectors usually had vegetables to go with the rice. Whenever they could catch fish from the river, they ate it. They could not afford to buy fish from the market. Pulses were generally, taken only twice a week. Meat was a luxury; most families said they ate meat only once or twice a year.

Fry collection as an occupation

When the poor of Satkhira and Khulna learned about fry catching, they chose this occupation. They did not have any viable source of income before this. There is a saying that the poor in Satkhira used to eat *s/ia/u* instead of rice before they started to catch fry. Though their condition has not improved much, they can now afford to eat rice. The following picture of other employment and income opportunities for the poor in Debhata and Paikgacha reveals clearly why fry collection has proved a relatively lucrative alternative.

Income and employment opportunities in Satkhira/Khulna:

Type of work	Wages and incomes	
	Male	Female
1. Earth digging	Tk 40 per day	—
2. Paddy harvesting	Tk 25-30 per day without food	Tk 15-30 per day
3. House construction	Tk 30 per day	—
4. Wood chopping	Tk 30 per day	—
5. Working as household labour	—	Tk 10 per month with breakfast
6. Weeding	—	Tk 20-25 per day
7. Kantha-sewing	—	1k 30 per <i>kantha</i> (10-15 days for a <i>kant/ia</i>)
8. Net-making	—	1k 130 per net (3 months for a net)
9. Mat-making	—	Tk 20 per mat; 2 mats a day; includes the cost of raw materials
10. Van driving	1k 20-25 per day	—
11. Service (peon)	Tk 300 per month	—
12. Small shop	Tk 10-50 per day	—

It should be noted that the wage labour listed above is not available all the year round. The income earned from these jobs is not better than that from fry collection. For women, especially, other jobs pay too little.

Table 1 — Sample Size

Village Name	Sample size of interviews
COX'S BAZAAR	
Charpara	30
Kalatoli	29
Magnamapara	16
Total:	<u>75</u>
SATKHIRA/KHULNA	
Debhata	11
Basantapur	10
Batikhali	5
Shibhata	4
Total:	<u>30</u>

NOTES

1. Children engaged in fry catching and some fry businessmen were also interviewed.
2. The Charpara sample represented about 70 per cent of the total number of households, whereas in Kalatali it was about 20 per cent and in Magnamapara about 10 per cent of the households engaged in fry catching.
3. In SatkhiralKhulna, the sample size was proportionally smaller, compared to the number of people engaged in fry collection, because of hartals at the time of interviews.
4. The answers of the respondents tended to vary by age and gender. Women usually answered questions freely if they were directly involved in fry collection. In families where men were the main fry catchers, the women tended to shy away from questions on fry catching, saying "it is their job, so how can we say". In such cases, a special effort had to be made to get the answers, because they generally did have the answers.
5. Women were afraid to give information on land and property owned by the family. Children, however, were easy to interview, being both knowledgeable and confident. Once the purpose of the research became clear, men were more forthcoming.

Table 2

Age And Sex Of interviewees in Cox's Bazaar Sample Households

Age in Years	Male	Female	Total
1-10	—	2	2
11-20	5	6	11
21-30	8	17	25
31-40	7	12	19
41-50	4	5	9
51-60	6	2	8
61+	1		1
Total:	31	44	75

Table 3

Age And Sex Of Interviewees in Satkhira/Khulna Sample Households

Age in Years	SATKHIRA		KHULNA		TOTAL
	Male	Female	Male	Female	
1-10					
11-20	0	4	0	2	6
21-30	1	8	1	3	13
31-40	2	1	0	2	5
41-50	1	2			3
51-60		1	1		2
61+	1				1
TOTAL:	5	16	2	7	30

Table 4

Occupations Of Persons Interviewed In Cox's Bazaar

Occupation	Male	Female	Total
Fry catching	30	8	38
Fry sorting		28	28
Fry selling	1		1
Fry catching and sorting		2	2
Household work		6	6
Total:	31	44	75

