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Survival and Resilience of Two Village Communities in Coastal Orissa: A Comparison of Coping with Disasters

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SURVIVAL AND RESILIENCE OF TWO VILLAGE COMMUNITIES IN COASTAL ORISSA: A COMPARISON OF COPING WITH DISASTERS

Priya Gupta*

Abstract

The crucial element in a disaster is the human component. In this paper, this human factor is discussed with reference to a group's vulnerability, which is a concomitant of certain important attributes such as the occupation/livelihood of a group. However, when a community or a group manages to survive disasters despite their vulnerabilities, it calls for a discussion on the various processes of resilience and coping that enabled their survival.

Introduction

In the manifestation of a disaster a simple relation may be postulated where a hazard (external threat) has to be present, which has the potential to harm those people, who due to their vulnerabilities (internal characteristics of the people) are at risk of being affected by the hazard and thereby encounter a disaster. Diverse arguments have been related to various aspects in this relationship. In this regard, geographers and social scientists laid great emphasis on the hazards and their effects rather than looking at the people. When people were considered, it was classified as the 'war approach' — of treating the hazard as the main trigger event and the rest just followed. There was, first of all, a need to recognise the importance of the people and then the presence of their internal characteristics that made them susceptible to the impact of the hazards (Quarantelli 2005). While some emphasise the hazard others give more importance to the characteristics of the affected population.

Disasters strike human beings from time to time and have been familiar phenomena for ages. However, disasters become what they are only when the human component is involved. A cyclone, a flood or an earthquake as a natural occurrence or event is not a major problem in itself. They are seen as hazards when they become a threat to human populations that live near areas where they occur. When they interact with the existing vulnerabilities of the populations facing them, disasters occur. The recognition of hazards not as events, but as having the potential to cause physical harm and also inclusive of socially constructed situations is important, and will broaden the definition of hazards (Cutter et al 2000). For instance, if the epicentre of an earthquake were to be an uninhabited area, it would be just a natural event, but when it occurs in a densely populated area causing considerable loss to the people, it is a disaster. A natural event such as a cyclone or an earthquake (which is a hazard because it has the potential to cause harm) is not enough to cause a disaster, but time and space factors are also important—where it occurs, whom it affects and when it occurs. In this context, it is essential to discuss and analyse the vulnerabilities of the people who face disasters on a regular basis. This is carried out with reference to the data collected from the field and also various indicators of vulnerability—how and why these people who face disasters are vulnerable, what are the conditions in

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which they live and also the social aspects of their vulnerability. We will also take into consideration their resilience and ability to cope with the disasters.

The situation in coastal Orissa

Two villages were selected, situated close to each other and near the seashore in the coastal belt of the state of Orissa (along the Bay of Bengal), which experiences several cyclones every year. The villages are also significantly different in terms of the occupation of the people inhabiting them. One of the villages is a predominantly fishing village[1] and the other an agricultural one, both with a single caste being the overwhelming majority in terms of numbers. This difference in occupation provides for a good comparison between two different groups of people who have been staying in the same region for a long time and face almost the same form of disasters every year. The very fact that these villages have survived the disasters of October 1999 (referred to as super cyclones), and later on smaller storms and cyclones, or came across several cyclone warnings, make the villages suitable for the study of coping and survival. The fishing village, with about 700 households, is located in the coastal district of Ganjam within the Chatrapur block. Although it is a two-caste village, one is much larger and is the main caste, called the Noliyas, who are Telugu speaking people engaged in fishing. The other caste comprises the Sundis, who are about 30 households. The Sundis are Oriya speaking people and are an economically better off group than the Noliyas. They run grocery shops in the village and are also involved in money lending. This village is located about 200 metres from the sea. The other village is also a two-caste village comprising the Oriya agricultural caste of Khandayats, and Brahmins. There are about 400 households in the village out of which only 10 families belong to the Brahmin caste, who are employed as temple priests. This village is situated a kilometre away from the seashore. The two villages are about two to three kilometres apart from each other.

The fishing village is economically poorer than the agricultural village and almost all the people in the village, particularly the fishermen, fall below the poverty line[2]. Many of the households in the agricultural village are economically in the same condition as well. However, despite being poor, which adds to their vulnerability, they have managed to survive disasters whenever they occurred. We also need to examine the ways they have built up their resilience to cope with and survive disasters. Regarding the association between poverty and vulnerability, Chambers (cited in Bankoff 2001:25), says, "Poverty is determined by historical processes that deprive people of access to resources, while vulnerability is signified by historical processes that deprive people of the means of coping with hazards without incurring damaging losses that leave them physically weak, economically impoverished, socially dependent, humiliated and psychologically harmed." Therefore, a person can be poor but not necessarily vulnerable to disasters if he or she is not directly near the hazard, and a person who is not poor may be vulnerable to disasters because s/he lacks the means to cope with the hazard even though s/he has access to other resources of living. We have a positive connection when there is access to

[1] It is necessary to mention that this particular part of coastal Orissa is closer to Andhra Pradesh and has several fishing villages like the one considered for this study, inhabited by Noliya fishermen and their families.

[2] The poverty line is an income figure that the government fixes to distinguish the poorest among the state's population from those who are economically better off.

resources and also the ability of people to prepare for or recover from hazards (Hewitt cited in Bankoff 2001:25). Those who are poor and lack resources are more vulnerable to disasters because their resilience suffers due to the lack of access to resources. Further, poverty in the Indian context has an intra-regional pattern and strongly depends on agro–ecological conditions vulnerable to natural disasters (Srivastava 2009), and that needs to be taken into account while analysing disaster situations in India.

Vulnerability to disasters

The significance of vulnerability is that it may turn a hazard into a disaster. This has been talked about in every discipline that deals with risk and poverty-related factors. Wisner *et al* (2003) discuss vulnerability by introducing the human factor into their discussion, and try to link the political economy and the actual hazards that people face. They emphasise people's access to the resources they need for their livelihood. The focus, therefore, is on people at risk due to their livelihood being at stake during disasters, and who find it hardest to retrieve their livelihood after disasters, and thus making them further vulnerable to future hazards and disasters. Future exposure to hazards is an important factor not only in discerning the vulnerability of a community, but also in relation to the community's inherent characteristics (Bolin cited in O'Hare 2001:25; Wisner et al 2003). Not all people are equally vulnerable to hazards. There are variations in vulnerability because of different factors. For example, certain social and demographic groups are more vulnerable than others are, and face greater difficulties in recovering from disasters. These groups include people marginalised by class, caste, gender, race, ethnicity, age, geographical location, health status, age and immigration status and the nature and extent of social networks. When they encounter hazards these characteristics produce different impacts. Therefore, vulnerability here refers to people, not to buildings and economies or fragile slopes on the earth's surface, and relates to social characteristics. Vulnerability also has a time dimension, that is, it can be measured in terms of future damage to livelihoods and not what happens to life and property at the time of disasters (Wisner *et al* 2003). Therefore, an element of predictability is involved.

