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# **Poor livelihoods in peri-urban Kolkata**

**Focus group and household interviews**

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## Glossary

### Acronyms and Bengali terms

ADB	Asian Development Bank
<i>ala</i>	small brick built house in the fisheries used by accounts managers and cooks
<i>arat</i>	auction house
<i>aratdars</i>	local term for auctioneers
<i>barga</i>	system of community management
<i>bargadars</i>	registered share cropper
<i>bank</i>	yoke for fish seed carriers
BDP	Basic Development Plan
<i>bheri</i>	Bengali name for commercial pond-based fish farm
<i>bigha</i>	unit of land measurement (7.5 <i>bigha</i> = 1 ha)
BLLRO	Block Land and Land Reforms Office
block	second smallest administrative unit in India, may cover one to ten <i>mouza</i> , there are 343 blocks in West Bengal
<i>cattah</i>	Bengali measure of area (20 <i>cattah</i> = 1 <i>bigha</i> )
CBO	Community-based Organisation
CEIP	Calcutta Environmental Improvement Project (ADB-DFID funded)
CEMSAP	Calcutta Environmental Management Strategy and Action Plan
CICFRI	Central Inland Capture Fisheries Research Institute
CIT	Calcutta Improvement Trust
CITU	Communist Party of India Trade Union
CLC	Calcutta Leather Complex
CMPO	Calcutta Metropolitan Planning Organisation
CMA	Calcutta Metropolitan Area
CMC	Calcutta Metropolitan Corporation
CMDA	Calcutta Metropolitan District Authority
CMWSA	Calcutta Metropolitan Water and Sanitation Authority
<i>crore</i>	Bengali expression for one hundred million (100,000,000)
CUSP	Calcutta Urban Services for the Poor (DFID funded)
<i>dadan</i>	Bengali expression for financial/credit advance
DFID	Department for International Development (UK Government)
DLLRO	District Land and Land Reforms Office
DoF	Department of Fisheries (now Department of Fisheries, Aquaculture, Aquatic Resources, and Fishing Harbours), GoWB
DoEF	Department of Environment and Forests, GoWB
DoIW	Department of Irrigation and Waterways, GoWB
Durga Puja	<i>Autumn festival for Hindus</i>
DWF	Dry Weather Flow
ECW	East Calcutta Wetlands
EMB	Eastern Metropolitan Bypass
EUS	Epizootic Ulcerative Syndrome
GAP	Ganga Action Plan
<i>ghat</i>	river jetty or steps down to a fishpond
GNS	Gantanrik Nagarik Samiti - Democratic Citizens Society (NGO)
GoI	Government of India
<i>goldars</i>	local Bengali term for agents trading fish seed
GoWB	Government of West Bengal
<i>Gram Panchayat</i>	elected local municipal body covering 10-15 villages
<i>hat</i>	local Bengali term for market
HIDCO	Housing and Industrial Development Corporation
IMC	Indian Major Carp
IWMED	Institute of Wetland Management and Ecological Design
<i>jheel</i>	small pond <2 ha
<i>kalbaishakhi</i>	pre-monsoon storms with high intensity rain from April-May
<i>khal</i>	Bengali term for a drainage channel

<i>khas</i>	vested land holding
<i>lakh</i>	Bengali expression for one hundred thousand (100,000)
LUDCP	Land Use Development and Control Plan
LURM	Land Use Registry Map
<i>maund</i>	Bengali unit of weight (1 <i>maund</i> = 37.3 kg)
<i>mouza</i>	smallest administrative unit in India, may cover one to ten villages
NEDECO	Netherlands Engineering Consultants
NGO	Non-government Organisation
NRD	National River Directorate
ODA	Overseas Development Administration (now DFID)
<i>paikers</i>	local Bengali term for ‘contract carriers’ who transport fish from <i>bheries</i> to auction markets
<i>pata bona</i>	handicraft involving weaving of palm leaves
<i>patta</i>	tilling right given to a sharecropper, a licence to till
pisciculture	local phrase for fish culture
Police Station	<i>Thana</i> or area of jurisdiction
PRA	Participatory Rural Appraisal
PS	Production System
PU	Peri-Urban
PUI	Peri-Urban Interface
PUBLIC	People United for Better Living in Calcutta (NGO)
<i>raiyata</i>	the right to sell land, although government retains ownership
<i>rupee</i> (Rs)	Indian currency (£1 = ~Rs70)
SC	Scheduled Caste
SDLLRO	Sub-Divisional Land and Land Reforms Office
SFDC	State Fisheries Development Corporation
SLMC	Salt Lake Municipal Corporation
ST	Scheduled Tribe
SWF	Storm Water Flow
tank	local term for small pond
VWSC	Village Water and Sanitation Committee
WB	World Bank
WBIDCO	West Bengal Industrial Development Corporation
WBSHB	West Bengal State Housing Board
WBSPB	West Bengal State Planning Board
WBSPCB	West Bengal State Pollution Control Board
WRR	Waste Recycling Region
WWF-India	World Wide Fund for nature - Indian Branch
<i>zaminder</i>	feudal land owner
<i>Zilla Parishad</i>	elected local municipal body governing ~10 <i>Gram Panchayats</i>

## 1. Introduction

In peri-urban Kolkata aquaculture, horticulture and paddy farming provide an important source of income-generating and subsistence activities for many people's livelihoods. The aim of our study is to explore and consolidate existing and new knowledge in relation to peri-urban farming practices. The first phase of the research consisted of a survey of local production systems which largely sought the views of farm managers (Bunting et al. 2002). The second phase of the study focuses on the perspectives of poor people whose livelihoods depend either directly or indirectly on these farming production systems. This paper presents the findings based on focus group and household interviews with poor people whose daily survival depends on their work and access to the resources of the fishponds and agricultural land.

At the first project workshop a range of occupational groups were identified as being some of the potentially most vulnerable people whose livelihoods are dependent on the wetlands (Bunting et al. 2001). It was recognised that at the intra-household level there can be a conflict for resources between men, women and children (Wolf 1997). Households are sites of cooperation, conflict and negotiation (Agarwal 1994; Kabeer 1994). Consequently members of households are affected in different ways by poverty. Thus, during the workshop, fishermen's wives were identified as a poorer group than fishermen because they are less likely to have regular incomes. It is important to bear in mind that not all household members have equal access to household resources such as income. As Kabeer points out "the subordination of personal needs in favour of the well-being of others appears to be systematically the property of the less powerful category of individuals (women and/or children)" (1994: 107). Hence, we need to recognise that unequal power relations within households result in a differential experience of poverty and vulnerability.

This explains why in this phase of the research we were keen to seek the views of women and young people as well as men. However, we also were aware of the problematic nature of disaggregating household level data which is often dominated by the perspectives of the male household head and does not necessarily reflect the concerns and attitudes of other family members (Moser 1994). Therefore it was decided that as well as carrying out household interviews, we would also conduct focus group interviews based on particular occupations but divided up according to gender and generation. Since India is predominantly a patriarchal society (Shurmer-Smith 2000), by carrying out a focus group with only women we could at least ensure that their views were not being oppressed by the more dominant social group of men. Similarly, a focus group with only girls or boys enabled the voices of young people to be heard without being overshadowed by more powerful adult social actors (see Harden et al. 2000). Nevertheless, it is undoubtedly important to recognise that these are not homogeneous groups, and that within each group of men, women or young people there is diversity and difference (Parpart 1995a).

Similarly, care needs to be taken not to homogenise the social groups that were identified in the workshop as being the poorest of the poor, which can lead to them being perceived as helpless and vulnerable. For example, Parpart argues that women from developing countries are often portrayed as "helpless victims trapped by tradition and incompetence in an endless cycle of poverty and despair" (1995a: 261). She suggests that it should not be assumed that women in developing countries are uniformly poor and unable to cope, but that their skills and coping



strategies should be explored. In our research an attempt was made to seek women and men's own views in order to reach a greater understanding of their everyday lived experiences.

In developing countries, children and young people work, often from an early age, and are important contributors to the survival of their household (Punch 2001; Schlemmer 2000). Consequently our aim was to include their perspectives of the opportunities and constraints of their livelihoods. The objective of this phase of the research was to interview the most vulnerable social groups who would be more likely to be affected by change and development in the wetlands of Kolkata. It was hoped that an exploration of some of the poorest livelihoods would reveal some of the key constraints which they have to confront on a daily or seasonal basis. By interviewing men, women, boys and girls an attempt was made to reach a more holistic perspective of how the benefits and limitations of the wetland production systems affect poor people's livelihoods.

## 2. Methods

Since the aim of this phase of the research was to tap into poor people's own views and understandings of their livelihoods, a qualitative approach was necessary (see also Kabeer 1994). Rather than assuming that individual behaviour is part of a unified household strategy, we aimed to seek the perspectives of men and women, girls and boys so that different "social actors can discuss their intentions, reasoning, choices and motives" (Wolf 1997: 130). As Wolf rightly recognises, the analysis of intra-household inequalities has taken place much less in Asia compared with Latin America and Africa. She argues that in Asia: "Qualitative and comparative data are needed, representing the voices, decisions, desires and acts of resistance of the unempowered, particularly females and the young" (Wolf 1997: 131). In our study, a combination of semi-structured household interviews and focus groups using participatory tools was considered an appropriate way of seeking the meanings which people attach to their own situation.

However, given the limited experience of the field researchers in conducting qualitative research, particularly using participatory techniques, it was decided, in consultation with our Indian partners, to design a slightly more structured set of research activities to facilitate discussions in the semi-structured group interviews. Whilst we recognised that this limited the extent of the active and flexible participation of the interviewees, it enhanced the likelihood of generating a more complete data set. Since in the first phase of the study the recommended participatory tools had not been conducted, it was felt that for the second phase their format would need to be more transparent and structured. Thus we chose to use chart-based tools which would facilitate data collection. Punch and Kundu (2002) present a review concerning the development, testing and use of the proposed tools.

The term 'participation' can be defined in a variety of ways (Chambers 1995; Nelson and Wright 1995). It is acknowledged that in this study men, women and young people did not participate fully throughout the research process but that they were encouraged to express their views freely. The aim of using more participatory techniques was to listen to their voices, enabling them to communicate their opinions (INTRAC 1997; Sapkota and Sharma 1996; Woodhead 1998).

Young reminds us that “the indicators by which people judge their own well-being are not necessarily the same as those of an outside observer” (1997: 368) which is why it is important to access poor people’s own perspectives. However, it is recognised that in our study their participation was limited to active involvement in data generation: participation as a means to tap into poor people's understandings of their lives rather than as an end to enable empowerment (Nelson and Wright 1995). French and Swain (1997) draw a useful distinction between 'emancipatory' research in which participants have control throughout the research process, and 'participatory' research in which they are actively involved in data generation, as in this study.

Given the right conditions, children and young people like adults are competent research participants and appreciate the opportunity to have their views taken seriously (Boyden and Ennew 1997; Christensen and James 2000; Guijt et al. 1994; Hart 1997). When conducting research with children we need to address our own 'adultist' assumptions as often it is our lack of competence at communicating with children rather than children's inability to express their opinions effectively (Punch 2002a). The challenge is how best to enable children, women and men to share their views with researchers (Johnson et. al 1998; PLA Notes 1996; Townsley 1996).

Consequently for this phase of the study much time was spent designing, piloting and then refining interview tools which would be most appropriate for seeking poor people's perceptions of their livelihoods (see Preston 1994; Punch and Preston 2001). As Nelson and Wright (1995) argue, if participatory research is to be effectively carried out, the role of researchers is vital in breaking down the unequal power relationships between the participants and the researchers in order to prioritise the 'strandpoint' of marginalised people (Razavi 2000). A workshop was held with our two main Indian partners and two of their researchers, followed by two subsequent field visits when all the researchers were present, in order to familiarise the research team with the participatory techniques of the focus groups and household interviews. However, whilst an attempt was made to sensitise the researchers to the open-ended nature of qualitative participatory research, it was difficult to convince them that qualitative data can be generated and analysed effectively to shed light on the ways in which poor people understand and explain their livelihoods. This confirms that the rhetoric of participation is often difficult to realise in practice (Nelson and Wright 1995). In developing countries there tends to be a lack of trained researchers who are sensitive to issues of gender and generation as well as having a reflexive understanding of power and participation (Parpart 1995a). As Parpart reminds us, the difficulties of truly listening to others in an open, interactive way should not be underestimated:

It requires the recognition that differences, and different voices, cannot just be heard, that language is powerful and that subjectivity (voices) are constructed and embedded in the complex experiential and discursive environments of daily life. Overcoming these barriers is not easy. (1995b: 239)

Participatory research also raises questions of power in relation to the internal hierarchy of the research team. For example, in our study it became apparent that the researchers were reticent about openly discussing the difficulties they faced in conducting the research in the field despite being encouraged to do so. They seemed to feel that if they revealed any concerns or problems it would reflect incompetence on their part. Retrospectively it is clear that more in-depth training

was required for field staff who were experienced in quantitative data collection in order to enable them to grasp the benefits and limitations of a more qualitative participatory approach.

One of the implications of this is that the data generated is perhaps not as rich and detailed as it could have been. As the focus groups were not tape-recorded and transcribed, it becomes difficult to capture the distinct voices within each group. The field notes were written up as detailed summaries of the discussions of the group as a whole rather than identifying the perspectives of the individuals. Thus many of the findings are presented as a result of the overall group discussion rather than being able to distinguish between the different perspectives of the participants in each group. Nevertheless, despite these limitations, the findings of this phase of the research highlight some of the key opportunities and constraints which poor people face when negotiating their livelihoods in the wetlands. It is acknowledged that the findings are limited to illustrating some of the main concerns and coping strategies which the poor employ in peri-urban Kolkata.

### 3. Focus groups

As mentioned, in this research phase the sample of focus groups was chosen as a result of a workshop discussion when participants identified some of the poorest groups of people who depend on peri-urban production systems in the wetland region (Bunting et al. 2001). In particular landless labourers, casual workers and fishermen's wives were suggested as having the most vulnerable livelihoods. Eighteen men, eighteen women, eleven boys and eight girls took part in nine focus groups based around their occupation (see Appendix 1).

The experiences of the fifty-five participants of the focus groups are considered to be broadly typical of poor people trying to make a living in the wetlands of Kolkata. However, generalisation and representation were not the central concerns for this second stage of the study. When comparisons are made between the perspectives of men and women or adults and young people, the results suggest the sorts of differences that may occur according to gender and generation, but does not claim that all adults and children or men and women will think differently in these same ways. Age and gender can interact in complex ways and Razavi (2000) reminds us that we need to recognise the difficulties of making meaningful comparisons of well-being between men and women. The main purpose of the second stage of our research is to show the ways in which poor people organise their livelihoods given the factors that constrain them. The study does not aim to make wider claims that all poor people in peri-urban Kolkata act in such a way, but offers empirical evidence of the sorts of strategies they may employ when negotiating their livelihoods.

#### 3.1. Benefits and limitations of occupation

One of the main activities of the focus groups was to discuss key aspects of their work, in particular by asking the groups to identify what they consider to be the main advantages and disadvantages of their occupation. Nearly all the focus groups were able to reveal more problems associated with their main livelihood rather than positive aspects. Overwhelmingly the key benefit to be gained from their occupation is the cash income it generates. However, most of the focus

groups perceive this income to be too small to meet their survival needs. In addition, the majority of the groups are working in temporary employment thereby facing the uncertainty of irregular income. The seasonal nature of much of the available waged labour places them in a precarious financial position. This reflects how poverty is often not purely about the amount of economic resources but about expectations of a level income in relation to issues of security and consistency.

There were not many marked differences in responses according to gender and age in relation to the benefits and constraints of specific occupations, except that women raised family welfare concerns whereas men did not. Perhaps unsurprisingly this reflects that women bear the main responsibility for the reproductive needs of the household (Pearson and Jackson 1998). The women who worked in the fisheries felt that their formal employment resulted in less time available for domestic work and caring for their children (they relied on informal child-care arrangements within the local community). Also it was only women who mentioned health-related issues that arise from their work such as insect bites and cuts from sickles. As well as identifying low wages and the irregularity of available work, the groups also identified production problems associated with their particular occupation and these will now be discussed in relation to each type of work.

### 3.1.1. Agricultural workers

One of the production difficulties they face is the high cost of inputs including seed, pesticides, and the cost of the irrigation pump. Each year they have to buy high yielding seeds as their own seeds are less resistant to the local salty soil, becoming easily discoloured and destroyed during rains. There are two paddy harvests a year, and during the rainy season there is no difficulty in watering the crop but the dry summer months require irrigation water from the sewage water canals. However, because of siltation in the canal beds, the water has to be pumped into the fields at a cost of Rs80 per *bigha* for a season.

According to these farmers, the advantage of using sewage water for irrigation is that it provides nutrients for the crop, thereby requiring less chemical fertilizers. The disadvantage of using sewage water is that more pesticides are needed as the paddy plants become infected by different pests and diseases. For example, a pest locally known as *shoshak poka* makes the plants turn white, losing chlorophyll; and another common disease is *jhalsa poka* which makes the plant reddish and burnt. The farmers also suggest that using sewage water weakens the taste of the final product.

Only two out of the seven men in this focus group (FG8) are full-time farmers owning up to ten *bighas* of paddy fields. The other five own much smaller plots of just one or two *bighas* and consequently combine their farming activities with waged labour in the local fisheries in order to sustain their families. Thus, for them, the main benefit of paddy cultivation is to provide for household subsistence needs. Any surpluses are sold in local markets but the farmers say that the decreasing price they receive for their rice has resulted in them being unable to rely solely on paddy cultivation for their livelihood. Similarly the female agricultural workers (FG 7) also combine paddy cultivation on small plots of lands with a range of other activities, including pig rearing and the sale of eggs from ducks and hens. In addition, they collect edible snails and leafy plants such as *shamuk*, *genri*, *gugli* from ponds; they sell these in the local market.

The focus groups with young people who engage in unpaid agricultural labour for their families recognise the importance of their contribution for the survival of their household. Their work means that their parents do not need to hire additional workers. However, whilst they participate towards the collective needs of their household, some of them suggested that the disadvantage of working unpaid for their family meant they did not receive an income for their own personal use. Children and young people actively participating in household livelihoods, often from quite an early age, is by no means uncommon, confirming the interdependent nature of parent-child relations (see also Punch 2002b; Shurmer-Smith 2000).

The group of young female agricultural workers who receive a wage for their labour, emphasised the seasonal and irregular nature of available work. Consequently, like all those interviewed working in agriculture, they diversify their livelihood strategy as they cannot survive solely by farming. These girls work as ragpickers on a local garbage site, particularly during the dry summer months when less farm work is available. However, the earnings from long hours of ragpicking a variety of coal, plastic and wooden materials are very meagre.

### 3.1.2. Fishery workers

According to the group of male fishery workers, the main production problems concern the decreasing fish supplies as a result of siltation, the presence of fish diseases during September and October, and the fluctuating supply of sewage which is less than the required levels (FG 9). The views of the female fishery workers (FG 4) coincide with those of the men's group regarding the financial benefits of having permanent work at the fishery. They perceive the security of receiving a regular income as the greatest advantage of their occupation even though they also consider that the wages are too low to meet their household needs. In addition, they appreciate receiving half pay during two months each year when there is no available work, although they are still extremely vulnerable during this time. Further benefits include sick pay and loans in times of crisis (paid back in instalments by reducing their future pay).

The young boys (FG 5) who worked in the *arat* in the fish market commented that their employment enabled them both to contribute to household survival as well as meeting some of their own individual needs. In particular, they perceived their work as enabling them to learn useful skills for their future. However, as Ramanathan points out: "Poverty and illiteracy combine to make child workers vulnerable" (2000: 147) and in particular it is their minority status which increases their vulnerability.

Whilst all the groups feel that they receive insufficient income from their main livelihood activity, they are very aware that even low wages are better than no access to earning a cash income. Their key underlying concern is over the security of their income-generating activities associated with the peri-urban wastewater systems. Their greatest fear is that their current employment or access to land may cease in the future if ponds and surrounding areas are sold to land developers. All the groups and households who participated in this second stage of the project, expressed their concern over the future of the wetlands and how plans for industrial or commercial development of the region may adversely affect their livelihoods and curtail their already limited opportunities for income-generation.

### 3.2. Constraints faced by poor communities

Apart from the constraints already mentioned in relation to their work, the respondents were asked what they consider to be the main problems that they have to confront in their lives. Each of these issues were written onto a separate card along with a visual symbol (since some of the participants lacked literacy skills). The group was also asked whether they considered other key issues (identified during the first project workshop and also written onto separate cards) to be problematic. Subsequently the group placed each of the cards in a ranking order indicating the degree to which they considered each issue to be a constraining factor in relation to their livelihoods. In order to compare responses between the groups, the highest problem ranked was given a score of ten, the second constraint was given a nine, etc. When the issue was not considered to be problematic by the group, it received no score at all. The problem with the highest overall total was considered to be most problematic across the range of focus groups (except the group of young males working in unpaid agriculture who did not complete this ranking exercise). Given the small sample and the qualitative nature of this phase of the research, it is inappropriate to attach extreme importance to the small variation between some of the problems identified. Nevertheless, the ranking exercise highlights the relative importance of different types of constraints that poor people working in peri-urban Kolkata face (see Table 3.1).

