

## **CAPTURE FISHERY AND RURAL SOCIO-ECONOMIC DEVELOPMENT- A STUDY OF THREE FISHING VILLAGES OF CACHAR DISTRICT, ASSAM**

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### **ABSTRACT**

*An investigation was carried out in three fishing villages, namely Amtila, Boiragitila and Lalmati of Cachar district, Assam to generate baseline information on status of capture fishery and how it moulds socio-economic life of rural fisherfolk. The study revealed low CPUE and low income leading to increased poverty and its consequences. There is always a cyclic relationship in between production (based on capture per unit effort) and poverty. Once production is increased, proper marketing strategy can lead to poverty alleviation and once poverty is alleviated, production can be increased by using scientific measures and modern technologies. Application of sustainable practices for fisheries management can only restore and increase productivity, facilitating long-term capture fisheries and socio-economic condition of fishermen leading to rural development.*

### **Introduction**

Villages are principally food producing units. They produce not only for their own subsistence, but also for the urban societies, which are non-food producing units. Rural economy includes activities that are either agricultural or closely linked with agricultural production i.e. allied agricultural production activities. In the process of production, rural workers enter into various kinds of economic relationship with each other. Through these relationships, cultivators and food producers get access to

land, credit, labour and other resources and landless labourers get access to employment. Fishing is one of such economically important allied agricultural production activities. Fish is highly nutritious, so even small quantities can improve people's diets (FAO, 2007a). They can provide vital nutrients absent in typical starchy staples which dominate poor people's diets (FAO, 2005a). Fish provides about 20 per cent of animal protein intake in 127 developing countries (Thorpe et al., 2006). Fisheries can also contribute indirectly to food security by providing revenue for food-deficient

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countries to purchase food. The number of people directly employed in fisheries and aquaculture is conservatively estimated at 38 million, of whom over 90 per cent are small-scale fishermen (FAO, 2005a). In addition to those directly employed in fishing, there are "forward linkages" to other economic activities generated by the supply of fish (trade, processing, transport, retail, etc.) and "backward linkages" to supporting activities (boat building, net making, engine manufacture and repair, supply of services to fishermen and fuel to fishing boats, etc.). There are three categories of rural poor in India. First, those who have landed property, but due to lack of proper facilities they are poor. Second, those who have skill but no landed property for production purpose and fighting with poverty due to lack of opportunities and lastly those who have neither skill nor land. Fishing is such a production activity which can provide economic benefit and employment to all the three categories of poor thereby leading to poverty alleviation and upliftment of rural socio-economy.

Fishing is not a new practice in India. Evidence of fishing was found among the pre-historic artifacts (Allchin and Allchin, 1982 ; Sarkar, 1984 ), in the artifacts of Harappan pottery , motif and civilisation of Indus valley (Bagchi, 1955; Allchin and Allchin, 1982) and 'Asokan' epigraphical materials (Hora, 1950 ; Thapar, 1961). Some fishermen are specialised and rely entirely on fisheries for their livelihood, while for many others, especially in inland fisheries and developing countries, fisheries form part of a diversified livelihood strategy (Allison and Ellis, 2001). In India, according to Sinha and Srivastava (1991), the return from aquaculture can be up to fifteen times higher

than traditional agriculture. Fishermen, researchers and managers commonly rely on measures of fish abundance based on catch per unit effort (CPUE) rather than on fish population estimates, because CPUE require less effort and expense (Harley et al., 2001). The "catch" portion of the measure may be expressed as the number or weight of the entire catch, a selected subset of the catch, or a particular species in the catch whereas the "unit effort" portion of the rate usually refers to the time. A decline in CPUE over a time period is usually an indication that stocks are declining (Morgan and Burgess, 2005). In Assam, floodplain wetlands constitute important fishery resources as 23.15 per cent of area of Assam is floodplain (ENVIS-Assam, website). Cachar district occupies a geographical area of 3,786 square kilometers and wetlands are known to cover 10419 ha i.e. 2.75 per cent of its total geographical area (NWIA, 2010). Wetlands provide ecological security to biodiversity as well as economic security to large number of fishermen of the entire area. Present investigation was carried out in three fishing villages, namely Amtila, Boiragitila and Lalmati of Cachar district, Assam to generate baseline information on status of capture fishery and how it moulds socio-economic life of rural fisherfolk.