Certain studies have taken into consideration not just the 'vulnerability' of people that limits them but also their capacity to protect themselves even though they are vulnerable. Hence, they do not look at their weaknesses but their capabilities to overcome or be resilient to disasters even when they are vulnerable. These studies focused on self-protection and group action, people's capacity to adapt, and their ability to avoid and resist disasters. This is important because most of the studies tend to focus on people's weaknesses and limitations and identify the socially vulnerable groups as special needs groups. Thus, the problem of treating people as passive recipients and incapable victims crops up (Hewitt cited in Wisner *et al* 2003:14; Cannon 2000). It is also essential to mention that vulnerability is often seen as a characteristic of the systems that create the potential for harm or the differential ability to recover after an event (Cutter n.d.: 03). Therefore, due to certain inherent characteristics (such as caste, class etc.) the ability to recover from a disaster also differs from people to people and group to group (see also Alwang *et al* 2001; Pritchett *et al* 2000; Moser and Holland, 1997).

One of the main issues that affects the lives of people and needs to be mentioned is their livelihood, which is susceptible to shocks of various types. Livelihood means the way in which people

satisfy their needs and earn a living. In other words, it is "....a set of flows of income, from hired employment, self-employment, remittances or (usually in developing rural areas) from a seasonally and annually variable combination of all these; should be sufficient to avoid poverty; implies systems of how rural people make a living and whether their livelihoods are secure or vulnerable over time" (Ahmed and Lipton, 1999: 6). Two sides of vulnerability have been identified—one is related to external shocks and the other is internal, that is lack of defence or coping mechanisms (Chambers 1989). Davies (1993) mentions structural vulnerability where households with old and infirm members are rendered vulnerable.

Another effect of any crisis is the creation of insecurity over food. This is measured through consumption, child malnutrition etc (Chung *et al* in Alwang *et al* 2001:16). The other studies that deal with vulnerability focus on disaster management with respect to natural disasters. Vulnerability here is defined as the characteristics of a person or group in terms of their capacity to anticipate, cope with, resist and recover from the impact of a natural disaster (Wisner et al 2003: 11). The focus is on the hazards that are present always but tend to become disasters because of the inherent vulnerabilities of the people (Prowse in Makoka and Kaplan 2005:10; Cardona 2006).

Sociologists often considered poverty as a state resulting from a combination of circumstances and that income or consumption levels fail to describe poverty adequately. They also use vulnerability as alternative means of characterising poverty, which money cannot always measure. Therefore, the concept of social vulnerability is used by them rather than economic vulnerability. The identification of vulnerable households is based on characteristics such as those with elderly and disabled persons, households headed by women and so on. Others, such as Putnam (1993), also use social capital and strength of household relations as assets, which are useful in building resilience in vulnerable groups.

While discussing the state of Orissa, India, poverty has a different connotation because a substantial section (46.8 %)[3] of the population is below the poverty line. They do not alternate between entering and coming out of it, but are perennially in poverty. Further, poverty in the form that we see in India refers to absolute poverty rather than a state of relative deprivation. Most people who live in the two villages are in absolute poverty, i.e. below the line of poverty[4]. In a general sense this would suggest that they do not have adequate housing, do not get enough to eat in terms of calories per day, are not able to keep their children in school for longer periods and usually withdraw their daughters from school just after finishing primary school. Meeting medical expenses or even to manage their lives within their income is most difficult even with several members of their families being income earners. Apart from all these factors the effects of the external factors such as rain, cyclone or floods make them even more vulnerable.

Vulnerability has also been seen as the susceptibility of social groups to the impact of hazards and their resilience or ability to adequately recover from them (Cutter and Emrich 2006:103). Social vulnerability is seen as the product of social inequalities. According to Cutter, ".....it describes those characteristics of the population that create differential social burdens of hazards and helps explain why

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[3] It shows the percentage of rural population that was below the poverty line in 2004-05, provided by Government of India, Press Information Bureau, New Delhi 2007.

[4] The poverty line for 2004-05 was Rs 325.79 per person per month for the rural population in Orissa.

the same natural event produces dramatically different impact within the same geographical area" (Cutter n.d.:5). This vulnerability is contingent upon demographic characteristics of the population such as age and gender, wealth, social capital, health care provisions, and access to life lines (Cutter cited in Cutter and Emrich 2006:103). Cutter states that in the case of Hurricane Katrina, which struck the United States in August 2005 and specifically the three coastal counties of Mississippi, Alabama and Louisiana, there were considerable differences in the responses to the disaster in these counties. It was clearly evident that the city of New Orleans had the most vulnerable population, which was also visible through socio-economic and demographic indicators. The vulnerabilities were based on race, gender and class on the social front and on the economic front, their dependence on the single sector economic base of agriculture made them vulnerable because damage to this sector meant loss of income, with no alternative source of income.

Social vulnerability received further momentum in the study of disasters when it was noticed that there was excessive emphasis on the 'external destructive agent' or the hazard and the 'reaction of the people was the only indicator of the nature of the agent'. Dombrowsky suggested, "A creative reformulation in studying disaster as a social action taking place within societies" (Dombrowsky cited in Gilbert 2005: 25). It is necessary to focus on those aspects in a disaster that are internal to the people. He argued that the role of the agent (as in the hazard) in the context of a disaster should be replaced with the importance of social vulnerability, analysing it structurally and contextually and looking at disaster as a process. A disaster should be seen as a social consequence rather than as merely a reaction to some hazardous event. The shift is from perceiving a disaster as merely an effect of a hazard, to perceiving it "...as a result of the underlying logic of the community" or internal risks within a community. Therefore, social risks within a community are emphasised in this paradigm. A disaster is then seen as a process where the activities carried out by the actors and structure of the community start breaking down. The discussion on disaster falls within the second paradigm proposed by Gilbert (2005: 6-7) in his classification of theoretical approaches to studying disasters. The other two paradigms that he proposed include the war approach. This is the first paradigm where the natural hazards are seen as external destructive agents like bomb attacks that elicit organic reactions from the people who are seen as victims. This approach saw the response of people more as panic and the role of disaster as the destructive factor. The third paradigm sees disaster as uncertainty, which occurs when a danger, real or imaginary, threatens the community and the community is not able to understand it through its causes or effects and it upsets the system of meaning. Thus, there is an inappropriate interpretation of chaos or confusing situation, inability to understand reality or define a situation through already existing knowledge or traditional understanding (see also Parsuraman and Acharya, 2000)

Methodology of the study

The study was undertaken in the coastal district of Ganjam in Orissa. This district is regularly struck by cyclones and at other times gets warnings of cyclones every year. Two villages that have survived cyclones in the past were chosen for the study from the Chatrapur block of Ganjam district. One village is a predominantly fishing village from where 60 households were taken as the sample, chosen to

include households engaged in fishing. In the sample, 30 female and 30 male respondents represented these households. For comparative analysis, a neighbouring village where the majority of the people are engaged in agriculture was chosen. A sample of 50 respondents, comprising 25 males and 25 females representing 50 individual households were chosen and covering those castes and occupational groups that are affected by disasters.

