

# Ecology, livelihood and Disease among the Fishing and Boating Communities: A Study of Selected Villages in South Assam, India

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## ABSTRACT

This paper highlights livelihood and health problems of fishing and boating communities living in rural areas of South Assam. The fishing and boating communities are living in remote and isolated villages of the region who settled nearby rivers, water bodies and low land for survival with their traditional occupation. But due to gradual ecological changes they are in hard livelihood crisis which made them poor and vulnerable to diseases and illness. Poverty, illiteracy and ignorance of the communities turned majority of them into landless labourers and wage earners. Small and marginal farmers of the communities are also suffering from similar conditions. Lack of proper sanitation, drinking water and unhygienic health habits are also responsible for their sufferings from disease and illness. They are far away from the surveillance of the health care system provided by government. Access to modern health care is not possible for them due to lack of availability and affordability of modern medicine.

*Keywords: Ecology, Livelihood, Disease, Health care, Fishing and boating community*

## Introduction

According to World Health Organisation (WHO), Physical, emotional and social well being of people is determined by several factors. Biomedical model of disease, illness and health of a community gives stress on physiological factors responsible for illness. But the recent discourse on health highlights biological, environmental and ecological, socio-cultural, demographic, geo-political and many other dimensions. Relationship between ecology, society and health is established by many scholars (Park, 1925; Howley, 1950; Barker, 1968). Ecosystem people are directly depending on nature for their survival. Ecological changes, as per report of International Union for Conservation of Nature (IUCN), leads to loss of livelihood, social frictions and many other social

problems of the ecosystem communities worldwide. IUCN also talks about relationship among climate change, land use, biodiversity loss and human health risk in contemporary period. Natural resources like land, forest, water bodies provide means of livelihood to millions of people worldwide. Shortage of these resources due to ecological, environmental and other reasons cause livelihood problem of the people who solely depend on nature.

## Methodology

Five villages from Karimganj District of South Assam are purposively selected for the study. Villages of Karimganj District are selected for study because this district is lower in altitude than other two districts of the region where *Patni, Nanasudra*

and other communities are predominantly living on fishing and boating and their situation is different from people of their own communities living in other parts of the region. The history of settlement of these fishing and boating communities in Karimganj District is also very specific. All the five villages are inhabited by boating and fishing communities living nearby river and waterbodies who are vulnerable to flood, mini flood or water logging conditions every year. This study is based on both primary and secondary data. Primary data is collected from 300 respondents randomly selected from five villages taking 60 respondents from each village. The study is mainly qualitative in nature, data is collected from the field by observation and interview methods. Interview schedule is prepared with the questions related to livelihood and health problems of the respondents. Secondary data is collected from books, journals, magazines and newspapers. Secondary data has also been collected from internet source. Oral history of their settlement in the region is collected from some senior citizens of the villages. Interview of ASHA, ANM, Anganwari Workers and Panchayat members are also taken to collect more information regarding population, the health habits and disease profile of the people under study.

### Objectives of Study

The study aims (a) To enquire into the livelihood pattern of fishing and boating communities in selected villages (b) To understand the ecological change in the region and the problem of livelihood of the communities selected for study (c) To find out how livelihood crisis causes health problems of the fishing and boating communities and (d) To understand health care practices of the communities under study.

## Results and Discussion

### Ecological changes in Assam

Assam, situated in Eastern Himalayan foothills, is the largest state in North East India endowed with forest, plains, rivers and many water bodies. As per 2011 census report the state has total population of 31,205,576 individuals from different socio-cultural and ethnic origin. Land, forest and water resources directly provide livelihood for thousands of families in the state. As per report of Directorate of Economics and Statistics, Assam 2016, total forest land in the

state is 1,853,000 hectares, total land under still water is 152,000 hectares and total water-logged land is 64,000 hectares. Wetland degradation is a serious problem for people belonging to fishing and boating communities (Das and Bhattacharjee, 2020) who are directly dependent on wetlands located in different parts of Assam for their livelihood (Das and Bhattacharjee, 2015). Flood is one of the most dreadful natural calamities of the state (census, 2011) which severely affects the state by damaging crops, livestock, land and property of people in every year. The flood caused by the two great rivers Brahmaputra and Barak destroys property, particularly rural economy of the state.

