GLOBAL JOURNAL OF INTERDISCIPLINARY SOCIAL SCIENCES
(Published By: Global Institute for Research & Education)
www.gifre.org

THE CHANGING PATTERN OF LIVELIHOOD IN SAGAR ISLAND, WEST BENGAL, INDIA

Senjuti Saha[1] & Tuhin Ghosh[2]
School of Oceanographic Studies[1], Jadavpur University, Kolkata 700032, India
Women's Christian College[2], Kolkata 700026, India

Abstract

The reclaimed parts of the Sunderbans are very susceptible to various hazards. Natural calamities from climatic and tectonic hazards are common, inevitable and the nature might overcome it in its very own way but anthropogenic hazards bring disasters. Reclamation of islands from inundation for last two hundred years has left the region with such a level that the beds of the rivers had raised enough due to siltation. At the time of high tide rivers flow at a higher level than the villages. Embankments were initially erected in purview of protecting the land from saline water intrusion. During cyclonic upsurges the water level goes further above the crest of the embankment. As a result cyclone usually results into inundation of the villages, loss of life, loss of property etc. Income shocks are very frequent in this part rendering the population highly vulnerable as society is agrarian with a practice of mono cropping.

Key words: embankment, emigration, reclamation, spill over.

Introduction

The Sunderbans, the largest delta of the world, is famous for its uniqueness in floral and faunal strength, detritus ecosystem, intricate coastline, innumerable islands, criss cross distributaries and inhabitants of a very typical culture and very suitably declared as the *'World Heritage Site'* by UNESCO in 1984. The entire region is hazard prone, susceptible to both climatic and tectonic hazards. Whenever there is a natural hazard it results into a disaster as there has always been a crisis for mitigation. Spill over of saline water and failure of embankments is regular feature of the Sunderbans. After the monsoon season in July-August (*'Bhadra'* in Bengali Calendar) full moon days (*Bhara Kotal*) are the real threats as the rain fed rivers carry excess volume of water and the *'Bhara Kotal'* increases the volume of water that results into spill over. In this part of West Bengal agriculture is the main stay of livelihood, mono-cropping is practised depending on rain water as irrigation is impossible. Saline water incursion and flooding usually result into long term infertility of soil and loss of crops that ultimately affect the local economy. Frequent occurrences of such disaster have compelled the inhabitants to search for alternate economy. *'Aila'* in 2009 had collapsed the entire ecological system of Sunderbans as it had surpassed all previous records in terms of damage and economic loss. A number of recent media reports have given vivid accounts of the current and potential impacts of *'aila'*. The government has expressed opinion for strengthening the embankment by concrete material though this decision has welcomed many controversies from various spheres. But everybody has come to a unanimous opinion that around 5 million population cannot be displaced from their indigenous habitat rather initiatives are to be taken so that the possibilities of hazards can be minimized.

The study area and its Problem

To understand man - nature interface in the Sunderbans, the largest estuarine island i.e. the Sagar Island ($21^0 37' 21''$N to $21^0 52' 28''$N, and $88^0 02' 17''$E to $88^0 10' 25''$E), has been considered as the study area. Owing to its location within a tidal creek and having a very low elevation the island is very susceptible to severe hazards like cyclonic storms and tidal upsurges. The island stretches about an area of nearly 282.11 sq. km. with a population of about 2, 12, 037 (2011). Nature's dynamic interplay along with adverse anthropogenic interference disrupts the balancing mechanism of the coastal zone and thus compels the society to face the threat. The population depends on agriculture, fishing and forest products mainly but seasonal dependency on *'sagar mela'* is also very distinct. Human aggression over natural equilibrium is formidable and that owes the conflict between man and nature.

Problems faced by the islanders are multifaceted. The school of oceanographic studies of Jadavpur University has documented the areal change of the island by analysing the data of 1995 and comparing it with baseline data of 1989. *Ghosh et al (2001)* have pointed out that both erosion and accretion took place though the net loss of land over 30 years of time frame is about 33.62 sq km in 1969-1999). So there might be a huge number of environmental refugees to emerge. Ghoramara, the vanishing island, Lohachahara, Suparibhanga and Bedford, islands no longer exist, had already contributed a bulk to Sagar's population *(Ghosh et al. 2014)*. Increase in population means shrinkage in agricultural production. The economic backbone of the island, i.e. the *Gangasagar Mela*, brings a temporal benefit to the region by creating job for a lot but resulting into degradation of environment day by day with the cumulative accumulation of organic and inorganic wastes that ultimately results into poor air, water and land quality.

Data Source and Methodology

The study involves both primary and secondary data. Primary data had been gathered from the field directly. The sources of secondary data are census of different years, district gazetteer, district statistical handbooks, mouza maps, topographical maps (1967), satellite imageries (landsat) etc. Primary data had been collected on the basis of *'Random sampling'* so that the actual representation of the entire data can be reflected. For this study out of 43,716 households (as

per 2011 census) 281 houses were surveyed and considered as sample to be analysed. Four hazard prone mouzas were selected viz. Dhablat, Sibpur, Beguakhali and Kachuberia on the basis of purposive sampling and then the households to be questioned were selected on the basis of random sampling.

