

SURVIVING DISASTERS: VULNERABILITY AND COPING IN TWO VILLAGES OF COASTAL ODISHA (INDIA)

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The crucial element in a disaster is the human component. The 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. Two villages are examined here, one a village of predominantly agriculturists and the other of fishermen. An important factor is that of acute poverty among the overwhelming majority of the two villages, though between them, the fishing village has more among the lowest income category as compared to the agricultural village.

Key words: disasters, coping, vulnerability, fishing community, cyclones, Odisha

INTRODUCTION

Disasters occur 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 take place (Prowse in Makoka and Kaplan 2005:10; Cardona 2006; Quarantelli 2005). 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, Mitchell, Scott, 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 of lives and property, it is a disaster.

THE STUDY

Two villages were selected, situated close to each other and near the seashore in the coastal belt of Odisha, which experiences several cyclones every year. One of the villages is a predominantly fishing village and the other an agricultural one, both with single castes being the overwhelming majority in terms of numbers. These villages have survived disasters for many years, including the more recent

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² The word for natural disaster in Oriya is *prakrutik biparjaya*

disaster of October 1999 (referred to as super cyclone), and later on smaller storms and cyclones, making these villages suitable for the study of coping and survival. The fishing village called Noliyanuagan, with about 700 households, is in the Chatrapur block of Ganjam district. Although it is a two-caste village, the Noliyas, who are Telugu speaking people engaged in fishing, are by far the larger number. Sundis, the other caste group in the village, are about thirty households, mostly engaged in small-scale business activities, and also money lending. The Sundis are Oriya speaking people and are economically better off than the Noliyas. This village is about 200 metres from the sea. The agricultural village, called Agastinuagan, 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 ten are Brahmin families, who are employed as temple priests (and also own agricultural land). While the Brahmins own agricultural land, they do not work on the land or cultivate lands themselves, and the Khandayats cultivate the land for them. This village is situated about a kilometre away from the seashore. The two villages are about two to three kilometres from each other.

A sample of 60 households was selected from the fishing village, which included households engaged in fishing and allied activities (fishing business), and households of the fishermen who own a boat. In the sample, 30 female and 30 male respondents represented these households. For comparative analysis, from the agricultural village, we have a sample of 50 respondents, comprising 25 males and 25 females, representing 50 individual households (see Table 1). This comprised both Khandayats and Brahmins in the village. Preliminary and general information about the villages were collected from the *sarpanch* of the *gram panchayat* (village council). During the pilot study, key informants were identified who were residents of the villages and helped to gain access to other residents. The snowballing technique was used to contact various people from different sections in the two villages. Specific individuals such as the caste head in the fishing village, and the gram panchayat sarpanch (a fisherman himself) were also interviewed. To get a clearer picture of how men and women perceive their lifestyle and adaptation in a disaster prone place, both men and women were chosen in equal numbers in each village. Where information on cultural aspects and norms were required, data were collected from in-depth interviews of respondents, who were selected after the initial interviews. Qualitative data were also collected through case studies. Structured interview schedules were used to collect quantitative data.

VULNERABILITY TO DISASTERS

The significance of vulnerability is that it may turn a hazard into a disaster. Wisner, Blaikie, Cannon, Davis (2003) discuss vulnerability by linking the political economy and the actual hazards that people face. The focus is on the people who are at risk due to their livelihood, and who find it hardest to resume their livelihood after the

TABLE 1: SOCIO-ECONOMIC PROFILE OF RESPONDENTS

Item	Village			
	Fishing village	Agricultural village	Overall	
Caste	Noliya	60(100)	0	60(54.54)
	Khandayat	0	40(80)	40(36.36)
	Brahmin	0	10(20)	10(9.1)
Total	60(100)	50(100)	110(100)	
Sex	Male	30(50)	25(50)	55(50)
	Female	30(50)	25(50)	55(50)
Total	60(100)	50(100)	110(100)	
Marital Status	Married	52(86.7)	46(92)	98(89.1)
	Unmarried	3(5)	3(6)	6(5.45)
	Widow	5(8.3)	1(2)	6(5.45)
Total	60(100)	110(100)	110(100)	
Type of House	Pucca	43(71.7)	50(100)	93(84.55)
	Semi pucca	6(10)	0	6(5.45)
	Kuccha	11(18.3)	0	11(10)
Total	60(100)	50(100)	110(100)	
Age	20-35	19(31.67)	20(40)	39(35.45)
	36-55	35(58.33)	30(60)	65(59.1)
	Above 55 years	6(10)	0	6(5.45)
Total	60(100)	50(100)	110(100)	