Table 3.1. Ranking of constraints faced by focus group participants

Constraint	FG 8	FG 7	FG 3	FG 1	FG 9	FG 5	FG 4	FG 2	Total
Insufficient income	10	10	10	10	10	7	10	10	77
Electricity	9	2	8	9	9	10	9	9	65
Health care	6	6	7	8	7	9	3	-	46
Alcohol consumption	5	7	5	7	-	8	8	5	45
Drinking water	8	9	9	4	-	-	6	8	44
Poor housing	-	5	4	6	-	6	7	7	35
Insufficient firewood	4	4	3	5	-	-	1	6	23
Sanitation	-	3	6	-	4	-	4	-	17
Transport	7	1	-	-	6	-	2	-	16
Poor roads	-	-	-	-	8	-	5	-	13
Access to credit	-	8	-	-	3	-	1	-	12
Education	3	1	-	-	5	-	-	-	9
Food security	-	-	-	-	-	-	-	-	0

Certain problems were ranked in similar positions and could be broadly grouped as follows:

**Major constraints:**

- 1) Insufficient income
- 2) Electricity
- 3) Health care
- 4) Alcohol consumption
- 5) Drinking water

**Middle-range constraints:**

- 6) Poor housing
- 7) Insufficient firewood
- 8) Sanitation
- 9) Transport
- 10) Poor roads
- 11) Access to credit
- 12) Education

Whilst they were ranking these constraints, the group discussion highlighted some of their coping strategies for dealing with such difficulties as well as their explanations for why each issue was problematic.

### 3.2.1 Insufficient income

Among all the factors which constrain poor people's livelihoods, the focus groups overwhelmingly identified insufficient income as the primary problem. As already discussed in the previous section, there are several inter-related factors which result in low incomes including limited access to land, lack of irrigation and price cuts in local produce as well as the problem of fluctuating incomes, seasonality and temporary employment. For example, the group of male farmers explained that recently the local price obtained for selling rice had dropped, resulting in less profit for the producers. This has led to some people decreasing or withdrawing from paddy cultivation and turning towards fish cultivation. According to them, this is why there are very few people involved only in paddy cultivation today. However, the people who are engaged in fishery work are also poorly paid resulting in an inadequate income to sustain their families.

The group of female farmers feel that their insufficient income is the root of many other problems. Their limited plots of land with a small pond produce two harvests per year but this is not enough to meet household survival needs. In particular they consider their input costs of seeds, fertilizers, and pesticides as a burden and the result is that not even their household's yearly rice consumption is met. Similarly, the young female agricultural workers also confirmed that the seasonality of agricultural labour was a constant problem especially during the summer months when they have no work at all. They resort to ragpicking at this time to etch out a living but they consider their earnings to be extremely meagre. The boys who worked in the *arat* felt that one of the main reasons why they engaged in paid work was because of the insufficient incomes of their families.

### 3.2.2 Electricity

Nearly all the groups consider the absence of electricity to be a central gap in their lives. Some of the participants live in areas where there is electricity along the main road or in the market place but other parts of the village continue to lack access to electricity in their homes. Some felt that

this is a major problem for them as they have to use batteries for watching television and listening to radio. Living in a peri-urban zone without access to electricity but knowing that in the central urban area most people do have electricity, possibly intensifies their sense of need. At night they use kerosene lamps but are unable to own other electrical goods (including labour-saving devices) without using expensive batteries to run them.

A lack of electricity can also affect their daily time-use. For example the children who work at the *arat* in the morning and attend school in the afternoon, find that they cannot do much studying at night, which is the time they are free to complete homework. Some of the groups had been trying to get electricity for their village, but their frustration has only been increased by failing to achieve their objectives. However, some women suggest that the existence of electricity would not solve their problems as they feel that they are too poor to be able to pay off the electricity bills. Hence they believe that it will only help the relatively better off families and this may contribute to increased disparities between richer and poorer households.

### 3.2.3 Health care

Most of the participants in this part of the study live in villages without a health centre and no medical assistance nearby. The male farmers' group explained that their nearest Public Health Centre is 10 kilometres away but is not considered to be of high standard. Their alternative is to travel further to the city of Kolkata, which is 12-14 kilometres away. This was a common problem across the groups interviewed. Many of them also commented that because of their low levels of nutritional intake and the strenuous manual labour that they undertake, they are often sick. For many of them working in temporary employment, this not only results in a lack of pay but they also have to meet the costs of travelling to a clinic. The fisherwomen's group suggested that having available medicine to buy in a local shop would at least help in less serious cases.

### 3.2.4 Alcohol consumption

All the groups, except the fishermen, considered the consumption of alcohol among men to be a major problem. When men are not working one of their main social activities is to meet and drink with friends and neighbours. It is quite a contentious issue and raised much debate in the focus groups. For example, some of the male farmers felt that the problem affects most of the households in their village, suggesting up to 90% of men drink alcohol regularly. However, others disagreed and after a while of arguing they were unable to agree on the matter. It is nevertheless interesting that two of the three focus groups with adult males considered the drinking of alcohol to be problematic, ranking it as the sixth problem which is a constraining factor for their livelihoods. However, this is by no means a problem that only affects men since women and children suffer financially when their husbands and fathers are spending much of their income on alcohol. Interviews with women and young people confirmed that men's consumption of alcohol negatively impacts upon the whole family, both financially and also because in some cases it leads to domestic violence (FG 1, FG 3, FG 5 and FG 7). The female farmers' group felt that one of the main reasons why their husbands drink is to enable them to forget their miseries. It certainly seems to be a fairly widespread local practice which has quite adverse affects on the whole household. This coincides with other research which has found that household income is not shared equally and that men's income is often used more for personal consumption such as



alcohol (Kabeer 1994). In contrast women's income is more likely to be utilised for collective household consumption needs.

### 3.2.5 Drinking water

The problem in relation to drinking water is mainly about quality not quantity. Six of the eight groups raised drinking water as a major problem and only one of them lacked access to a nearby tubewell (FG 7). For this group of agricultural women, drinking water posed an important problem as the tubewell in their area had been fixed eight years ago but was now not working again. This means that they have to travel some distance in search of water and are sometimes told that they have no right to access water from other tubewells. Consequently there are more concerned about quantity rather than the quality of water.

However, the other five groups consider the quality of drinking water to be problematic as they have sufficient numbers of tubewells within their villages. According to one group (FG 2), after a tubewell has been built it works well for two or three years but subsequently it produces poor quality water which they consider to be unsuitable for drinking. Two groups (FG 4, FG 8) suggested that because of financial constraints they tend to have shallow tubewells (30-50 feet deep) where the water contains high percentages of iron and other impurities. They say that this not only makes it almost undrinkable but it means that as a result of the presence of iron in the water most of the villagers suffer from stomach problems. Deep tubewells would solve these problems but only few tubewells, which are put in by the municipality, are deep (300 feet) and supply better quality water.

### 3.2.6 Poor housing

Six out of eight of the groups who responded to this question, ranked housing as a relatively major seasonal problem. Since their houses are made out of mud with roofs of thatched leaves and straw, they are very easily destroyed by rain and storms. Every rainy season their houses are likely to get damaged and have to be repaired, sometimes at the extra cost of paying for the help of hired labourers. In addition, since their houses are beside waterbodies, in the rainy months there is further danger of getting flooded, and some participants from the groups do not feel adequately secure during this time.

### 3.2.7 Insufficient firewood

Most of the farmers and fishery workers use firewood for cooking which becomes problematic during the wet season when it is very difficult to get dry firewood. The young migrant group do not have a problem with firewood as they use the dried stems of sunflower plants from their own fields. Others commented that as a substitute nowadays many people use kerosene stoves but only one or two households use gas. Most of the participants said that sometimes they have to buy firewood from the market. The fisherwomen claim that decreasing trees have created the shortage in firewood used for cooking. Buying firewood from the market costs Rs40 for a *maund* (a local measure by which firewood is given) which lasts for two weeks.

### 3.2.8 Sanitation

Although many of the participants in this research do not have proper toilets and sanitation facilities, they did not consider it to be a major constraint on their lives and there was not much discussion surrounding this issue.

### 3.2.9 Transport

Transport was raised as being problematic by four of the groups. According to the fisherwomen, there are not many cheap transport facilities available for local people. There are auto rickshaws but they consider them to be quite costly. Similarly within the village where the group of male farmers live, there is no public means of transport. As the village is large, it becomes very difficult for people of the interior parts to get to the main road, if they do not have personal vehicles. Most people do not own any form of transport; only a few people have bicycles and a privileged few have motorcycles.

### 3.2.10 Poor roads

Inner village roads are considered by two of the groups to be in very bad condition, particularly during the monsoon. According to one group, in the rainy season it becomes impossible to walk because they are in such a poor condition. Another group also explained that even the main roads which tend to be made of much better material such as brick can create problems because they are not properly maintained. Overall though, it is the interconnecting roads and the inner village roads that are in the worst condition.

### 3.2.11 Access to credit

Only three out of the eight groups raised lack of access to credit as a problem in their lives. The concern for these groups was that during times of financial need, such as having to buy agricultural inputs, their main option for borrowing money was to use moneylenders who charge a high rate of interest (approx 10%). In contrast, the women working in the fishery felt that this was one of the key benefits of their employment as they could seek small loans when needed from the management and they would pay this back in instalments which would be taken from their future wages.

### 3.2.12 Education

Perhaps surprisingly education was only raised as a problematic issue by three of the groups and even then it was not ranked as a major concern. A possible reason for this is that education has long-term rather than short-term effects so may not be considered as a major constraint which impacts upon their daily survival needs. Even though research has shown that level of education can have a positive effect on people's livelihood diversification skills (Ellis 1998), an individual may not immediately recognise this as a key factor in the everyday struggle for survival.

Nevertheless, the group of female agricultural labourers was extremely keen to educate their children and perceive education as a path towards a better future. All of the women in this group,

except for one, are illiterate and they feel that this places them in a vulnerable position where other people may try to take advantage of them. Consequently they do not want their children to face the same problems. Yet they are unsure whether they will be able to achieve their goals since they know that education comes at a price. There may not be any direct schooling costs in terms of fees but the indirect costs of buying books and materials can be costly. In addition, as another group mentioned, although there are local primary schools in their villages, there tend not to be any nearby high schools. Thus for children to continue on to secondary education additional transportation costs are required which can be too expensive for poor households.

### 3.2.13 Food security

Interestingly, none of the groups considered food security to be a particular problem. Most of the participants either had access to a small plot of land where they cultivated rice or owned a small fishpond or a number of small animals such as pigs and chickens. Even though hardly any of them produced enough food to provide for all the household subsistence requirements, they managed to produce a reasonable amount which was supplemented by purchase of local goods from the market (see also Section 3.4).

### 3.3. Divisions of labour

The focus groups were asked to complete a chart to indicate how they spend their time on a typical working day. The activity was fairly broad in order to ascertain the main activities which they are engaged in rather than to explore in detail intra-group differences (this was because of time constraints and it was hoped that further questions about the distribution of labour in households would be explored more fully in the household interviews). It also needs to be remembered that the times given for each activity are estimates based on the respondents' perceptions revealed in a one-off interview rather than a more accurate assessment based on accumulated monitoring or observation over a period of time. Thus it should be borne in mind that what people report they do, does not always reflect what they do in practice (see Punch 2001) and tends not to take into account multiple task activity (Jackson and Palmer-Jones 2000) such as food preparation whilst also tending to children. Nevertheless, the following findings highlight some interesting differences across and within groups.

Table 3.2 highlights some rather crude distinctions between the daily activities of men and women. Partly this may be a result of conducting the time use exercise in focus groups where more socially acceptable responses tend to be given in a group situation (Punch 2002a). Nonetheless it is interesting to note that none of the male groups mentioned that they undertook any domestic labour during their day. Whilst women clearly carry out a range of household activities including much time spent on food preparation, collecting water and firewood, and cleaning (see Duggan 1997). Since the female group of agricultural labourers work a total of 16 hours a day compared to the men's 8 hour working day, this illustrates how some women face a double burden of work, tending to work longer hours than men (Moser 1994).

Table 3.2. Daily time use chart of paid adult workers

Activity	Agricultural workers		Fishery workers		Cart pullers
	Male FG8	Female FG7	Male FG9	Female FG4	Male FG2
Agricultural/fishery work	8	8	7	4	10
Domestic work*	0	8	0	7	0
Leisure & social activities	4	0	4	1	2
Eating meals & resting	5	1	6	5	4
Total hours	17	17	17	17	16

\* Domestic work includes firewood and water collection, cleaning, cooking and childcare.

The group of agricultural women confirmed that in addition to their paid work, they have to do the entire household work by themselves, as their husbands do not contribute to domestic labour; they find fetching water to be a tiring activity, causing them to lose much energy. Furthermore, they have to tend to their household animals whenever they get time as the hens and ducks provide them with eggs that they sell in the market. As a result of their time-consuming responsibilities, they only prepare a large meal during the evening rather than a freshly cooked lunch and dinner. Their balancing of multiple demands on their time reinforces the findings of Kabeer's research in India (1994) when she found that it is women who are more likely to combine waged labour, income-replacing work (provision of fuel and water, care of livestock) and domestic labour (cooking, cleaning and child care).

Whilst the group of fisherwomen worked fewer formal hours in the fishery than men, by including their domestic labour, in total they worked four hours longer throughout the day than their male counterparts. It should also be pointed out that the male group of cart pullers work longer hours than either of the fishermen or male agricultural workers. This is because their earnings are relatively meagre: only ten rupees per trip to the vegetable market, thereby many trips have to be made for them to obtain their daily wage yet they also have to compete with other cart pullers to get business. Thus it can mean that much time is spent waiting in a line for their turn. Since they do not have access to even a small plot of land nor do they have regular secure work, they have to work longer hours in a very poorly paid job. Hence their lack of natural and financial capital means that they have to depend on their human capital (their ability to labour) for survival (see Carney 1998).

Since men tend not to participate in domestic work, they have more time available to dedicate to leisure activities (see Table 3.2). Some of them related that they spent their leisure time at the nearest market place that is considered to be the meeting place for villagers. Although they then added that only males come to gossip or discuss there, whilst females gossip at their neighbour's house. This highlights how men spend more time in the public sphere whilst women are more confined to the private sphere of the home. It also suggests that women's social time for gossiping with friends or relatives most likely coincides with other activities such as food preparation,

firewood collection or childcare. Moser argues that after work, men tend to rest or socialise with other men, but "In contrast to this, domestic labour has no clear demarcations between work and leisure; caring for young children is without beginning or end, (1994: 30)". Women may have little time to rest, except at night. This was the case for some of the women in our study, although others, who combined their unpaid household work with fewer hours in paid work, were able to gain a few hours of rest or social activity each day (see Table 3.2).

Table 3.3: Daily time use chart of children and young people

Activity	Unpaid agricultural workers		Young farmers	Fishery boys
	Male FG6	Female FG1	Female FG3	Male FG5
Agricultural/fishery work	10	5	7	4
Domestic work*	0	5	5	0
Leisure & social activities	4	2	0	3
Eating meals & resting	3	4	3	4
School	-	-	-	4
Total hours	17	16	15	15

As can be seen by the time use of the unpaid young people who work for their households, there is not a distinction between the number of hours worked by boys and girls (Table 3.3). The only difference is that boys work the full day engaged in agricultural activities whereas the girls combine their agricultural and domestic responsibilities. The young female agricultural workers (FG 3) suffer from the same dual burden as the adult women agricultural workers (FG 7), resulting in them working a long twelve hour day. The group of young boys work for four hours a day in the fish market, combining their work with time at school and play. This reduces the length of time they have to dedicate to leisure activities and homework every day but enables them to earn an income and contribute to the survival of their household.

### 3.4. Food security

Rice is the staple food in this region. Focus groups discussions revealed that rice is usually eaten twice or three times a day. Generally speaking the breakfast consists of *panta* (soaked rice from the night before) or tea with biscuits, bread (*rutu*) or puffed rice (*muri*). Mid-morning snacks include eating some bread, a cake or puffed rice with tea. At lunchtime most people tend to eat rice with *dal* (pulses) and vegetables usually with fish. Most of the participants at the focus groups manage to eat fish almost daily, whereas some said they only ate it about three times a week depending on their economic resources or availability of fish from their own ponds or wild fish caught from canals. The majority of people sometimes have eggs but, on the whole since it is expensive, meat is eaten only once a month or during festivals or special occasions.

In the evening rice and vegetable curry tend to be consumed again. Some women explained that few people prepare rice twice a day, so usually one of the meals (either in the evening or at lunchtime) is with the preserved rice (*panta*) rather than freshly cooked again. For some people this is because of a scarcity of firewood for cooking and for others it is also because of time constraints due to their other work commitments. There appears to be no marked seasonal fluctuations in their diet but their choice is restricted by a lack of financial resources that is why fish tends only to be eaten once a day and meat, usually chicken, just once a month. None of the focus groups felt they did not eat a sufficient quantity of food, but some indicated that the quality of food could be better. For example, the agricultural women consider that the nutritional intake of their food is not really sufficient to fulfil their daily energy requirements, as their working hours are long and strenuous. Women in particular tend to be responsible to fuelwood and water collection in addition to their other work activities, thereby increasing the physical arduousness and the burdensomeness of their daily work especially if they are undernourished (Jackson and Palmer-Jones 2000).

### 3.5. Financial assets

Only three of the nine focus groups (FG 5, 8 and 9) mentioned that they were able to make any financial savings. They all felt it was extremely hard to save when their income was so low, but two of the groups tried to save small amounts formally with the post office or commercial bank. However, the majority of participants considered their earnings to be too small to cover all their living expenses and production costs (especially agricultural inputs) that usually they were unable to save anything at all.

The fisherwomen's group suggested that it could be particularly difficult for households to save where only one adult member was generating an income, such as female-headed households who were widowed or their husbands had left them. Although interestingly women from this group who were the heads of single-parent households discussed how they had more autonomy and decision-making power in their position compared with other two-parent households. In particular they felt that the income they brought in to the home was more likely to be spent on other members of their household rather than on themselves which contrasted with their previous experience when their husbands lived with them. This coincides with other research in the developing world that has found that although female headed households tend to be amongst the poorest of the poor, some compensation is that family life can be more stable and secure, without the domination and potential abuse of male authority (Chant 1997).

Several groups commented that as there was very little scope of saving, it was also very difficult to plan ahead. In particular, they feel very vulnerable when there is a sudden cash requirement, such as a family health problem or they have to meet the expenses of a funeral or marriage. Several members of three of the groups (FG 1, FG 2, FG 8) felt they have no alternative but to approach a moneylender who charges high rates of interest (approx 10%). Some respondents said that their animals were their greatest assets, using them like a savings bank so that in times of financial crisis they would sell them. Others felt that they could turn to friends or neighbours to borrow small amounts. Those who worked in the fishery considered themselves lucky that they were able to borrow money from the management and could subsequently have it cut from their

pay in instalments. Whilst not everyone felt they could go to friends, relatives or neighbours for a financial loan, most people would turn to them for other kinds of help such as when in need of extra labour or to borrow tools for work. The exchange of labour, goods or tools in times of need would subsequently be reciprocated at some point in the future. As one participant indicated, if in the future people were to be dispersed from the wetlands, community ties would be weakened, breaking an important networks of informal support.

### 3.6. Change over time

The focus groups ended with a general discussion about changes in production systems or in their communities over the past 20-30 years that have affected their livelihoods. They also discussed their aspirations for future change and improvements that would facilitate their daily survival needs.

#### 3.6.1. Recent changes in livelihoods

Views across the focus groups were mixed in relation to the extent to which their livelihoods had improved in relation to structural changes in their local communities. The positive aspects of change that were mentioned by most of the groups included better roads, the introduction of tubewells, the building of concrete primary schools, more available food and an increase in available transport. The fisherwomen agreed that they seemed to experience a relatively better standard of living compared with twenty or thirty years ago although they found it difficult to judge whether people's real incomes had improved or not, or whether wages had just increased gradually over time (e.g. from Rs3.25 to Rs53.50 a day in the fishery). They all considered that there was a greater quantity of food available but it was unclear why exactly. In addition, they explained that production technology has improved with pumps being installed so for example irrigation can be used in the dry summer months.

However, the two groups of younger females (FG 3 and FG 1) pointed out that whilst changes have occurred, they tend to have benefited the better off households. For example, conditions of roads have improved by making brick-roads but such infrastructure has not affected their lives much. Whilst they recognise that better roads enables them to travel to the city in time of need (such as to go to a hospital) and that children can travel to study in schools more easily, transport is still costly for the poorest households. In addition, they fear that the construction of better roads increases the risk that the area will be developed further and may result in their lands being taken away. Some of them also commented that their wages may have increased but not as much as the prices of goods. Furthermore, the market offers such a wide variety of consumer goods to attract people but they cannot afford such luxuries when they cannot always meet their basic needs. Consequently whilst the increase in market choice is good for better-off households, it only reinforces the poverty of poorer households.