### Methodology

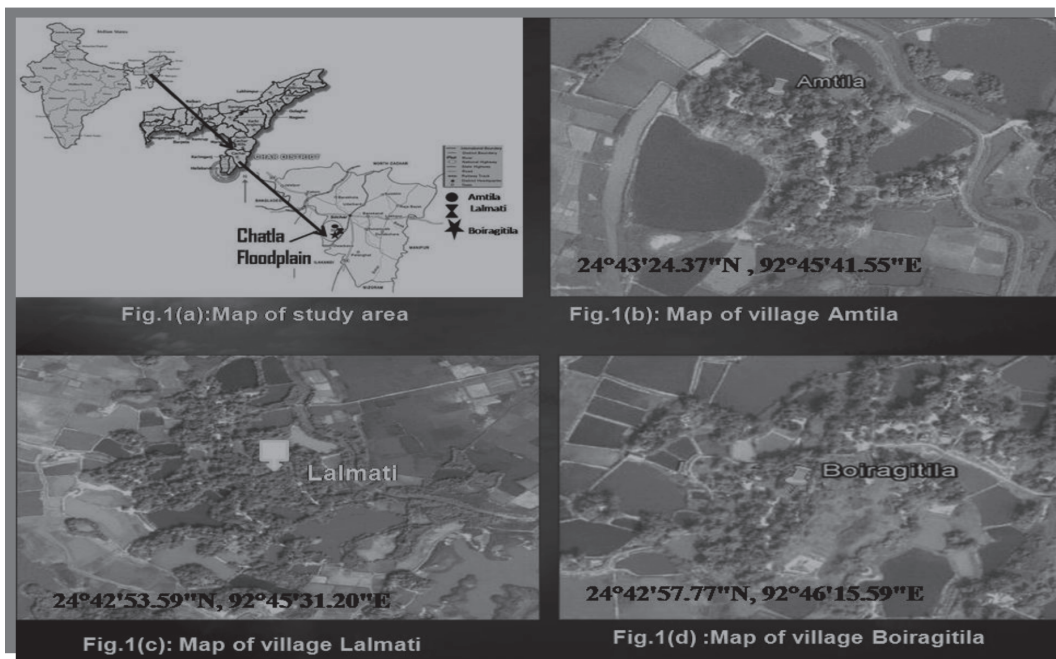
**Study Area:** Present study was carried out in three villages, namely Amtila (24°43'24.37"N, 92°45'41.55"E), Lalmati (24°42'53.59"N, 92°45'31.20"E) and Boiragitila (24°42'57.77"N, 92°46'15.59"E) of Cachar district, Assam. All the three villages are located in Chatla floodplain area (Figure 1). Chatla floodplain is formed by the meandering river Ghagra, a tributary of river Barak. Chatla floodplain has

32 villages, 1500 fish ponds and 12 large water bodies locally known as Beels. Almost all male inhabitants of the area are fishermen by profession. They belong to Kaivartya community, the traditional fishermen community of Bengal and Assam.

**Data Source:** This study is based on primary data collected during March to September

2011. Information on fish capture per unit effort (CPUE) and socio-economic condition was collected by preparing interview schedule with structured and semi-structured questions, extracting data (ESCAP, website; econdata, website) from 90 respondents (30 respondents from each of the three villages), who are fishermen by profession, each representing a particular

**Figure1 : Map of the Area Studied**



family. Different other methods were applied for data collection which include Participant observations, Focus group discussions (FGD) and Household level case studies.

**Results and Discussion**

The fishermen community is commonly understood as group, fishing in some area and engaged in more or less the same pattern of fishing (Biswas, 1996).