The South Assam or Barak valley region was previously constituted by Cachar district and some portion of Sylhet in undivided India but after partition the district of Cachar with its three sub-divisions viz. Silchar, Karimganj and Hailakandi constituted Barak Valley or South Assam region of the state. In course of time the government of Assam has turned two sub-divisions into two districts of Assam viz. Karimganj and Hailakandi. Hence, the present Barak valley region of Assam is constituted by three districts viz. Cachar, Karimganj and Hailakandi. According to historians and British anthropologists the region was home of tribes and other ecosystem people living in plains and hills who cleared the deep forest to make it suitable for settlement of people (Guha, 2012, Allen, 1905). In course of time, people belonging to several castes, religions and languages settled in this region. The region is endowed with rivers, water bodies (*beels*), swamps and low land where the fisherman and boatman along with few other communities used to live on boating, fishing and cultivation. William Wilson Hunter in his book 'A statistical Accounts of Assam' mentions the presence of several water bodies (locally known as *beels*) of Barak Valley which were filled with water during summer season due to huge flow of water from different rivers within the region.

Ecosystem of South Assam is undergoing several changes due to loss of previous heritage of forest, water bodies and rivers vis-a-vis changes in rainfall pattern (Das and Joshi, 2012) and temperature of the region. According to some studies (Bokth, 2014) the forests, water bodies and depth of rivers are getting reduced day by day due to population expansion and many other reasons associated with it. The ecosystem communities like *Patni*, *Namasudra*, *Kaibarta* and *Mahimal* are mainly settled nearby rivers,

waterbodies and low land but as a result of gradual ecological and demographic changes they are leaving their traditional occupation of boating and fishing by adopting several other low-grade occupations.

### Livelihood Problem of the Communities

The people under study are predominantly fishing and boating communities. In course of time, they engaged in cultivation due to gradual ecological changes in the region. They settled in river bank, water bodies and low land with a view to earn livelihood by fishing. But gradually they cleansed the unused flora of the low and water-logged land to make it useful for the purpose of cultivation. Previously in summer season the low land of the region was greatly affected by flood and rain water which helped people to catch fish for their survival though flood or water logging is still a contemporary problem for the community but it is not so severe like the past. Availability of fish in the region has gradually decreased due to ecological, environmental and other reasons which compelled the communities to search for alternative means of livelihood. Cultivation in course of time has become the principal source of earning for these communities. Ecological changes have also altered the cultivation practice of the community who used to produce, once upon a time, only two varieties of paddy locally named as *Murali* (colour of rice of this paddy is red) and *Achra* (ten to twelve feet long paddy plant) both of which grow in water. Flood could not affect these two varieties; the former was harvested in July-August months and the later in the months of November and December. Both the varieties were sown in the month of March when the land remained dry but the former (*Murali*) variety was harvested within six months from the month of sowing and the later (*Achra*) took eight to ten months to harvest. People used to harvest *Murali* in water with the help of boats and floats made of banana or bamboo tree. They had to tolerate bite of leech in water ignoring risk of diseases to harvest that paddy. Though the other variety (*Achra*) was harvested in winter season but it was too difficult to cut the plant for its huge length. Harvesting process was too much lengthy and irritating which may be one of the reasons for discontinuation of this variety in future. One ninety years old respondent disclosed to the researcher about the history of beginning of paddy cultivation in their village