The female group of agricultural workers was also relatively negative about structural improvements in recent years because they felt that most of the positive changes had occurred alongside main roads. Their village is quite distant from the main road and they felt that improvements in roads, sanitation facilities and other basic services had not reached the more

isolated areas. The fishermen's group discussed production changes claiming that thirty years ago, the depth of the fisheries was five feet and the production of fish was very high. Over the past ten years fish production had declined rapidly as a result of the siltation of the canals and the fisheries.

Some men from the group of agricultural workers considered that the problem of alcohol consumption by men had been decreasing over recent years, possibly because of people becoming more educated and partly due to the cutting down of palm trees from which local liquor (*tari*) was made, replacing them with coconut trees. They argue that these coconut trees are more profitable since each part of the tree can be used locally. Moreover, they can generate an extra income by selling the coconut fruit in the market. They perceive the trees to be useful assets particularly because no other fruit trees can survive in the local salty soil.

### 3.6.2 Aspirations for future change

On the whole aspirations for future change that were discussed in the focus groups coincided with the problematic issues that they identified earlier as constraining their lives. Many of their key desires for change related to infrastructure needs and their lack of physical capital: electricity, drinking water, housing, transport and irrigation facilities (see Carney 1998). Many perceived that their lifestyles would be enriched by the introduction of electricity into their homes, more secure housing, improved conditions of roads and better transportation facilities. In addition, deeper tube wells would enhance the quality of their drinking water and irrigation facilities would enable them to cultivate their lands during the dry season. Thus by addressing the gaps in their physical capital assets, they would be better equipped to cope with meeting the daily demands of their livelihoods.

Furthermore, improvements to their human capital assets would increase their ability to pursue their livelihood choices, particularly by introducing local health centres or at least better access to medical assistance, but also by improving local knowledge through training and better education services. Finally, higher wages and access to credit facilities would directly improve their financial capital assets. However, whilst their incomes are low, the people who participated in this stage of our research have revealed that they depend heavily on the agricultural and fish resources of the wetlands for their survival and that they would be in an even more vulnerable position if their current livelihood options were removed. Hence their greatest fear is if the future development of the wetlands results in the withdrawal of access to their land or the termination of their employment in the fisheries. Thus whilst they may live on the margins of what they perceive to be an adequate lifestyle at present, they are aware that their livelihoods could become more precarious in the future if their sources of income-generating opportunities cease to exist.



## 4. Household interviews

As with tools developed for the focus group study, the initial approach for household interviews was refined and tested prior to implementation. For a detailed description of the tools and their development and testing refer to Punch and Kundu (2002). The targeting of households for inclusion in the study was guided primarily by outcomes from the first project workshop where selected groups of the poor dependent on farming activities in PU Kolkata were identified. However, the selection of individual households within these categories was largely random, although partially mediated through contacts and dialogue initiated during the situations analysis survey where access to some households was first negotiated. Of the 27 households visited, 9 represented households dependent either directly or indirectly on fish farming, 8 were dependent on agriculture, 5 were headed by nightguards, 2 were seed traders, and 1 household each were headed by a sweeper, garbage collector and auctioneer. Details of the individual households are presented in Appendix 2 and summarised in Table 4.1. In the 27 households interviewed, of 130 participants, 52 were classified as men (>16 years of age), 44 as women, 20 as girls and 14 as boys.

### 4.1. Composition of households that agreed to participate in the study

Household number (HH)	Household designation	Household composition <sup>1</sup>				Village*
		Men	Women	Girls	Boys	
10	Fish farming	4	3	1	1	nr. Bamunghata
11	Fish farming	1	1	1		nr. Bamunghata
12	Fish farming	2	1			nr. Bamunghata
13	Agricultural farmer	3	1			Dhapa
14	Sweeper	2	2	2		Dhapa
15	Nightguard	4	1			nr. Bamunghata
16	Garbage collector	2	2	1		Khanaberia
17	Nightguard	4	2		1	Kantatala
18	Nightguard	1	2	2	1	Kantatala
19	Seed trader	1	2	1		-
20	Seed trader	2	1	1		-
21	Vegetable grower	1	1			Arupota
22	Temporary fishery worker	1	1		1	Dakhin-Bamunghata
23	Vegetable seller	2	2			Arupota
24	Agricultural worker	1	1	1		Hatgaccha
25	Agricultural farmer	1	2	1		Dhapa
26	Nightguard	2	1		1	Dakhin-Bamunghata
27	Nightguard	2	2	1	1	Dakhin-Bamunghata
28	Fish farmer	1	2			Dakhin-Bamunghata
29	Agricultural worker		1	2	2	Khanaberia
30	Agricultural worker	1	1	1	1	Kantatala
31	Fish farmer	1	1	1	2	Dakhin-Bamunghata
32	Fish farmer	3	1			Dakhin-Bamunghata
33	Fish farmer	1	1	1		Dakhin-Bamunghata
34	Auctioneer	6	6	3	2	nr. Bamunghata
35	Agricultural worker		2		1	Dhapa
36	Fish farmer	3	1			Dakhin-Bamunghata

<sup>1</sup>participants <16 are referred to as girls and boys \*an outline description of villages is given in Appendix 3

#### 4.1. Household activities: benefits and limitations

##### 4.1.1. Households dependent on fish farming

Fish farming households considered in this study depend either directly or indirectly on fish cultivation in PU Kolkata. Direct dependence arises primarily through the production of fish in owned or leased ponds, for either subsistence needs or to generate income, or through temporary or permanent employment on fish farms at the PUI. Indirect dependence occurs largely through employment in associated activities, trading seed, producing fish feed, building boats and making nets, carrying fish to market and selling fish at wholesale and retail markets. This section deals primarily with households that depend directly on fish production to sustain a significant portion of their livelihood.

Table 4.2. Household production assets accessible to fishery workers

HH	Asset	Characteristics	Location	Comments
10	land animals ponds <i>arat</i>	Own house and 8-9 <i>bighas</i> of paddy land 4 cows 10-12 <i>bighas</i> of small ponds ( <i>jheels</i> ) small auction house	Hariponta Bamunghata, Rajnagar Bamunghata	ancestral property leased for 4-5 years
11	land ponds	own house 8-10 <i>bighas</i> of fishponds	Bamunghata, Rajnagar Bamunghata, Rajnagar	ancestral property leased
12	land ponds	own house 8-9 <i>bighas</i> of fishponds	Bamunghata, Rajnagar Bamunghata, Rajnagar	ancestral property leased
22	land	own house	Dakshin, Bamunghata	ancestral property
28	land ponds other	own house and 3-3 ½ <i>katha</i> land one taken on lease shop	Dakshin, Bamunghata Dakshin, Bamunghata Bamunghata Bajar	ancestors property joint family property
31	land animals other	own house 4 goats some palm and <i>sirish</i> trees	Dakshin, Bamunghata homestead homestead	ancestral property
32	land animals ponds	- own house - 1 <i>bigha</i> paddy field 4 cows, 1 goat 1 pond	- Dakshin, Bamunghata - Hanakhali homestead in the village	ancestors property shared by 6 brothers
33	land ponds	agricultural land of 2 <i>bighas</i> one 2 <i>bigha</i> pond	Hanakhali homestead	leased ancestral property
36	land animals ponds other	own house - 1.5 <i>bigha</i> pond taken on lease 3 coconut trees	- Dakshin, Bamunghata - Heder Bari to side of house	ancestral property - ancestral property

### *Household livelihood strategies*

HH10 - The income of this joint family depends mainly on the cultivation of fish in small ponds or *jheels*, however, they do not own these assets; several small water bodies with a total area of 10-12 *bighas* are taken on lease for 4-5 years (see Table 4.2). The rent for ponds in this area is Rs3,000 per *bigha* per year, with the total rent amount having to be paid in advance. Generally the family buys fingerlings and on-grows them to produce table fish that are sold through the auction market (*arat*) at Bamunghata. They cultivate several fish species, including Indian major carp (50%), tilapia (40%), silver carp and common carp. Cultivation of fish in *jheels* is possible for 7 months a year, for two months in the winter the pond is dried in preparation for the next crop. Apart from the ponds they lease, the family owns 8-9 *bighas* of paddy fields in Hariponta; it is only possible to cultivate paddy on this land once a year in the rainy season. They also own a small amount of low paddy lands in the village close to their house. On this land paddy is cultivated only in the summer months as in the rainy season it is inundated by water; fish is cultivated on this and when it is flooded. Rice produced on land close to the house is largely used for household consumption, while the *aman* rice (cultivated in the rainy season) is mainly sold at the market. The brothers have an auction centre or *arat* in Bamunghata market where fish from PU Kolkata is sold. In line with the prevailing arrangements at such markets the brothers take a 3% commission from the seller and 2% from the buyer.

HH11 - The only reported activity sustaining the livelihoods of those in the household was the cultivation of fish in 8-10 *bighas* of ponds taken on lease. Fingerlings are purchased from *goldars* (agents) and cultured for sale at the auction market. Although further enquiries were made concerning even limited earnings from other activities the family appeared to depend solely on producing fish.

HH12 - The household income comes mainly from culturing fish in *jheels* taken on lease (Table 4.2). Unlike households 10 and 11 that only produce fish for sale at the wholesale market in Bamunghata, this household also cultures some fingerlings for sale to nearby fish farms. Due to limited labour within the household the eldest brother usually engages some casual labour to help with fish farming related activities. The younger son is engaged temporarily in transporting fish, he works as a carrier in several fisheries, but mainly for the Chachoria Cooperative. His work is to transport table fish from the *bheries* to the auction market by bicycle; he sometimes also works as a temporary fisherman. He gets only a small income from these activities. According to the household members, his income is mostly spent on his expenditure for smoking.

HH22 - The head of the household is a temporary worker in a privately owned fish farm. However, this employment is highly seasonal and usually results in only 3 months work per year; he is employed to carry fish from the farm to the auction market at Bamunghata and earns Rs30-40 per day. As this is only a temporary job for the rest of the year he transports fish from Bamunghata market to the wholesalers in Choubaga market, or further a field to markets such as Khidirpur and Sealdaha in Kolkata. For this he earns Rs50-60 per day, depending on the distance to the market. When fish transportation work is unavailable he can sometimes find employment, at a roughly similar wage, helping a mason or undertaking

construction work. This is the case for much of the winter as harvesting work in the PU fish farms generally decreases or stops during this period. When asked why he didn't look for more secure employment in the construction industry he replied that he preferred to work transporting fish as it only involves 4-5 hours work per day, while construction site work requires 8 hours per day. Of all the households interviewed in this study and associated with fish farming, this was the only one that depends solely on temporary employment. In several cases temporary workers are the secondary earning members of a household, or other household members are present that are able to engage in supplementary subsistence or income generating activities, such as agriculture or work at an auction market. The reliance of this household on one income source appears to make them highly vulnerable, both to seasonal patterns in production activity and to unforeseen events such as illness.

HH28 - The head of the family is a member of a cooperative that runs a fish farm situated in PU Kolkata and as such has permanent employment; his wage is Rs245 per week. In addition to his salary he gets fish for household consumption everyday from the *bheri*. He has been a cooperative member for the past 2 years and prior to this he used to do the same work on a commission basis. He also used to have a share in a shop in nearby Bamunghata market, along with his 6 brothers, however, the shop has now closed due to a lack of finance. The household also have access to some small ponds which are taken on lease to culture fingerlings. Around two years ago he used to also cultivate some paddy land that was shared with some other producers, but because of falling profits and the greater effort required this arrangement was terminated.

HH31 - This household depends solely on earnings derived from working on a fish farm in PU Kolkata; the father earns Rs325 per week. In times of severe need, they sometimes sell their goats to obtain additional money. The household does own some palm trees and to earn some extra money they permit local *tarri* (alcoholic drink) makers to tap their trees, however, the income received is reportedly insignificant. In generally the condition of the household, their living accommodation and clothing suggested that they were poorer than the other fish farming households surveyed. This was attributed to the lack of a secondary income, although unlike HH22 there are more family members to support.

HH32 - The main income in the household has traditionally come from the father owing to his work as a permanent labourer in one of the PU fish farms. However, over the past year the eldest son has worked in a factory situated in Topsia that manufactures cooking sauce. Although only a temporary worker in the factory he earns around the same amount as his father (Rs315 per week). Apart from these jobs the household has access to 1 *bigha* of paddy land in Hanakhali; the father cultivates rice twice a year on this land, although sometimes requires the help of day labours. The field is irrigated with sewage water from the canal nearby, whilst the rice grown is only for domestic use. Regarding livestock they have 4 cows and a goat, this helps by providing milk for household consumption. The cows also supply dung that is used as fuel for cooking, whilst the in time of need the goat can be sold.

HH33 - The main income is obtained by the head of the family from employment on a local fish farm. An ancestral pond with an area of 2 *bighas* is used to produce fish to fulfil the needs of the family and to sell in the market to generate some additional income. Fish culture requires

an annual investment in production inputs such as seed and feed. The household also leases a 2 *bigha* plot of paddy land; rice produced on this land goes to meet the subsistence needs of the family with any surplus being sold at market. According to the household the cultivation of rice is not profitable.

HH36 - The head of the family used to work as a labourer on a fish farm, however, due to health problems he was forced to retire from the job, which instead passed to his eldest son. Now, the eldest son is the main earning member of the household; his younger brother works as a helper at a tea-stall and receives Rs150 per month. The elder brother gets Rs325 per week for his work. By letting out their fishpond, the family gets a further Rs5,000 per year. During the course of a conversation with a relative after the interview, it transpired that the family also jointly owned another fishpond, which each of the joint owners takes turns in cultivating.

### *Summary*

Although the selection of households was guided by their general dependence on fish farming it was apparent that for many their involvement in this sector was varied, whilst other livelihood activities were often also important. The dependence of households on fish farming arises largely from leasing or owning ponds that are used to produce fish or from working on larger fish farms in PU Kolkata. However, in most cases households also farmed other land owned by the family to produce vegetables and rice for subsistence, with any surplus being sold. One household noted how they used to lease a further area of land to farm rice, but had terminated the agreement due to declining returns. Other households in the study also noted how the profitability of rice production had recently declined. In some cases younger male household members have also entered into employment unrelated to agriculture, for example, in the construction, manufacturing or service sectors. Such diversification was reportedly in response to seasonal labour demands and vulnerability associated with fish production in PU Kolkata. Declines in the amount of fish harvested during the winter months mean producers and labourers have sometimes to find work on other farms, transporting produce to and from market and in unrelated livelihood activities. The seasonal pattern of fish production also means income and the requirement for inputs varies throughout the year, and in times of financial difficulty some producers are forced to take loans from moneylenders. For households with members employed on larger fish farms, particularly where they are cooperative members, there appear to be several advantages. In addition to a regular salary, labourers are sometimes given fish for household consumption and receive bonuses; they can also often take interest free loans. For temporary labourers, however, there are a number of concerns, they receive no sick leave, health insurance, pension or annual leave, while their general situation remains insecure, and often they are without employment (see Table 4.3).

Table 4.3. Advantages and disadvantages to main household income generating and subsistence activities for fishery workers

HH	Livelihood strategy	Weight	Subsistence/ market or both	Whose responsibility	Advantages	Disadvantages	Seasonal changes
10	Fish cultivation in <i>jheels</i>	1	Mainly for market	Eldest brother	Main earning for the family	Large sum is paid as rent for the ponds. Quality of sewage water used in the ponds has declined. The fishing is totally stopped in winter months	5 months gap in winter
	<i>Arat</i> (auctioneer)	2		Two eldest brothers	Extra income base for the family	Solely depends on the production of the fisheries and <i>jheels</i> , which is declining continuously	
	Paddy cultivation	3	Both for subsistence and market	All the brothers	Used for household consumption, no need to buy rice	Less profitable due to large expense on inputs and low price of the rice produced	Once per year, in some fields in summer, while in others in the rainy season
11	Fish cultivation	1	Mainly for market	Head of the family	Provides income for the entire family	Income is not regular	Stop entirely for 5 months in the winter
12	Fish culture	1	Most marketed, rest for subsistence	Son 1	Generate income for the family	Large amount has to pay for lease	5 months lean season in winter
	Temporary fish carrier	2		Son 2	Get substitute income	Not regular income	
22	Temporary fishery worker	1		Head of family	Needs less time and labour	No regular income	Only 3 months in a year
	Fish-carrier to the wholesaler	2			Needs less time and labour	Not always available	When available
	Construction work	3			Earns extra income in lean season	Whole day labour needed	In winter months

28	Working in the fishery	1	The fish produced is totally for market use		- Main advantage is the regular monthly income - Two holidays in a month and national holidays	- Present wage too low for family subsistence; no pay if unable to work; no medical leave; wages depend on fish production which fluctuates Only done part time therefore given less importance	
	Working in leased <i>jheels</i>	2					No work in winter
31	Permanent worker in <i>bheri</i>	1		Head of the household	Regular income	No sick leave	Fishing in <i>bheri</i> as a permanent worker.
	Occasionally sells goats	2			- Serves in times of needs - Milk from goats is used for household consumption	Some time has to be spent for rearing the animals	Occasionally sells goats
32	Working in fishery	1		Father	Regular income		
	Temporary worker in sauce factory	1		Son 1	Helps in sustaining the family	- Not a permanent job. - Incurred transport cost due to distance	
	Paddy cultivation	2	Subsistence	Father			Twice a year
33	Working in fishery	1		Head of the family	Regular income	No work, no pay	Throughout the year
	Fishing in ponds	2	Subsistence & market		Get extra income and household supply of fish	Needs extra money for fish seeds and fish feed.	No production in winter
	Paddy cultivation	3	Subsistence & surplus for market		Supply of rice for own consumption	Not profitable	Cultivated twice a year
36	Working in fishery	1		Eldest son	Regular income	No work, no pay.	
	Income from letting pond	2		-	Receive a lump sum	-	
	Work at tea stall	3		Younger brother	Helps by providing extra income for the family.	Work hard for a long time to receive a small amount.	

#### 4.1.2. Households dependent on agriculture

Poor households largely dependent on agricultural production in PU Kolkata were invited to participate in the study from four villages, Arupota, Hatgacha, Kantatala and Khanaberia. All but one of the eight households interviewed either owned or leased some land on which they cultivated vegetables. Table 4.4 shows the amounts of land owned or leased by different households and the other production related assets to which they have access; in the case of land taken on lease it is mostly for periods of only 1-2 years.

Table 4.4. Household production assets accessible to agricultural labourers

HH	Asset	Characteristics	Location	Comments
13	land	- 3 <i>bighas</i> of own land - two plots of 15 and 10 <i>kathas</i> taken on one-year lease	Dhapa	- own land inherited from father - one year lease taken from family needing money
21	land	1.5 <i>bighas</i> of vegetable farms in 3 parts	Arupota, Dhapa	taken on lease for past two years
23	land	1.5 <i>bighas</i> of vegetable farms	Arupota, Dhapa	taken on lease for past two years
24	land	16 <i>kathas</i> of own land with own house	Bagdoba, Bamunghata	inherited
25	land animals	- some hens, goats and pigs	Dhapa homestead	vested 15-20 years ago bought from local animal sellers
29	land	1.5 <i>bighas</i> of vegetable farm	Village - Khanaberia	Vested land
30	land animals ponds	Total 3 <i>bighas</i> of land for housing, fishpond and paddy 1 duck, 2 hens By the side of hut, total area of hut and pond is 10 <i>kathas</i>	Kantatala, Natunpara homestead Kantatala, Natunpara	vested 15-20 years ago Part of the vested land
35	-	-	-	-

#### *Household livelihood strategies*

HH13 - The main activity sustaining this household is the production of vegetables on 3 *bighas* of land they own and 25 *kathas* taken on lease. The husband and wife do the bulk of the farm work whilst the younger son helps whenever needed; usually this son stays at home and does much of the household work. Comparative returns from the leased land are less than those from the land they own, an initial fee of Rs1,000 is required to establish the lease whilst a *korpa* (rent) of Rs2,000 per year must also be paid. According to the family they have been



farming in a similar fashion for several generations, however, a significant change has been that they have not used garbage for the past 7 years, as their land is distant from the road. The process of accessing garbage has also become very cumbersome, arrangements can no longer be made directly with the truck drivers, and instead they now have to register their names at the party office in order to receive deliveries. The family also reported that even when the formalities had been completed, the garbage deliveries usually arrive too late to be applied to the fields at the correct time. Limited access to irrigation water during the winter also constitutes a major concern for the family, during this period the *jheels* from where they usually draw their water are dry. To irrigate their fields, water must be pumped from the *jheels* and to hire a pump for this purpose costs on average Rs150 per *bigha* per year, in times of water scarcity water must be transferred from more distant *jheels* at a cost at an additional cost of Rs140 per *bigha* per year.

HH21 - This household considered their major livelihood activity to be vegetable gardening on 3 plots of land taken on lease from other farmers who also live in Arupota; all the plots are within walking distance of their village. The total area of land they lease in the Dhapa garbage farming area is 1.5 *bighas*. According to the family they earn enough money from this activity to live. At present the husband and wife are the only members of the household; they have two daughters who are now married. When the couple has attended to all the tasks on their land they work as labourers on neighbouring farms; the husband can earn Rs60 per day and the wife Rs40 per day.

