Livelihood Diversification by Indigenous Communities of Sundarbans

S. Jain¹, I. Rawat² and R. Patil³

¹,²,³ Jamestji Tata Center for Disaster Management, Tata Institute of Social Sciences, Mumbai, India.

Abstract

Livelihoods in Sundarbans, due to its unique geography, are limited and susceptible to natural disasters like rising sea-level, cyclone, and flooding. In 2009 Cyclone Aila, caused extensive damage to the lives and livelihoods of the indigenous population. The farmers of Sundarbans are largely employed in subsistence agriculture, which increases their vulnerability in the face of these natural hazards. Livelihood diversification is a strategy that is employed by various non-government organizations in the Sundarbans. The following is an exploration of the role of NGOs in livelihood diversification by the introduction of alternative livelihood activities that have improved the community resilience and mitigated risks in the Sundarbans.

Keywords: Livelihood Diversification, Social Vulnerability, Sundarbans, Indigenous Communities, Resilience, Disaster

INTRODUCTION

The Sundarbans is a sensitive ecological delta region in the eastern part of India and western part of Bangladesh. Formed by the silt carried by rivers including, the Ganga, the Brahmaputra, and the Meghna. The area, in terms of its geology, is a relatively newly emerging landform that comprises of various tidal channels that are evolving and submerging simultaneously. A natural habitat for the Royal Bengal Tiger, the Gangetic Crocodile, the Indian Rhino etc, it is a biodiversity hotspot for many species on the brink of extinction. The forest has many plant species including Gewa, Goran and Sundari trees, the Sundari is the source of its nomenclature.[1] The Sundarbans has one of the highest population densities in India and humans settlements are spread throughout its many islands.
The delta has been particularly important to global environmentalists as it is one of the few regions where climate change and its effects can be observed directly. It suffers from hazards including cyclone, sea-level rise and constant flooding. A report by Jadavpur University has suggested that intensity and incidence of these hazards have increased in last century, which has played a detrimental role towards the lives and livelihoods of the people of Sundarbans.[2] According to Dr. Danda of WWF, India, 56% of the people living in the Sundarbans are landless farmers.[3] He observed that the unique geography of the region limited the livelihood options available to the people. Livelihood options related to, agriculture, forestry and fishing are dependent on the stability of the natural habitat and therefore are likely to be disturbed or disrupted by natural hazards, making livelihood diversification efforts important for the survival of the indigenous population of the Sundarbans.

NGOs working with the indigenous communities have a conspicuous presence in the Sundarbans region. Previous studies conducted in the Sundarbans have well documented the role of the government in the welfare of people; however, the role of NGOs has not been acknowledged or explored. The problem with most of the government welfare schemes is that they have a top to bottom approach thus creating a gap between demand and supply. Bureaucracy is dependent on unreliable and often outdated census data. A large number of NGOs work directly with lower caste indigenous communities that are most vulnerable to disasters, especially as observed in the case of Cyclone Aila in 2009. These communities do not have a stable source of income during the time of crisis. Therefore, NGOs contribute significantly to the vulnerability reduction of the marginalized communities by promoting livelihood diversification.

Professor Frank Ellis mentions in her study about African livelihoods that “Low household incomes in rural areas of all countries are associated with low land and livestock holdings, high reliance on food crop agriculture, and low monetisation of the rural economy. Better off households are distinguished by virtuous spirals of accumulation typically involving diverse livestock ownership, engagement in non-farm self-employment, and diversity of on-farm and non-farm income sources.” [4] The idea of livelihood diversification for low-income households is that if they have more diverse means of income they are less likely to be susceptible to natural disasters. Olsson mentions about the study conducted in the drought-prone region of Sahel in Africa. Due to the drought, most of the farmers are forced to migrate during the dry season. The farmers of Sahel started growing Gum tree that is drought resistant and provides a stable source of income.[5] Therefore livelihood diversification not only reduces the necessity of forced migration but develops locally relevant and environmentally sustainable livelihood options. This study is particularly relevant for the Sundarbans as the shrimp cultivation activities initially popular had an adverse impact on the ecology by posing a threat to mangrove seedlings.