*'My grandfather's father was the first person to settle in this house permanently with family along with his eleven months son (my grandfather) and built this house in 3 acres of land but he could not build the landed property we had in past. Our landed property was built by my grandfather. He was too brave and laborious person in the entire locality who made a property of 25 acres of land only by cleansing an aquatic plant locally named as 'Tera' which was too hard to uproot from the soil. During his childhood and before, entire field was covered with that plant where people did not enter due to fear of snake, leech and other insects-said by my grandfather. While my young grandfather started the task of uprooting the plant other villagers also followed him but none could do like him. Due to efforts done by him and few of his friends to make cultivation possible in water, since then our village has become a permanent settlement for dwelling. I can recall today the story of great flood of the Bengali year 1336 (in the year 1915 A.D. approximately) and the aftermath famine in entire Bengal told by my grandfather. He saved several families of our village by supplying rice from his own store. Perhaps it was he who initiated rice cultivation in water particularly two varieties locally called 'Murali' and 'Achra' and that practice was continued for couple of decades but in my time cropping pattern gradually changed. Fish I had never sold in market but I caught for our own consumption in huge quantity and variety that we can't imagine today. Many of fish varieties locally known as Lacho, Rhita, Ghagot, Bherha, kailya, Baing, kakiya and such many others previously found in our river and low land are extinct today. I reared twenty-five buffaloes which were used to plough the land we had before division of our joint property'.*

The story reveals the livelihood transformation of the community from boating and fishing to cultivation and animal rearing due to ecological changes in the region. Many households of these ecosystem communities could not survive in that tough situation who left the villages and settled in upper areas of the district mostly in forest to start cultivation by cleansing the forest land. Hence in Karimganj district of South Assam most of the contemporary forest villages are inhabited by the lower caste people like *Patni*, *Namasudra* along with Muslim peasants and few indigenous tribes of these localities.

In autumn and winter seasons the land became dry and the people of these villages had to produce vegetables for their own consumption. Initially they used to rear buffaloes for ploughing and milking as this animal likes to eat grass grown in water during summer. Ducks were also reared by the community

mainly for favourable conditions of rearing which fulfilled their domestic need of egg and meat. Rearing of goat and cow was difficult for them in the past because in summer most of the grasslands were affected by flood or rain water. At present buffalo is not reared by the people of these communities, the small and marginal farmers use to rear cow for ploughing. But Buffalo is widely reared in their locality by people of other communities particularly by the landed propertied class.

Due to land slide caused by deforestation for settlement of population in hilly areas and other reasons, the flow of river and flood water carried huge quantity of soil which gradually deposited and increased the height of low land over a period of time. The low land effected by flood and rain water thus becomes a vast cultivable land within few decades where seasonal fishing and cultivation both are possible in contemporary time. At present population of these villages are composed of small or marginal farmers and many of them have sold their land to the rural propertied class mainly to the money landers owing to their poverty, illiteracy and ignorance. The small and marginal farmers of these villages are suffering from several problems like flood, drought, and lack of knowledge for scientific method of cultivation. Poor quantity of production and lack of demand of their products in markets restrain them to proceed towards commercial production of *ravi* and *kharif* crops. Now the landless poor people in the villages under study are living on wage earning. They are working as mason, carpenter, helper of masons and day labourer. Very few people who achieved education up to matriculation or above have availed government jobs. The villages inhabited by these communities are situated in remote and isolated areas where there are no facilities like source of pure drinking water, electricity, housing facilities, drainage system, schools, hospitals etc. Modern amenities of life are out of reach of these

villagers. Permanent and seasonal unemployment are major causes of their poverty. Social inequality caused by caste, gender, religion and region has made them backward from the past.

### Profile of Communities under Study

Most of the families under study (71.67%) are living in below poverty line (BPL) who are facing hard crisis for livelihood. They are almost landless or having a very small holding of cultivable land which is not sufficient to live on cultivation. Mediocre farmers are very few in number who are solely living on cultivation and their income is a little bit more than the wage earners.

The mediocre farmers are also suffering from crisis of livelihood due to less productivity in every year for their sole dependence on nature. The private job holders are mainly the out migrant workers who are engaged mostly in unorganised sectors in cities within and outside of North East India.

The above table II reveals the educational attainment of the fishing and boating communities under study. The table reveals that 34.22 percent of the members of the families of respondents are illiterate. Educational attainment of majority of the people (around 59%) ranges from primary to high school who could not pass final examination conducted by Board of Secondary education, Assam. Only 2.85 percent people have completed matriculation and 3.42 percent have passed higher secondary class. Higher education is graduation, post-graduation and professional education is almost absent among the communities.