HH23 - According to this family the most important activity sustaining the household is the selling of vegetables at the market in Behala. The father and the son buy vegetables in the afternoon directly from other growers in the Dhapa area; these are put in bundles and left by the main road near the village; other traders follow a similar approach and collectively they hire a watchman to guard the vegetables, each paying Rs10 for his service. In the morning they transport the vegetables to Behala market. When dealing with small quantities of vegetables they employ their cycle-van for transport, during peak periods, for example, when the cauliflower harvest is in progress, they rent a truck to take the produce to market. Behala market is distant from the village on the southern outskirts of Kolkata city. The family owns a stall in the market where they sell the vegetables to consumers in the morning. Vegetables that are not sold in the morning are sold on to other retailers in the market who will try and sell them in afternoon. The mother is responsible for growing vegetables on the households 1.5 *bighas* of leased land; the family has leased these plots for the last two years. She cultivates the full range of vegetables grown in the region and due to the intensive nature of the cropping pattern usually has to engage some female labourers during labour intensive periods. She told us that as she has to look after the farm and her husband and son are usually busy with other activities, she prefers to engage female labourers, although male labourers are taken very occasionally, for example, to plough the land.

HH24 - The family reported that they are totally dependent on agriculture for their livelihood. The wife works as an agricultural labourer in Dhapa cultivating vegetables, her husband works on his own land. According to the family members production from their own land is not sufficient to sustain the family, consequently the wife has to work in the fields. She receives Rs40 per day and in general works the same land, however, sometimes is forced to look for

work elsewhere. According to her the work is very hard and she must travel a long distance. Cultivation of rice on their land is also constrained by limited access to irrigation water in the winter.

HH25 - We find that the father has two main livelihood activities, working both as a labourer in a PU fish farm and on land vested to the family 15-20 years ago. Originally the plot of land in Dhapa was given to the farmer as a share from a larger family holding; the farmer is able to cultivate the land throughout the year. The father said he was accustomed to working for a living, as he had to raise his two daughters single-handed. However, the income from growing vegetables is not sufficient to provide well for his family, and consequently he has worked for several years on fish farms around Dhapa. The eldest daughter is quite well educated and now works for a children's charity that pays her Rs200 a month. The father was a highly devoted person, singing hymns in most of his leisure time. The family also own some livestock but this was not considered a significant factor contributing to household income or subsistence.

HH29 - As the father no longer lives with the family the mother is the head of the household (they did not want to disclose the reason). They have a 1.5 *bigha* plot of land by the side of the sewage canal where they cultivate several vegetables for most of the year. As a secondary livelihood activity the mother goes out everyday in the fields around Dhapa to collect things of value, such as rubber, metallic objects, coal and charcoal from garbage spread on the fields. Items scavenged from the fields are sold at a negligible price, for instance, 1 kg of rubber shoe soles may only fetch Rs1, but at least she feels able to help sustain her family. She has three sons and two daughters but her eldest son has left home and lives separately. The youngest son is reportedly reluctant to engage in work, although his mother forces him to work their land; his elder brother works as a casual fish transporter. The eldest daughter both helps the mother with household chores and works in the agricultural fields. The youngest daughter goes to school although during the interview she was too shy to speak.

HH30 - Due to the severe illness of her husband the wife is the only one able to engage in paid work and earn an income for the household. During the peak agricultural season she works as a labourer in the fields, at other times she collects wild edible green vegetables to sell in local markets, she also sells the eggs produced by their duck and hens. To meet household subsistence needs the family grow their own rice and culture some fish in the fishpond at the side of their house. The pond is also used bathing, washing clothes and utensils and for other household purposes, despite being filled with sewage water, the family do not face any ill effects as after leaving it for a few days, the water clears and is deemed safe. The children are too young to work and the daughter studies at the village primary school.

HH35 - Using their contacts the family migrated from Bangladesh and settled in Dhapa around a year ago. The ladies husband died two years ago and it was to overcome various troubles they faced in Bangladesh that they migrated. Mother and daughter both work on vegetable farms and receive wages of Rs30 per day, as they generally work for the same farmer and are engaged in similar tasks, so their pay remains largely the same; although overall depends on how many days they work. Their salary is lower than the ordinary rate paid to labourers. The son, aged 12, has been admitted to a free primary school, but the family must meet the cost of books and notebooks.

Table 4.5. Advantages and disadvantages to main household income generating and subsistence activities for agricultural workers

HH	Livelihood strategy	Weight	Subsistence/ market or both	Whose responsibility	Advantages	Disadvantages	Seasonal changes
13	Work in fields	1	For market only	Husband, wife and sometimes younger son	Income for subsistence	Garbage availability is a big problem; due to lack of roads garbage trucks ruin other farms when going to inner areas so farmers don't allow trucks on their land. Income is low in winter when farming all but stops.	In winter farming is less due to the shortage of water
	Van puller	2		Elder son	Gets an income, which helps. Besides they do not need any other van for transportation of their own produce		
21	Vegetable gardening	1	Mainly for market	Both husband and wife	Main income of the family	Requires hard labour. Uncertainty of income due to price fluctuations, high price of inputs	2-3 months gap in summer season
	Agricultural labourer	2		Husband and wife	Substitute income	Wages are less	2-3 months gap in summer season
23	Vegetable selling (retail)	1		Father and son	Main income of the family	Have to spend on transportation costs	
	Vegetable farming	2	Mainly for market	Mainly the mother	Provides a good income if production is sufficient and the price good.	Requires hard labour, income uncertain due to price fluctuations & high input cost	2-3 months gap in summer season
24	Agricultural work	1		Wife	Provides an income	Has to travel a long distance and work hard	In the months when there is no farming there is no work due to no water
	Paddy cultivation	2		Husband	Subsistence food		When no water is there no farming is possible

25	Work as agricultural farmer	1	Market	Husband	Income for subsistence.	Not regular income. Income in insufficient for the family.	In a year about four months during the summer agriculture has to be stopped due to lack of water in the <i>jheels</i> . Only leafy vegetables are grown as they require less water. Work has to be stopped during the summer because of lack of water.
	Work as fisherman	2		Husband			
29	Agricultural worker	1	Subsistence and market	Mother		Uncertainty of income due to price fluctuations, high price of inputs	Two months every year there is no work
	Fish seed transporter	2	Only for market	Son 1	Source of money	Income is not regular and uncertain	
	Rag picking on garbage dump	3	For market	Mother	An extra income	Income earned dose not justify the labour involved	
30	Work as agricultural labourer	1		Wife	Income for subsistence	Not regular income. Income in insufficient for the family	Gets work for only 10 days in a season. There are two seasons in a year Twice in a year
	Paddy cultivation	2	For subsistence only	Wife	Provides part of the total rice consumption, which means that during those times they do not have to buy rice	Cannot feed the family all the year round	
	Fish cultivation	3	Mainly for subsistence	Wife	Provides for the family consumption		
35	Agricultural worker	1		Mother	Work provides an income	Had to come so far from homeland to work	
	Agricultural worker	1		Daughter	Get work always as they are kept at a farmer's place for all of a year since they have come from Bangladesh		

## *Summary*

For households dependent on agriculture, most grow vegetables on their own land, and having completed the necessary tasks family members, both male and female, look for employment opportunities on neighbouring farms. The main constraint facing producers is the seasonal lack of irrigation water (Table 4.5). During periods of water scarcity family members also look for alternative income generating opportunities unrelated to agriculture, for example scavenging for items of value contained in garbage spread on fields in the area. However, due to difficulties in accessing garbage and a shift to more inorganic fertiliser, even such basic livelihood opportunities as scavenging are threatened. Several farmers reported that the process of taking land on lease was also deterring them from entering into future agreements, in addition to an advance payment there is the annual rent to pay, however, farmers in the region face a number of problems, including the weather, uncertainty over the supply of wastewater and possible disease problems, consequently several farmers wished to avoid possible risks by avoiding taking land on lease in the future; instead they will work for other farmers in the region or move to another occupation.

### 4.1.3. Nightguards

Nightguards that agreed to participate in this study came from three locations, the villages of Kantatala and Dakshin-Bamunghata and one unnamed settlement just north of the Basanti Road near to Bamunghata. Owing to the perceived threat from poachers in PU Kolkata a large number of guards are employed by fish farm managers to protect the farms at night. Due to the nature of the job only men are employed as nightguards. Although characterised by their dependence on one family member being employed as a nightguard, all the households interviewed were engaged in other farming related livelihood activities (Table 4.6). This largely reflects the type of assets owned by the households interviewed but also the legacy of past programmes of land reform and the livelihood opportunities available in PU Kolkata.

### *Household livelihood strategies*

HH15 - The head of the family manages the guards serving Chacharia Fishermens' Cooperative, with this post he receives a wage of Rs45 per day; he is also a member of this cooperative. Of the three main livelihood activities of the household the family considered this waged labour most important. The household also owns 2 *bighas* of ponds and leases a further 6 *bighas*, these water bodies are used to culture both fingerlings for sale to other producers and table fish for sale in the market. The family also owns some land in Hanakhali where paddy is grown twice a year; rice harvested from this land is used to meet the subsistence needs of the family, with any surplus being sold to wholesalers who visit their village.

Table 4.6. Household production assets accessible to nightguards

HH	Asset	Characteristics	Location	Comments
15	Land Ponds	2 <i>bighas</i> of paddy field 8 <i>bighas</i> of ponds	Hanakhali Village- Bamunghata, Rajnagar	Vested property Own pond - 2 <i>bighas</i> , and leased ponds - 6 <i>bighas</i> .
17	Land Animals Pond Other	10 <i>katha</i> of agricultural lands 3 hens 1 - one power tiller - 17 coconut trees	Village - Kantatala Within the household Near the house - on the pond bank	Vested lands - Own - recently bought with bank loan
18	Land Pond	4 <i>bighas</i> of paddy field One pond- 5 <i>katha</i>	Village - Kantatala Village - Kantatala	Ancestral property, join share with 3 brothers Ancestral property, join share with 3 brothers
26	Land Animals	- own house - 1 <i>bigha</i> of shared paddy land 1 cow	- Dakhin Bamunghata - Hanakhali In the house	- ancestral property - shared cultivation with owner
27	Land Animals	1 <i>bigha</i> paddy field 3 goats, 1 cow	Hanakhali In the household	Ancestors property Newly bought

HH17 - The main livelihood activity identified by the household was the employment of the father as a nightguard on a PU fish farm; his wage was reportedly Rs40 per day and this is paid weekly. In addition there is a yearly bonus available just prior to *Durga Puja* (the main festival in West Bengal). This year he received a bonus of Rs2,000 and over the past few years this has tended to increase by 10% per year. The guard also receives a monthly allowance of 2 kg of fish for household consumption from the fish farm. After leaving school in the middle of his studies the eldest son is now earning a wage for the household by working in a plastic factory situated in Topsia; his wage is Rs50 per day. Although his wage is greater than his father he must spend Rs10 per day on travel. The next most important livelihood strategy mentioned by the household was paddy cultivation. Rice can be grown on their 10 *bighas* of land twice a year. After meeting the subsistence needs of the household the remaining rice is sold to visiting wholesalers. There is a small pond close to their house in which they culture fish, mainly for household consumption. Culturing fish in their pond does not demand much labour, only requiring them to introduce some fingerlings. The members of the household catch fish from the pond as and when necessary. Hens are generally kept to provide eggs for household consumption, any excess being sold to friends and neighbours, thus earning some extra income. Recently the family bought a power tiller to cultivate their paddy fields, to finance this they had to take a bank loan. They also rent the tiller to other farmers in the village, charging Rs110 per hour, thus generating additional income.

HH18 - The family considered the main livelihood activity to be the job of the household head as a nightguard, for which he receives Rs280 per week. There is also a yearly bonus paid during the main festival period, and this year it was Rs2,000, an increase of 10% over the previous year. The household also has access to 4 *bighas* of paddy land where it is possible to cultivate rice twice a year. Three brothers, all of who now live separately, jointly own this land, with any production being divided equally between them. For this reason, the family commented that production on this land is not sufficient to feed all members of the household, at certain times they are forced to buy additional rice from the market. However, they also commented that excess rice is sold to earn extra income. Although the fishpond, like the land, is the joint property of the three brothers, as their mother lives with the youngest brother's family, they generally use it to cultivate fish, although some fish is distributed to the extended family.

HH26 - Previously, the father was engaged as a nightguard on a fish farm, however, due to illness he is no longer able to work. The post of nightguard was transferred to the eldest son, who is now the main earning member of the family; he gets Rs40 per day. He also earns extra money by carrying fish harvested from the ponds to the *arat*, he receives a rate of Rs7 per trip. The youngest son, who is still a student, also works as a *paikar* on a casual basis, transporting fish from the *bheri* to the auction market. There are 34 such *paikars* engaged by the fishery, and they share the commission of Rs1.25 kg<sup>-1</sup> paid on the fish. Rice obtained from the paddy field is usually used for household consumption. However, as they share responsibility for cultivation with the landowner, half the crop has to be given to him; rice harvested from their land is only sufficient to feed the family for 2-3 months, for the rest of the year they must buy it from the market.

HH27 - On arriving at the house we discovered that the head of the family had only recently passed away. However, as the head of the family had previously agreed to the interview the family were keen to proceed with the discussion. Prior to his passing the head of the family had worked as a nightguard and this was the main income source for the household. As is customary, the position of nightguard will pass to another family member, in this case the youngest son, therefore, the family will continue to depend on PU fish farming for their major source of income. The youngest son used to work at the Bamunghata auction market, supplying water to individual auctioneers. The eldest son now works as a mason on a contract basis, previously he used to work as a labourer, but after seeing his excellent work he was given the opportunity to become a mason by his employer.

### *Summary*

Households where one family member is engaged as a nightguard on a PU fish farm regarded this as the most important activity sustaining their livelihood. In addition to a fixed salary, nightguards also receive an annual bonus and often a monthly allowance of fish for their household, and it was mentioned that during the day the guards are free to engage in other livelihood activities. Although there are benefits associated with the position of nightguard several participants noted how in fact it is a hazardous profession due to the risk of injury and death from tackling poachers.

Table 4.7. Advantages and disadvantages to main household income generating and subsistence activities for nightguards

HH	Livelihood strategy	Weight	Subsistence/ market or both	Whose responsibility	Advantages	Disadvantages	Seasonal changes
15	Managing the fishery guards	1		Head of household	Regular income	Live risks are there due to the poachers	
	Fish cultivation in <i>jheels</i>	2	Mainly for market, but some for subsistence	Head of household, but son 2 sometimes looks after the ponds.	Extra income base for the family	High payment for the leases ponds has to pay	Totally stops for 5 months in winter
	Paddy cultivation	3	Mainly for subsistence, surplus is sold	Head of the household.	No need to buy rice for household consumption	Production is not profitable as the input costs much more than the output	Two seasons a year
17	Night duty in fishery	1		Head of the family	Regular income base	Life risk due to the poachers and fear of snakebite in rainy season	
	Works in plastic factory	2		Son 1	Regular income base	Not a permanent position	
	Paddy cultivation	3	Both subsistence and market	Head of the family	Get extra income, and also supply household needs	Not very profitable, due to high price of the inputs	Twice a year.
	Fish culture in pond	4	Mainly for subsistence	Head of the family	Supply fish for household consumption		
18	Night duty in fishery	1			Regular income	Life risks due to poachers and snakes	
	Paddy cultivation	2	Both subsistence and market		Rice for subsistence is available, no need to buy rice	Does not feed the family totally, and there is a chance of crop damage and loss	Twice a year
	Fish culture in pond	3	Mainly for subsistence		Supply fish for home		



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26	Working as a nightguard	1		Eldest brother	Regular income	Life risk due to attacks of poacher. If he fails to reciprocate at the supervisor's call, the wage is not given for that night	
	Paddy cultivation	2	Subsistence only		No need to buy rice	Only 50% of the paddy can be used by them	Cultivated twice a year
	Fish carrier	3		Both the brothers	Side income	It leads to physical exhaustion	
27	Nightguard in a <i>bheri</i>	1		Father (now will be replaced by youngest son)	Regular income is helpful	The risk of life due to poachers	
	As a contracted mason	2		Elder son	Good income when there is work	Not on regular basis	
	Paddy cultivation	3	Subsistence	All male members	Fulfils family need of rice at least for a few months	Input and labour costs are greater than income received	Cultivated twice a year
	Labour at <i>arat</i>	4		Youngest son	Knowledge acquired from the market, whilst pocket money is an added advantage	Income is very low	

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Several of the households interviewed reported that fish and rice production using ponds and land they owned was also an important component of their livelihood; the ponds and land in question had usually been inherited or given to the family by the government as part of their land reforms programme. During the day the nightguard and other male family members reportedly undertake tasks related to household level fish and paddy cultivation. In several cases family members were also employed in activities such as carrying fish to market, or urban based activities such as construction and factory work. In the case of the factory worker the additional income was seen as a definite advantage, however, the cost of travel to and from work was noted as a problem, while the opportunity cost for labour involved and associated transaction costs also require consideration. The purchase and subsequent hiring out of a power tiller by one household also shows there are opportunities for families to diversify their livelihood activities, however, there are definite risks associated with such enterprises.

#### 4.1.4. Seed traders

Seed trader households that agreed to participate in this study were included in the study as they are largely dependent on transporting fish seed from areas such as Bandel to fish farms in PU Kolkata (see Milwain, 2001). The occupation of a seed trader involves travelling long distances, often with overnight stays; consequently it is usually the male family members the carry out this work. Information presented in Table 4.8 shows that the two seed trader households interviewed do not own or lease any ponds or land that they could farm; they only own the land upon which their houses stand.

Table 4.8. Household production assets accessible to seed traders

HH	Asset	Characteristics	Location	Comments
19	land	house		given by government when original house was taken to build Salt Lake
	other	motorcycle		
20	land	part of family house		bought 40 years ago
	other	motorcycle		

#### *Household livelihood strategies*

HH19 - The head of the family works as a seed trader, which involves both buying seed from hatcheries in places such as Bandel and Pandua, and transporting it to fish producers around Kolkata. He mainly supplies fish seed to farms in Salt Lake and Rajarhat and has been engaged in this occupation for roughly the past 20 years. Generally the trader will visit several fish farms in PU Kolkata to discuss, which fish seed they require, and at what price. When he has orders for around 400 kg of seed, which may take several days, he will hire a van and 4 labourers whom he pays Rs125. He then travels to the hatcheries to buy seed to meet his

orders. During transportation he has to stop the van to exchange some water, whilst the labourers try and keep the tanks aerated. For each trip he incurs costs of Rs1,000, and on average arranges for 7-8 trips during the summer, in the winter the number is much lower. When not trading fish seed he works at the auction market to earn some extra income.

HH20 - During this interview it was noted that the head of the household was the only one to enter into any discussion, whilst the other family members just watched. In spite of the research teams best efforts he was the only one to talk. He recounted that he had been in the business of trading fish seed for more than 20 years. He generally goes to Bandel, Joynagar and Tribeni to purchase seed, usually to supply farms in the areas surrounding Chingrighata and Majherpara. In summer he makes around 10 trips, while in winter less demand for seed means only 4-5 trips are possible. For each trip he aims to transport around 400 kg of seed, of which about 10 kg will die. He usually engages 4 labourers who are paid Rs125 per trip, however, it often happens that it is not possible to buy all the seed from the hatcheries on one day and therefore they are forced to stay away overnight, when this happens he pays the labourers half the daily wage for the extra day. During the frequent periods of political disturbance the business of trading seed has to stop, at such times the trader works at the auction market at Chingrighata to earn extra money.

### *Summary*

In the case of the seed traders interviewed in this study the main income generating activity for the household is trading fish seed between hatcheries and fish farms in PU Kolkata. However, as the income from this activity is seasonal, depending on the stocking pattern of fish farms in the region, the traders sometimes have to work as labourers in the local auction markets. This is also necessary during periods of political instability when seed trading becomes too difficult. In making the arrangements with buyers and sellers the seed traders must use their knowledge to fix prices and locate hatcheries where suitable species and quantities will be available. Seed traders also face some problems with clients who are reluctant to pay after receiving the seed they ordered, and competition from other traders (Table 4.11). There is also a significant risk of fish mortality during transport, especially as a result of an accident or breakdown.

#### 4.1.5. Sweeper and garbage collector

For numerous families living in PU Kolkata access to the main landfill sites in the area and to fields where garbage is used to enhance production constitutes an important livelihood opportunity. In Kolkata people engaged in such activities are usually called 'rag pickers', 'sweepers' or 'scavengers', and often these terms are used interchangeably. Although only two households were interviewed the outcomes give an insight regarding the poverty and vulnerability of such groups. From Table 4.9 it is apparent that the sweeper household (HH14) has no assets while the one dependent on garbage collecting (HH16) owns some livestock and leases some land and ponds.

Table 4.9. Household production assets accessible to garbage collectors

HH	Asset	Characteristics	Location	Comments
14	-	-	-	-
16	Land	2 <i>bighas</i> of vegetable farm	Dhapa	Taken on lease for 7-8 years
	Animals	Cow, hens and goats	Within the household	
	Ponds	6-7 <i>bighas</i> of <i>jheel</i>	Village- Khanaberia	Taken on 3 years lease, one year ago
	Other	Motorcycle, Bicycle	Within the household	

### *Household livelihood strategies*

The main earning member in the sweeper household (HH14) is the mother who earns Rs4,500 per month by sweeping the roads around Dhapa. She is employed by the KMC and this is a permanent position. The family migrated from Purulia District in West Bengal around 10 years ago, at this time she had a husband but he left the family some years ago. It was shortly after her husband left that she got the job of sweeper; local party members helped her in getting the job. Her youngest son works as a van puller and he finds the additional income useful, however, during the winter season when agricultural production is less he finds work harder to find. The area in which the family live might be considered a slum, consisting of *kuccha* houses with tiled roofs and very narrow, crowded lanes. Drinking water is supplied through a standpipe that only works for short periods in the morning and afternoon.

