



Sea Level Rise Induced Migration Of Odisha: A Serious Concern On New Tagged Displaced Population In India

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Abstract: People who have been forced to leave their traditional habitat temporarily or permanently, due to sea level erosion is serious concern in a global arena. Mostly climate changeability has brought floods, sea level rise and soil erosion. This variability has adversely impacted on agriculture, property, houses and fishing gadgets of households in different ways. This present paper focuses on the experiences of sea level rise induced migration in Satabhaya region of Odisha. On the basis of well-structured in depth interviews with displaced respondents in 2018, present study presents how sea level rise affects precious living and economic conditions of the people. Based on these concerns in the study; the historical background of SLR induced migration, its main reasons, recent trends, possible future displacement, some suggestion and policy options are given in conclusion.

Keywords: Sea level rise induced migration, livelihood, rehabilitation, adaptation, policy options

Introduction

Force Migration is an ancient social, economic and political phenomenon in the global arena. Since few decades it has been appeared that natural events such as sea level rise and tidal surges generate a new form of forced displacement around the world. People who have been forced to leave their traditional habitat temporarily or permanently, due to lack of natural resources and/or marked environmental disruption that jeopardized their existence and seriously affected the quality of their life. As a result home-region was not able to ensure them safe for sustained livelihood. Yet no specific academic definition has been specified to those people precisely but tagged as environmental refugees, climate refugee, environmental migration etc. This term reflects the insistence and seriousness in the global responsibility of the issue at hand. The Intergovernmental Panel on Climate Change (IPCC, 1990) predicted that the greatest adverse effect of climate change may be on

human migration. According to the report about 150 million people will be displaced due to shoreline erosion, coastal flooding and agricultural disruption. Additionally, the report by IPCC reveals that in Asia continents more than 1 billion people could be adversely affected by projected decrease in the levels of fresh water in central, south, east, and south-east Asia by 2050. According to Census of India 1991 was projected for the year 2011 that the volume of migration caused by natural disasters would be less than 2 million. However, there are inter-state variations of rate of migration, with Assam having the highest rate of migration due to natural calamity. In some other North-eastern states like Arunachal Pradesh and Meghalaya, higher prevalence of migration was reported, followed by the coastal states of Odisha, West Bengal and Gujarat. Mostly climate changeability has brought floods, sea level rise and soil erosion. This variability has adversely impacted on agriculture and farm of households in different ways, including loss of and demand of farm and agriculture produce, displacement of habitats and loss of property, buildings and fishing gadgets. Other adverse impact of climate change includes health problems, increased expenditure, loss of income and poor yield. As a result, most of the vulnerable people are being force to migrate in search of livelihood opportunity. In such circumstances the present study argues that climate change should not be seen merely as a biophysical change, but must be looked upon embedded in the socio-economic conditions of population affected by it. At present it is look at the policy interventions by targeting to adaptation and disaster risk reduction which is broadly includes the mean to right, needs, and livelihood security. Since humanitarian issues on climate change is very concern in worldwide. It is broadly includes the mean to right, needs, demographic changes. The present study describes a situation of displaced people in the climate hot spots Odisha state of India. This paper has been made to examine theoretical framework pertaining to the nexus between SLR and population displacement, adaptation strategy and policy options. The study has also recommended some strategies to control the migration and improve their livelihood conditions.

Sea Level Rise (SLR) Induced Migration around the India

The States like, Andhra Pradesh, Tamil Nadu, Odisha, and West Bengal, Gujarat and Union Territory of Pondicherry are mostly affected by tropical cyclonic activities. As a result crowding and displacement of population problem aggravates leading to problems of housing in the mega-cities of the developing countries (John & Jaiswal, 2012). The Intergovernmental Panel on Climate Change (IPCC) predicted that sea levels would increase by a total of 0.18 to 0.6 meters (7 inches to 2 feet) between the years of 1990 to 2100. Sea Level Rise (SLR) has already created many problems in the many low-lying coastal regions in India. Rising sea level leads to salinity, increased land erosion and occurrences of other related natural disasters in the coastal regions. The adverse effects of sea level rise phenomenon are substantial loss of agricultural cultivated land, reduction of yields, food insecurity, reduction of safe drinking water, loss of shrimp cultivation, fishing, reduction in income, unemployment and increased threat of life and livelihoods etc. Ultimately, these adverse effects of climatic change are responsible for increased massive induced involuntary migration of the population. In this situation, some people stay within the disaster prone locations while others choose to internally move elsewhere within the country or region (IOM, 2010; Foresight 2011).