Note: Numbers in brackets represent percentages

Source of data: study field work

disasters. This also makes them further vulnerable to future hazards. The 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 in O'Hare 2001: 25; Wisner et al., 2003). They emphasise people's access to the resources that they need for their livelihood. Livelihood, however, is susceptible to shocks of various types, and is essentially "...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). All people are not equally vulnerable to hazards, but may face differential outcomes (Wisner et al., 2003). 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.

Vulnerability is the susceptibility of social groups to the impact of hazards, and resilience is their ability to adequately recover from them (Cutter and Emrich, 2006: 103). Certain social and demographic groups are more vulnerable than others, and face greater difficulties in recovering from disasters. These groups include

people marginalised by class, caste, gender, race, ethnicity, age, geographical location, health status, immigration status and the nature and extent of social networks and social capital (Moser and Holland, 1997; Pritchett *et al.*, 2000; Alwang, Siegel, Jorgensen, 2001; Cutter in Cutter and Emrich, 2006: 103). This vulnerability is seen as the product of social inequalities and known as social vulnerability. According to Cutter (n.d.: 5), “..... it describes those characteristics of the population that create differential social burdens of hazards and helps explain why the same natural event produces dramatically different impact within the same geographical area.”

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. These studies focused on self-protection and group action, people’s capacity to adapt, and their ability to avoid and resist disasters (Cannon, 2000; Hewitt in Wisner *et al.*, 2003: 14; Cutter n.d.: 3). This is important because most 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 arises (Hewitt in Wisner *et al.*, 2003: 14; Cannon, 2000).

Another strand of literature related to vulnerability is that of disaster management, which links vulnerability 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).

People who are poor also face vulnerability (Parker and Kozel, 2005), which includes insecurity, defencelessness and exposure to risks and shocks. It seems evident that when people have limited resources, essentially financial resources, they do not have the wherewithal to meet unexpected expenses, when they are ill for example. At other times, cultural practices impel families to incur expenses such as on weddings of daughters, which impose a severe strain on them, particularly when they are already poor (Rao, 2001). Agriculture has various expenses such as on seeds, fertilizers, and pesticides. All this will be a waste if the crops are destroyed in one disaster or the other. Much depends on a successful harvest, because they have limited means to recover their expenses other than through their agricultural produce. Most farmers raise funds through loans, and usually from moneylenders who charge usurious rates of interest (Deshpande and Prabhu, 2005). Agricultural insurance is not usually found among farmers, and loans that are raised are both for agriculture and other needs, involving high risk (see also Morduch, 1994).

WHAT CONSTITUTES ‘DISASTERS’ TO THESE PEOPLE?

In whatever manner disasters are defined, how do these people perceive them? They are the ones who actually faced disasters on a regular basis and survived. 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. They used the same word *batya*² (which is the word for cyclone in the Oriya language) for disaster as well. The understanding is that with cyclones being a perennial and regular phenomenon, a disaster and a cyclone are the same in the effect that cyclones have on their lives, since they lose their livelihood. Even if the intensity of the cyclone was classified as relatively mild by the meteorological department, without being able to catch fish their income is reduced to almost nothing. Disasters are ordinarily perceived as large-scale phenomena, spreading death and destruction. Neither do government officials consider lower intensity cyclones as disasters, or requiring state intervention and support for the people. However, when the impact of the cyclone destroys their means of livelihood, and even blows away their *kuchha* (thatched roof) houses, then whatever others may say, to this fishing group, it is truly a disaster, notwithstanding the possibility that no one may have died.

In the agricultural village, the situation was different. While cyclones may have an impact on their means of livelihood as well, the major trouble comes with water surges. Farmers at various times faced devastation from cyclones, flash floods, and dry seasons or occasional droughts, which resulted in extensive crop losses. However, the intensity of the cyclone or storm is significant. A severe cyclone or heavy rain for many days resulted in water surges into their fields and their crops were destroyed, causing a major setback to their economic condition. Small storms may not be a major threat and in fact the rain may benefit the crops. Cyclones may result in crop damage even if they do not cause physical harm to the people. What the people of this village mention as the main cause of their problems is their location near the sea and a river. They are vulnerable to heavy and incessant rains. At other times, agriculture may be affected, though at a relatively slower pace, through a drought that ultimately destroys their crops.