For the garbage collecting household (HH16) the main livelihood activity identified by the family members was the employment of the father. Previously, he worked on a fish farm in Dhapa, however, the government took this land so they could develop a landfill site. Owing to his loss of employment the KMC gave him a permanent position collecting garbage. He now collects household garbage and cleans the roads in Ballygunj (a suburb of Kolkata) and earns Rs4,000 per month. For the past year, since finishing his studies, the son has been culturing fish in a *jheel* that he has taken on lease for 3 years; he cultures mainly IMC and tilapia. According to him this is a profitable activity, and now constitutes the second most important activity in the household. In addition to undertaking all the household chores the mother also looks after the land used to grow vegetables, this land has been taken on lease for 7-8 years. The main crops grown on this land include cauliflower, brinjal, maize, radish, gourd and various leafy vegetables, according to the mother this constitutes the usually mixture of seasonal vegetables grown in the Dhapa area. At peak periods some hired labourers are engaged to help with work in the vegetable plots. According to the family members the vegetables produced are able to meet their subsistence needs, whilst the excess is sold in the market; again this was considered a profitable activity.

#### 4.1.6. Auctioneer

Although classified in this study as a household dependent on auctioning fish at a wholesale market in PU Kolkata it emerged that the household also owns a significant area of both land and ponds in the region (Table 4.10).

Table 4.10. Household production assets accessible to auctioneer

HH	Asset	Characteristics	Location	Comments
34	Land	42 <i>bighas</i> land which are in four parts. Also 3-4 <i>bighas</i> of fruit and vegetable gardens	Kheyadaha	Ancestral property
	Ponds	13 <i>bighas</i> of ponds	Bamunghata & Rajnagar	Vested property

#### *Household livelihood strategies*

This household (HH34), the largest in the study, consists of a joint family of four brothers, their wives and children. The family thought the culture of fish in 13 *bighas* of family owned ponds as their most important livelihood activity. The family considered themselves in a fortunate position as sufficient wastewater flows to the pond under gravity; however, the quality of wastewater was regarded as insufficient, as additional feed now has to be provided to sustain fish production. The second most important livelihood activity is the trading of fish at the auction market, although the dependence of this activity on the productivity of fishponds in the region was considered a disadvantage. The family can grow paddy twice a year on the land they own, however, although the production of rice is sufficient to meet household subsistence needs with any surplus being sold in the market, this activity was not considered profitable. The family also owns 3-4 *bighas* of agricultural land that they use to grow fruit and vegetables, mostly for household consumption. All the children from the family are engaged in studying, but instead of attending the local government schools they study at what the family consider to be better schools in Kolkata.

Table 4.11. Advantages and disadvantages to main household income generating and subsistence activities for seed traders, sweepers, garbage collectors and auctioneer

HH	Livelihood strategy	Weight	Subsistence/ market or both	Whose responsibility	Advantages	Disadvantages	Seasonal changes
Seed traders							
19	Work as a seed transporter	1	For market only	Husband	Income for subsistence	Not regular income. Income in low in winter. There is much rivalry in this business and many times people tend to cheat by not paying money.	Demand for fish seed is very low in the winter months because the fishes are more prone towards diseases at that time.
	Work at <i>arat</i>	2		Only husband	Gives him a lot of extra income		
20	Work as a seed transporter	2	For market only	Husband and wife		Not regular income. Besides the fisheries do not give all the money at once and afterwards they sometimes do not pay at all. There is no unity among the <i>goldars</i> which causes much inconvenience.	In winter the trading of fish is less because during this time the growth of fishes is very less.
	Work at <i>arat</i>	1		Only husband	Gives him a regular income		
Sweeper and garbage collector							
14	Work as sweeper	1		Mother	Provides good income which sustains the whole family	Work is very arduous & difficult to work during the rainy season.	No seasonal changes
	Van pulling	2		Younger son	Provides additional income that caters to his needs which would otherwise have been unavailable.	There is very low trading during the winter season.	In winter less work is available as agricultural production is very low

16	Garbage collection	1		Father	Regular income	Has to deal with garbage everyday	
	Fish culture in <i>jheels</i>	2	Mainly for market	Son	Source of good money	Income is not regular and uncertain	Two months each winter the <i>jheels</i> dry out
	Vegetable farming	3	Mainly for market, also for household consumption	Mother	Good yields gives good income	Uncertainty of income due to price fluctuations, high price of inputs	Two months in winter, farming is ceased due to lack of water in <i>jheels</i>
Auctioneer							
34	Fish culture in ponds	1	Mainly for market only very less comes at home	Sons 3 and 4	No need to pump in sewage water as it comes in by gravity. The quantity of sewage water does not cause any problem	The quality of sewage water is not sufficient hence more feed than was previously the case must be provided. There is a problem of theft though this has decreased over the years	Fish cultivation is low in the winter months.
	Work as an auctioneer	2	Everything is related to market in this occupation	Sons 1 and 2	A steady income is always available.	Depends solely on the supply of fish from the fisheries and <i>jheels</i>	
	Paddy culture	3	For home consumption and also surplus is sold in the market	All the brothers whenever they get time	The rice need not be bought from the market for the entire year.	The profitability of cultivating paddy is very less. The cost of labour is high.	Only during the rainy season cultivation is done because the land is very far off from their house.
	Vegetable and fruit growing	4	For subsistence mainly but sold only when surplus.	No care is needed.	The household requirements are met.	Selling the surplus can derive an extra income.	The fruits and vegetables are cultivated only in their respective seasons.

## 4.2. Division of labour

As with the focus groups, household members were asked to complete a chart to indicate the time they spend on different activities during a typical day (see Appendix 5). Again participants were encouraged to keep to general descriptions of activities, the prime objective being to distinguish between time spend on subsistence and income generating work, domestic work, social and leisure activities, studying and meals and rest periods. It should also be reiterated here that the times and duration of activities given by participants are estimates, and give a rather generalised view of the situation, rather than a more accurate assessment based on accumulated monitoring or observation over a period of time. Only activity charts for household members above the age of five completed as even at this early age some work is undertaken and the children should have begun school. Due to a shortage of time this activity was not completed with the seed trader households.

### 4.2.1. Households dependent on fish farming

As in the focus group study it is apparent that men in fish farming households do not engage in domestic household work (Table 4.12). For men the amount of time spent engaged in work, socialising and eating meals is very similar to that reported for fish farm workers in the focus groups (Table 3.2), however, there are notable differences for the women. In the focus women reported that on average they do 4 h d<sup>-1</sup> of work relating to agriculture and fish farming, however, in the household situation no time was attributed to these activities. This might be expected as women were selected for FG4 based on the role of fish related work in their livelihood, whereas households were selected mainly on the primary occupation, which was usually that of the male head of the household.

Table 4.12. Daily time use chart of members of households dependent on fish farming

Activity	Household members				
	Men	Women	Girls	Boys	Elderly*
Work	7	0	0	1.8	0
Domestic work*	0	7.7	0	0	2.3
Leisure & social activities	3.4	1.9	0.7	1.3	2
Studying	0	0	8.3	8.3	0
Eating meals & resting	5.2	6	5.7	3.5	11.3
Total hours	15.6	15.6	14.7	14.9	15.6

\*Participants of 60 years and over were considered as elderly

However, the interpretation of what constitutes domestic work may also have played a part. For example, during the general discussion following the activity, in one household it was mentioned



that the wife milked the cow (HH32) while in another (HH33) it was noted how the wife processes the paddy after it is carried from the field to the homestead, other activities such as feeding livestock and weeding or cleaning the vegetable garden may have been considered domestic work due to the location of the activity. Irrespective of the definition of domestic and other work it is apparent that women that have to engage in work related to fish farming do more work (11 hours, domestic and income generating) than those women from households dependent on fish farming (7.7 hours).

Further comparison of time use by men and women shows men spend more time engaged in leisure and social activities, however, despite this a women from one household (HH11) described how she was very eager to give up some of her time spent socialising to engage in income generating work, as long as it was something she could comfortably do from home. Comparing outcomes from the focus group with boys engaged in fish related work and those from households dependent on fish farming it is apparent that boys from these households are not required to undertake as much paid work, 1.8 hours, as compared with 4 hours. Much of the work mentioned by boys in the household interviews also had no connection with fish farming, but mainly involved light agricultural duties such as grazing livestock (HH32) or helping the farther at market (HH10). From these household interviews it is apparent that neither boys nor girls are required to undertake household work, whilst the girls do not undertake any other paid or unpaid work either. Children from families dependent on fish farming also spent considerably more time at school and studying than any of the youngsters interviewed in focus groups and more than children from agriculture dependent, nightguard or sweeper and garbage collector household. Although for girls from agricultural and nightguard households the difference was less significant. For elderly people in the households most of their time is spent resting and eating with the family, while the remainder of their time is divided between socialising and helping with light domestic work such as preparing meals (HH28).

#### 4.2.2. Households dependent on agriculture

Men and women from households dependent on agriculture appear to spend on average roughly equal amounts of time engaged in subsistence or income generating work, 6.8 and 7.2 hours, respectively (Table 4.13). This is slightly less than the amount of time allotted to work by both male and female agricultural workers in the focus group study (8 hours). Unlike households dependent on fish farming, men from agricultural households do on average just over an hour of domestic work each day, although this is still only a quarter of that done by women in the same households. Such an arrangement may be necessary due to women spending so much time engaged in work outside the household that they are only able to allocate around 4.5 hours a day to domestic tasks, as compared with nearly eight hours in fish farming households. Participants in the focus group study did not mention the contribution of men to domestic work, although the reason for this would require further investigation. The difference in contribution to domestic tasks, means women spend on average 11.7 h d<sup>-1</sup> working, whereas for men it is only 7.9 h d<sup>-1</sup>, as a consequence women have much less time to spend eating meals and resting. In some cases women bear a dual burden of childcare and working outside the home, with some women having to carry infants while the work in the field (HH30). According to some households interviewed

the family members have to work hard to avoid excessive labour costs, although at peak times, the need to employ extra labour for ploughing, sowing and harvesting becomes unavoidable.

Table 4.13. Daily time use chart of members of households dependent on agriculture

Activity	Household members				
	Men	Women	Girls	Boys	Elderly*
Work	6.8	7.2	0.2	3	
Domestic work*	1.1	4.5	2.4	0	
Leisure & social activities	1	0.2	1.9	3.3	
Studying	0	0.4	6	2	
Eating meals & resting	7.7	4.3	5.8	7.8	
Total hours	16.6	16.6	16.3	16.1	

Due to the labour demands of agriculture, especially vegetable farming, boys from the households surveyed spend on average 3 h d<sup>-1</sup> engaged in work; for girls the time spent in work outside the house is much less but they are required to do over two hours of domestic chores each day. Boys and girls from households dependent on agriculture also spend almost twice as much time on leisure and social activities, as compared with children from fish farming households. However, the time spent on school and studying is much less, particularly for male children. Many households wanted their daughters to be well educated so that they could enter into a good marriage later in life.

#### 4.2.3. Nightguards

For many men engaged as nightguards they appear to work exceedingly long hours, however, whilst on duty throughout the night it is likely that they spend some time sleeping; although if they are caught or fail to respond with a whistle when called they may well face dismissal. As their husbands leave for work in the evening and return in the morning the women in the household are engaged in household chores, especially cooking throughout the day, and therefore spend almost 10 h d<sup>-1</sup> on domestic work; significantly more time than women from other households. Typical domestic activities mentioned included cooking, washing and cleaning, as well as collecting wood and cow dung for fuel (HH18 and HH27) and grass for cattle (HH26). Due to the long hours worked men and women from nightguard families spend less than an hour per day on leisure and social activities. Girls from nightguard families spend most of their time at school or studying, with the remainder being taken up with eating and resting, no time being allocated to either domestic or outside work. For boys, the picture is different, studying occupies much less of their time, while work accounts for the largest part of their day, they also spend almost 2 h d<sup>-1</sup> on leisure and social activities. Although children are apparently excused domestic work, elderly relations make a significant contribution in this respect, on average spending nearly eight hours per day on household chores.

Table 4.14. Daily time use chart of members of households headed by a nightguard

Activity	Household members				
	Men	Women	Girls	Boys	Elderly*
Work	11.8	0	0	4.7	0
Domestic work*	0	9.8	0	0	7.7
Leisure & social activities	0.8	0.6	0	1.9	1
Studying	1.6	0	8	3.5	0
Eating meals & resting	5.6	5.2	6	4.6	6.3
Total hours	19.85	15.6	14	14.7	15

#### 4.2.4. Sweeper and garbage collector

On average men and women work outside the household in sweeping, garbage collecting and agriculture related activities for an average of 4.4 and 3.25 h d<sup>-1</sup>, respectively. However, in addition to this, women from these households do on average 3.6 h d<sup>-1</sup> of domestic work. Compared with time spent working, men allot a similar period to leisure and social activities; women are only able to spend an average of 0.5 h d<sup>-1</sup> on such activities. Due to the additional time the women spend on domestic work they are only able to take around 5.5 h d<sup>-1</sup> for eating and resting, as compared with 7.3 h d<sup>-1</sup> for men. For the girls present in these households, it appears they have to undertake the majority of domestic work, working on average 9 h d<sup>-1</sup>, during the discussion after the exercise it emerged that in one household (HH16) domestic work includes looking after livestock. Perhaps due to the burden of domestic work, girls from these families do not spend any time in school or studying, they spend some time in leisure and social activities (1.25 h d<sup>-1</sup>) and the remainder of their day (5.25 h d<sup>-1</sup>) eating and resting. No boys were present in the limited number of households surveyed.

Table 4.15. Daily time use chart of members of households headed by a sweeper and garbage collector

Activity	Household members				
	Men	Women	Girls	Boys	Elderly*
Work	4.4	3.25	0		
Domestic work*	0	3.6	9		
Leisure & social activities	4.4	0.5	1.25		
Studying	0	2.9	0		
Eating meals & resting	7.3	5.5	5.25		
Total hours	16.1	15.75	15.5		

#### 4.2.5. Auctioneer

Notably for the auctioneer household there appears to be much less diversity in the activities of household members, as compared with other households in the study (Table 4.16), although this may be attributed to the fact only a single household was interviewed. Men are the only household members to engage in outside work, mainly farming fish and working at the auction market, on average they spend 7.5 h d<sup>-1</sup> working (Table 4.16). Women are the only household members to undertake domestic work and on average this takes 8 h d<sup>-1</sup>; men and women both spend around eight hours per day eating and resting. For boys and girls their activities on an average day are reportedly the same, both groups spend around 10 hours at school and studying with the rest of their time (6 h d<sup>-1</sup>) spent eating and resting. The absence of any time spent on leisure or social activities might be attributed to the fact that the household consists of an extended family; it may also reflect a lesser dependence by the household on social support mechanisms, and consequently the absence of time invested in maintaining relationships with friends and neighbours. For many households dependent on agriculture reciprocal agreements with friends and neighbours concerning labour and borrowing tools and money appear to be a key component of their livelihood strategy. One comment the family did make was that the introduction of LPG cooking gas had significantly reduced the time and effort associated with cooking on a stove requiring firewood, therefore giving them more time to rest.

Table 4.16. Daily time use chart of members of households headed by an auctioneer

Activity	Household members				
	Men	Women	Girls	Boys	Elderly*
Work	7.5	0	0	0	
Domestic work*	0	8	0	0	
Leisure & social activities	0	0	0	0	
Studying	0	0	10	10	
Eating meals & resting	8.5	8	6	6	
Total hours	16	16	16	16	

#### 4.3. Financial assets

##### 4.3.1. Households dependent on fish farming

HH10 - About 80% of the total income is spent on buying production inputs for both fish and agriculture, of the remaining 20% most is spent on food. The next most important expenditure is on educating the children. They have a radio and television for entertainment purposes, thus they have to spend money on electricity. The head of the household also has a

motorbike. They try to make some savings for emergency purposes, but according to the family members, they are not wealthy enough to save much.

HH11 - As they don't have access to any agricultural land the household is forced to buy rice from the market; most of the money earned is spent on food. However, as they only have a small family they find it possible to manage, even with a relatively small income. A significant proportion of their earnings must also be used to buy inputs for fish production. They try to make some savings in case of an emergency, but according to the family members, they are not wealthy enough to save much, as most of their income must be spent to buy food.

HH12 - Income obtained from selling fish is largely spent on buying food for the family; they must also spend a significant amount on buying production inputs required to culture fish. Although the amounts spent on food and production inputs were considered roughly similar, expenditure on food continues throughout the year, whilst inputs are bought only at specific times in the year. Whenever there is any need for household repair, the brothers share the expense. The family members told us they have no savings as they are forced to spend their total income on buying food and farm inputs.

HH22 - As they regard their income as variable the family noted that it is difficult to put aside any savings. All the money earned has to be spent on food and cloths. The only significant asset owned by the family is a bicycle, which is essential for work as a fish-carrier. As they don't engage in any agricultural activities they are not required to spend any money on inputs. As they have no savings they regard themselves as vulnerable to illness or accidents; in times of need they have to borrow from moneylenders or friends. If they do try and save any money it is always kept at home.

HH28 - As the main income is paid weekly, the family are forced to buy goods on credit and pay it off when they can. Most of their income is spent on food and other household items. The family regarded their income as insufficient to adequately feed three people, according to the husband it costs a minimum of Rs20 per day to live sufficiently, but in total they only have an income of Rs35 per day. The only luxury item they own is a transistor radio. As they are unable to save, when faced with health problems or other sudden requirements, they have to take a loan, usually from friends. Their relatives in the area are unable to offer any financial support, as they too are very needy.

HH31 - The majority of household income is spent on food, costs associated with the education of their children were also considered important. Though there are no school fees they choose to take the help of private tutors to help their children study, this incurs a significant cost; about Rs125 is paid in tuition fees. Due to his habit of smoking the head of the household buys cigarettes daily and sometimes goes out and drinks the local alcohol. There are no luxury items in the household except for a transistor radio. They have no scope of saving as whatever they earn gets spent very easily, so much so it is difficult for them to believe. Apart from their mud hut and a few trees their only other assets are some goats, and in times of severe financial crisis they usually sell them for money.

HH32 - Food accounts for the maximum amount of expenditure, other major expenses include, buying production inputs (seeds, pesticides and fertilizers) and labour costs for agricultural activities. Also, in years when they culture fish in the family pond they must buy seed, medicine and feed. Expenditure incurred for the education of the youngest brother is Rs130 per month. Apart from this the two sons must pay daily travel costs to reach the factory at Topsia and school at Baishali, respectively. Other assets owned by the family include a transistor and bicycle. According to the family they have a very limited scope to save any money, and what savings they have managed to make are kept at home. They regard their animals as important assets that they can sell when they are in need of money.

HH33 - The greatest expenditure goes towards the purchase of production inputs for the coming years agriculture and fish culture activities. To meet these costs they usually have to take a loan from a moneylender or spend whatever they saved from selling the last years harvest. The interest rate for taking loans from a moneylender is 10%, which the family consider very high. Other than expenditure on inputs the family noted that buying food and other necessary household goods constituted the next most important cost category. They also have to pay for the electricity they use and the LPG gas used for cooking. Recently the family also invested in constructing their house from concrete, which meant they had to spend all their savings. They have a bank account where they keep any savings they are able to put aside.

HH36 - Whatever money the family members earn is spent mostly on food. The sons give all their earnings to the parents who run the household finances, they decide how to spend or save the money. However, according to the parents there is very little scope to save, as almost all the earnings have to be spent immediately. The family owns a transistor radio and a bicycle, and although their accommodation is basic, only when the condition is very bad do they consider spending money on maintenance. They are also forced to expend some money on medicine required by the father. Household requirements are usually bought on credit from local shops, and paid off at the end of the week when the eldest son gets paid. The family noted that there is usually no scope to save any money, as all their income is required to meet their basic needs; whatever little they might save is keep at home. In a time of crisis it is very difficult to get money and they have to borrow from a moneylender; their relatives and friends are also poor and therefore unable to lend any money.

### *Summary*

In the case of fish farming households most of their income is spent on buying inputs to sustain farm production, however, this expense is largely seasonal and related to the cropping patterns adopted. Where the household require additional money to purchase these inputs they are sometimes able to take a loan from friends or family, however, as they too are usually poor, sometimes people take a loan from a local moneylender, although the interest rates are high. Some families also keep livestock that can be sold in times of crisis to free financial capital. Shops and traders in the area are also ready to extend credit to customers when they are unable to pay. Many households were aware of the need to save money in case of an emergency, however, a high proportion felt unable to save as all of their income is usually spent on the immediate needs of the family. Amongst the small sample of households interviewed there was evidence of investment in constructing more robust housing and in education for children. There was also some evidence

of household members becoming more involved in urban employment, although this has associated transport and opportunity costs with respect to labour, there may also be significant transaction costs associated with gaining such employment. Several households also mentioned that one of their only luxuries was a transistor radio, highlighting a potential communication channel to reach fish farming dependent households.