Today the coastal zone population in India is around 180 million people, out of the total population nearly 80 million people, along with 120,000 square kilometres of coastal land ultimately would be severely affected due to the sea level rise, though all people would not be necessarily displaced. By 2050, it is projected that population will increase to 1599 million people, nearly 78 percent increase of population. Similarly, around 80 million of population in coastal zone today would increase to 142 million by 2050. Using these predictable data, it seems suitable to propose that total flood zone refugees would be somewhere between 20 million and 60 million people in India (Perkell 1992; Asthana 1993; Mayer 1993; White & Jickling 1994; Mayer 2001). It was predicted that up to 80 million people living along the coasts may be forced to migrate inland as a result of Sea Level Rise (SLR). In case of a 3 to 5 metre sea level rise, Mumbai and Kolkata could be significantly depopulated. Usually population migration takes place due to natural calamity (floods, drought, and cyclones etc.), and was included in 1991 Census of India, but was dropped in the succeeding censuses possibly because of its low contribution. The 1991 census reported 5 per 1000 migrants are affected by the natural disaster. With the same rate of migrant's influx, it was projected for the year 2011 that the volume of migration caused by natural disasters would be less than 2 million. However, there are inter-state variations rate of migration, with Assam having the highest rate of migration due to natural calamity 51 percent per one thousand migrants (Climate Greenpeace, 2008). The government has promised to establish permanent settlement for the homeless people in about a kilometre away from the coast line. Dionne Bunsha (2007) notes that the rapid sea invasion along the Gujarat coast is forcing families of fishermen to abandon the sea and their homes. The coastal villagers of South are not clear in mind why the sea level is rising rapidly. Some fisher folks believed that, it might be because there are more storms in the sea. They are not even aware of the global warming/or climate change, but have become 'environmental refugees'. For instance, the vulnerable people of Danti village have been forced to move towards neighboring villages like Bilimora, Dungri, Kosamba, and Lilapur. Similar case of displacement is found in Kaladra village in South Gujarat, where the entire road stretch along the coastline has been eroded due to the rapid sea level rise. It forced hundreds of vulnerable people to re-establish their houses further in inland.

What are the Main Reasons of Sea Level Rise Induced Migration?

Push and pull factors of environment play an important role to trigger migration of people in the coastal regions. The pull factors representing those factors that attract migrant population into specific regions, whereas, push factors are those that result in out-migration from the traditional habitats. Thus, both pull and push factors are directly or indirectly responsible for triggered migration by environment and economic changes. Because of this people are forced to move to an environmentally stable place. Rapid increase of coastal soil erosion and sea level rise related storms, floods, salinity intrusion and catastrophic natural events, led to destruction of households, infrastructure, loss of assets, shelter, agricultural land, fisheries etc, and food insecurity, unemployment, landlessness and poverty, Insecurity among children: Fear in children over staying near temporary embankments, lack of hopefulness of any advancement of embankment in the villages and their

livelihood in near future. People move to other regions to avoid spread of diseases because of coastal hazards, which may be threat to their life. On the other hand, The pull factors such as to get better livelihood opportunity in safe zone areas, building network and strength, land for settlement, Income possibility, employment opportunities, demand for labour, high wages, and adequacy of access to resources play a major role in motivating vulnerable people to move and leave from environmentally stressed areas factors.