Table 5

Pattern Of Indebtedness By Households Interviewed

In Cox's Bazaar

Indebtedness	No of households	Percentage
Loan	47	63
<i>Dadan</i>	8	11
Both loan and <i>dadan</i>	—	
No <i>loan/dadan</i>	20	26
Total:	75	100

Table 6

Age And Sex Of Child Fry Catchers Interviewed In Cox's Bazaar

Age in Years	Male	Female	Total
1—5			
6—10	2	4	6
11—15	4	1	5
16	1		1
Total	7	5	12

Table 7

Age And Sex Of Child Fry Catchers Interviewed In Satkhira/Khulna

Age in Years	<i>Satkhira</i>		<i>Khu/na</i>		Total
	Male	Female	Male	Female	
1—5					
6—10	1	1	2	—	4
11—15	6	1	1	3	11
16	1				1
Total	8	2	3	3	16

Table 8**Number Of Beparis Sampled In Cox's Bazaar, Satkhira and Khulna**

Villages	Sample	Villages	Sample	Villages	Sample
Cox's Bazaar		Satkhira		Khulna	
i. Kalatali	6	i. Debhata	8	i. Shibhata	
ii. Natun		ii. Basantapur	7	ii. Batikhali	3
Bahachora	4				
iii. Magnamapara	4				
Total:	14		15		4

Table 9**Age Of Beparis In Cox's Bazaar, Satkhira And Khulna**

Age in years	Cox's Bazaar	Satkhira	Khulna	Total
1-15				
16-25	4	6	2	12
26-35	9	7	1	17
36-45	1	2	1	4
56				
Total:	14	15	4	33

Table 10**Education Of Beparis In Cox's Bazaar, Satkhira And Khulna**

Education	Cox's Bazaar	Satkhira	Khulna	Total
Illiterate	5	6	—	11
Upto primary	5	3	1	9
Upto secondary	2	4	1	7
SSC	1	—	1	2
HSC	—	2	1	3
Arabic Education	1	—	—	1
Total:	14	15	4	33

Table 11

**Previous Occupation Of Beparis In Cox's Bazaar,
Satkhira And Khulna**

Previous Occupation	Cox's Bazaar	Satkhira	Khulna	Total
Fry catching	2	2	1	5
Hilsa fishing	2	1		3
Day labour	2	1		3
Other business	5	3		8
Farming		2		2
Combined jobs		3	2	5
Others	1	2	1	4
Unemployed	2	1		3
Total:	14	15	4	33

Appendix 5

GLOSSARY

<i>Baish Dhora/</i>	... Fry collection
<i>Baccha Dhora</i>	
<i>Bepari</i>	...Person who buys the catch and sells it to a shrimp culture project: middleman
<i>Bomba</i>	...Torch
<i>Char</i>	Slum
<i>Dadan</i>	... Advance payments as loans
<i>Dala</i>	...Low catch period
<i>Dalal</i>	...Middleman
<i>Dekchi</i>	...Pot
<i>Goar</i>	...Labour
<i>Gon</i>	...Period when catch is good
<i>Gher</i>	...Shrimp culture projects
<i>Han</i>	...A cooking pot
<i>Joo</i>	...High catch period
<i>Joar</i>	...High tide
<i>Jon</i>	...Labour
<i>Khad</i>	...Earthen bowl
<i>Khas</i>	...Government land
<i>Khep</i>	...The period a net is kept in the water (half an hour to one hour)
<i>Khazna</i>	...Land tax
<i>Khoar</i>	... Temporary detention
<i>Madrasa</i>	...Arabic school
<i>Marani</i>	...Period when a catch is poor
<i>Me/i</i>	...Used in mat-making
<i>Miera</i>	...Forest
<i>Pata</i>	...Set net
<i>Peala</i>	...Pot
<i>Teto</i>	...Used in mat-making
<i>Thela</i>	... Push net
<i>Thithi</i>	... Dates of the moon

Appendix 6

THE CALENDAR

1. Baisakh	Mid-April to mid-May
2. Jaista	Mid-May to mid-June
3. Ashar	Mid-June to mid-July
4. Saraban	Mid-July to mid-August
5. Bhadra	Mid-August to mid-September
6. Ashwin	Mid-September to mid-October
7. Kartick	Mid-October to mid-November
8. Agrahayan	Mid-November to mid-December
9. Poush	Mid-December to mid-January
10. Magh	Mid-January to mid-February
11. Falgun	Mid-February to mid-March
12. Chaitra	Mid-March to mid-April

Publications of the Bay of Bengal Programme (BOBP)

The BOBP brings out six types of publications.