#### 4.3.2. Households dependent on agriculture

HH13 - The household spends the majority of their income on food, followed by expenditure on production inputs required for agricultural activities, and money for household maintenance. Much less money is spent on health and social activities. Although the household believe they spend a significant amount on food and other household items they feel this is undertaken in a highly planned manner. The husband takes responsibility for deciding on expenditure related to production inputs and social activities. The family is very cautious about money and usually try and deposit some savings in the Sagar Bank in Mathpukur.

HH21 - Of the range of expenditure incurred by the family, buying agricultural inputs was considered most significant; the next most important was the purchase of household items, including food. Social activities were considered the next biggest expenditure; the husband spends on average Rs12 per day on cigarettes, whilst the wife spends some money on chewing *pan* (betel leaf with some spices). The family doesn't have any luxury goods, such as a radio or television; they are also without electricity although it is available in the village. They cook using a *unan* (earthen cooking vessel where fuel wood is used). To fuel the stove they use the husks from green coconuts (known locally as *daber khol*). Generally the husk of a green coconut is thrown away after the contents have been drunk, and these husks constitute a major part of domestic garbage in the region. According to the family coconut *kholes* are the main source of firewood in the Dhapa region. Rag pickers collect discarded *kholes* and sell them to merchants who deal in recycling garbage; a truckload of *kholes* costs Rs400-450 and a small van Rs200-300. The household requires one truckload per year and therefore buying firewood constitutes the fourth most significant household expense. The family do have a bank account with the Sagar Bank in Mathpukur although at the moment they only have the minimum deposit amount left in the bank, they did have some savings, but had to spend this on the marriages of their daughters.

HH23 - Family members identified expenditure on agricultural inputs as the most significant cost they face, this includes buying seed, fertiliser, pesticides and labour costs; responsibility rests with the mother for deciding how this expenditure should be made. The family also requires some working capital to buy vegetables from producers to trade at the retail market; generally they are able to use the income from trading at the retail market to buy more vegetables the following day. Other significant costs incurred by the household include food and travel costs. Whilst the father and son decide on the allocation of money regarding the purchase of vegetables and transporting them to market, the mother has the final decision over household expenditure. The family has a connection to the mains electricity supply and they have a television in their house. They have a bank account with Sagar Bank in Mathpukur and try to save as much as possible.

HH24 - Expenditure on agricultural inputs was identified by the family as the most significant cost they face, second was expenditure on food and third the expense of household maintenance and repair; travel, education and labour costs were considered less important. The family are unable to afford any luxury items such as a radio. Furthermore, due to their low income the family find themselves unable to save very much, in times of crisis they are forced to take loans from local moneylenders.

HH25 - The family consider expenditure on agricultural inputs to be their most significant outgoing, followed by household maintenance, food, education, social activities and health care. The majority of decisions on how the expenditure should be made are taken jointly, although the husband decides regarding the social activities. The family tries to save some money whenever possible as the father believes he will need these savings when he comes to marry off his two daughters.

HH29 - Generally the family members regarded their income as insufficient to meet their minimum living requirement. According to the mother, if it were possible to spend Rs10 per day on each household member, then this would enable the family to achieve a good standard of living; this equates to an expenditure of Rs50 per day. However, the total income for the family is on average only Rs30 per day making it difficult for them to meet their expectations. Apart from vegetables, the family has to buy all their food, including rice from the market; this constitutes the biggest expenditure. Whatever money they earn, whether from rag picking or selling vegetables, they must spend it on the same day to buy food. The family income is also not regular; whenever they get some extra money from selling vegetables it is used to buy inputs for the farm. They only use wood and coal collected from the fields whilst scavenging for cooking, although they have to buy kerosene for lighting. The family also tries to save money by not using pumps for irrigation, rather they collect water from the *jheels* in buckets to irrigate their land; this is possible as their land is situated close to the *jheel*. They do this work themselves, as they cannot afford the labour charges. It is not possible for the family to put aside any savings since all their income is needed to sustain their basic standard of living. Sometimes they take monetary help from a relative, whom they repay after selling vegetables; on this type of loan they don't have to pay any interest.

HH30 - The family income was considered very low, mainly due to the absence of any earnings generated by the husband. The most significant expense is the cost of production inputs required for their paddy land; these include seed, fertilizer and pesticides. They also have to pay for an irrigation pump and to hire some labourers during peak periods; pumping costs amount to Rs1,000-1,500 during the summer. The family meet these costs by using what income they have and by taking loans whenever necessary. As the husband suffers from an illness, even a little work makes him exhausted and he faints. As a result he is quite often sick and a large part of the household income has to be spent on doctors and medicine. This is a significant additional cost to bear. In spite of his illness and poverty, the husband spends some money on alcohol. Each year, during the rains, their hut is damaged severely and thus requires maintenance, to repair their house they have to hire skilled labours that demand Rs50 daily. Due to their situation, with only one family member able to earn an income, the family cannot afford to save any money. In times of need or crisis they are forced to take loans from moneylenders at high rates of interest, which represents a further burden.



HH35 - The family reported that the major expense they incur is in buying food; this is followed by expenditure on household maintenance, health care, education and saving. Although the amount they have to save is very small they try and keep some money in reserve in case of a crisis, at such times they have also been able to borrow some money from the farmer who is employing them.

### *Summary*

In households dependent on agriculture the bulk of their expenditure goes toward purchasing farm inputs, and a significant cost for many producers is associated with irrigation. In the majority of cases producers employ mechanical means to irrigate their fields, however, in some cases families found it more beneficial to employ their own labour for irrigation, rather than pay to hire a pump. In several cases both households and individual family members were engaged in a variety of livelihood activities, and although vegetable, rice and fish farming constituted three of the most significant, others including rag picking and van pulling were sometimes important. Several households noted that engaging in diverse livelihood activities helped reduce vulnerability to seasonal fluctuations in agricultural output. Although schooling is reportedly free in the region, many families felt it necessary to invest money in private tuition for the children. The expense of having to arrange marriages for daughters often came up in discussions and this prospect saw some families putting aside savings. In other cases where money is required more urgently for unforeseen situations, several families reported that they would be forced to visit a moneylender as their friends and families were too poor to help. Most families thought themselves unable to save for such crisis situations, as their income is not sufficient to meet their basic household requirements.

#### 4.3.3. Nightguards

HH15 - According to the family there is no planned structure to the household expenditure. Most of their earnings are spent on foods and buying farming inputs, which include HYV rice and fish seed, feed, fertiliser, chemical treatments and labour costs. The family also spend a significant amount on education, as two of the sons are studying in higher classes; education related costs include admission, books and most notably a private tutor. As the household has five members and there is a perceived shortage of money, the family find it difficult to save anything for the future. For sudden cash requirements they borrow from the managers of the fish farm and repay the loan, without interest, when they can.

HH17 - The majority of the household income is spent on foods as they have a large family, however, they do not have to buy rice and fish from the market. The second most important expenditure is on buying paddy farming inputs, HYV seeds, insecticides, pesticides and fertilisers; they also have to pay for irrigation water. Education costs constitute the third most significant cost; they have to pay Rs200 per month to educate the two sons still studying. Regarding luxury goods, they have two bicycles and a television in the house. As there is no mains electricity in the village they have to power the television using batteries. Although they try to save as much as possible they always face financial problems; they maintain a savings account with a commercial bank in Bamunghata.

HH18 - According to the household members most of their earning are spent on food. A significant amount is also spent on buying inputs for paddy cultivation. At present only Rs50 per month is spent on educating their son, this is a fee related to private tuition; there is no fee for attending the local school. The family also pay a significant amount on health care, both for the mother, who suffers from gastric problems, and youngest daughter who was born with a hair-lip. So far the family has spent Rs10,000 on surgery, and a further operation will be required to fully correct the problem. Any previous savings the family had accumulated in their account with a commercial bank in Bamunghata have been spent on medical expenses; they have also had to borrow money. Generally they can take a loan without having to pay interest from the management at the fish farm or from resourceful friends. However, sometimes they have had to borrow from a moneylender who charges an interest rate of 10% per month.

HH26 - Both brothers pass their earnings to their mother and she takes decisions regarding the household expenditure. Most of their income is spent on food, whilst a significant portion of the remainder goes on health care for the father and youngest son. The son is prone to ailments, and his condition is aggravated as he does heavy work (carrying fish to the market). The family have an electricity connection and therefore have to pay their bill regularly, however, they feel the charge is often too high related to their electricity consumption and attribute this to illegal connections made by neighbours, for which they have to pay. Generally their electricity bill is Rs125 per month. According to the family they generally have no money to save, but when they do they keep it in their house, as they don't have a bank or post-office account. When they need money suddenly they borrow either from the fish farm managers or auctioneer with whom they deal; in most cases there is no interest to pay.

HH27 - The main household expenditure is on food, buying firewood for cooking also constitutes a regular expense. According to the family there is almost no scope to put aside any savings, the eldest son's income is not regular, while the youngest son only earns enough to meet his own needs. Due to the recent passing of the father it was difficult to discuss past expenditure and saving patterns in detail.

### *Summary*

For several households expenditure on food is most significant as although many are engaged in some form of farming activity this does not appear sufficiently varied in nature to meet their subsistence requirements. Many households are also likely to produce cash crops using land and water resources to which they have access. Although the main occupation for these households was employment as a nightguard, a significant number are engaged in supplementary farming activities for which they require to buy inputs. For several, employment as a nightguard has an added advantage, with many families reportedly able to take interest free loans from the farm managers. In several households it has been possible for the family to put aside money in a savings account in case of an unforeseen crisis, however, for some families they kept any savings they were able to accumulate in their home. Despite local schools being free to attend, schooling and tuition costs incurred by several households were reportedly significant, indicating a willingness to invest in the education of their children by several families.

#### 4.3.4. Seed traders

For the two households interviewed, the largest expense incurred is the purchase of seed for trading, and although they generally receive a quick return they also face a substantial risk in transporting large quantities of fish seed over considerable distances. With both daughters still in school, one household (HH19) considered education costs the next largest expense, followed by the cost of buying food. Expenditure on household maintenance, health care and social activities were considered less important. Regarding expenditure on seed trading and household maintenance the fathers takes the decisions, whilst on all other matters it is generally discussed amongst the family members. For the other household (HH20) after fish seed, the next most important expenses were food, education, social activities, health care and household maintenance, respectively. The husband reportedly took all the decisions regarding the allocation of money to various expenses. Both families were reluctant to give any information about their saving arrangements, although the husband from one household did disclose that his family had been able to save some money in a bank.

#### 4.3.5. Sweeper and garbage collector

Expenditure by both households on food was considered most significant. For the sweeper household (HH14) this was followed by social activities, health care and household maintenance. During the discussion the mother mentioned that she was depressed as her son spends much of their income on socialising, and that if she tried to stop him he would most probably take the money from her forcibly. As a result managing the household finances has become very problematic. According to the son in the garbage collecting household (HH16) expenditure on food was followed closely by the cost of oil for their motorbike and expenditure by the family on entertainment such as going to the cinema, picnic excursions and other family outings and social activities. Production inputs for fish and vegetable farming constitute the next most important cost; they also have to pay to hire labourers at peak times. Only the eldest daughter is enrolled in school and they have to pay for books and tuition fees, however, there are no fees for attending the government run school in Choubaga. There is no fixed expenditure related to health care or house maintenance. The family have a bank account with the Sagar Bank in Choubaga and the father also has a life insurance policy. Although they spend a significant amount of their income they save whenever possible, especially for the marriage of their daughters.

#### 4.3.6. Auctioneer

The major expenditure for this household (HH34) is on educating their children, the parents want them to grow up and attain a higher position in life than was possible for them. As they send the children to good schools in Kolkata the family incurs both school fees and a regular transportation cost; the family also spends money on fees for good tutors. The next most important expenditure is on buying inputs for fish farming and agricultural purposes; they also pay to use a tractor to cultivate their land. The family also spends money on buying cooking gas, and on electricity, the bill for which must be paid regularly. Although their house is already made of concrete and brick, they are gradually trying to make further improvements. Whenever a family member falls ill they

often consult with private doctors, especially when it concerns the children. Having met their basic needs the family usually have some money remaining and they deposit this in their bank account.

#### 4.4. Decision-making

##### *Households dependent on fish farming*

In households dependent on fish farming, the male head of a household usually appears to take decisions relating to the activities and expenditure of household members (HH10, HH28, HH32, HH33 and HH36). However, once allotted female members can usually decide on expenditure related to food and clothing for the household. In several cases it was suggested that the male head of a household would, however, elicit the views and opinions of other household members regarding a decision when it becomes necessary (HH10, HH12 and HH22) although no examples were given. Such consultation would reportedly involve older male relatives such as brothers. One father (HH36) also noted that on some occasions he consults with his sons who have now left home prior to making major decision. In one household (HH33) it was noted that the head of the family takes all decisions, not only regarding his own work and family matters, but also decisions like buying cloths for his wife and children.

##### *Households dependent on agriculture*

In female-headed households dependent on agriculture (HH29 and HH35) responsibility for decision-making rests with the mother. However, this may also be the case, even where the husband is present, if the female is the main earner in the household (HH13). In other agricultural households where both the husband and wife are present, several approaches to decision-making are apparent. In one household (HH30) the husband and wife explained that they take equal responsibility, in others (HH21 and HH25) the process of decision-making was reportedly a joint affair involving both husband and wife, although in both cases the wife stated that the husband would take responsibility for the final decisions regarding major financial issues. Although all members of HH23 are adults, the parents continue to make most of the decisions, although the son is sometimes permitted to decide regarding his business dealings; the preference of the daughter-in-law is not considered important. In only one family (HH24) was decision-making the sole responsibility of the male head of the household, furthermore, whatever income the wife earns she has to give it to her husband. In general, decision-making power rests with the main income earners, although where both husband and wife are earning, the man will usually have the final say.

##### *Nightguards*

In the majority of cases the adults in the household will make a decision after discussing the issue amongst themselves (HH17, HH18 and HH27). However, before his death, the head of one of these households (HH27) used to make all the decisions, a responsibility now shared between his widow and the eldest son. The male head of one household (HH15) takes all the decisions, but only after consulting with his wife, while the female head of the remaining household (HH26), who takes all the earnings from her two sons, takes responsibility for making all the decisions.

### *Seed traders*

In this household (HH19) the parents undertake all decision-making as joint activity, although when something concerning the children is being discussed, they too are involved. In the second seed-trading household (HH20) the father takes all the decisions without consulting the other family members.

### *Sweeper and garbage collector*

Although the mother is the sole earner in the household (HH14) her preferences are ignored, and as a result most of the decisions are those of the son. In the garbage collector household (HH16) the parents usually take all the decisions, however, as their son is now regarded as relatively mature he is also involved in the process.

### *Auctioneer*

According to the family members present, all major decisions are taken after consulting the entire household. The total income earned by the joint family members is managed collectively, and this approach is crucial to maintaining cooperation among the family members.

## 4.5. Social networks

### *Households dependent on fish farming*

In general all the households interviewed reported that they had good relations with their extended family, neighbours and labourers that sometimes come to work for them. Some households also reported that they could call on friends and neighbours for help when required (HH22, HH28 and HH33) although financial assistance was not always possible as their friends and neighbours also face monetary problems (HH22 and HH28). In the case of the joint family, where several brothers, their wives and children live together there were not any reports of difficulties (HH11) although within the household individual family groups do have some autonomy, for example, cooking their food separately. Several of the families interviewed had previously lived in joint family units, however, following the marriage of other family members (HH28 and HH36) or the death of the head of the family (HH22), they had moved to separate accommodation. Despite living apart the various family units retain close contact and maintain a good relationship, calling on one another for physical help in times of need (HH22 and HH28).

### *Households dependent on agriculture*

Households dependent on agriculture generally maintain good relations with their friends and neighbours, and in certain cases are able to call on them for assistance when required (HH13, HH24 and HH35). It was noted by some households that there is an exchange of goods, tools and work amongst close friends or neighbours, with reciprocal agreements for repaying favours at a later date (HH30 and HH35). However, financial help is not usually possible as they are all poor (HH13). In such circumstances families are usually forced to sell household items and

livestock or to take loans from moneylenders (HH24). In one household (HH25) the members were unwilling to seek assistance from friends and relatives unless they face a severe crisis. In another (HH29) they thought it better to maintain a low profile, not interfering in the affairs of others in the village, and preferring instead to live independently. The main reason given for this was the frequent political disturbances in the village, although it was noted that some groups in the village were given to cooperating more than others. For another household (HH21) although they are unwilling to approach other for assistance as everyone in the villages is equally as poor, they do receive help from the young members of a local club when required.

### *Nightguards*

In general all the nightguard households reported that they had a good relationship with friends and family. One household (HH15) stated that they are able to access financial help and receive technical assistance from their friends and neighbours. Due to his membership of a political party the head of a household (HH17) in Kantatala reportedly has a very good reputation in the village, and as such is always engaged in social activities. For one household (HH18) relations with other family members were strained following the break up of the joint family, however, these problems have now been resolved and they are able to help one another when needed. With the recent passing of the head of the household (HH27) the family was largely preoccupied with finding a way to pay for the forthcoming funeral expenses; they intend to seek a loan from the management of the fish farm.

### *Seed traders*

One household dependent on trading fish seed (HH19) reported that they have a good relationship with their friends and neighbour and that they can call on them for help when needed. The other household (HH20) also noted that they have a number of friends, although thought that in such difficult times, it was almost impossible to offer or expect any material assistance; despite this they were generally happy.

### *Sweeper and garbage collector*

According to the sweeper household (HH14) they are able to rely on an exchange of labour, goods or tools amongst neighbours when they are in acute need, with any assistance being reciprocated later. Neighbours may sometimes also lend money, but usually this is only possible when small amounts are needed for short periods. For the household dependent on garbage collecting (HH16) they feel the villagers of Khanaberia like to live independently and not interfere in the affairs of others. There are also political disturbances in the village but the family like to try and avoid any trouble.

### *Auctioneer*

Various family members mentioned that they maintain a good relationship with both neighbours and labours that work for them.

#### 4.6. Change over time

As with the focus groups, household interviews ended with a general discussion about changes over the past 20-30 years that have affected their livelihoods and their aspirations for future change and improvements that would help enhance their livelihoods.

##### 4.6.1. Recent changes in livelihoods

###### *Households dependent on fish farming*

According to several of the households dependent on fish farming and living in Bamunghata (HH10, HH11 and HH12), infrastructure in the village has improved in the last 10 years, the condition of the roads has improved and the village now has an electricity supply. Improvements in the physical condition of the local schools, most of which are now brick built were also mentioned. In Dakhin-Bamunghata the connection of the village to the mains electricity supply was again mentioned as a beneficial recent change, however, two of the households interviewed (HH22 and HH28) disclosed that they currently take electricity illegally, although they only use enough electricity to power a light bulb in the evening, this still helps them save money on kerosene. Regarding access to cooking fuel, in several villages, households cited the introduction of LPG gas cylinders over the past few years as a useful innovation. Improved communications, especially regarding the road network and transport to Kolkata city were cited by households in all the villages visited as a recent change for the better. Partly due to improved services, two households in Dakhin-Bamunghata (HH31 and HH32) reported that they believed the general condition of people living in their village had improved in the recent past, although they also mentioned that their community still lacks of some basic services and facilities.

###### *Households dependent on agriculture*

Several households dependent on agriculture reported that the main positive changes over the last 10 years were greater access to electricity and the improved condition of local roads (HH21, HH23, HH25 and HH29). One household described how they used to have to walk long distances to reach Mathpukur market, whereas now, they can catch a cycle-van that costs them only Rs4 per head. However, some households (HH13 and HH24) reported that the improvement in infrastructure had only occurred in surrounding areas but had not yet affected their lives, those living further from the main road are still reportedly without electricity and poorly serviced by roads and transport facilities. However, even in one of these households (HH13) the family members noted that they now have access to better drinking water facilities than in the past. In addition to improvements with the road and electricity, one household in Arupota (HH23) noted how the social structure of the village had improved, however, in Dhapa on family (HH25) believed the community had changed for the worse due to the modern culture, where people have become more selfish; roads may have improved and new types of food might be available, but uncertainty has increased. One family in Khanaberia (HH29) noted how other services such as public toilets, improved primary school facilities, tubewells and a health centre had been provided by the KMC; each morning a tanker visits the village to distribute drinking water, while each week a doctor visits the medical centre to perform free check-ups. For one household (HH30) the change in their personal circumstance over the recent past has been significant as around 15-

20 years ago they were given 3 *bighas* of vested land, including a house, fishpond and paddy land. However, since then they have not observed much change for the better, a public tubewell was installed in the village around 5 years ago, but it is usually out of order and they are forced to travel some distance to collect drinking water. Due to their recent arrival one household (HH35) felt unable to answer.