**CPUE:** In the current study, 95 per cent fisherfolk from the village Amtila and Boiragitila, reported their CPUE within the range of 0.5-1kg/ha /individual, whereas remaining 5 per cent fishermen from both the villages reported their CPUE within the range of 1-1.5 kg/ha/individual. In the village Lalmati, 85 per cent fisherfolk reported their CPUE within the range of 0.5-1kg/ha / individual whereas 10 per cent reported their

CPUE within the range of 1.5-2 kg/ha/individual and remaining 5 per cent reported their CPUE within the range of 2-2.5 kg/ha/individual. Though, Lalmati was found in a better condition than the other two villages, still this is also a fact that maximum number of fisherfolk from each of the villages reported their CPUE within the range of 0.5-1kg/ha/individual (Table 1). A preliminary study by Das (2002) on the capture fishery potential of Chatla pointed out the stressed environmental status of Chatla wetland. Since water of the wetland is conducive for fish production (Laskar and Gupta, 2009; Purkayastha and Gupta, 2011), the low CPUE

revealed from the study can be attributed by high population growth rate, siltation, overfishing and loss of species. High population growth rate and deforestation in the catchments areas contributed to the disruption of natural ecosystems through the clearing of the catchment areas due to reclamation for agriculture, urbanisation and over-exploitation reducing the economic value of the lake. Over-fishing is one of the important factors behind low CPUE. During seasonal flood with community fishing right in Chatla, over-fishing does occur in fisheries unaware of the consequences of their actions or unwilling to change because of

**Table 1 : Percentage Composition of Range of Capture Per Unit Effort (CPUE) (kg/hr/indiv) in Amtila, Lalmati and Boiragitila**

CPUE	Amtila (%)	Lalmati (%)	Boiragitila (%)
0.5-1 kgs/hr/indiv	95	85	95
1-1.5 kgs/hr/indiv	5	0	5
1.5-2.0 kgs/hr/indiv	0	10	0
2.0-2.5 kgs/hr/indiv	0	5	0

poverty despite evidence of declining fish stocks (Das , 2002; Laskar and Gupta, 2009; Purkayastha and Gupta 2012).

**Income:** In this survey, 5 per cent fishermen of the village Amtila reported their income within the range of ₹ 3000-3500 per month, 40 per cent fisherfolk reported their income within the range of ₹ 3500-4000 per month, 25 per cent reported their income within the range of ₹ 4000-4500 per month and 30 per cent reported their income within the range of ₹ 4500-5000. Ten per cent respondents from Lalmati area reported their income within the range of ₹ 3000-3500 per month,

50 per cent reported their income within the range of ₹ 3500-4000 per month. Ten per cent respondents reported their income within the range of ₹ 4000-4500 per month and remaining 30 per cent reported their income within the range of ₹ 4500-5000 per month. In Boiragitila, 10 per cent fisherfolk reported their income within the range of ₹ 3000-3500 per month, 35 per cent fisherfolk reported their income within the range of ₹ 3500-4000, and 40 per cent reported their income within the range of ₹ 4000-4500, 15 per cent reported their income within the range of ₹ 4500-5000 per month (Table 2).

**Table 2 : Percentage Composition of Fishermen According to Their Monthly Income in Each of the Three Villages Studied**

Income per Month	Amtila (%)	Lalmati (%)	Boiragitila (%)
₹ 3000-3500	5	10	10
₹ 3500-4000	40	50	35
₹ 4000-4500	25	10	40
₹ 4500-5000	30	30	15

**No. of Individuals:** Maximum number of fishermen from each of the three villages (80 per cent from Amtila, 90 per cent from Lalmati and 60 per cent from Boiragitila) reported their families with 5-10 number of individuals (Table 3). In Amtila, 5 per cent reported their families with 1-5 individuals, 80 per cent reported their families with 5-10 number of individuals, 15 per cent reported their families with 10-15 number of individuals. In Lalmati, 5 per cent families are reported to have 1-5 individuals, 90 per cent

families are reported to have 5-10 number of individuals, 5 per cent reported their families with 10-15 individuals. In Boiragitila, 10 per cent fishermen reported their families having 1-5 of individuals, 60 per cent reported their families with 5-10 number of individuals, 25 per cent having 10-15 members and remaining 5 per cent with 15-20 number of individuals. So, the income ranges reported from each of the three villages are too low to run the families.