HOUSEHOLD VULNERABILITY TO DISASTERS: THE FISHING AND THE AGRICULTURAL VILLAGE

Among the various indicators of vulnerability, income gives an indication of the economic condition and capacity of the households to respond to disasters or even prepare for them. The economic situation of most residents is grim, particularly in the fishing village, and the economic condition of the agricultural village is slightly better.

Occupational vulnerability and risk taking behaviour

In the fishing village, those comprising the fishing caste are mostly engaged in fishing or activities related to fishing, such as selling fish, i.e. business. However,

a few have shifted to other occupations because of the uncertainty and risks involved in fishing. Referring to Table 2, in 42 households out of the 60, the men were directly engaged in fishing even though they did not own a boat. Owning a boat is significant in the context of earning. 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 with funds raised through different sources such as loans from banks, borrowing from moneylenders, or brothers in one family who together owned their boats. Men of five households did not work in any fishing related activity, but held other jobs. One of the respondents was working in the Central Reserve Police Force and occasionally visited the village. He preferred an occupation other than fishing and had moved when he got an opportunity. Two of his brothers continued as fishermen and stayed in this village. He asserted that his regular income from the job, and remittances to his home, ensured that his family did not need to borrow money as often as those who were exclusively fishermen. He emphasised that income from fishing is very uncertain, and fishermen often borrowed money. He considered his job in the police force as better than fishing because of its regular salary, and though it has its risks they are less than in fishing.

TABLE 2: ANNUAL HOUSEHOLD INCOME IN FISHING VILLAGE
*(FISHING VILLAGE) N= 60

Main source of household income	Total household income (in Rupees per annum)				
	10000-15000	15001-20000	20001-25000	More than 25000	Total
Fishing (do not own a 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)
Politics (elected sarpanch)	0 (0)	0 (0)	0 (0)	1 (1.67)	1 (1.67)
Fishing, owns a boat	0 (0)	1 (1.67)	2 (3.33)	5 (8.33)	8 (13.33)
Government job	0 (0)	0 (0)	0 (0)	1 (1.67)	1 (1.67)
Fishing business (buying and selling fish)	0 (0)	0 (0)	0 (0)	2 (3.33)	2 (3.33)
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 and income from selling fish in Fishing village

**Numbers in bracket represent percentages

Source of data: study field work

Two of the respondents owned grocery shops in the fishing village. They chose an occupation less risky than fishing. Another respondent was engaged in providing cable television services in this village as well as nearby villages. However, with incomes being low among the fishing community, very few Noliya households owned television sets. It was mostly the Sundis who owned televisions in this

village. Two male respondents in the fishing village were engaged only in the commercial part of fishing. They too faced uncertainties in business when there was a cyclone and no fishing. However, their lives were not threatened even when there was turbulence in the sea since they did not go fishing like the fishermen. Thus, although there were uncertainties of income and similar problems of living in a disaster prone coastal area, the shift from fishing to fishing related business greatly reduced the risks to their lives.

Even though the villagers had close ties with the traditional fishing occupation, when the possibility of better income and security of life came up they did 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 attached much meaning to the sea as something that defined their identity as Noliyas.

Only a few men had skills other than fishing and it restricted the possibility of taking up any other occupation, even though the entire village knew that fishing is very risky, i.e., their work puts their lives at risk not only during cyclones but also when there is no cyclone. These fishermen also faced challenges from fishermen of neighbouring Andhra Pradesh. Further, as fishermen stated, the number of fish in each catch has been declining over time and the probability of a catch each time they set out for fishing is constantly diminishing, especially in the coastal area where they have their fishing activities. These small boats with outboard motors can accommodate a maximum of nine people, and fishermen limited their activities to a few kilometres from the shore.