Opponents of livelihood diversification suggest that it may lead to a decline in agricultural activities. They claim that if farmers have an alternate stable source of income arising from secondary livelihood activities they may not be inclined to engage in agricultural activities. However, a study conducted in Nigeria on the incomes generation of rural households found out that even if farmers have various
Livelihood diversification by Indigenous Communities of Sundarbans

 sources of income they are unlikely to reduce their agricultural activities as it is an important part of their tradition.[6] Livelihood diversification is an important tool to free people of lower caste and class to escape the “poverty trap”. A study conducted in South Africa pointed out the victims of apartheid who were alleviated out of the poverty trap through the livelihood diversification.[7] Such initiatives can be taken in India where the lower caste communities can be provided multiple livelihood options so that they can get out of the poverty trap after the disasters. Women empowerment is a highly important component of livelihood diversification. It is estimated that rural women are almost fifty percent of the agricultural workforce. However, the efforts for livelihood development conducted previously by NGOs were mostly focusing on men who are considered the primary bread earner of the family. A major problem with this premise is that it fails to take into account seasonal migration where in men migrate during dry, non-agricultural seasons to find work, whereas females stay back to take care of the family. Therefore women, need to be included in livelihood diversification schemes and other non-agricultural secondary livelihood activities to improve the household resilience.

METHODOLOGY

The authors took semi-structured interviews and conducted focused group discussion in Sagar and Patharpratima blocks of the Sundarbans. These regions have a strong presence of NGOs working in livelihood diversification and disaster response. In Sagar Island employees of the NGO Paribesh Unnayan Parishad (PUPA) and Tagore Society for Rural Development were interviewed. In Patharpratima employees of the NGO Society for Participatory Action and Reflection (SPAR) were interviewed. According to Human Development Report of the South 24 Paragana district, there are 29 blocks in the district where Patharpratima ranks 23rd and Sagar Block ranks 24th in the index.[8] The District Census Handbook mentions that 17.34% of the farmers in Sagar Island and 15.65% of the farmers in Patharpratima are considered “marginal farmer”. In contrast, the 8.17% farmers of the entire district are termed as “marginal farmers”. Purposive sampling technique was used for identifying the interviewees. Interviews were conducted in three villages including, Dhabalat, Dhaspara, and Sridharnagar. The authors conducted a total of 36 interviews. Interviews of PUPA, SPAR, TSRD, and various local government officials were also taken. Three focused group discussions were conducted in three of the villages to estimate the overall livelihood situation of the community. However, as the NGOs facilitated the focus group discussions with the villagers there may be some bias towards these NGOs on the part of the participants. Thus the outcomes of the livelihood situation in the three specific villages should not be used to generalize the overall livelihood situation in the Sundarbans. This paper is to be read as merely an attempt to understand the role of livelihood diversification in the vast field of disaster risk reduction.
FINDINGS
The nature of farming in Sundarbans is seasonal. Paddy is harvested by the farmers in monsoon around July. Most farmers engage in subsistence agriculture, i.e. the food is grown for direct consumption by the family members due to small land holdings and limited resources. There is negligible food left for commercial purposes, which leads to lower purchasing power and limits alternate livelihood options. These issues are compounded by inaccessible markets situated far away from the islands, forcing marginal and small farmers to sell their agricultural output at lower prices in local markets, reducing their profit margin. Further, the paddy that is grown is highly sensitive to salinity. During a cyclone or a flood when seawater may break the embankment it can ruin paddy crops.