#### *Nightguards*

All households noted how, over the past 10-15 years, infrastructure serving their villages has improved. The condition of roads in the area is now better and access to electricity is now more widespread; the installation of more tubewells, construction of village schools in concrete and introduction of LPG cylinders for cooking were also mentioned as signs of positive change. For two households (HH17 and HH18) the general decrease in alcohol consumption as compared with previous years was a change for good, although excessive drinking remains a problem. The general improvement in living standards was also discussed, some family members recounted how, in the past, their parents had no proper work and the family was forced to live on maize alone. According to some households (HH17 and HH18) they are now able to eat and live properly, although others felt they still lack some basic services and facilities (HH26 and HH27).

#### *Seed traders*

The main change identified by the seed traders was related to their main occupation. According to both households (HH19 and HH20) around 15-20 years ago they faced much less competition, as fewer people were involved in trading fish seed. However, they also noted that 15-20 years ago the condition of the roads was even worse than it is now.

#### *Sweeper and garbage collector*

During discussions with the sweeper and garbage collecting households (HH14 and HH16) they described how their lives have not changed very much over recent years, however, they see that in the outside world there are new roads, more people and that everything in the market is more expensive.

#### *Auctioneer*

The auctioneer household (HH35) reported how the infrastructure in their village has improved greatly over the past 10 years, most notably the condition of the roads, the availability of electricity and the introduction of LPG gas cylinders for cooking. The condition of the local schools has also improved as they are now made of brick.

### 4.6.2. Aspirations for future change

#### *Households dependent on fish farming*

In the near future three households in Bamunghata (HH10, HH11 and HH12) anticipate that they will be connected to the telephone exchange and that this will help improve their lives. These



households, along with other interviewed (HH22 and HH33) were keen to see further development of infrastructure such as hospitals, health centers, roads and schools in the areas surrounding their villages. In two households (HH11 and HH22) the need for training in alternative livelihood strategies was identified as a priority, especially as they fear losing their current employment. The mother in one household (HH11) was keen that the authorities should give greater attention to facilities for women, and in particular training in handicrafts, knitting and leatherworking, she wanted the opportunity to engage in such activities during her leisure time to help her family financially. According to her there are limited employment opportunities for women in the region and as such training is essential if they are to become self-employed. Men in several of the households (HH22, HH28 and HH33) believed there should be greater investment to improve fish production in the area and thus increase their earning potential. Several families were also keen to receive financial support so that they could start a small business such as a tea stall or shop (HH28, HH36) or lease more land so they could produce a surplus of food for sale in the market (HH33). Several households expressed a keen desire to see their children well educated (HH11, HH12, HH31 and HH32), so their sons could find employment that gives a guaranteed income and their daughters could be married into a good family (HH31).

#### *Households dependent on agriculture*

Based on their current situation several families found it difficult to see how their livelihoods could be improved (HH13, HH21 and HH35), they felt unable to plan for the future when so much of their time is taken up with worrying about the present. Several families wanted to see their children grow up and achieve a better standard of living, both through education and a good marriage (HH24, HH25 and HH35). Regarding infrastructure, one household in Khanaberia (HH29) noted that their village has yet to receive an electricity connection and that addressing this problem should be a priority. In Kantatala one family (HH30) described how they require a permanent solution to their problem of inadequate drinking water, and need help to get better housing. They were also keen that the authorities should ensure that the rationing system functions correctly, with timely food grain distribution, as the family is classified as both Scheduled Tribe and Below Poverty Line, they thought the government should make greater provision for them. One household (HH29) raised an issue regarding land tenure; they noted that as all their land was vested they have no legal documentation regarding ownership, and consequently they want to acquire the deeds to their land. If they could take a loan using their land as security they could invest in starting a shop in one of their huts that is currently unoccupied. Another household (HH23) was also keen to invest in their vegetable selling business as their success has made them relatively wealthy. However, as the vegetable farm requires a lot of labour the family was unsure if they would be able to maintain it for much longer, although they were keen to do so as it supplies the household with food.

#### *Nightguards*

Several households outlined the need in their particular area for further improvements to village infrastructure; most highlighted the need for more accessible high schools, hospitals and health care centers (HH15, HH17 and HH26). One household (HH17) also raised concern that the shallow tubewells to which the family currently has access yield water with a high iron content and which may be contaminated with arsenic; ideally they would like the authorities to install some

deep tubewells. Although the condition of roads was generally perceived to have increased recently, one family (HH27) noted that during the rainy season secondary roads in the region become muddy and difficult to use, and therefore would like to see the authorities improve these smaller roads. Two families (HH15 and HH18) were keen for their children to be properly educated, and for them to find employment in the business or service sector, rather than fishing or agriculture, thus giving them some security. While discussing the future one household (HH26) expressed their anger regarding the actions of developers in their areas, they were worried that if the land and ponds upon which they depend is sold they face losing their entire means of livelihood.

#### *Seed traders*

The main aspirations of the seed trader families (HH19 and HH20) were focused on their children; the parents were adamant that their children should study hard so that when they grow-up they are able to engage in a respectable profession.

#### *Sweeper and garbage collector*

For both the sweeper and garbage collecting households (HH14 and HH16) it was difficult for the family members to see what hope there was of change for the better based on their current position.

#### *Auctioneer*

In the near future the family (HH35) are expecting that the village will be connected to the telephone exchange. They would also like to see the development of a hospital and health centre closer to their village. Regarding their children, they want them to enter into government service as this guarantees a permanent income and consequently they will not face the uncertainty that now concerns the family.

## References

- Agarwal, B. (1994) *A Field of One's Own: Gender and Land Rights in South Asia*, Cambridge: Cambridge University Press.
- Boyden, J. and Ennew, J. (eds) (1997) *Children in Focus: A Manual for Experiential Learning in Participatory Research with Children*, Stockholm: Rädda Barnen.
- Bunting, S., Kundu, N. and Mukherjee, M. (2002) *Situation Analysis of Production Systems and Natural Resource in Peri-Urban Kolkata*, Working Paper 4, Stirling: Institute of Aquaculture.
- Bunting, S., Kundu, N., Punch, S. and Little, D. (2001) *East Kolkata Wetlands and Livelihoods Workshop: Proceedings*, University of Stirling: Working Paper, Institute of Aquaculture.
- Carney, D. (1998) 'Implementing the Sustainable Rural Livelihoods Approach', in Carney, D. (ed.) *Sustainable Rural Livelihoods: What contribution can we make?* London: Department for International Development.
- Chambers, R. (1995) 'Paradigm Shifts and the Practice of Participatory Research and Development', in Nelson, N. and Wright, S. (eds) *Power and Participatory Development: Theory and Practice*, London: ITDG.
- Chant, S. (1997) 'Single-parent Families: Choice or Constraint?' in Visvanathan, N., Duggan, L., Nisonoff, L. and Wiegiersma, N. (eds) *The Women, Gender and Development Reader*, London: Zed Books.
- Christensen, P. and James, A. (eds) (2000) *Research with Children: Perspectives and Practices*, London: Falmer Press.
- Duggan, L. (1997) 'Introduction to Part II: Households and Families', in Visvanathan, N., Duggan, L., Nisonoff, L. and Wiegiersma, N. (eds) *The Women, Gender and Development Reader*, London: Zed Books.
- Ellis, F. (1998) 'Livelihood Diversification and Sustainable Rural Livelihoods', in Carney, D. (ed.) *Sustainable Rural Livelihoods: What contribution can we make?* London: Department for International Development.
- French, S. and Swain, J. (1997) "Changing Disability Research: Participating and Emancipatory Research with Disabled People", *Physiotherapy* 83 (1): 26-32.
- Guijt, I., Fuglesand, A. and Kisadha, Y. (eds) (1994) *It is the Young Trees that Make a Forest Thick*, A report on Redd Barna learning experience with Participatory Rural Appraisal, Kampala, Norway, London and Redd Barna: IIED.

Harden, J., Scott, S., Backett-Milburn, K. and Jackson, S. (2000) 'Can't Talk, Won't Talk?: Methodological Issues in Researching Children', *Sociological Research Online* 5 (2). <http://www.socresonline.org.uk/5/2/harden.html>.

Hart, R. (1997) *Children's Participation: The Theory and Practice of Involving Young Citizens in Community Development and Environmental Care*, Earthscan Publications Ltd: London.

INTRAC (1997) *Involving Children in Research For Planning, Programming and Monitoring: A Pilot INTRAC Training Course*, Oxford: INTRAC.

Jackson, C. and Palmer-Jones, R. (2000) 'Rethinking Gendered Poverty and Work,' in Razavi, S. (ed.) *Gendered Poverty and Well-being*, Oxford: Blackwell.

Johnson, V., Ivan-Smith, E., Gordon, G., Pridmore, P. and Scott, P. (eds) (1998) *Stepping Forward: Children and Young People's Participation in the Development Process*, London: Intermediate Technology Publications.

Kabeer, N. (1994) *Reversed Realities: Gender Hierarchies in Development Thought*, London: Verso.

Milwain, G. (2001) *Investigation into sustainable development and livelihood issues of the fish seed distribution network in West Bengal, India*. Stirling, UK: University of Stirling [MSc thesis]

Moser, C. (1994) *Gender Planning and Development*, London: Routledge.

Nelson, N. and Wright, S. (1995) 'Participation and Power', in Nelson, N. and Wright, S. (eds) *Power and Participatory Development: Theory and Practice*, London: ITDG.

Parpart, J. (1995a) 'Postmodernism, Gender and Development' in Crush, J. (ed.) *The Power of Development*, London: Routledge.

Parpart, J. (1995b) 'Deconstructing the Development "Expert": Gender, Development and the "Vulnerable Groups"', in Marchand, M. and Parpart, J. (eds) *Feminism, Postmodernism and Development*, London: Routledge.

Pearson, R. and Jackson, C. (1998) 'Interrogating Development: Feminism, Gender and Policy', in Jackson, C. and Pearson, R. (eds) *Feminist Visions of Development: Gender Analysis and Policy*, London: Routledge.

PLA Notes (1996) "Special Issue: Children's Participation", *PLA Notes Number 25*, London: International Institute for Environment and Development.

Preston, D. (1994) "Rapid Household Appraisal: A Method for Facilitating the Analysis of Household Livelihood Strategies", *Applied Geography* 14: 203-213.

- Punch, S. (2002a) 'Interviewing Strategies with Young People: The 'Secret Box', Stimulus Material and Task-based Activities', *Children & Society*, 16: 45-56.
- Punch, S. (2002b) 'Youth Transitions and Interdependent Adult-child Relations in Rural Bolivia', *Journal of Rural Studies*, 18 (2): 123-133.
- Punch, S. (2001) 'Household Division of Labour: Generation, Gender, Age, Birth Order and Sibling Composition', *Work, Employment & Society*, 15 (4):803-823.
- Punch, S. and Preston, D. (2001) 'Estrategias de vida de hogares rurales en el valle de Camacho', in Beck, S. and Preston, D. (eds) *Ambiente y sociedad en Tarija*, Instituto de Ecología, UMSA, La Paz, Bolivia. [Translation: 'Rural household livelihood strategies in the Camacho Valley' in *Environment and Society in Tarija*]
- Punch, S. and Kundu, N. (2002) Review of progress with focus group interviews. Stirling, UK: University of Stirling [unpublished report].
- Ramanathan, U. (2000) 'The Public Policy Problem: Child Labour and the Law in India' in Schlemmer, B. (ed.) *The Exploited Child*, London: Zed Books.
- Razavi, S. (2000) 'Gendered Poverty and Well-being: Introduction' in Razavi, S. (ed.) *Gendered Poverty and Well-being*, Oxford: Blackwell.
- Sapkota, P. and Sharma, J. (1996) "Participatory Interactions with Children in Nepal", *PLA Notes Number 25*, London: International Institute for Environment and Development.
- Schlemmer, B. (ed.) (2000) *The Exploited Child*, London: Zed Books.
- Shurmer-Smith, P. (2000) *India: Globalization and Change*, London: Arnold.
- Townsley , P. (1996) *Rapid Rural Appraisal, Participatory Rural Appraisal and Aquaculture*, FAO Fisheries Technical Paper 358, Rome: FAO
- Wolf, D. (1997) 'Daughters, Decisions and Domination: An Empirical and Conceptual Critique of Household Strategies,' in Visvanathan, N., Duggan, L., Nisonoff, L. and Wieggersma, N. (eds) *The Women, Gender and Development Reader*, London: Zed Books.
- Woodhead, M. (1998) *Children's Perspectives on their Working Lives: A Participatory Study in Bangladesh, Ethiopia, The Philippines, Guatemala, El Salvador and Nicaragua*, Radda Barnen.
- Young, K. (1997) 'Planning from a Gender Perspective: Making a World of Difference,' in Visvanathan, N., Duggan, L., Nisonoff, L. and Wieggersma, N. (eds) *The Women, Gender and Development Reader*, London: Zed Books.

## Appendix 1. Sample of focus groups

### **FG 1 – unpaid agricultural girls (16-17 yrs)**

These four young girls worked unpaid in agriculture for their own households in the vegetable gardens of Dhapa. One girl was illiterate and the others had completed just a few years of basic education.

### **FG 2 - cart pullers (22-38 yrs)**

The five men who work as cart pullers take vegetables to the Mathpukur market. In the rainy season they get about 10 trips a day, earning 10 rupees per trip. During other seasons they get 5-6 trips a day. They all came from different villages, which were around the Dhapa region.

### **FG 3 –agricultural girls (14-19 yrs)**

The focus group consisted of four young girls who work in the fields of Dhapa as agricultural workers. During the dry summer months when there is no agricultural work available, they work as ragpickers collecting different things like coal, plastic, wood and other combustible substances. Most of what they gather, they sell but they store some materials so that they can be used as firewood whenever needed.

### **FG 4 – fisherwomen (24-60 yrs)**

Ten women took part in this focus group, all of whom were working in the bheri Jhagrasisa where they clean forests, cut grass and other such tasks. All except one are illiterate.

### **FG 5 – fish boys (7-10 yrs)**

This focus group consisted of eight boys who work in the arats as transporters. Some of them supply water to the fishes while others carry fish from one place to another in the market. There were about thirty two of such boys engaged in this type of work in the market at various places. The group discussion took place after the market had closed and the boys had been cleaning up. They lived in a village near to the fish market where they worked during the mornings and they attended school in the afternoons.

### **FG 6 – unpaid agricultural boys (16-17 yrs)**

These three boys and their families are migrants from Medinipur district of West Bengal. Their fathers came here 12-13 years ago and have lived at Choubaga since then. They live in rented houses consisting mainly of one room, with a kitchen and bathroom. Every two or three months they return to their place of origin where they continue to have many links, whilst here they stay to cultivate flowers and herbs in their leased lands.

### **FG 7 – agricultural women (18-55 yrs)**

There were eight women in this group all of whom were illiterate except one. They live near a pond and have small plots of agricultural land where they cultivate paddy. The sewage water has to be pumped in the ponds when needed. They work as casual agricultural labourers and when such work is unavailable they gather different edible plants from ponds for sale in the local market.

**FG 8 - agricultural men (25-46 yrs)**

This group of seven farmers have access to small land holdings which they sharecrop: a third of the crop is for themselves as labourers of the land and the remainder is given to the landowner. However, due to the long absence of the landowners and continuous right of the farmers to cultivate the same plot of land, most of them had not given the share to the owners. They usually have two paddy cultivations in a year.

**FG 9 – fishermen (21-39 yrs)**

The six men carry out mainly netting work in a local fishery. They also own small plots of paddy fields which they cultivate during two months each year. They work in the fields mainly in the afternoon, or take a leave from their work to do the work in the field. Some of them also own a cow for the supply of milk and cowdung.

## Appendix 2. Sample of households

### A2.1. Fishery workers

(HH10 - fishery worker)

Name	Relation	Age	Education	Main occupation
	eldest brother	40	IX	fishery worker
	wife	35	V	housewife
	son 1	18	Madhyamik	student
	daughter 1	15	IX	student
	2nd brother	36	IV	fisher
	wife of 2nd brother	30	VIII	housewife
	son	3	nursery	student
	younger brother	26	XII	unemployed
	mother	60	illiterate	stays at home

(HH11 - fishery worker)

Name	Relation	Age	Education	Main occupation
	Father	40	VI	fishery worker
	mother	38	X	housewife
	daughter	6	I	student

(HH12 - fishery worker)

Name	Relation	Age	Education	Main occupation
	mother	70	Literate	Stays at home
	son 1	36	X	Fish cultivator
	son 2	34	V	Fish carrier

(HH22 - fishery worker)

Name	Relation	Age	Education	Main occupation
	Father	28	Illiterate	Temporary fishery worker, mainly as a carrier
	mother	20	V	Housewife
	Son	3	-	-

(HH28 - fishery worker)

Name	Relation	Age	Education	Main occupation
	husband	28	Literate	Fishermen
	wife	18	VII	Housewife
	mother	65	Illiterate	Stays at home



(HH31 - fishery worker)

Name	Relation	Age	Education	Main occupation
	father	35	Illiterate	Fisherman
	mother	27	Illiterate	Housewife
	son 1	13	V	Student
	son 2	10	III	Student
	daughter 1	5	I	Student

(HH32 - fishery worker)

Name	Relation	Age	Education	Main occupation
	father	50	Literate	Fisherman in <i>bheri</i>
	mother	40	Illiterate	Housewife
	son 1	20	VIII	Mill worker
	son 2	18	XI	Student

(HH33 - fishery worker)

Name	Relation	Age	Education	Main occupation
	father	31	Illiterate	Works in <i>bheri</i>
	mother	25	Literate	Housewife
	daughter	3	-	-

(HH36 - fishery worker)

Name	Relation	Age	Education	Main occupation
	Father	70	Illiterate	Retired
	Mother	50	Illiterate	Housewife
	Son 1	30	VIII	Fisherman in <i>bheri</i>
	Son 2	25	VI	Labourer in tea-shop

## A2.2. Agricultural labourers

(HH13 - agricultural labourers)

Name	Relation	Age	Education	Main occupation
	husband	46	Illiterate	Agricultural farmer
	wife	38	Illiterate	Agricultural farmer
	son 1	21	Class-8	Cart puller
	son 2	19	Class-7	Works in own farm

(HH21 - agricultural labourers)

Name	Relation	Age	Education	Main occupation
	husband	55	IV	Vegetable grower
	wife	45	Illiterate	Vegetable grower

(HH23 - agricultural labourers)

Name	Relation	Age	Education	Main occupation
	husband	52	Illiterate	Vegetable seller
	wife	46	Illiterate	Vegetable grower
	son	26	VIII	Vegetable seller
	daughter-in-law	20	VIII	Housewife

(HH24 - agricultural labourers)

Name	Relation	Age	Education	Main occupation
	wife	27	Class 4	Agricultural worker
	husband	37	Class 4	Farmer
	daughter	5	Nursery	Student

(HH25 - agricultural labourers)

Name	Relation	Age	Education	Main occupation
	husband	49	Class-4	Agricultural farmer
	wife	28	Class-4	Housewife
	daughter 1	30	Class-12	Student
	daughter 2	7	Class-2	Student

(HH29 - agricultural labourers)

Name	Relation	Age	Education	Main occupation
	mother	40	Illiterate	Agricultural worker
	son 1	15	V	Fish transporter
	son 2	12	V	Helps in family farm
	daughter 1	10	Illiterate	Helps in family farm
	daughter 2	7	I	Student

(HH30 - agricultural labourers)

Name	Relation	Age	Education	Main occupation
	Father	30	Illiterate	No work
	Mother	25	Illiterate	Agricultural labourer
	Daughter	7	Class-II	Student
	Son	8months		

(HH35 - agricultural labourers)

Name	Relation	Age	Education	Main occupation
	Mother	42	Illiterate	Agricultural worker
	Daughter	20	Illiterate	Agricultural worker
	Son	12	Class III	Student

### A2.3. Nightguards

(HH15 – nightguard)

Name	Relation	Age	Education	Main occupation
	father	46	X	Night duty management
	mother	44	VIII	Housewife
	son 1	25	XI	Student
	son 2	22	X	Unemployed
	son 3	17	X	Student

(HH17 – nightguard)

Name	Relation	Age	Education	Main occupation
	father	42	IV	Nightguard in fishery
	grandmother	60	Illiterate	Stays at home
	mother	35	Literate	Housewife
	son 1	20	VII	Mill worker
	son 2	18	VIII	Student
	son 3	16	V	Unemployed
	son 4	14	VI	Student

(HH18 – nightguard)

Name	Relation	Age	Education	Main occupation
	father	30	Literate	Nightguard in fishery
	grandmother	65	Illiterate	Stays at home
	mother	26	VI	Housewife
	son 1	8	III	Student
	daughter 1	6	I	Student
	daughter 2	4	-	-

(HH26 – nightguard)

Name	Relation	Age	Education	Main occupation
	father	45	Illiterate	Retired from fishery
	mother	35	Illiterate	Housewife
	son 1	24	Literate	Nightguard at fishery
	son 2	14	VII	Student & casual <i>paikar</i>

(HH27 – nightguard)

Name	Relation	Age	Education	Main occupation
	father	45	Illiterate	Nightguard in fishery
	mother	40	Illiterate	Housewife
	son 1	17	IV	Mason
	son 2	11	IV	Labour at <i>arat</i>
	daughter 1	9	V	Student
	grandmother	60	Illiterate	Stay at home

#### A2.4. Seed traders

(HH19 – seed trader)

Name	Relation	Age	Education	Main occupation
	husband	42	Class 4	Seed transporter
	wife	35	Class 12	Housewife
	daughter 1	18	Class-8	Student
	daughter 2	10	Class-4	Student

(HH20 – seed trader)

Name	Relation	Age	Education	Main occupation
	husband	42	Class 4	Seed transporter
	wife	35	Class 4	Housewife
	son	18	Class-11	Student
	daughter	7	Class-2	Student

#### A2.5. Sweeper and garbage collector

(HH14 - sweeper)

Name	Relation	Age	Education	Main occupation
	mother	38	Illiterate	Municipal Sweeper
	son 1	23	Class 5	Does nothing
	daughter in law	19	Class 4	Housewife
	granddaughter	2		
	son 2	19	Class 6	Van puller
	daughter	15	Class 4	Household work

(HH16 – garbage collector)

Name	Relation	Age	Education	Main occupation
	father	40	Literate	Garbage collector
	mother	35	Illiterate	Vegetable farmer
	son 1	22	XII	Fish cultivator
	daughter 1	18	X	Student
	daughter 2	15	Illiterate	Stays at home

## A2.6. Auctioneer

(HH34 – auctioneer)

Name	Relation	Age	Education	Main occupation
	brother 1	50	BA	Auctioneer
	wife	40	Madhyamik	Housewife
	son 1	23	BSc	Student
	son 2	19	BSc Part I	Student
	brother 2	48	BA 2 <sup>nd</sup> year	Auctioneer
	wife	38	Madhyamik	Housewife
	daughter 1	17	XI	Student
	daughter 2	15	VIII	Student
	daughter 3	13	VI	Student
	brother 3	44	Madhyamik	Fish cultivator
	wife	36	VIII	Housewife
	son 1	13	VI	Student
	brother 4	41	Madhyamik	Fish cultivator
	wife	38	Madhyamik	Housewife
	son 1	14	VII	Student
	daughter 1	11	V	Student
	relative	65	Illiterate	Stays at home

### Appendix 3. Background information on villages in PU Kolkata

#### *Arupota*

The village is situated in the Dhapa garbage farming area, close to the Eastern Metropolitan Bypass. Although considered a village, the settlement lies within the boundaries of the Kolkata Metropolitan Area. The village is easily accessible along metalled roads, and although narrow, the roads within the village are also metalled and well maintained. Houses in the village are mostly small with tiled roofs, some of the richer families have houses constructed total from concrete. There has been a supply of electricity to the village for the past three years, and most of the houses reportedly have a television and radio. Wealthy families tend to use LPG cylinders for cooking. The availability of food is considered plentiful. The main festival in the village is *Durga Puja*, many residents also worship Hindu gods and goddesses, and several fairs take place annually.