What is a disaster to the people?

Whatever be the manner in which disasters are defined, how do these people perceive them? These are the people who actually face disasters on a regular basis and survive. To those in the fishing village, the answer to the question "What is a disaster?" is that *cyclones* are disasters. All the 60 respondents from the fishing village gave the same answer to this question. They consider cyclones as bringing devastation into their lives. Cyclones, which are accompanied by gale force winds cause havoc to their lives and their livelihood. They use the same word *batya*[5] (which is the word for cyclone in the Oriya language) for disaster as well. The understanding is that with cyclones being a perennial and a regular phenomenon, for them a disaster is a cyclone. Situated just about 100 metres from the sea shore, a wind speed of even 70 kilometres per hour can destroy their vital assets (such as boats and fishing nets). The reason why cyclones and disasters are seen as coterminous is that their livelihood gets so severely affected. Moreover, in this part of India, cyclones are recurring phenomena and could strike several times a year. Even if the intensity of the cyclone or the storm was noted as relatively mild by the meteorological department, to these people a cyclone of even lower intensity would destroy their livelihood because earnings would not be possible for days on end. This important point needs to be taken into consideration, because a conventional definition of disaster would include only large-scale death and destruction. Officials too do not consider that lower intensity cyclones require state intervention to support the people. When the impact of the cyclone completely destroys their means of livelihood and even blows away their *kuchha* (thatched roof) houses, then whatever others may say, to these people it is truly a disaster, notwithstanding the fact that no one may have died.

In the farming village, the situation has been different. Here too cyclones wreak havoc on their means of livelihood but the major trouble comes with water surges. Farmers could face devastation from cyclones, flash floods, and dry seasons or occasional droughts, which bring disasters that result in extensive crop losses. Agriculturists[6] reported that only when there is a cyclone or heavy rain for many days and water surges into their fields that severe crop failure results, causing a major setback to their economic condition. Small storms may not be a major threat and, in fact, may benefit the crops (i.e. the rain) but cyclones are the real threat that results in crop damage although it may not cause physical harm to the people. What both the communities mention as the cause of such problems is their location near the sea and river basin. They are vulnerable to sudden disasters, though agriculture may at other times be affected at a relatively slower pace through a drought that ultimately causes considerable harm to them.

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[5] The word for natural disaster in Oriya is *prakrutik biparjaya*

[6] 'Farmers' and 'agriculturists' are used interchangeably, and mean the same.

Aspects of Household Vulnerability to Disasters: A Comparison between the Fishing Village and Agricultural Village

A detailed view of various indicators of vulnerability throws more light on how the people of the two villages perceive them. Among the various indicators of vulnerability, 'income' gives an indication of the economic situation and capacity of the households to respond to disasters or even prepare for them. In the study villages, the economic situation is very grim, mostly because the residents of both villages depend on the weather which is uncertain and irregular/seasonal. Within the fishing sector, there are various jobs. Fishing is a community occupation that requires the participation of all the members of the community.

Occupational Vulnerability and Risk Taking Behaviour

In the fishing village, all the households, except for the 30 Sundi households, are from the fishing caste and most of them are engaged in fishing or allied activities. However, a few have shifted to other occupations because of the uncertainty and risks involved in fishing. Referring to Table 1, not all the male respondents in the fishing village are directly engaged in the actual fishing. There is a division of labour in the group as well as in the fishing ventures and some men in the village have taken up jobs other than fishing. In 42 households out of the 60, the men were directly engaged in fishing even though they did not own a boat. Not owning a boat is significant in the context of earning and, therefore, the capacity to cope with the disasters or emergencies. There are eight male respondents in the fishing activity who also own boats. This entails higher earnings and status than those who do not own boats. They bought the boats by arranging money through different sources such as loans from banks, borrowing from money lenders, and some, like brothers in one family, owned boats jointly. There are around 150 boat owners in this village of 700 households. Men of five households did not work in any fishing related activity but held other jobs. One of the respondents is working in the Central Reserve Police Force and occasionally visits the village. He preferred an occupation other than fishing and moved when he got an opportunity. Two of his brothers are involved in fishing and stay in this village. He made it clear that his regular income from the job and remittances to his home ensured that his family does not borrow money as often as the others who are fishermen. The crucial point is that income from fishing is very uncertain, he emphasised, and fishermen borrowed money quite often. He admitted that his job in the Central Reserve Police Force is better with a regular salary, but it has its own risks though not on a daily basis such as in fishing.

Two of our respondents own shops in the village. Since people in the village require groceries, they decided to open shops rather than depend on the fishing occupation even though they have the necessary fishing skills. With a less dangerous alternative occupation available, they thought fishing was too risky. Another respondent is engaged in providing cable television services in this village as well as nearby villages and towns. He has brothers who are fishermen and also own boats. He too goes fishing, but only once in a year just to stay in touch with the occupation, and he claimed that no fisherman ever wants to lose touch with fishing because if he did not have any other job, he can still get back to fishing. He had done a diploma course in computers and opened a cable TV network business because

it is less dangerous and more profitable. He emphasised that those who are getting educated are losing interest in fishing and it can be revived only if there are improvements in the technology used for fishing and the catches are bigger and better. Two male respondents are engaged only in the commercial aspect of fishing. They too face uncertainties in business when there is a cyclone and no fishing. However, there is no threat to their life even when there is turbulence in the sea since they need not go fishing during cyclones unlike the fishermen. Thus, although there are uncertainties of income and they also share the same problems of living in a disaster prone coastal area, the shift from fishing to fishing related business reduces risks to their lives to a considerable extent.

Table 1: Source of income of main male income earners in the family (Fishing village)[7]

N= 60

Source of income	Number of respondents**
Fishing (do not own a boat)	42 (70)
Migrant fishermen (work in another state)	02 (3.33)
Sarpanch* (elected position; otherwise he is in the fishing business)	01 (1.67)
Fishing (own a boat)	08 (13.33)
Central Reserve Police Force job	01 (1.67)
Fishing business	02 (3.33)
Cable Television	01 (1.67)
Shop	02 (3.33)
Truck driver	01 (1.67)
Total	60 (100)

Note: * Sarpanch: elected president of a Gram panchayat (village council)
** Numbers in brackets represent percentages

The uncertainty over income and the intensity of the risk factor has a definite impact on the choice of occupation. Even though villagers have a close tie with the traditional fishing occupation, when the possibility of better income and security of life arises they do not hesitate to shift to a different occupation. However, their social life is built around this traditional occupation and risk-taking is a part of their socialisation. They attach much meaning to the place and the sea as something that define their identity as Noliyas. The village and the sea give meaning to their life as a whole, and they do not choose to leave the village and the sea because they cherish the proximity and presence of the sea. This feeling is shared by both the men and women of the community. That is why even though the people who get educated have opted for alternative occupations within the village and if they have left the village, they still retain the traditional fishing occupation in the family and prefer to return to the village. Some have also opted for seasonal migration (pursuing fishing in the place of migration) so that they can get back to the village and the family.