The soil samples of this region were sent to the government labs known as Krishi Vigyan Kendra by the local officials. It was discovered by the scientist that certain varieties of paddy crop which are mostly the high yielding varieties (HYV) are mostly prevalent in this region. The HYV crops are unfit for cultivation in high salinity zones. Therefore, a local variety of paddy, that is Dudeshwar paddy was introduced in the region. This variety of paddy is not labor intensive and do not require the high amount of fertilizer, which is a perquisite for HYV crops. Hence, the farmers had to invest less in growing crops and their incomes improved. Fishing is the secondary livelihood option. The locals engage in two types of fishing namely, inland pond-based and sea-based fishing. Most of the farmers cannot afford to purchase a boat for seawater fishing and thus engage in inland fishing. Inland fishing is done through resource pooling. Farmers pool resources to construct large ponds into which fish are introduced. However, the problem with this fishing method is that most of the inland fishes are highly susceptible to saline water. During the flood or cyclones when the seawater rises, it can enter into the inland ponds killing the fishes. Therefore, natural disaster poses a great threat to inland fishes.

Forestry is another major commercial livelihood activity for the indigenous communities of the Sundarbans. However while, collecting firewood, timber, and medicinal plants are important commercial activities, they are not ecologically viable. The delta region has observed an increase in deforestation and destruction of coastlands. These activities pose a threat to human life too. The tigers or crocodiles often hunt honey collectors.

Men in the indigenous communities tend to migrate during the non-agricultural season. They mostly work as construction laborers or manual farm workers. Women do not migrate and are often more susceptible to disasters. Interviews have pointed out that after the food stocks resulting from subsistence farming are over, the women are forced to starve by cutting the number of meals they have per day. They also work for lesser wages than men to earn the livelihood as manual labors. Some men are involved in unskilled or semi-skilled labors that are non-agricultural in nature like masonry, carpenter or tailoring. The wages in these activities are not high and the baseline surveys conducted have estimated that they are less likely to have any saving during the time of crisis.

People of the lower caste who may not own land are involved in the non-agricultural activities. Poor households raise goats for meat and milk. The benefit of having goats
is that they breed quickly and start milking early. One of the interviewees mentioned that after the cyclone Aila all her goats died and she was left with no source of income. The village committee known as Mahila Samiti (Women’s Group) in consultation and with the support of the local government and NGOs gave her three goats as part of a compensation process that identified the most vulnerable individuals and communities and provided them with livestock like goats. She stated that as a result, she was able to sustain herself in the aftermath of the disaster without having to raise a loan from the local moneylender at high-interest rates.

Recurrent hazards have badly damaged the infrastructure of the Sundarbans. In order to rebuild essential infrastructure and provide alternate livelihood options to the locals, NGOs introduced Cash for Work Schemes. During the non-agricultural season, the NGOs provide farmers with employment options that include building roads, excavating ponds and re-cultivating the agricultural fields. These development activities are planned to be disaster resilient. In the interviews taken in Sagar Island revealed that people are hired on the contract basis by the NGOs for five thousand rupees for one month. They excavate the ponds to remove the saline water and make it fit for pisciculture. An embankment is created around these ponds to decrease the chances of sea water inundation. The agricultural fields are made fit for cultivation by removing the top saline layer soil. New roads are built which facilitate the trade for a region that is relatively underdeveloped. A farmer from Sagar Island mentioned that after the re-excavation of the ponds he was able to earn a better livelihood and send his children to a better school. The fishing nets and food for fishes provided by the NGOs have helped this farmer to have a secondary source of income.

Cash for work schemes were also introduced by NGOs in the aftermath of cyclone Aila. Houses in the Sundarbans are mostly made up of mud and bamboo and are known as kutcha houses. Most of the kutcha houses were flooded and washed away during the cyclone. Post-disaster, many low-income households were forced to relocate to tarpaulin tents set up as temporary shelters. These temporary tents had no access to sanitation and hygiene resulting in the spread of diseases including diarrhea and cholera. NGOs through Cash for Work Schemes introduced disaster-resilient homes. The idea was to create alternative livelihood options by training local masons and carpenter to build disaster resistant pucca houses (permanent houses) with locally available material thus reducing costs.