Reports (BOBP/REP/...) describe and analyze completed activities such as seminars, annual meetings of BOBP's Advisory Committee, and projects in member-countries for which BOBP inputs have ended.

Working Papers (BOBP/WPI...) are progress reports that discuss the findings of ongoing BOBP work.

Manuals and Guides (BOBP/MAGI...) are instructional documents for specific audiences.

Miscellaneous Papers (BOBP/MIS/...) concern work not sponsored by BOBP — but which is relevant to the Programme's objectives.

Information Documents (BOBP/INF/...) are bibliographies and descriptive documents on the fisheries of member-countries in the region.

Newsletters (*Bay of Bengal News*), issued quarterly, contain illustrated articles and features in non-technical style on BOBP work and related subjects.

A list of publications since 1984 follows.

Report (BOBP/REP/...)

17. Report of Investigations to Improve the Kattumaram of India's East Coast. Madras, India, July 1984.
18. Motorization of Country Craft, Bangladesh. Madras, India, July 1984.
19. Report of the Eighth Meeting of the Advisory Committee. Dhaka, Bangladesh, January 16-19, 1984. Madras, India, May 1984.
20. Coastal Aquaculture Project for Shrimp and Finfish in Ban Merbok, Kedah, Malaysia. Madras, India, December 1984.
21. Income-Earning Activities for Women from Fishing Communities in Sri Lanka. E. Drewes. Madras, India, September 1985.
22. Report of the Ninth Meeting of the Advisory Committee. Bangkok, Thailand, February 25-26, 1985. Madras, India, May 1985.
23. Summary Report of BOBP Fishing Trials and Demersal Resources Studies in Sri Lanka. Madras, India, March 1986.
24. Fisherwomen's Activities in Bangladesh : A Participatory Approach to Development. P. Natpracha, Madras, India, May 1986.
25. Attempts to Stimulate Development Activities in Fishing Communities in Adirampattinam, India. P. Natpracha, V. L. C. Pietersz. Madras, India, May 1986.
26. Report of the Tenth Meeting of the Advisory Committee. Male, Maldives. 17-18 February 1986. Madras, India, April 1986.
27. Activating Fisherwomen for Development through Trained Link Workers in Tamil Nadu, India. E. Drewes. Madras, India, May 1986.
28. Small-Scale Aquaculture Development through Trained Link Workers in Tamil Nadu, India. E. Drewes. Madras, India, May 1986.
29. Towards Shared Learning: An Approach to Non-Formal Adult Education for Marine Fisherfolk of Tamil Nadu, India. L. S. Saraswathi and P. Natpracha. Madras, India, July 1986.
30. Summary Report of Fishing Trials with Large-Mesh Driftnets in Bangladesh. Madras, India, May 1986.
31. n-Service Training Programme for Marine Fisheries Extension Officers in Orissa, India. U. Tietze. Madras, India, August 1986.
32. Bank Credit for Artisanal Marine Fisherfolk of Orissa, India. U. Tietze. Madras, India, May 1987.
33. Non-formal Primary Education for Children of Marine Fisherfolk in Orissa, India. U. Tietze, Namita Ray. Madras, India, December 1987.
34. The Coastal Set Bagnet Fishery of Bangladesh — Fishing Trials and Investigations. S. E. Akerman. Madras, India, November 1986.
35. Brackishwater Shrimp Culture Demonstration in Bangladesh. M. Karim. Madras, India, January 1987.
36. Hilsa Investigations in Bangladesh. Colombo, Sri Lanka, June 1987.
37. High-opening Bottom Trawling in Tamil Nadu, Gujarat and Orissa, India : A Summary of Effort and Impact. Madras, India, February 1987.