Not many have skills other than fishing and it restricts the possibility of them taking up any other occupation. They know fishing is very risky, i.e., the work puts their lives at risk not only during

[7] The number of respondents in this table refers to all the respondents from the fishing village, which includes 30 male and 30 female respondents who provided information on their households and about the family income where the male head is the main earner. His occupation is referred to as the main source of income.

cyclones but also when there are no cyclones. Fishermen face challenges of various kinds in the form of competition from other fishermen and fishermen from the neighbouring state of Andhra Pradesh. They report that the number of fish and the catch have been declining over time and the probability of a catch each time they set out for fishing is constantly diminishing, especially in the coastal areas where they have their fishing activities. Deep-sea fishing would fetch them a better catch but hardly anyone in this village can afford bigger mechanised boats required for fishing in the deep seas. There are also risks such as the condition of their boats and the vagaries of the sea. Changes in the weather or a fault in the boat could prove fatal. They mostly use small boats with outboard motors that can accommodate a maximum of nine people.

Fishing in cyclonic weather is obviously much more dangerous. Fishermen are the first to be warned by the meteorology department to stay away from the sea even during low pressure in the atmosphere, let alone fully formed cyclones. When there are no cyclones too the frequency of getting a catch is not high. They catch a reasonable quantity of fish only once in about ten days. A catch of a few kilograms does not pay their costs. When they catch a ton or more of fish, they make more money. Therefore, due to these uncertainties, they sometimes knowingly take chances and go fishing, because if the low pressure that is associated with cyclones prevails for several days it would mean a long period of poor or no income. It is a collective action and a collective risk-taking behaviour. One may say there is a culture of risk-taking in this occupation. The fishermen are taught to take risks and they go fishing in the rough sea fully aware of the risks involved.

A cyclone not only reduces fishing activities but it also hampers the drying of fish. The entire fishing community, including fishermen, their wives, sisters, mothers, and the fishing business, is affected during cyclones. Fishermen also indicated that during heavy rains even the fish do not come to the surface and tend to remain in deeper waters (the fishermen mentioned that the fish 'hide' in the water and do not want to come near the surface), and it becomes difficult to make a good catch during heavy rains or cyclones even when they risk going fishing during this time. High force winds and choppy seas make boats to capsize and the fishermen have to swim across the sea, which they described as a difficult task. The sea currents are far too strong for anyone to swim long distances to reach the shore. At times, they also are injured by when the boat capsizes or they get tangled with propellers. Some deaths have occurred due to drowning or through injuries from the propellers on the motor boats.

Agriculture in the nearby village is vulnerable to more than one type of hazard— cyclones, water surges and droughts. There is generally no immediate threat to the lives of the farmers. The risks affect the economic situation at the individual level rather than collectively. Although the occupation is pursued in the same place and the village constitutes a single community facing the same hazards, they face risks to their crops as separate households, as the activity is more an individual task unlike fishing which is a group activity. All the respondents were engaged in farming although some are non-farming castes such as Brahmins, who did not directly cultivate their own fields but got non-Brahmin Khandayats of the village to till their land. These people in the farming village also face some risks. First of all, they pursue their occupation near the sea and river belt, which is a matter of concern because they are exposed to threats from both the sea and the river. Secondly, they spend considerable amounts of money on cultivation every season with the hope of a good yield despite the fact that a single cyclone

or flood is enough to destroy their efforts and incur losses on the money spent. Thirdly, they do not have any alternative source of livelihood other than farming. The Brahmins in the village work as temple priests and get paid by the people to perform various rituals. However, for the Khandayats (farming caste) there is no such alternative occupation. Their sole livelihood is farming, which is dependent on the weather and also frequently affected by various natural disasters.

Income Vulnerability

The income of the respondents in Table 2 reveals that fishermen, those actually going to sea, have lower incomes than the respondents who have other occupations. The respondents in the fishing business and fishermen who own boats also have higher incomes than the fishermen who do not own boats. Out of 60 respondents, 42 are from households where the main earning member is a fisherman who does not own a boat. Among the 42, twenty-four said their household income (including income from their wives'/mothers' daily income from manual labour) is less than Rs 15,000[8] annually, which is a very low income. According to the District Disaster Management Plan 2007-8, there are around 150 boat owners in this village. This is out of the 700 households. Only 17 respondents indicated that they earned more than Rs 16,000 per annum, which may go up to Rs 20,000 for some. Those who own boats and those in the fishing business were able to earn more than Rs 26,000 per annum. Although that is also a low income, it is nearly double the amount that fishermen without boats earn. This occurs because of the manner of sharing of income, where the boat owner gets two parts as his share of the catch while the others get only one part each. Assets, particularly a boat, make a difference to the earnings in the fishing enterprise.

Table 2: Main source of household income and Total household income* (Fishing village)

N= 60

Main source of household income	Total household income (in Rupees per annum)				Total
	10000-15000	16000-20000	21000-25000	26000 & above	
Fishing (do not own boat)	24 (40)	17 (28.33)	1(1.67)	0(0)	42(70)
Migrant fisherman	0(0)	0(0)	0(0)	2(3.33)	2(3.33)
Sarpanch (elected position; otherwise fishing business)	0(0)	0(0)	0(0)	1(1.67)	1(1.67)
Fishing, owns boat	0(0)	1(1.67)	2(3.33)	5(8.33)	8(13.33)
CRPF job	0(0)	0(0)	0(0)	1(1.67)	1(1.67)
Fishing business	0(0)	0(0)	0(0)	2(3.33)	2(3.33)
Cable television business	0(0)	0(0)	0(0)	1(1.67)	1(1.67)
Shop owner	0(0)	0(0)	1(1.67)	1(1.67)	2(3.33)
Truck driver	0(0)	0(0)	1(1.67)	0(0)	1(1.67)
Total	24(40)	18(30)	5(8.33)	13(21.67)	60(100)

Note: * Including women's manual labour income in Fishing village;
** Numbers in bracket represent percentages

The household income of the fishermen's family also includes the income earned by the wife or mother's daily labour (every earning member's income put together). It varies from family to family and

[8] This household income falls below the poverty line, because in 2004-05 the poverty line was Rs 325.79 per person per month for the rural population of Orissa, which amounts to Rs 23456.48 per year per household when considering that each household has, on an average, six members.

the total income also varies accordingly. Out of 60 households, women in 45 households work as daily wage labourers (Table 3). Other than this, some women also sell fish in the local market, which brings in additional income. Income from fishing is not regular, and in a week, they may earn Rs 200 to 500 on an average good catch. Sometimes they earn just Rs 50 in a whole week. The situation is similar for the women as they do not have a secure and regular income, and only manage an income of approximately Rs 2000 to 4000 a year. This is included in the household income shown in Table 2. In addition, as the village is not situated near a seaport there are no opportunities for secondary income for the men. In villages that are near a port the men can work as manual labourers in the port in loading and unloading goods from ships and other such activities. Due to their uncertain and meagre income, they are frequently in debt, even more so during the cyclones when they borrow more frequently than in ordinary times. They borrow even from moneylenders, and from fellow fishermen who have saved some money. The collateral used includes gold jewellery, if any, and utensils. However, sometimes even the collateral is waived because they are charged very high rates of interest on the money borrowed. They do not require any collateral when borrowing from friends, where it is given purely on mutual understanding and trust. Very rarely can they opt for bank loans, because they are frequently short of money and banks do not give loans if the earlier one has not been repaid.