The Odisha State Experience

Satabhaya region of Odisha is already undergoing very frequent adverse impact on natural disaster like cyclones, floods, tidal surges and sea level rise. It was noted that the displaced people are fighting for rehabilitation/ proper housing, while seven villages have shrunk to two villages of Satabhaya region in a few years. It is Asia's largest brackish water Lake Chilika is under threat since several years. The problem is due to the sea level rise that changing pattern of hydrological character of the Chilika Lake, thousands of fisher folks livelihood is going to be completely disrupted in the Chilika region. As a result most of the people have already relocated in new location Bagapatia village. They move to nearest town for searching job and employment due to less livelihood opportunities. In this region most of the migrants are influenced more for non-economic factors than economic factor. Where the most important economic factors that influences during disaster was the search better job, and also problems related to agriculture. The non-economic reasons, desire for material betterment and search for urban services are the more crucial factors for migrant's population. Majority sample respondents answered when a distress strikes every year they have no option but to family head send to work elsewhere. The fact that fishing activities and agriculture in the area is seasonal and normally people produce only one major agricultural crop. As a result it is not enough to meet food and requirement from this income sources. It also plays an important decision for household's member from farmers, landless agricultural labourers and fishing folks to migrate seasonally to nearby town areas. A major portion of sea level rise induced migrants have faced difficulties to adjust and settle them in new location. In this new setting unable to search job and services have been the most common crises among the displaced population. It is clear that the formal sector in urban areas almost required skilled labourers or man power of educated persons. In this study area majority of helpless migrants achieved up to primary or secondary level of education as a result most of migrant's population engaged themselves in urban informal sector. The monthly average current income was very less amongst migrant's households as compared to pre-migration period by loss of yields and employment in agriculture and other allied occupation. The respondents reported that is because of their relatively low level educational attainment and majority of them are unable to find job in urban formal activities at the destination places. With regards to household income it is not only less but also shows a noticeable seasonal variation of income earned by them every year. This monthly income earn by migrant's population is not capable to meet their daily expenditure in a month. In this distress situation obviously management of family expenditure take more responsibility to migrant's population. It was observed among landless wetland communities a major portion of population were moving out to other region for more

than half of year due to food insecurity. Among displaced households almost were found to be asylum seeker. The task to rehabilitate of these fisher folk and farmers refugees is very larger in this region. Recently, under rehabilitation package “Biju Pucca Ghara and Mo Kudia Yojana’ pucca houses are constructed in a kilometre away from the sea coast. Majority of migrant’s population live in poor quality of house without access to electricity, kitchen, toilet and sanitation facilities due to under construction of resettlement houses. In this study area the common push factors regulating the household’s migrants such as destruction livelihoods, by sea level rise submerge the agricultural land. Among the temporary seasonal migrant’s gender inequality has emerged; women were never migrated alone independently. In the case of women migration it is decided by the male heads of the households. This present study has made it clear that scarcity of resources, lack of financial and social capital, information, and social protection all are considering decision-making factors of influenced population displacement. However both the state governments have considered it quite late. Since last one decade trying to find out the solution and to rehabilitate the vulnerable people.

Conclusion and Suggestions

The occurrence of sea level rise induced migration has been widely accepted as an old phenomenon in global arena. These categories of forced migration population labeled as environmental refugees who are most helpless don’t have an adequate livelihood and employment opportunities. Most of people do not only face loss of their homestead and livelihoods but also loss their hope due to adverse impact of disaster. They become moving people without any basic needs such as job and assets shelter etc. In a search of better livelihood they step towards any urban or other areas from rural. The people are faces the very costly livelihood life. As a result of climate change due to the global warming, population explosion and unplanned industrialization as well as urbanization, the rate of environmental refugees are very rapidly increasing. This is one of the most disturbing causes that burden in modern age, let alone the development of both rural and urban areas of the country in India.

Thus, this is the time to step forward for a new commencement to overall change the condition of the sea level rise induced migration. Both climate change and migration policies depend on coordination and cooperation that must go beyond mutual or regional arrangements. The significance of the adaptation framework is to promote action on mitigation. At present government has taken emergency action to rehabilitation and resettlement of permanent displaced people, those who have already lost their livelihoods in disaster. However, in this way we cannot come up with permanent solution because rest of the vulnerable people leave their home either permanently or temporarily because of slow onset disasters like sea level rise, and other natural calamities. The government needs to come up with permanent solutions to assist the resettlement issues such as provision of houses, occupation, and agricultural land and the basic right for permanently displaced population. On the other hand, government should take initiatives to prevent temporary migration through coping strategy and adaptation policy through providing diversification of occupations, irrigation facilities in agriculture, alternative jobs in distress period, food security, effective implementation of developmental policies like

MGNREGA, give basic rights to choose job and provide particular places for temporary migrants in urban areas with incorporated social safety network programmes.

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