### Nutrition and livelihood

Nutrition of a community depends on livelihood and income. The nutritional status of the communities is measured by analysing weekly intake of dietary supplements of the household under study. The study reveals that food items consumed by most

**Table 1.** Livelihood profile of sample households

Means of Livelihood	Number of Households	Monthly Income	Percentage
Wage Farmers	129	Below Rs. 3000	43%
Small Farmers & wage earners	86	Rs. 3000-6000	28.67%
Mediocre Farmer	33	Rs. 6000-9000	11%
Private Job Holders	39	Rs 9000-12000	13%
Govt. Job Holders & pensioners	13	Rs. 12000 above	4.33%
<b>Total</b>	<b>300</b>	<b>Nil</b>	<b>100%</b>

Source: Fieldwork in selected villages in 2018

of the households for one week do not have balanced nutritional quality. Food items enriched with protein and fat like meat, egg, soyabean, milk, cheese, butter, nuts and different varieties of pulses are hardly consumed by the households on daily basis. Fish is consumed frequently but most of the families consume *chalani* (comes from Andhra Pradesh) fish which is preserved for couple of days by using chemical called formalin. Local variety of fish is costly and not affordable to all households. Dry and fermented fish is very frequently consumed by them to meet the protein requirement. Rice, vegetables, lentil, fish and dry fish are the frequently consumed food items which are insufficient to meet adequate requirement of energy, protein, fat, vitamins and minerals to keep them fit and healthy. Fruits are hardly taken by the community due to financial constraints. Milk and egg are available only in few families those who rear cow and duck. Vegetables are partially produced as well as purchased in all seasons by almost all families but quantity of vegetables consumed by them is less as compared to daily requirement. Hence mal nutrition is common problem particularly among children and women of the villages as reported by concerned health personnel like ASHAs, ANMs and Anganwari Workers.

### Livelihood, Sanitation and Health Habits

It is observed from study that *pucca* houses made up of concrete roof, walls and tiled floor are very less in villages but *semi-pucca* houses made up of tin roof and brick walls or cemented walls and *katcha* (not cemented) floor are available in all villages due to inclusion of most of families under Prime Minister Awas Yojana scheme offered by government. Bamboo made thatched houses are hardly found in vil-

lages now. Those who have not yet been included in beneficiary list of PMAY are living in houses made of bamboo and tin. Latrines and urinals of the houses under study are not hygienic. Rural Development Blocks have provided latrines to many families but these are very ordinary and can't be used more than five years. Majority of the houses are reconstructing latrines with their own efforts and many families are covering the tank with bamboo and polyethene. Majority of the houses are still having open without tank, fully unhygienic urinals. But latrines and urinals are made in a reasonable distance from the living and kitchen room. There is no drainage system in villages and during rainy season almost all houses become muddy and unhygienic.

Safe drinking water is still a problem for the villages under study. People use pond and river water for purposes other than drinking. Drinking water is collected from tube well provided by government but the level of iron and other heavy metals present in the water. People use lime and alum to make drinking water free from iron but their efforts go in vain if the level of iron remains too high in water. Filtering and boiling of drinking water are not done by any family in the selected villages under study.

Personal cleanliness is another reason for occurrence of disease and illness in the villages. People can't maintain cleanliness like washing of hands, brushing of teeth, regular bathing using soap, washing clothes with detergents regularly. Many respondents reported they are not habituated in washing hands with soap before taking meals. They wash hands only with water. Wearing fresh and clean cloth is not often possible by many of them due to non-availability of more than one set of clothes. The concept as well as benefits of personal hygiene is not

**Table 2.** Educational profile of Sample Households

Level of Education	No. of Persons = 1756			Percentage
	Male	Female	Total	
Illiterate	262	339	601	34.22%
Upto Primary School	110	97	207	11.79%
Up to middle School	245	231	476	27.11%
Up to High School	187	159	346	19.70%
High School Passed	36	14	50	2.85%
Higher Secondary Passed	48	12	60	3.42%
Graduate	8	3	11	0.63%
Post Graduate	3	-	3	0.17%
Professional Degree	2	-	2	0.11%

Source: Fieldwork in selected villages in 2018

known to all respondents under study. They do not have knowledge on germs and microbes causing disease and illness. Most of the houses have *kachcha* floor which is not possible to clean on daily basis. Moreover, floor of house is cleaned with mud, cow dung and water instead of detergents or disinfectors.