Result and Discussion

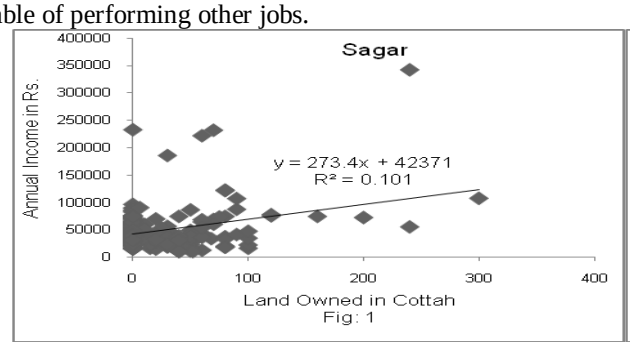
Owing to its estuarine location the Sagar island is different from most of the Sunderbans. Ecosystem is unique here because of the interface of terrestrial and marine bio-diversity, stretches of beaches, cultural and historical heritage etc. Significant erosion is always in progress both on eastern and western faces and also along the northern mudflat part while accretion is found along the southern coastline thus modifying the shoreline as well as the human practices *(Hajra et al., 2014)*.

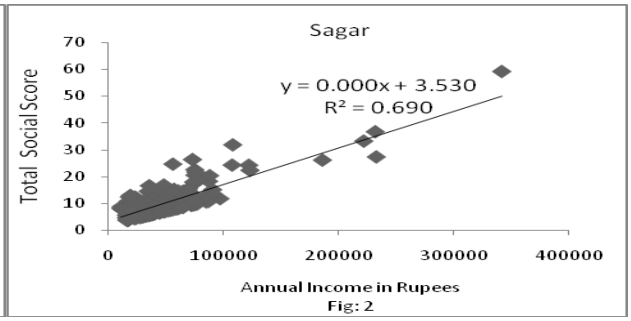
According to 2011 census the total population of Sagar Island is 2, 12, 037 and the population of the island was 1, 85, 644 in 2001. So we find a percentage increase in population of about 14.22% which is considerably high. Such an increase is due to immigrants from nearby Ghoramara, Lohachahara and Suparibhanga. They could have emigrated to other places as well but variety of occupation available here might have played a pull factor behind it.

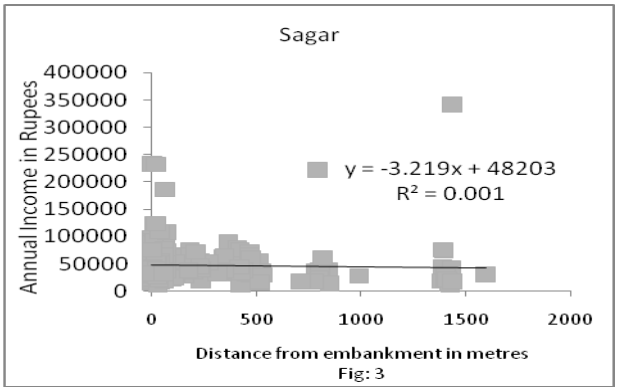
To analyse the livelihood of the people of Sagar Island for proper understanding about the conflict between man and nature household surveys were conducted in four mouzas covering almost all the vulnerable parts of the island. Here we find some characteristics are common in all four mouzas. Considering some parameters of social well being score has been assigned to individual parameters and then by summing up those individuals total social score is derived. Except in Sibpur it is found that annual income of the villagers strongly dependent on land holdings *(fig: 1)*. Though in Sibpur the relationship is positive but seems to be weak. On the other hand the relationship between annual income and social score is strongly positive *(fig:2)* which indicates social score is not always a function of land holdings which is more indicative to the fact that occupation in a village of the Sunderbans is not always agrarian.

Distance from embankment is an independent variable and does not bear any relationship with annual income or social score *(fig:3)*. So accessibility to main land is not at all a criterion of status over here. The inhabitants of Sagar have originally migrated from Midnapur district of West Bengal. They are indigenous cultivators. So the society is agrarian but uncertainty in agriculture had forced them to shift their focus from agriculture to fishing and forest product and with years they had adapted themselves in new occupation.

Mostly the population is Hindu of lower caste or scheduled caste. The villagers are mostly cultivators (37 out of 61 families surveyed) or agricultural labourers or labourers (36) in Dhablat. Licensed fishing families are not found here but families those are mainly dependent on agriculture directly or indirectly do some inland fishing on subsistence basis *(fig:4)*. On the contrary cultivators do not dominate in Sibpur (24 out of 119), labourers are 85 in numbers though they mostly do embankment job or road job. Agricultural labourers are poor in number. Fishing is an important occupation; about 36 families are dependent on fishing, 19 on collection of meen. Inland fishing is done on subsistence basis but mostly the fishermen are licensed and depend on offshore fishing. Collection of meen is another stay of livelihood but mainly female members are involved in it. In Beguakhali 26 families (out of 70) are agrarian, 35 families depend on offshore fishing mainly. Labourers are of non agricultural type. In Kachuberia 20 families out of 31 are dependent on collection of meen. After *'aila'* as the salinity increased and repeated spill over continued to take place agriculture became almost next to impossible here. Labourers are engaged in construction. So the agrarian society is gradually changing into collectors and gatherers because of natural threats which have become a regular phenomenon in this region. People are always in search of alternate occupation so a tendency of going outside for a better livelihood is found *(fig:5)*. Kerala is the main destination in this particular island. Beguakhali and Sibpur witness maximum emigration. Thus the socio-economic pattern in Sagar, as well as in the Sunderbans, is changing slowly. The traditional cultivators are now capable of performing other jobs.