Sea water intrusions into agricultural fields have reduced the fertility of soil by increasing its salinity. The farmers of the Sundarbans are therefore forced to use expensive chemical fertilizers to improve soil productivity. The marginal or small farmers who cannot use expensive fertilizers have no option but to remain unemployed or migrate. The NGOs in Sundarbans introduced organic farming and manures. Farmers are trained to produce biodegradable manure. By making an investment of around two thousand rupees farmers can produce around 75Kg of fertilizers in 20 days. A Betel Vine farmer in an interview mentioned that NGOs provided him with earthworms that are mixed with the cow dung. This procedure known as vermiculture results in good quality organic manure, which the farmer was producing for his fields and selling in the market. The practice of organic agriculture,
which is less expensive than chemical fertilizer based agriculture has improved the savings of small farmers and provided them with a secondary livelihood option.

There are many women self-help groups in the Sundarban villages. These groups were made to address the issue of poverty among marginal and small farmers, especially those stuck in cycles of debt. Earlier the farmers had no option but to raise loans from the local moneylenders who would charge high-interest rates. This, more often than not, led to a situation where the borrower, being unable to repay the loan amount with interest, got stuck in a cycle of debt that could continue for years and sometimes even generations. The woman started these organizations to facilitate inter-loaning. Local NGOs saw these self-help groups (SHGs) as a precursor to potentially successful entrepreneurial ventures and provided loans to these SHGs. The woman group started food manufacturing business. They processed rice into Muri and sold it in the markets. The Self-Help Groups, therefore, encouraged the women’s entrepreneurial spirit, improved their purchasing power and decreased their reliance on high-interest loans from moneylenders.

Government sponsored livelihood schemes like MNREGA have played an important role in reducing vulnerabilities and mitigating hazards. People in the Sundarbans practice mono-cropping patterns therefore during the dry season; lack of employment forces them to migrate. Through the introduction of MNREGA, the government provided guaranteed hundred days of work to people living below poverty line. NGOs helped in spreading awareness about this government scheme among the locals. An interviewee mentioned that during the dry season he used to migrate but because of the MNREGA, he is involved in the building of roads and a pond in a nearby village. The advocacy of MNREGA by these NGOs has improved the economic situation of the seasonal farmers.

Livestock is used by the local NGOs as an important source for improving livelihoods of women in the Sundarbans. As the men tend to migrate during the dry season, the responsibility of maintaining the household falls on the women. As the marginal and small farmers often do not have enough land to generate a surplus of agricultural output, beyond what will be consumed by the family, often livestock is their only source of commercial livelihood. SPAR provided hens, cows, and goats to the women in Patharpratima. Livestock breeds that required minimum maintenance were chosen after careful research and by consulting government labs like Krishi Vigyan Kendra. A workshop called Prodi Bondhu (Friends of Animal) was conducted by the NGOs that explained the feeding, vaccination and hygiene requirements of the livestock to the women. In the interview, it was mentioned by a woman that she was no longer completely dependent on her husband for her needs. Livestock improved the economic position of the Patharpratima women in their society.

An alternative livelihood option developed as social forestry. A limited number of livelihood options has forced the indigenous to turn to deforestation activities to support themselves. NGOs have identified two mangrove varieties including Gariaan and Kankraa. Under a Cash for Work Scheme, NGOs hired women from low-income groups for re-plantation of mangrove. This plan improved the economic situation of women, as they have an additional source of income, further, it improved the environmental balance in the delta.
CONCLUSION
Livelihood diversification has improved the indigenous community’s ability to withstand disasters. Our interviews have concluded that overall livelihood situation has improved in the Sundarbans forest. Traditional means of agriculture and fishing are now advanced with salinity resistant variety of paddy, better species of inland fishes and composite farming. It has reduced the migration of local community during the dry season as communities have alternate livelihood options. The situation of females has ameliorated after the creation of self-help groups that have made them financially independent. Initiatives like Prodi Bondhu under which females received livestock have provided them an additional source of income. Cash for work schemes have encouraged social forestry that restored and protected the ecosystem. However, a major limitation is that these proposals are concentrated in few parts of Sundarbans. Therefore, development agencies may have to replicate such initiatives throughout the region.

ACKNOWLEDGEMENTS
The authors acknowledge the support of the Jamsetji Tata Center for Disaster Management, Paribesh Unnayan Parishad, Tagore Society of Rural Development and Society for Participatory Action and Reflection.

REFERENCES