**Table 3 : Percentage of Families in the Amtila, Lalmati and Boiragitila According to Family Size**

Family Members	Amtila (%)	Lalmati (%)	Boiragitila (%)
1 to 5	5	5	10
5 to 10	80	90	60
10 to 15	15	5	25
15 to 20	0	0	5

**Educational Status :** In this survey, 60 per cent fishermen from the village Amtila reported their educational qualification up to primary level or LP, 20 per cent up to M.E, 10 per cent reported their educational qualification up to 10th standard, 5 per cent

HSLC pass outs and remaining 5 per cent up to HS. In Lalmati, 55 per cent reported their qualification up to LP or primary level, 25 per cent reported their educational qualification up to M.E, 15 per cent reported their qualification up to 10th standard and 5 per

cent reported their educational qualification as H.S.L.C passed. 45 per cent fishermen from Boiragitila reported their educational qualification up to primary level, 30 per cent reported their qualification up to M.E. level, 10 per cent reported their qualification up to 10th standard, 5 per cent H.S.L.C passed and 10 per cent reported their educational

qualification up to H.S (Table 4). That means, majority fishermen from each of the three villages left their school after class four. In order to deal with poverty, majority children of the area leave their education half way and engage themselves in tea shops, grocery and stationary shops, public transportations, household domestic work.

**Table 4 : Percentage Composition of Fishermen from Amtila, Lalmati and Boiragitila According to Their Educational Qualification**

Education	Amtila (%)	Lalmati (%)	Boiragitila (%)
Primary level	60	55	45
M.E	20	25	30
10 std.(HSLC. FAILED)	10	15	10
H.S.L.C passed	5	5	5
Up to H.S	5	0	10

### Constraints

Present study identified factors like multiple ownership, lack of technical knowledge, lack of quality seed, high price of feed, lack of money, etc., as the main constraints of fish production in the surveyed area. There is considerable evidence of a strong negative correlation between household size and consumption (or income) per person in developing countries (Atkinson and Anthony, 1987). Low CPUE, prevalence of chance factor in fishing activity and family size, all these factors are responsible for adoption of other occupations by fishermen as their primary occupation. Majority fishermen from each of the three villages reported that they have adopted fishing as their seasonal as well as part time occupation (Tables 5 and 6). So,

there exist a close relationship between poverty, family size and CPUE. In a rural area, with lots of potential for capture fishery, it is not very hard to bring socio-economic upliftment if knowledge about scientific methods of fishing is disseminated among fisherfolk of that particular area. Khan et al. (1998) identified that the lack of knowledge about fish culture is one of the most important problems behind low catches. Lack of money is another important reason behind this issue. This fact is also supported by Rahman (2003), who stated that the major constraints of carp farming are lack of money and higher production cost. The rights of poor fishermen to harvest and manage local fish stocks need to be strengthened in order to fight poverty and reduce over-exploitation of threatened coastal and inland

**Table 5 : Percentage Composition of Fishermen Who Depend upon Fishing Either as Seasonal or Year Round Activity in Amtila, Lalmati and Boiragitila**

Timing of fishing activity	Amtila (%)	Lalmati (%)	Boiragitila (%)
Seasonal	75	85	70
Year round	25	15	30

**Table 6 : Percentage Composition of Fishermen Who Adopted Fishing as Their Part Time/ Full Time Occupation in Amtila, Lalmati and Boiragitila**

Type of profession	Amtila (%)	Lalmati (%)	Boiragitila (%)
Part time fishermen	80	85	75
Full time fishermen	20	15	25

fisheries (FAO, 2007). Contributing to the eradication of poverty and food insecurity depends on equitable access to resources (Scones, 1998) and according to Viswanathan et al. (2003) the potential advantages of community participation in fisheries management include efficiency and equity. So, community participation in fisheries management along with proper scientific knowledge can only result into increased production in sustainable way.

### Conclusion

The study reveals that the status of capture fishery and traditional fishing practices, play important role in socio-economic life of rural fishermen. There exists

a cyclic relationship in between poverty and production. Once production is increased, poverty can be reduced. Again, once poverty is alleviated, production can be increased by using scientific measures and modern techniques. Ensuring an appropriate allocation of resources between competing groups within and outside the fisheries sector may result in an improvement in the economic situation of fisherfolk and the generation of economic benefits to the local community. In this context, community participation through active operation of a cooperative unit can be an important step. Such community based effort can reduce the role of middle man providing more and more benefits to the fisherfolk.



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