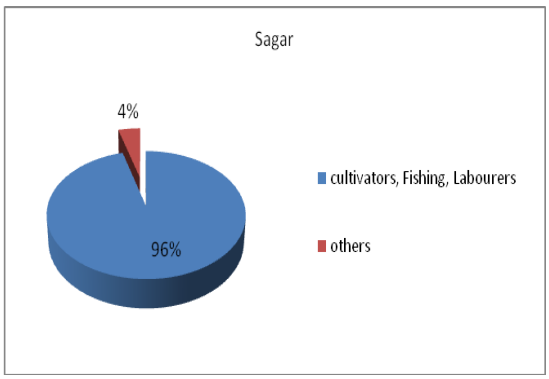


Fig:4

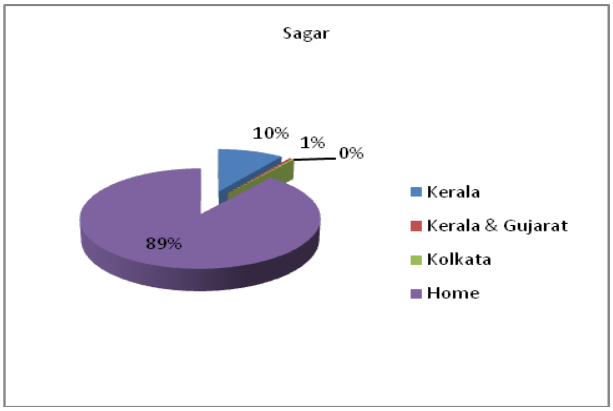


Fig: 5

Occupations like fishing, collection of honey etc. are now restricted in the Sunderbans for the sake of maintaining bio-diversity. Rate of literacy is increasing very fast. So the literate workforce is not keen to grasp the occupation of their forefathers rather they prefer to settle outside as they have experienced the essence of safe and secured life outside the Sunderbans though the number is still very low. The region has been identified as the *'World Heritage Site'* and attracts lots of domestic as well as foreign tourists every year but very few have been done so far for the inhabitants apart from promoting tourism in reserved forest area. The *'lifeline'*, i.e. the embankment is no longer strong enough to support around 5 million populations of the Sunderbans and that results into a steady change in socio-economic pattern. Now it is the time to consider whether our society is ready to face the challenge from those environmental refugees evicted from the Sunderbans?

Table: 1

Mouza	Cultivator	Inland Fishing	Offshore Fishing	Agricultural Labourers & Laborers	Collection of Meen	Betel Leaf
Dhablat	59%	14%	0%	59%	0%	3%
Sibpur	20%	6%	24%	68%	16%	0%
Beguakhali	37%	43%	7%	51%	20%	3%
Kachuberia	19%	22%	0%	84%	65%	3%

Acknowledgements

The authors are indebted to the Panchayat Pradhan of Sagar Island, the villagers of Sagar, our guide cum driver Mr. Ansar, without their co-operation the study would not be possible.

References

1. Census Report, 1951. Land Management in West Bengal, 1870-1950. Edited by A. Mitra, Govt. Press, Alipore.
2. Census of India, 1961: 24 Parganas.
3. Census of India, 2001: South 24 Parganas.
4. Ghosh, T., Bhandari, G. and Hazra, S., Application of a 'bio-engineering' technique to protect Ghoramara Islans (Bay of Bengal) from severe erosion, Journal of Coastal Conservation 9, 2003 (171-178).
5. Ghosh, T., Bhandari, G. and Hazra, S. (5-9 November 2001). Assessment of landuse/ landcover dynamics and shoreline changes of Sagar Island through remote sensing. Paper presented at 22nd Asian Conference on Remote Sensing, Singapore.
6. Ghosh, T., Hajra, R. and Mukhopadhyay, A., Island erosion and afflicted population: Crisis and policies to handle climate change, International Perspectives on Climate Change, Climate Change Management, DOI: 10.1007/978-3-319-04489-7_15, Springer International Publishing Switzerland 2014 (217-225).
7. Hajra, R. and Ghosh, T., Formulation of methodological approach for sustainable tourism using 'GSTC' criteria: A case study of Sagar Island, India, International journal of Innovative Research and Development, Vol. 3 Issue 1 January 2014 (305-309)
8. Hajra, R., Mitra, R. and Ghosh, T., Impact of Gangasagar Mela on sustainability of Sagar Island, West Bengal, Int. J. Res. Chem. Environ. Vol. 2 Issue 1 January 2012(140-144)