Table 3: Occupation of women

N=60

Occupation	Women income earners in sample households
Daily labour	45 (75)
Selling fish in market	02 (3.33)
Daily labour & sell fish	05 (8.33)
Shop owner	01 (1.67)
Not gainfully employed	07 (11.67)
Total	60 (100)

Note: * Numbers in brackets represent percentages

In the case of the farmers, their income is higher than that of fishermen and the majority of the agricultural households fall in the income group of Rs 21,000 to 25,000 (per annum) whereas in the majority of fishermen households falls in the Rs 10,000 to 15,000 (per annum) income group. However, agriculturalists share the same fate of losses and uncertainties as the fishermen. They report that money spent on pesticides and fertilisers brings no returns when a cyclone or water surge hits their village. It results in more debts while income remains very low. They also face disasters on a regular basis and that is an additional burden. There are 32 farmers who own approximately 2-4 acres of land each and have an income of less than Rs 25,000 (as household income) approximately (this depends on the crop and a successful harvest). The farmers also work as wage labourers for Brahmin landowners to earn additional income. Three families have their sons earning money from insurance work. They sell policies to the fishermen. Although it is only occasional work, the earnings from it are included in the income of the household. There are ten Brahmin households in this village; each household owns more than ten acres of land and their earnings range from Rs 30,000 to Rs 50,000. They also have an

alternative income from doing temple work. They were given land in this village as gifts for their services in the village temple, several generations ago. They belong to the more prosperous class of people in the village. The farmers who constitute the bulk of the population in this village, with over 390 households, are not so prosperous. Three families who belong to the Khandayat caste, are rich farmers and earn in lakhs (one lakh is Rs 100,000) according to other villagers. These three families are also into money lending within the village, which helps people in times of distress. They are able to sustain losses because they own large stretches of land and cultivate cashew nuts. These crops are well protected by sand dunes, which make them less susceptible to water surges, and also fetch them large incomes.

Table 4: Agricultural income and Caste (Farming village)

N=50

Caste	Main income source	Total income (in Rs per annum/per household)			Total
		16000-20000	21000-25000	26000 & above	
Khandayat	Farming	13(26)	19(38)	8(16)	40(80)
Brahmin	Farming	0(0)	0(0)	10(20)	10(20)
Total		13(26)	19(38)	18(36)	50(100)

Note: * Numbers in the bracket represent percentages

Type of House and Vulnerability

An important asset that they have is their house. All the residents in both the villages have their own houses. However, not all in the fishing village have *pucca* houses (brick and cement houses with concrete roofs). Their access to better houses is also related to the level of income. Table 5 shows that 43 households have *pucca* houses, but 39 have only one-room houses where entire families, an average six persons, reside. There are 17 households that own semi *pucca* or *kuccha* houses. Those who have *pucca* houses mentioned that they had built *pucca* houses although they were hard pressed to raise the funds because they needed a safe place to stay in when cyclones strike the area. They had to borrow money to supplement the amount given by the Government of Orissa after the 1999 super cyclone to build the houses. The government funds reached people whose houses were destroyed in the cyclone and who also had a *patta* (title of land ownership) of the house before 1999. Those who did not have a *patta* before 1999 could not get any money from the government because it was believed that they had migrated from other fishing villages only to get money to build their houses. They had to borrow money to build the houses because it is very dangerous to live in this place without a *pucca* house.

All this is evidence of their understanding of the risk. They are aware of their vulnerability and even possible death in cyclones. They have taken measures to build *pucca* houses to protect themselves although it is very troublesome to get funds for it. As respondents stated, most of the deaths in the 1999 super cyclone had occurred because of houses collapsing, and families being buried under the debris. They realised that the most important necessity to withstand disasters is a *pucca* house. Under the Indira Awas Yojna (a government housing scheme) some villagers received money to build houses. Some funds were given to a few by the state fisheries department. Providing houses through these schemes will not solve the problem of housing. Under the IAY scheme, the houses are given through a

"lottery" to a very small number of people. The beneficiary has to show that he or she has the ownership title deed to the land, dated prior to 1999 (i.e. *patta* in the local language*)* on which the house is to be built. Similarly, the houses funded by the fisheries department are also given through a lottery, and every year one person gets a house. Evidently, this is absolutely inadequate because there are a large number of people who are in need of *pucca* houses. Most of the people, however, were left out of these schemes and had to make their own efforts to build their houses. Many of them are yet to own a *pucca* house, as seen from the sample—17 families still do not have *pucca* houses. In case a cyclone strikes the village, they have to take refuge in the *pucca* houses in their neighbourhood or rush to the government constructed cyclone centre. They have to go to the cyclone centre in a group after collecting the key from the gram panchayat *sarpanch* because the shelter is kept locked when there are no cyclones. No family denies help to anyone in times of need. The neighbours provide help whenever required, as reported by the respondents.

Table 5: Caste wise distribution, Size and type of house

N=110

Type of house	Caste	Size of house		Total
		One room	More than one room	
Pucca*	Noliya	39	4	43
	Khandayat	16	24	40
	Brahmin	0	10	10
Total		**55**	**38**	**93**
Semi *Pucca* **	Noliya	6	0	6
	Khandayat	0	0	0
	Brahmin	0	0	0
Total		**6**	**0**	**6**
Kuchha***	Noliya	11	0	11
	Khandayat	0	0	0
	Brahmin	0	0	0
Total		**11**	**0**	**11**

Note: Comparison between two villages Numbers=110 (60 from fishing village; 50 from farming village)
* brick and cement house, with concrete roof
** tin roof, brick and cement house
*** mud walls, and thatched roof

All the 50 respondents (Table 5) (Khandayats and Brahmins), have *pucca* houses and 17 of the 60 fishermen (Noliya) have *kuchha* or semi *pucca* houses and their houses comprise a single room. The farmers have two-room houses (34 respondents in the agricultural village reported having more than two rooms in their houses). This is an important indicator of vulnerability because those who have *kuchha* (thatch roof) houses and have six or seven members in it would be under greater threat from cyclones due to the higher probability of their house collapsing. The houses in the farming village are built to protect it from cyclonic winds. These houses do not face the wind directly and are built in such a way that the stronger houses (*pucca*) are built in the periphery side by side in a semicircle so that the wind is diverted and does not directly hit the houses. This form of house construction was initiated by

earlier generations, when the villagers did not own *pucca* houses, to protect the *kuchha* houses. The farmers suggested that their ancestors had their security in mind even when they located the community near the sea and became vulnerable to cyclones and storms. At present, all the houses in the agricultural village are *pucca* houses (which for the most part were built after the 1999 super cyclones). This is a way to be resilient when disasters strike. The fishermen do not conform to any traditional norm of building houses unlike in the agricultural village. They are situated about 100 metres from the sea and a strong wind will be dangerous for them. Therefore, they need to have strong *pucca* (cement) houses to protect themselves. That they are opting for such houses is evident since 43 respondents have already built *pucca* houses. The people also have a practice of building separate houses for their sons when they get married. In the immediate short-term they build *kuchha* houses for the newlyweds. The newlyweds now become part of the more vulnerable families since it would take time to build *pucca* houses.