#### *Settlement near Bamunghata*

Of the villages in PU Kolkata this appears as one of the more affluent, infrastructure such as roads and the supply of electricity and water is well developed and the general environment is better than that of neighbouring villages. The village is surrounded on three sides by fishponds, and more ponds are found within the village, consequently the landscape is very pleasant, and all villagers appreciate this. The social life of the village is also very pleasant and was attributed to the relative wealth of the inhabitants. The villagers consider the problem of theft to be relatively minor, although fish in *jheels* on the outskirts of the village are more likely to be stolen by outsiders.

The settlement is situated to the north of Basanti Road (the main road through the east Kolkata PU region), close to Bamunghata fish market. Most houses in the village are *pucca* (brick-built) in construction, with very few of the original earthen or *kachcha* houses with tiled roofs remaining. Most houses also have a proper toilet system, with open defecation becoming much less common. The main road is made of brick, while the few interior roads are still un-metalled; the condition of roads in the village has reportedly improved over the past 10 years. The village has had electricity for the past 3-4 years, and all the houses receive their electricity through legitimate connections. The more prosperous houses have both a television and radio. Currently the village does not have a telephone connection, however, a telephone exchange is under construction and they hope to have a telephone service within 1-2 years. The use of fuel wood for cooking is still widely practiced, although it is increasingly being substituted by improved approaches such as kerosene stoves and LPG ovens.

Almost all the residents in the village are engaged in various activities related to farming fish. This includes culture in household fishpond or *jheels* (also known as tank fisheries); working as fishermen, nightguards or carriers on fish farms, and trading at the auction market. Agricultural activities in the region are largely undertaken to meet household subsistence needs, although a few people have large paddy fields, from where they sell rice in the market. However, there was a general view that the profitability of rice culture was questionable, consequently even large-scale rice producers subsidise their income by undertaking activities related to fish culture. It was reported that only 3 people in the village had government service jobs.

The main festival of the village is *Kali Puja*, a day of celebration in the autumn when the goddess Kali is worshiped. Other important occasions include *Krishna naam* (the mass singing for the praise of Krishna) in February-March and *Charak mela* (a religious festival on the last day of Bengali year) in April. There is a temple in the middle of the village where other religious activities and gatherings take place throughout the year. Women are the main participants of these gatherings.

### *Dakhin Bamunghata*

In Dakhin Bamunghata, most of the houses are *kachcha*, made of mud or bamboo, while the roofs are generally made of tiles, although some are constructed from straw. There are only two or three *pucca*, brick built houses in the village. The condition of the main road entering the village has been improved recently, and it is now made of brick. However, smaller roads within the village have still to be developed and consequently are the cause of much inconvenience during the rainy season. Electricity is available in the village, but very few houses have arranged for a proper connection or pay the correct charges to the Electricity Board. Some illegal connections were noted where residents make their own informal arrangements. Most houses in the village have their own tubewells, although these are generally not very deep. There are some deep tubewells accessible to the public and these are generally over 150 feet deep. Water from the shallow tubewells generally has a high iron content and is largely used for cooking, washing and other household purposes; drinking water is mostly taken from the deep tubewells.

Major festivals in the village include Durga Puja and Pujas for other Hindu deities; it was reported that the entire population of the village were Hindu. In addition to religious festivals people from the village also enjoy travelling to neighbouring villages when there is a fair or a *jatra* (plays in local terms). Nearby, in Bamunghata Bajar, which is situated just outside the village by the side of the main road, a *haat* (market) happens on a Tuesday and Friday, and people from the village generally go to do their shopping.

Ponds located in the village are shallow and dry for most of the year; there is also no link between these ponds and the sewage canals. Consequently, fish culture is not widely practiced in the village ponds; instead people culture fish in ponds outside the village, many of which are connected with the sewage canal. Most people in the village are engaged as labourers in activities related to farming fish.

### *Hatgaccha*

Discussions in neighbouring areas suggested that Hatgaccha was not a very safe village in which to conduct interviews. Local people suggested that many of the residents are engaged in anti-social activities and that there is a huge problem with drinking alcohol in the village. Owing to safety concerns the research team did not visit the village but anecdotal evidence suggested many of the huts in the village are built from mud with tiled roofs.

### *Kantatala*

The village of Kantatala, located to the south of Basanti Road is considered large, and as such may be divided into several areas. Peoples of different castes generally live separately in different areas; this is borne out in the names given to the different areas, for example, Ghoshpara and Daluipara. Each area of the village is reached along a different stretch of road leading off the main highway. As Kantatala is very big there are significant variations between communities living in the same village.

Ghoshpara appears quite well developed with almost 70% of houses being brick built, and most have tiled roofs. Some houses also have separate toilet facilities. This area is home mainly to workers from nearby fish farms and a few agricultural farmers. Natunpara, another area in Kantatala is home to mostly Scheduled Tribe and Scheduled Caste agricultural labourers. The ancestors of the Scheduled Tribe members reportedly migrated to Natunpara from Ranchi district in Jharkhand state almost 100 years ago. In this area the houses are generally made of mud, with tiled or straw roofs, the settlement is also situated away from the main road and thus the infrastructure in this area is less developed than in Ghoshpara. The main roads in the village are metalled, and made of bricks, and accessible to vehicles, the roads have been metalled for the past 4-5 years. Smaller roads within the village remain unmetalled.

There are five public tubewells in Daluipara, but only one in Ghoshpara. There was one public tubewell in Natunpara, although this was broken when the team visited. The state of the tubewell was a cause of many public grievances. Most of the public tubewells are 160-240 feet deep, and one is 800 feet deep. Some rich households have their own shallow tubewells. It was reported that water from tubewells in the village has a high iron content and that this leads to stomach problem for most of the villagers. Recently traces of arsenic have also been detected in the underground water, although it was not thought that the current levels pose an immediate danger. The village has three primary schools nearby one each in Kantatala, Hanripota and Kankuria, and there is reportedly a good supply of food in the village. However, the nearest Primary Health Centre is 10 km away.

### *Khanaberia*

Khanaberia village is situated in the Dhapa region, close to the boundary with the present garbage-dumping site, the village is almost linear in shape and runs alongside a sewage canal. The village is small with a population of about 200-250 families. The dwellings in the village are all mud-huts, with bamboo structures and tiled roofs. There is a metalled road which runs through the middle of the village, and houses are largely situated along the sides of the road. Close to the village there are several *jheels* and vegetable plots. The majority of villagers are engaged in culturing fish or growing vegetables. Some poorer families are engaged in ragpicking and many of the younger generation are reportedly unemployed, which in turn leads to anti-social activities. There is no electricity supply to the village, but they do have access to several tubewells for drinking water. The village organises several *pujas* each year, of which *Durga puja*, *Lakshmi puja*, *Kali puja* and *Sitala puja* are the most significant.



## Appendix 4. Example of focus group summary (FG3)

### Focus Group of girls doing work in agricultural fields of Dhapa

*Date-16<sup>th</sup> March 2002*

#### 1) Basic group information

Name	Village	Age	Education	Main occupation
	Boinchtala	15	Literate	Agricultural worker
	Boinchtala	17	II	Agricultural worker
	Boinchtala	14	I	Agricultural worker
	Boinchtala	19	IV	Agricultural worker

Notes and group discussion in relation to mapping exercise

The focus group consisted of young girls who work in the fields of Dhapa as agricultural workers. They have been working in the fields for many years. They not only work in the fields but also, collect different things like coal, plastic, wood and other combustible substances i.e. they also do rag picking whenever they have time, usually in the season in which they do not have work. Some they sell and the others are stored so that they can be used as firewood whenever needed. The girls here were not so much shy but they drew their houses, road and the pond by the side of their houses. They said that because the place where they worked was far off, it could not be drawn in the chart. Besides we found that the girls worked at different places in different fields of course all fields are in Dhapa.

#### 2) Benefits and problems of occupation chart

Benefits	Problems
They can buy their own necessary goods and also for their family	They have to work in the rain or sun anything if they get work.
They can save some amount for future work	There is no certainty of getting work and also in the summer two months they have no work and it is the most difficult during that time.

#### Group discussion in relation to benefits and constraints of occupation:

The girls were very unhappy with their lives and thought nothing was as bad as the lives they were living. Their problems would never lessen.

### 3) List of possible problems/constraints

Problem	Rank order
INSUFFICIENT INCOME	1
ELECTRICITY	3
DRINKING WATER	2
EDUCATION	
HEALTH CARE	4
SANITATION	5
LIMITED ACCESS TO CREDIT	
TRANSPORT	
FOOD SECURITY	
DRINKING ALCOHOL	6
POOR HOUSING	7
ISSUES RELATING TO CASTE	
INSUFFICIENT FIREWOOD	8

Additional discussion regarding each of the above mentioned problems:

Their low level of income is the main constraint. In all of the cases we found the girls' fathers had either deserted their families or was almost non-existent due to sickness or other reasons which they did not want to tell. This is a constant problem especially during the summer when work at Dhapa stops. It is then that they do rag picking at the garbage dumping grounds to etch out a living.

Drinking water is a major problem for them as they get to drink from the tube well nearby whose quality of water is not so superior. Also they do not have electricity in their houses which means suffering and they have to light kerosene lamps. They are frequented by health problems in their family and it is then they have to go long distances for getting access to a doctor and also sickness means loss of money too. Drinking Alcohol is a major problem of the men in the region and in their families even some of their brothers drink alcohol. Their houses are mud ones with roofs of

thatched leaves and straw hence it is very easily destroyed by rain and storms. Besides because their houses are beside water bodies, in the rainy months there is further danger of getting flooded.

#### 4) Time use chart

Time	Activities
4-5	Wake up
6-11	Works in field
11-12	Collects firewood
12-1	Cooks
1-2	Eats lunch after bathing washing
2-3	Washing utensils
4-6	Works in field
6-8	Comes home and prepares dinner
8-9	Eats dinner
10-11	Goes to bed

#### 5) Household consumption

##### *Food:*

The girls mostly have boiled rice at lunch as well as dinner. In the morning they have boiled rice which has been kept in water throughout the night. Apart from these vegetables or leafy vegetables are taken daily with fish about 2-3 times a week and meat usually chicken rarely.

##### *Saving:*

The girls do not get work always so they try to save a little though it often becomes impossible. Besides we find that whatever they save gets spent soon because their income is never enough.

**Household decision-making:**

It is usually the girls' parents who take decisions in the family. In most cases because of the absence of the father in the family the brother or mother, who sometimes consult other family members, takes the decisions.

**Social networks:**

There is exchange of labour, goods or tools for work amongst relatives, friends or neighbours and help with labour is paid back at some point in the future. Thus there is a mutual give and take in times of crisis.

**6) Changes which have affected livelihoods in past and hopes for future change***Changes over the past:*

The changes have occurred but those have all benefited the better sections of the people. The weaker section has remained oppressed as before according to the girls. Roads and other infrastructure whatever has developed has not affected their lives much. Their wages have increased but not as much as the prices of goods. Besides now the market has such a wide variety to attract people but if they spend money on luxuries they will not have money even for the basic needs. Hence it is more a bad that these things are available as they now know they cannot buy them.

*Future change:*

They would like their present situation to improve but they do not know how this is possible. The only way things can be bettered is if they get more money and also if the men could act properly with women. Marriage for them is also fearsome since they do not want drunken husbands but they do not even have money through which they could hope of getting good husbands.

**General information about the village**

The village is by the side of the Dhapa fields and filled with water bodies with a tube well by the side. The girls live in small shanties with their roof of straw and their walls and floor of mud. The village in general consists of not only the small huts but big concrete houses too where the relatively well off people live. Most of these people are engaged in fisheries.

**Observations**

It was found that in most cases the fathers of the girls were either not present in their family i.e. had deserted or usually remained drunk. The surroundings of their houses were dirty with different things brought from the dumping ground, which they would sell. There was lack of proper hygienic conditions everywhere. The girls were cooking with the firewood and there was smoke everywhere, which was suffocating, but they did not seem to care. The place where these people lived, we found there were boys sitting in the narrow road and in fact they even were engaged in passing remarks whenever a girl passed. In fact the pathetic condition of the people was observable everywhere.

## Appendix 5. Example of household interview summary (HH12)

### Household interviews using participatory techniques

Date- 20<sup>th</sup> November, 2001

#### Basic household data

Name of hh member	Relation	Age	Education	Main occupation
	Mother	70	Literate	Stays at home
	Son 1	36	X	Fish cultivator
	Son 2	34	V	Fish carrier

#### Household production assets (owned, leased, rented, access to common land)

Asset	Type and amount	Where	When and how obtained
Land	Own house	Bamunghata, Rajnagar	Ancestral property
Animals			
Ponds	8-9 <i>bigha</i> of fish pond	Bamunghata, Rajnagar	Taken on lease

#### Household discussion in relation to their household livelihood strategies:

The income of the family mainly comes from the fish cultivation in *jheels*, taken on lease. They generally cultivate fingerlings, and also some table fish. The fingerlings are sold to the nearby fisheries. The table fishes are sold at the auction market of Bamunghata (known as *arat* or *kanta*). The labourers do the fishing etc., while the elder son is only supervising them.

The younger son is engaged in temporary fish transportation. He works as a carrier in different fisheries, mainly for Chachoria Cooperative. His work is to transport table fish from the *bheries* to the auction market by cycle. Sometimes he also works as a temporary fisherman. He gets only a small income from these activities. According to the household members, his income is mostly spent on his expenditure for smoking.

### Income-generating and subsistence activities chart

Livelihood strategy	Weight overall importance	For subsistence or market or both	Whose mainly responsible	Advantage	Disadvantage	Seasonal change
Fish culture	1	Mainly for market, rest for subsistence	Son 1	Generate income for the family	Large amount has to pay for lease	5 months lean season in winter
Temporary fish carrier	2		Son 2	Get substitute income	Not regular income	

### Household division of labour chart

Time	Mother	Son 1	Son 2
6-7	Wake up in the morning		
7-10	Household activities	Supervise in the jheels	Works in the fishery (if available)
10-12		Chatting with friends in the market, or take rest at home.	
12-1	Lunch		
1-3	Rest		
3-5	Watching T.V.	Watching T.V., or chatting with friends	
5-8	Household works		
8-9	Dinner		
9-10	Go to bed		

### Discussion in relation to household division of labour:

All the household works are done by mother, while earning activities and shopping etc. are done by the sons.

## Household food consumption

Food	How often do you eat it? (Daily or weekly)	Where from? Household production	Where from? Market	Where from? Payment in kind
Fish (list different types: both sewage water and salt water fishes)	Daily	Sewage water fishes from household fish ponds	Salt water fishes from the Bamunghata market	
Meat	Once in a month		From Bamunghata market	
Vegetables (whatever available in the market)	Daily		From Bamunghata market	
Rice	Twice daily		From Bamunghata market	
Bread or Ruti	Sometimes		From Bamunghata market	
Dahl	Daily		From Bamunghata market	

## Discussion in relation to household food consumption

Their staple food is rice, and they love to take rice at least twice in a day, both in lunch and dinner. Sometimes, they take it even thrice in a day. They take *ruti* or hand-made bread only during winter. Fish is also a part of their regular diet. Tea and biscuits recently become a part of their diet. They take it at breakfast, in the Tiffin in afternoon, or whenever there is a guest in the house.

## Discussion in relation to household expenditure:

The total income obtained from the fishponds, are spent mostly in foods for the household members, and also to buy inputs for fish culture. Both the expenditures are almost equal, though the expenditure on food continues throughout the year, while inputs are bought only in bulks during certain seasons. The youngest son spent almost all of his income in smoking. Whenever there is any need for household repair, they share it with their other brother's family, who lived in the same house.

## Saving:

The members of the family told us that they had no savings at all, as the income is totally spent on buying foods and inputs.

**Household decision-making:**

The members of the household take decisions together, though the youngest son participates less in decision-making. They also consult with the other relatives living side by side, whenever necessary.

**Social networks:**

This family was once a part of a joint family. At present the two elder brother's families are separated, but they live in the same house, which they have now divided among them. The present family includes the two younger unmarried brothers and their widowed mother.

Changes that have affected livelihoods in past and hopes for future change

***Changes over the past:***

The infrastructure of the village has improved recently in the last 10 years. Mostly condition of the roads, availability of electricity and LPG gas cylinders for cooking purpose has improved. The condition of the schools has also become better as they are made of bricks now.

***Future change:***

In the near future they are going to have telephone services. They need hospitals and health centres in their locality. They also want that their children should become service men as it gives permanent income and there will be no uncertainty that bothers them now.

***Community organisation:***

Panchayet is the local governing body, which takes decisions regarding the village improvements etc.

**General information about the village**

This is an affluent village with better infrastructures and environment than other neighbouring villages of the region. The village is situated in the north of Basanti Road (the main road of the region), near the Bamunghata fish market. Most of the houses in this village are *pucca*, brick-built houses. Very few houses are still earthen or Kachcha with tiled roofs. Most of the houses also have proper toilet systems and using fields for this purpose is very less here. The main road of the village is made of bricks, while the few interior roads are still unmetalled. The condition of the roads improved within 10 years. The village has electricity for the past 3-4 years, and all the houses get it through proper legal way. The prosperous houses have T.V. and Radios. At present the village only does not have the Telephone services. However, the Telephone Exchange is under construction and they hope to get the telephone services within a year or two. Using of fuel



wood for cooking purpose is still practiced here, though it is increasingly substituted by better options like using of Kerosene-stoves or LPG Gas-ovens.

Almost one hundred percent of people of this village are engaged in activities related to fishing. This includes household fishpond or *jheel* cultivations (also known as tank fisheries); working as fisherman, night guard or carrier in the large fisheries and small *jheels*; and conducting *arats* in the fish market. Agricultural activities are mainly for home consumption. Though few people having large share of paddy fields, sold rice in the market, it is not much profitable, and always substitutes their main income form the fish-related activities. Only three persons of this village are service men.

The main festival of the village is Kalipuja, i.e., worship of goddess Kali in a particular day in autumn. Apart form this, 'Krishna-naam' (mass singing for the praise of deity Krishna) in February-March and 'Charak-mela' (a religious fest in the last day of Bengali year) in April are the two most important festivals for the villagers. There is a temple in the middle of the village, where more other religious activities and gathering takes place throughout the year. Women are the main participants of these gatherings.

The environment of the village is very good as it is surrounded in its three sides by fishponds. Fishponds are also found within the village. The social environment is also appreciable, as due to better standards of living, and better financial status; relations to each other are quite good. Theft is almost no problem, apart from the *jheels*; where outsiders came for the stealing of fish.