Fishing in cyclonic weather is obviously far more dangerous. Fishermen are warned by the meteorology department to stay away from the sea even during low pressure in the atmosphere, let alone fully formed cyclones. At normal times, they catch a reasonable (in their view) quantity of fish about once in ten days. A catch of a few kilograms does not pay their costs. When they catch a ton or more of fish, they make money. Due to these uncertainties they sometimes knowingly take chances and go fishing, because the low pressure conditions over the sea often prevail for several days, and it means a long period of poor or no income. They also know that during heavy rains fish do not come to the surface and tend to remain in deeper waters (they claimed the fish 'hide' in the water and do not want to come near the surface), and it is difficult to make a catch during heavy rains even when they risk going fishing during this time.

Agriculture in the nearby village is vulnerable to more than one type of hazard—cyclones, water surges and droughts. There is usually much less threat to the lives of the farmers. The risks affect their economic condition 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 their farming activity is more an individual task, unlike fishing which is a group activity. Living near the sea and a river, 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 knowing that a single cyclone or flood may be enough to destroy their crops and cause considerable losses. Thirdly, most of the village people do not have any alternative source of livelihood other than farming. The Brahmins in the village work as temple priests and were paid by the people to perform various rituals. However, for the farmers there is no such alternative occupation. Their sole occupation is farming, which is dependent on the weather and is also frequently affected by various natural disasters.

Income vulnerability

The income of the respondents (Table 2) reveals that fishermen, i.e. those actually going to sea, have lower incomes than the respondents who pursue other occupations. The respondents in the fishing business, and fishermen who own boats, have higher incomes than the fishermen who do not own boats. Out of the 60 respondents, 42 (70 per cent) are from households where the main earning member is a fisherman who does not own a boat. Among the 42, twenty-four (40 percent) said their household income (including income from their wives' and mothers' daily income from manual labour) is less than Rs 15,000³ annually, which is a very low income. Only seventeen (28.3 percent) respondents indicated that they earned more than Rs 15,001 per annum, which may go up to Rs 20,000 sometimes. Those who owned boats and those in the fishing business were able to earn more than Rs 25,000 per annum. Although that is also a relatively low income, it is substantially higher than the amount that fishermen who do not own boats earn. This reflects the manner of sharing the income, where the boat owner gets two parts as his share of the catch while the others get only one part each.

The household income includes the earnings of all the income earners of the family. Out of 60 households, women in 45 (75 percent) households worked as daily wage labourers. Other than this, some women also sold fish in the local market, which brought in a small additional income. Income from fishing was not regular, and in a week, they may earn Rs 200 to Rs 500 on an average good catch. Sometimes they earned just Rs 50 in a whole week. Women did not have a secure and regular income either, and only managed an income of approximately Rs 2000 to 4000 a year (Table 2). Due to their meagre income, the families were frequently in debt, and during cyclones they borrowed more frequently than in ordinary times. Moneylenders and fellow fishermen who had saved some money advanced them funds. The collateral used included gold jewellery, if any, and utensils. Sometimes, higher interest rates were charged by moneylenders instead of any collateral. Bank loans were rare because banks did not give any loan if an earlier one had not been repaid.

Farmers' earnings were higher than that of fishermen, and 54 per cent of respondents of the agricultural households were in the income group of Rupees

21,000 to rupees 25,000 per annum, while the majority of fishermen households were in the Rupees 10,000 to rupees 15,000 (per annum) income group (Table 2). However, money spent on pesticides and fertilisers brings no returns when a cyclone or a water surge hits their fields. There could be several cyclones in a year, of varying intensity, and they were in a cycle of facing a disaster, recovering from it, and then facing another disaster, more or less continuously.

There were 32 farmers, who owned approximately 2-4 acres of land each, and had a household income of less than Rs 25,000 a year. This was related to their crops and successful harvests. Farmers also worked as wage labourers for Brahmin landowners to earn additional income. Three families had their sons earning money from insurance work. They sold policies to the fishermen. Although it was only occasional work, the earnings increased the family income. Each Brahmin household owned more than ten acres of land, and their earnings ranged from Rs 30,000 to Rs 50,000 a year, and they also earned from their occupation as priests in the temple. They were given land in this village several generations ago, as gifts for their services in the village temple. They belonged to the relatively higher income group of people in the village. The farmers who constituted the bulk of the population in this village, of about 390 households, were not so prosperous. Only three Khandayat families were of rich farmers who earned in lakhs (one lakh is rupees 100,000) according to other villagers. These three families were also engaged in money lending within the village, which helped people in times of distress. The rich farmers were able to sustain losses because they owned large stretches of land and also cultivated cashew nuts, a cash crop that generated much more income. The crops were well protected by sand dunes, which blocked water surges, and fetched them larger incomes.