The villagers also report that there are approximately 200 *kuchha* houses, which means there are still many people who need better houses. It is also to be noted that these houses are built closer to the sea coast than most of the *pucca* houses, which are built inside the village and farther away from the sea. It indicates that the poorer people living in *kuchha* houses that can collapse in strong winds are nearer to the sea and more vulnerable than those who live in *pucca* houses. They are, however, making efforts to build stronger houses by arranging money from different sources (borrowing from friends and relatives, money lenders, Indira Awas Yojna and the fisheries department). Lack of adequate financial assistance has prevented many from building safe *pucca* houses.

Social Vulnerability and Resilience

There are some indicators that bring out the social aspects of vulnerability and those realties that bring forth different responses to disasters. These social indicators go beyond income or any other material attributes and emphasise the social characteristics of people. Due to differences in these attributes, disasters have diverse impact on the groups and their capacity to respond to the disasters too varies from group to group.

As Cutter (n.d.) said, even if a community is vulnerable it does not mean that it lacks 'resilience', which is the ability of a system to absorb shocks and cope with them. Although a community has characteristics that make it vulnerable, the fact that it faces recurrent disasters and perennially lives with risks also indicates the resilience of the community—that it has survived disasters despite its vulnerabilities.

Ethnicity, Local Leadership and Networks

Ethnicity is a factor contributing to the formation of a community-based identity. Ethnicity rests on language, religion, culture, racial distinctiveness or appearance, region, and ancestry. These are important, though not persistent factors around which ethnic identity tends to build up (Hunt and Coon in Parsons 1975; Nagel 1994). Ethnicity is "the reach for groundings" (Hall 1991:35, 36). On the other hand it defines "distinctive groups of solidarity," or strategic alliances demanding recognition, both conceptual and material (Parsons 1978:53).

The Noliyas (fishing community) speak Telugu, have been residing in this area for a long time and do not even know when their group first settled down here. They are ethnically different from the Oriya population of the nearby agricultural village in terms of culture and language. Acculturation or a limited form of assimilation has definitely taken place and most of the Noliyas can speak Oriya. The younger members of the village get educated through Oriya and English. Language, which constitutes part of ethnic identity, gains importance as it is the medium of interaction/communication. However, it may also be restrictive, as is in the case of many of the older fishermen, who do not speak Oriya. Along with the fact that they are in an occupation that separates them from others and needs them to stay off the land for most part of the day, this leads to lesser contact with the people outside the community. The less frequent contact of the fishermen with the people in their area other than those of their own language and occupation also prevents these fishermen from making any effort to learn the local language. That they also depend on their own people for occupational assistance further hampers interaction with the local people (i.e. Oriya speaking). An additional fact is that most of the fishermen are illiterate (more so among the older generation than the present generation of the school-going age) and they did not even have the opportunity to learn any of the languages taught in schools.

In the case of these fishermen, caste identity, which is defined predominantly by their occupation, assumes even greater importance as a factor on which community identity is built, apart from the common language. In this context, caste is the binding force of these people. Caste can be seen as an ethnic identity nurturing a feeling of oneness and a sense of belonging to a particular group or community. Caste can also be seen as an ethnic group in the same sense as, to quote Parsons (1975:56), "This is a group, the members of which have both, with respect to their own sentiments and those of non-members, a distinctive identity which is rooted in some kind of a distinctive sense of its history." Caste as an ethnic identity is ascriptive in nature and acquired at birth.[9] It is an important basis for community formation of the people in the fishing village as well. They perceive themselves as a separate community on the basis of their caste. They find caste a more important determinant of their community identity than language. This particular caste occupies a lower rung in the caste hierarchy. In Orissa, any caste engaged in fishing is considered as Scheduled Caste.[10] However, the Noliyas, being a Telugu-speaking group, are classified as Backward Caste.[11]

The fishing group/caste is perceived as a separate community by the local people because of these ethnic and caste differences. This perception is also shared by officials in the disaster management office who describe them as 'Noliyas', as a separate group with an identity different from the rest of the Oriya people. According to social vulnerability studies, the ethnic differences and minority status of a social group could prove detrimental in accessing benefits during or after disasters. However, people in the fishing village remark that more than being discriminated against, they have a sense of

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[9] Ethnic identity is generally acquired at birth hence it is ascriptive in nature (Horowitz 1978).

[10] A list of castes that includes those who were considered as 'untouchable' in the past and now enjoy benefits of government programmes (under protective discrimination policies and affirmative action schemes) to improve their socio-economic position.

[11] Being classified as a backward caste is generally related to their economic conditions and being born in the lower class (i.e. poor).

being different, even though they have a strong feeling of being part of Orissa and not Andhra Pradesh which is the neighbouring Telugu-speaking state.

When the opportunity presented itself, the people in this fishing village supported a fisherman and member of their own caste to contest the gram panchayat (village council) elections. He won and also became the *sarpanch* (president) of the gram panchayat. There are five villages in this gram panchayat, out of which two are agricultural villages inhabited by people belonging to the Oriya castes. The *sarpanch* of their gram panchayat resides in their village. This is mentioned as a matter of pride and of advantage to them. They expect him to deliver good service and also bring development projects to their village (fishing). One of the projects that is being talked about in the fishing village and on which the *sarpanch* is working, is that of building better roads and toilets. This access to power is essential to make the voice of the group heard by the higher authorities at the block level who have the ultimate authority to decide and provide amenities to the villages, in addition to what the gram panchayat can provide by itself.