The people under study have very less knowledge on benefits of regular exercise to keep body and mind fit and healthy. Habits like smoking, drinking and chewing betel nut cannot be avoided by them for which they have been suffering from numerous diseases. Chewing bittle nut and lack of knowledge and ignorance to maintain oral health is causing dental disease of the people.

### Disease and Illness in the Villages

Disease and illness of the communities are understood by their self-declared symptoms, available prescriptions and continuation of medications of the family members of the respondents. Reports of out-patient attendance maintained by concerned ANMs who are working in health sub-centres located near by the study area are also collected. ASHAs and Anganwadi workers have been consulted to know the disease and illness pattern of the villages under study.

Table 3 shows that diseases like diarrhoea, dysentery, cold, cough, fever are very common to the

people under study. Around 9.45 percent persons in the households of selected respondents have reported to suffer from diarrhoea and dysentery where 10.36 percent people of these household suffered from common cold, cough and fever. Dental problem, skin diseases and constipation are some morbid conditions which affect a significant portion of the people under study. Anaemia caused by malnutrition particularly for deficiency of iron and folic acid is highly prevalent among the women and children as reported by the concerned health workers of the villages. Constipation is reported to occur among 10.02 percent of the family members of the respondents. Around 6.72 percent people have been reported to suffer from weakness owing to age, disease and malnutrition related issues. Reproductive health problem is found among a very significant number (4.10%) of females in the family of respondents who are attaining the reproductive age from fourteen to forty-five years approximately. Respiratory problem has been found among 3.19 percent of the persons under study but the problem is more among the male members compared to females. Some people (11.85%) under study have been suffering from multiple health problems and their number is quite higher compared to the people suffering from single disease. Life style diseases like diabetes and heart disease are not significantly found and this problem is mainly prevalent among

**Table 3.** Details of Disease and Illness

Symptoms/Diseases	Number of Persons Suffered				Total
	Children (0-14 yrs.)		Adolescent & Adult		
	Male	Female	Male	Female	
Diarrhoea & Dysentery	33	25	55	53	166 (9.45%)
Body and Muscle Pain	-	-	63	38	101 (5.75%)
Cough, Cold and Fever	38	24	62	58	182 (10.36%)
Dental Problems	19	11	60	40	130 (7.40%)
Ophthalmological Disorder	01	-	25	15	41 (2.33%)
Diabetes & Heart Disease	-	-	15	07	22 (1.25%)
Skin Diseases	41	15	69	24	149 (8.49%)
Weakness	15	22	38	43	118 (6.72%)
Respiratory Problem	02	-	44	10	56 (3.19%)
Reproductive Diseases	-	02	-	70	72 (4.10%)
Mental Disorders	-	01	01	02	04 (0.23%)
Anaemia	10	32	07	91	140 (7.79%)
No Disease	30	30	70	61	191 (10.87%)
Constipation	12	14	84	66	176 (10.02%)
More than Single Disease	17	22	90	79	208 (11.85%)
<b>Total</b>	<b>218</b>	<b>198</b>	<b>683</b>	<b>657</b>	<b>1756</b>

Source: Fieldwork in selected villages in 2018

elderly persons of the communities. Similarly, number of patients of mental health problems are not significantly found.