Type of house and vulnerability

The residents of both villages had their own houses. However, not all in the fishing village had pucca houses (brick and cement houses with concrete roofs). Their access to better houses is related to the levels of income. Table 3 shows that out of total *peace* houses owned by Noliyas 91 percent had only one room where entire families, an average of six persons, resided. Among the total respondents from the three castes, only Noliya respondents owned semi pucca or kuccha houses of a single room. Those who had pucca houses stated that they had built pucca houses because they needed adequate shelter when cyclones struck the area, although they were hard pressed to raise the funds. They had to borrow money to supplement the amount given by the Government of Odisha after the 1999 super cyclone to build the houses. Government funds reached people whose houses were destroyed in the cyclone and who also had a *patta* (title of land ownership) dated before 1999.

Respondents stated that most of the deaths in the 1999 super cyclone had occurred because of houses collapsing, and families were buried under the debris.

TABLE 3: 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(90.7)	4(9.3)	43 (100)
	Khandayat	16(40)	24 (60)	40 (100)
	Brahmin	0	10 (100)	10 (100)
Total (Pucca houses)	55 (59.1)	38(40.9)	93 (100)	
Semi Pucca**	Noliya	6 (100)	0	6 (100)
	Khandayat	0	0	0
	Brahmin	0	0	0
Total (Semi Pucca houses)		6(100)	0	(6)100
Kuchha***	Noliya	11 (100)	0	11 (100)
	Khandayat	0	0	0
	Brahmin	0	0	0
Total (Kuchha houses)		11 (100)	0	11 (100)

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

Numbers in brackets represent percentages

Source of data: study field work

Under the Indira Awas Yojna, IAY (a government housing scheme) some villagers received money to build houses. Funds were also given to a few by the state fisheries department. Houses acquired through these schemes do not solve the problem of housing. Under the IAY scheme, houses are given through a "lottery" to a very small number of people. The beneficiary has to show that s/he has the ownership title deed to the land, dated prior to 1999 on which the house was to be built. The houses funded by the fisheries department were also given through a lottery, and every year one person gets a house. Most of the people were left out of these schemes and had to build their houses through their own efforts. Seventeen families in our sample did not have pucca houses. In case a cyclone struck the village, they either had to take refuge in the pucca houses in their neighbourhood, or go to the government constructed cyclone centre. Respondents indicated that no family denied help to anyone in times of need, and neighbours provided help whenever required.

All the 50 respondents of the agricultural village (Table 4) had pucca houses, most of them built after the 1999 super cyclone. The farmers (Khandayats and Brahmins) had larger houses (34 respondents in the agricultural village reported having more than one room in their houses). Housing is an important indicator of vulnerability because those who had kuchha (thatch roof) houses, as among fishermen, and had six or seven members in it, were under greater threat of cyclones

due to the higher probability of their houses collapsing. The houses in the farming village were built to protect them from cyclonic winds. These houses did not face the wind directly and were built in such a way that the stronger houses (pucca) were built on the periphery, side by side in a semicircle, so that the wind is diverted and does not directly hit the inner houses. This form of house construction was initiated by earlier generations, when most villagers did not own pucca houses, and to protect the weaker, kuchha houses. The fishermen did not conform to any traditional norm of building houses. They lived close to the sea, and were building more pucca houses as was evident, since 43 respondents (72 per cent) of the total 60 respondents had already built pucca houses. However, they built separate kuchha houses for their sons when they got married, and the newlyweds became part of the most vulnerable families since they cannot immediately build pucca houses for themselves, and these houses were also closer to the sea than older houses. The fishing village reported that there were around 200 kuchha houses, which meant that many people of the village were still in need of stronger houses.

The fishing village is located at a relatively higher level than the shoreline, which provides some safety from high tides. In the farming village, safety and coping are enhanced by the nearby sand dunes, that prevented water surges and the powerful winds and storms from affecting their houses. However, they also complained that commercial interests were removing sand, depriving them of the natural protection from storms.