Agricultural village

The inhabitants of this village do not face the kind of risks to life as with those engaged in fishing. They live about a kilometre from the seashore and most of them belong to the Khandayat caste (a farmer caste). They have also shared in the experiences of the disasters and it has nurtured a feeling of oneness and a community consciousness in the village among the castes. The community consciousness of the agricultural village is not so much related to their occupation of agriculture, whereas among the fishing people the risks of their occupation bind them together. The agricultural village's vulnerability to the natural hazards of cyclones and water surges {drought is also a hazard for the agriculturists} that affect their crops and for some families the place of residence also contributes to the sharing of their problems. They need each other to survive and save their produce. The agricultural community has a different perception of community. Though the villagers are clearly conscious of their caste identities, but faced with a disaster that affects the entire village, they act as a single community. Some 15-20 years ago, the agricultural village too had a caste panchayat but there is no sign of it at present. The village is linked with the gram panchayat, and the sarpanch (president of the panchayat) plays an active role in managing the panchayat and in dispute resolution. The functions hitherto performed by the caste panchayat have become less important to the village people or have been taken over by the gram panchayat. Crucially, and in contrast to the agricultural village, in the fishing village the caste panchayat plays an important role in the lives of the people, and in many ways the caste panchayat takes precedence over the gram panchayat.

Education

It is an important indicator of human development and social vulnerability if a society has many illiterate people. It also means that the society is less informed and less capable of utilising the opportunities available to them. Education is mentioned in the social vulnerability index provided by Cutter *et al* (2008), that it is an important indicator of whether or not a population is socially vulnerable. If the population above 25 years of age has not had a high school education then that population is

vulnerable. However, the indicator in the present form, as provided by Cutter *et al* (2008), needs to be seen in the Indian context as manifested in these study villages. Education is related to the ability to gain access to better opportunities and job prospects. One can see from Table 6 that those who are in the fishing occupation, the Noliyas, are mostly illiterate: 49 of the 60 respondents are illiterate. In comparison, 20 of the 40 Khandayat respondents are illiterate. There is one graduate among the Noliya sample respondents. The fishermen have stated that those above 30 years are mostly uneducated because there were hardly any schools at that time in this village. Nowadays, villagers are opting to educate their children because there is a school available within the village. Most of the Noliya women are illiterate (only one woman had a primary education). The situation is not very different in the farming village. The Noliya families send their children to schools, but the girls drop out after Class 7, to help their mothers earn a living (i.e. as daily wage labourers).

Table 6: Education, Caste and Sex

N=110

Caste		Education								Total
		Illiterate	Literate	Primary school	Middle 5-7	8-10	High school 10+	Inter-mediate	Graduate	
Noliya	Male	20	2	3	1	0	**0**	3	1	30
	Female	29	0	1	0	0	0	0	0	30
	Total	**49**	**2**	**4**	**1**	**0**	**0**	**3**	**1**	**60**
Khandayat	Male	4	0	0	5	6	1	3	1	20
	Female	16	0	0	4	0	0	0	0	20
	Total	**20**	**0**	**0**	**9**	**6**	**1**	**3**	**1**	**40**
Brahmin	Male	0	0	0	2	0	1	2	0	5
	Female	2	0	0	2	1	0	0	0	5
	Total	**2**	**0**	**0**	**4**	**1**	**1**	**2**	**0**	**10**

Note: Number in fishing village 60; Farming village 50

When we looked at the link between occupation and education, the relationship was very clear. Those who were educated often chose better jobs (in terms of higher and more regular income) and, more importantly, less risky jobs (i.e. less risk to their lives). Those villagers in the fishing village who were educated took up jobs on the fishing business that did not require them to go fishing, or opted for jobs outside the village. The younger generation also said they were encouraged to get educated and leave fishing or at least try to improve the fishing industry. Some respondents showed interest in upgrading the fishing activity to not only preserve the occupation but also improve their economic status. In the farming village, too, education is being given priority and the present generation (school going age) is getting educated, although they do not intend to leave farming.

The data in Table 7 show that 13 respondents who are fishermen, are illiterate. Those who have a high school education, or a college/bachelor's degree, are in the fishing business, run a cable TV businesses or have joined the CRPF (as in our sample). In agriculture, even those people with an education have continued with farming. The youth are not interested in this occupation as a fulltime work and want to get into some other occupation. Contrary to the general impression that Brahmins are

more inclined to higher education, this figure indicates that Brahmins in the agricultural village are comparable to other castes in terms of education, or, where women are concerned, they lack education.

Table 7: Education, occupation and sex (fishing village)

N=60

Occupation		Education						Total
		Illiterate	Literate	Primary school	Middle 5-7	Intermediate	Graduate	
Fishing	Male	13	2	3	0	0	0	18
Labour and selling fish	Female	1	0	0	0	0	0	1
Daily labour	Female	26	0	0	0	0	0	26
Housewife	Female	0	0	1	0	0	0	1
Fishing with boat	Male	7	0	0	0	0	0	7
CRFP job	Male	0	0	0	0	0	1	1
Fishing business	Male	0	0	0	0	2	0	2
Cable television business	Male	0	0	0	0	1	0	1
Shop	Male	0	0	0	1	0	0	1
	Female	2		0	0	0		2
Total		**49**	2	4	1	3	1	**60**

All the villagers send their children to school. In terms of disaster preparedness as well, it is the children and youth who are taught rescue operations, which they are asked to later teach other family members. The mock drills are mainly conducted among the youth. The village school building is also a cyclone shelter that was built by relief agencies. Therefore, the school safety norm (according to this norm in disaster management the school building should be a strong *pucca* building so that it can keep the children safe during cyclones) is also maintained here. However, they have complaints against certain voluntary organisations that worked in this area. The organisations did not employ educated people from the fishing village but hired people from outside. This is a valid complaint made by the villagers because educated youth of this village are eligible to fill the job vacancies in the voluntary organisations, but they were not considered. The voluntary organisations need to know what the real needs of the people are and how they can help the villagers. Their vulnerability to disasters is directly related to their occupation, and any sort of assistance such as providing jobs other than fishing, is a greater help than only providing training on how to deal with disasters.

Insurance as resilience

Another important indicator related to a community's vulnerability and resilience is insurance. In this village, risk and vulnerability can be understood by the number of people who have taken insurance policies for themselves. In the fishing village the people know that their life is at threat on land and more so at sea. Their occupation is such that life and death is uncertain, and to compensate for this uncertainty they have taken life insurance policies through government insurance schemes or private ones. Out of the 60 respondents, 42 (Table 8), representing their households, mentioned that either the men or the husband or son of the women respondents (depending on who was answering our

questions) have opted for life insurance. This idea dawned on them after some of the men from the village had taken insurance policies and their families got some money after their death. This provides them with at least a limited amount of security on which they can go for fishing without worrying about their family's wellbeing. The premium is a liability for the men because they do not have the habit of saving. It is the women of the households who saved money from the household income and paid the premium. Some private companies offer life insurance for fishermen but because it is a high risk occupation the premium is also high. They pay a sum of Rs 2000 to Rs 3000 every year to the insurance company. The insurance covers death under any circumstance, whether it is due to natural causes or during fishing in the sea. The additional benefit of this insurance is the opportunity it provides to the youth in the village to earn some money. Many of them work as insurance agents on a part-time basis to earn extra money. They also motivate the villagers to go for the insurance as it provides economic safety to the villagers. None of the women of the fishing families have any insurance because they face less risk to their lives since they do not go fishing. Others who are not in the occupation of fishing also do not see the need for life insurance because they think their lives are less at risk. They still face some threats to their lives by living near the sea. None of the farmers reported having any insurance. Those fishermen who have not yet taken up insurance are planning to do so as soon as possible because they have realized the benefits and the necessity of life insurance for the wellbeing of their families. There are fishermen who have not taken up an insurance policy because they could not raise the premium needed for the insurance policy.