### Access to Health Care

Most of the people of these communities prefer allopathic or modern medicine for the treatment of disease and illness but owing to their accessibility and availability they can't fully opt modern health care system. The villages are far away from primary health centres and health sub-centres of the locality and not fully connected with roads to reach hospitals in emergency. There are two sub-centres of the locality which are run by Auxiliary Nurse Midwives (ANM) where professional doctors are not available. There is no proper infrastructure facility and proper supply of life saving drugs available in sub-centres. The villages come under surveillance of two primary health centres which are located far away and not equipped with adequate health staff and infrastructure to provide all sort of health care to the people. Both community health centre and civil hospital of Karimganj district are out of reach due to remote location of the people under study. The district civil hospital is not capable to provide all speciality health services in need of the people. Hence, they come to the only medical college located at Silchar town of Cachar district for which they use to bear huge transportation cost to bring their patients for hospitalisation. They are inefficient to avail free ambulance service provided by the government of Assam to admit patients to district civil hospital and medical college. They are incapable to bear expenses of medicine, clinical and pathological tests but all are not aware of Atal Amrit Yojna and Ayushman Bharat Yojana to avail free health services provided by government to poor people with a coverage of two lakhs and five lakhs respectively. The people are mostly depending on quacks and medicine shops available to nearby markets for primary health care. They also opt for other systems of medicines like Homeopathy, Ayurveda, folk medicine and magical or religious practices due to financial constraints. Religious and magical practices are done by them to cure disease and illness due to their long tradition of economic, educational and cultural backwardness.

### Conclusion

Livelihood is a major issue of the communities un-

der study. The fishing and boating communities have turned into small, marginal farmers and wage earners due to gradual ecological changes in the region. Poor farmers and wage earners are facing difficulties for their livelihood. Poor economic condition and problem of livelihood causes their ill health. They have been suffering from numerous morbid conditions but their access to modern health care is very poor due to the problem of livelihood. Poverty, social and geographical isolation and poor educational attainment are responsible for their lack of knowledge to avail all the facilities provided by government for disease prevention and health care of the rural people. Government initiatives are required to generate employment to minimise the problem of livelihood of these communities who are unable to adapt with continuous ecological and social changes. Social mobility, access to modern amenities like proper housing, safe drinking water, sanitation, electricity and access to modern health care is impossible without intervention of politicians, academicians, government officials and social workers. There should be campaign for awareness of government policies and programmes in the villages so that they can easily avail the facilities provided by government to provide health care free of cost. This ecosystem community should be brought into mainstream society who have been suffering from multidimensional problems in contemporary time.

### References

- Allen, B.C. 1905. *Assam District Gazetteers, Volume II, Sylhet*, Calcutta, Caledonian Steam Printing Works
- Bokth, Humayun, 2014. Ecology, Economy and Social Transformation among Marginalised communities: a Study of Muslim Fishermen in Barak Valley, Assam. *Journal of Humanities and Social Sciences*. 19. 53-57.
- Das, Pulak and Joshi Santosh. 2012, Erratic Rainfall Patterns and its Consequences in Barak Valley, Southern Assam, Northeast India, *ENVIS-Assam Newsletter*. 1-6 <https://www.researchgate.net/publication/267776019>
- Das, Ranjan and BhattacharjeeJhimli, 2020. Wetland Degradation and its impact on life and livelihood of People in the Majuli River Island, Assam. *Ecology, Environment and Conservation*. 26(3) : 1331-1341
- Das, Suranjan and Bhattacharjee Jhimli, 2015. Climate Change and Livelihood Problem of Fishing Communities Who Are Living in Largest Wetland of Assam Named as Sone Beel. *European Scientific Jour-*

- nal*, Special Edition. 27-36
- Guha, Upendra Chandra, 2012. *CacharerItibritta* (History of Cachar), Calcutta. Sapan Publishers [Bengali]
- Hunter, William Wilson, 1879. *A Statistical Accounts of Assam, Volume II (Sylhet)* London, Trubner and Company pp 205
- McNeill, J.R. 2020. *Sustainable livelihoods and ecosystems management For the Preparatory Committee for the World Summit on Sustainable Development - 4th Preparatory Meeting, Bali* (Indonesia), [http://www.iucn.org/downloads/gov-\\_livelihood](http://www.iucn.org/downloads/gov-_livelihood), Accessed on July 25, 2021
- Park, K. 2007. *Parks Textbook of Preventive and Social Medicine*, Jabalpur, Banarsidas Bhanot.
- Schneider, Margaret and Stokols Daniel, 2015. *Ecology and Health*, <https://www.researchgate.net/publication/304183573>, accessed on July 25,2021
- State profile of Assam and Assam at a Glance 2016*, Directorate of Economics and Statistics, Assam, <https://des.assam.gov.in/information-services/state-profile-of-assam>, accessed on July 15, 2021.
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