Social vulnerability and resilience

Certain indicators bring out the social aspects of vulnerability and those realities that result in different responses to disasters. These social indicators go beyond material attributes and emphasised the social characteristics of people. Due to differences in these attributes, disasters have differential impact on groups, and the capacity to respond to 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 it. Although a community has characteristics that make it vulnerable, facing recurrent disasters and perennially living with risks also indicates the resilience of the community—the fact that it has survived disasters despite its vulnerabilities.

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 in their present location. They are ethnically different from the Oriya population of the nearby agricultural village (or even the Sundis of their own village) in terms of culture and language. Acculturation or a limited form of assimilation is noticed, and most of the Noliyas can speak Oriya. The younger members of the village are educated through Oriya and English. Language, which is part of ethnic identity, gains importance as it is the medium of interaction and communication. However,

it may also be restrictive, as with the case of older fishermen, who do not speak Oriya. Further, they are in an occupation that isolates them from others, where they stay off the land for most of the day, and have minimal contact with people outside their community. The infrequent contact of the fishermen with people 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 community 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, and they did not even have the opportunity to learn any of the languages taught in schools. It is mostly the younger generation of school-going boys who are getting educated, and girls too, but to a lesser extent.

In the case of these fishermen, caste identity, which is defined predominantly by their occupation, is an important factor on which community identity is built, apart from the common language. 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." People in the fishing village perceived themselves as a separate community because of their caste. They found caste a more important determinant of their community identity than language. Further, the fishing caste occupies a lower position in the caste hierarchy.

The fishing group/caste is perceived as a separate community by the local Oriya speaking people as well, because of these ethnic and caste differences. This perception is shared by officials in the disaster management office who describe them as 'Noliyas', as a separate group with a distinct identity, and different from the Oriya people. According to social vulnerability studies, the ethnic differences and minority status of a social group could prove detrimental to accessing benefits during or after disasters. However, people in the fishing village remarked that more than being discriminated against, they have a sense of being different to nearby groups, even though they have a strong feeling of being part of Odisha, and not Andhra Pradesh which is the neighbouring Telugu-speaking state.

Those of the agricultural village did not face the kind of risks to life as the fishermen. While they shared in the experiences of the disasters, it has nurtured a feeling of oneness and a community consciousness in the village among both the castes of the village. The community consciousness of the agricultural village is not so much related to their agricultural occupation, while among the fishing people the risks of their occupation bind them closer together. The agricultural village's vulnerability to cyclones, water surges and droughts is related to their crops. 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, when faced with a disaster that affects the entire village they act as a single community. Some 15-20 years ago, the agricultural village had a caste panchayat (a caste council) but none at present. The village is linked with the *gram* panchayat (village council), and the sarpanch (president of the Panchayat) is the one who manages the panchayat. Crucially, and in contrast to the agricultural village there is a caste Panchayat at the fishing village, and it played an important role in the lives of the people. In many ways the caste panchayat even took precedence over the gram panchayat.

Education

If a society had a significant proportion of illiterate people it is an important indicator of social vulnerability. Cutter *et al* (2008) included the lack of education in the social vulnerability index that they had worked out. They suggested that when a major part of the population above 25 years of age did not have a high school education then that population is vulnerable. However, the indicator provided by Cutter *et al* (2008), needs to be seen in the Indian context and in these villages. Education is related to the ability to gain access to better opportunities and jobs. One can see from Table 4 that 82 percent of the respondents among the Noliya fishermen were illiterate. In comparison, 50 percent of Khandayat respondents in the agricultural village were illiterate. There was one graduate among the Noliya respondents. Fishermen stated that those above 30 years were mostly uneducated because there was no school in this village when they were at a school-going age. A school now exists within the village, and all the children are being educated. Among the Noliya women respondents, 97 per cent were illiterate (one woman had only a primary school education). The situation is not very different among women in the farming village. The Noliya families sent their children to schools, but the girls dropped out after Class seven, to help their mothers earn a living as daily wage labourers.