Table 8: Insurance policies (fishing village)

N=60

	Family's main male earner has insurance	Main male earner does not have insurance	Total
Male Respondents	22(36.67)	8(13.33)	30(50)
Female Respondents	20(33.33)	10(16.67)	30(50)
Total	**42(70)**	**18(30)**	**60(100)**

Note: Numbers in brackets represent percentages

Short term coping: Various short term coping mechanisms were observed. The villagers in the fishing village indicated that there are diverse phases of coping with disasters that they have experienced in the past. There is no preparation before any disaster. Lacking sufficient earnings, they cannot save and prepare contingency stocks of essentials at the individual household level. They carry on with life although they do take the precaution of not venturing out to sea during cyclones, nor let their family members go out in windy weather. Those who have *kuchha* houses mentioned that they place plastic sheets on the roof to protect their assets and themselves from water seepage during rains and cyclones, since the *kuchha* roof is made up of dry coconut leaves and straw. Those who have utensils and jewellery keep them as contingency for periods of disasters when they might need to buy food but do not have money. They exchanged or pawned these assets for money to meet their immediate needs. During cyclones, they stay indoors in *pucca* houses, and some also resort to reducing their food intake because they do not know how long the cyclonic conditions may prevail. The coping

here is related to survival, not only survive starvation, but the possibility of being killed in the cyclone as they reside very near the sea.

Traditional measures of coping: The people of the fishing village remarked that the village was located in this particular site because of certain important factors that should be considered when any village has to be built near the sea. This village is built where it is at a relatively higher level than the shoreline and they located the village at that point. By its very location, this village is to some extent safe from water surges. It means that they are aware of the risks involved in staying near the sea and in an area that is prone to cyclones. In the farming village long term coping is managed with sand dunes that prevent water surges into the houses. The villagers claim that the dunes protect them from powerful winds and storms. However, they complained that because of commercial interests, sand is being removed, and it is making them vulnerable to storms. The natural protection that they had depended on is now disappearing.

A Traditional Institution and Resilience to Disasters

The fishing village has a traditional institution that has an important place, and performs many crucial functions in the village life in normal times and also during disasters. The caste panchayat (caste council) plays the role of settling disputes between the community members on marital discords, occupational disputes and also disputes between villages. The caste council or *jati gosthi* (in Oriya) is headed by the caste head called *gan mukhiya* (village head in Oriya) *or pedamanusulu* (literally big man, in Telugu). The caste head is jointly chosen by the villagers through consensus. The particular person chosen may be one whom all of them find dependable, and more importantly, one who is sensitive to village problems, who listens to them and tries to solve the problems impartially and takes care of their work. The presence of the caste council in the fishing village contributes to the control and management of fishing activities. All the villagers must obey the voice of the council because it not only regulates the activities but also solves disputes whenever they arise.

The caste panchayat decides whether community members should venture out for fishing or not, they have the authority to declare a day off and no one can go for fishing that day. They can also declare a day's catch as part of village fund, which people cannot deny. In any fishing venture, the fish catch is shared equally among all the members who accompany that particular trip. This applies to all except the boat owner who gets two shares, i.e., one share as a member of the fishing trip and the other one as the owner of the boat used for this fishing trip. In the event of someone not wanting to give an equal share to all the members in the fishing venture, the case would be taken to the caste head, who then decides the punishment to the person for flouting the rules of the group.

Apart from these roles played by the caste panchayat, another crucial function is in the context of disasters where it acts as a buffer for the villagers. In the event of a disaster and loss of income to the fishermen, the panchayat provides funds for recovery. The money comes from the contributions the villagers make during the *Thakurani jatra*. Respondents mentioned that even during normal times if a fisherman is sick and cannot earn for several days, he could borrow money from the council fund and return it later. Sometimes, the caste council also collects funds as security against losses in disasters,

which are later used for village work, for which they may keep a day's catch towards augmenting the fund. Therefore, this traditional institution occupies a place in the process of building the resilience of the people. People also stated that they depend on the caste council to solve all these issues, from daily trifles to major occupational problems. They have immense trust in the council. The *gan mukhiya* also remarked that he realises his responsibilities and plays an active role in dispute settlement. During disasters, they work as a collective unit and the council takes part in co-ordinating and encouraging people to help each other in re-building damaged houses, helping the old and injured and giving monetary assistance to the people who have lost an earning member or their house.

Conclusion

The study looks at the situation where two communities stay in the same part of the coast and face the same hazards, but with marked differences in problems that they face during disasters and the kind of losses they incur. The analysis highlights different vulnerabilities ranging from economic vulnerability of income and occupation, to social vulnerabilities resulting from their ethnic identity, education and place of residence. These characteristics create differential ability within the community and across the communities to face disasters and cope with them. Poverty is an important element that increases their difficulties to build up resilience and cope with disasters. The location of their habitat is important because of the occupation that the fishermen have chosen. The location is less crucial to agriculture as an occupation, except that their forebears chose this place for whatever reason that was germane at that time. The possibility of moving to another place at this time seems low. However, despite the vulnerabilities and poverty that make them susceptible to disasters, certain important patterns of resilience and coping are also evident in these villages. Resilience in the form of insurance (among the fishermen), interest in education, gaining access to local leadership, and (by facing considerable problems), building *pucca* houses, are some of the main indicators of resilience in these communities. It is quite remarkable that although poverty and vulnerability affect the ability to access resources these people have utilised the resources and knowledge base they have to not only resist disasters but also to survive them. One of the means of coping is that they can survive with less than what others may consider as a minimum for a reasonably comfortable life. However, this also confines them to their occupation. Some practices based on the local knowledge of the people from their ancestor's times are used to develop resilience to disasters, such as protection by sand dunes, about which side to build houses to avoid direct wind, or the altitude of the place where they should settle on the coast.

Their resilience (both villages) is related directly to their survival when they live so close to perennial disasters and starvation. They have very little margin to relax and recoup as they live in a disaster-prone place and in a state of acute poverty. They have to get back to work to survive as they have very little savings or any other means of earning to buy food.

The study has observed that not only does a disaster have a differential impact on the two communities, but also the differences in the way they respond and cope with the disasters. The perception of a disaster also varies, owing to the risks they face, which vary across the communities.

Therefore, it is crucial to realise that different social groups face disasters differently and bear different kinds of impact and also have vulnerabilities due to which their capacity to cope and resist a disaster varies considerably. It becomes quite obvious that no umbrella plan of disaster mitigation will work unless the vulnerabilities and differences of different social groups are duly noted.

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