38. Report of the Eleventh Meeting of the Advisory Committee. Bangkok, Thailand, March 26-29, 1987. Madras, India, June 1987.
39. Investigations on the Mackerel and Scad Resources of the Malacca Straits. Madras, India, December 1987.
40. Tuna in the Andaman Sea. Colombo, Sri Lanka, December 1987.
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42. Report of the Twelfth Meeting of the Advisory Committee. Bhubaneswar, India, 15-18 January 1988. Madras, India, April 1988.
43. Report of the Thirteenth Meeting of the Advisory Committee. Penang, Malaysia, 26-29 January, 1989. Madras, India, April 1989.
44. Report of the Fourteenth Meeting of the Advisory Committee. Medan, Indonesia, 22-25 January, 1990. Madras, India, April 1990.

Working Papers (BOBP/WP/...)

24. Traditional Marine Fishing Craft and Gear of Orissa. P. Mohapatra. Madras, India, April 1986.
25. Fishing Craft Development in Kerala : Evaluation Report. O. Gulbrandsen. Madras, India, June 1984.
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50. Experiences with a Manually Operated Net-Braiding Machine in Bangladesh. B. C. Gillgren. Madras, India, November 1986.
51. Hauling Devices for Beachlanding Craft, A. Overa, P. A. Hernminghyth. Madras, India, August 1986.
52. Experimental Culture of Seaweeds (*Gracilaria* Sp.) in Penang, Malaysia. (Based on a report by Maxwell Doty and Jack Fischer). Madras, India, August 1987.
53. Atlas of Deep Water Demersal Fishery Resources in the Bay of Bengal. T. Nishida and K. Sivasubramaniarn. Colombo, Sri Lanka, September 1986.
54. Experiences with Fish Aggregating Devices in Sri Lanka. K. T. Weerasooriya. Madras, India, January 1987.
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63. Shrimp seed collectors of Bangladesh. Madras, India, October 1990.

Manuals and Guides (BOBP/MAGI...)

1. Towards Shared Learning : Nonformal Adult Education for marine Fisherfolk. Trainers' Manual. Madras, India, June 1985.
2. Towards Shared Learning : Non-formal Adult Education for Marine Fisherfolk. Animators' Guide. Madras, India, June 1985.
3. Fishery Statistics on the Microcomputer: A BASIC Version of Hasselbiad's NORMSEP Program. D. Pauly, N. David, J. Hertel-Wulff. Colombo, Sri Lanka, June 1986.
4. Separating Mixtures of Normal Distributions : Basic programs for Bhattacharya's Method and Their Applications for Fish Population Analysis. H. Goonetilleke, K. Sivasubramaniam. Madras, India, November 1987.
5. Bay of Bengal Fisheries Information System (BOBFINS): User's Manual. Madras, India, September 1987.

Miscellaneous Papers (BOBP/MIS/...)

2. Consultation on Social Feasibility of Coastal Aquaculture. Madras, India, 26 November . 1 December 1984. Madras, India, November 1985.
3. Studies on Mesh Selectivity and Performance : The New Fish- cum-Prawn Trawl at Pesalai, Sri Lanka. M. S. M. Siddeek. Madras, India, September 1986.
4. Motorization of Dinghy Boats in Kasafal, Orissa. S. Johansen and O. Gulbrandsen. Madras, India, November 1986.

Information Documents (BOBP/INF/..)

6. Marine Small-Scale Fisheries of Sri Lanka : A General Description. Madras, India, November 1984.
7. Marine Small-Scale Fisheries of Orissa : A General Description. Madras, India, December 1984.
8. Marine Small-Scale Fisheries of Bangladesh : A General Description. Madras, India, September 1985.
9. Food and Nutrition Status of Small-Scale Fisherfolk in India's East Coast States : A Desk Review and Resource Investigation. V. Bhavani. Madras, India, April 1986.
10. Bibliography on *Gracilaria* — Production and Utilization in the Bay of Bengal. Madras, India, July 1990.