TABLE 4: EDUCATION, CASTE AND SEX

						N=110
<i>Sex</i>	<i>Caste</i>	<i>Illiterate</i>	<i>Primary</i>	<i>Secondary</i>	<i>Higher</i>	<i>TOTAL</i>
Male	Noliya	20 (66.7)	5 (16.7)	1 (3.3)	13.3 (4)	30 (100.0)
	Khandayat	4 (20.0)	0.0	11 (55.0)	5 (25.0)	20 (100.0)
	Brahmin	0.0	0.0	2 (40.0)	3 (60.0)	5 (100.0)
Female	Noliya	29 (96.7)	1 (3.3)	0.0	0.0	100.0 (30)
	Khandayat	16 (80.0)	0.0	4 (20.0)	0.0	20 (100.0)
	Brahmin	2 (40.0)	0.0	3 (60.0)	0.0	5 (100.0)
TOTAL	Noliya	49 (81.7)	6 (10.0)	1 (1.7)	4 (6.7)	60 (100.0)
	Khandayat	20 (50.0)	0.0	15 (37.5)	5 (12.5)	40 (100.0)
	Brahmin	2 (20.0)	0.0	5 (50.0)	3 (30.0)	10 (100.0)

Note: Number in fishing village 60; Farming village 50

*Numbers in brackets represent percentages

Source of data: study field work

Evidently, those who were educated among the fishing group had opportunities to choose better jobs (in terms of higher and more regular income) and, more importantly, with less risks to their lives. The educated in the fishing village also took up jobs in 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. In the agricultural village, too, education is being given priority and the present generation (school going age) is getting educated.

Out of the 49 Noliya respondents who are illiterate, 13 (26.5 percent) illiterate respondents comprise fishermen, and 26 (53 percent) are women engaged in daily labour activities in the fishing village. Those who have a high school education, or a college/bachelor's degrees, are in the fishing business, run a cable TV business, or have joined the CRPF (in our sample). In the agricultural village, even those with an education have continued farming. The youth are not interested in this occupation as a full-time work and want to get into some other occupation. Brahmins in this village have an education comparable to other castes, or where women are concerned, lack of education. Possible reasons for the relatively lower levels of education of Brahmins in this village are that Brahmin men have been employed as temple priests, and cooks, and they have agricultural land that was gifted to them by the village, none of which requires any high degree of modern education. Brahmin women did not work outside their homes, and had little need for an education either. According to people from both villages, there was no high school in these villages some years ago, and that was also a factor contributing to their lack of education. Walking several kilometres to a village that had a high school was less motivating, and not many were educated beyond primary or middle school. In the Noliya village the primary school has recently been upgraded (in the past five years or so) to a high school. Respondents from the agricultural village indicated that twenty years ago one had to go to Ganjam, the nearby town, to attend high school, whereas, now there is a school in a nearby village. The relatively long distance that girls had to walk to get to the school in the town was certainly a factor that discouraged their parents from sending them to school.

The children of these villages now attend school. In disaster preparedness, it is the children and youth who were taught rescue operations, which they were to teach other family members. Mock drills were mainly conducted among the youth. The village school building in the fishing village is also a cyclone shelter that was built by relief agencies. Thus, the school safety norm (according to this norm in disaster management the school building should be a strong pucca i.e. brick, cement and concrete building so that it can keep the children safe during cyclones) is also maintained here.

Insurance as enhancing resilience

In many countries, insurance functions as a means of recovering from the effects of disasters, and people usually choose to insure their lives, houses, and other

property, so that survivors can also rebuild their lives. Whether this was a factor in the lives of the residents of these two villages of our study was also considered. While the predominant sections of both villages were poor, the first consideration was whether they felt any “need” to take up insurance for themselves (i.e. insure their lives), or their property, or crops. Across both villages, the bulk of the people had decided that there was no need to spend money on insuring themselves, in the belief that their lives were not at risk. This included the people of the agricultural village, and those of the fishing village who were not engaged in actual fishing (i.e. going out to sea). Even though paying the premium was an additional burden on their already difficult pecuniary circumstances, a few fishermen had decided that the risks in fishing were too high to ignore insuring themselves, which would at least bring some benefit to their families in case they met with a tragic end while fishing. To compensate for the high risks entailed in fishing, they had taken life insurance policies through government insurance schemes or private ones. Out of the 60 respondents, 42 representing their households, mentioned that either the men themselves, or the husband or son of the women respondents (depending on who was answering our questions) opted for life insurance. This idea dawned on them after a few men from the village had taken insurance policies and their families got some money after their death. They derived at least a limited amount of security on which they can go fishing without worrying about their family’s well being. The high premium is a serious problem for the men because they do not have the habit of saving. It was the women of the households who saved money and paid the premium of Rs. 2000 to Rs. 3000 every year. The insurance covers death under any circumstance, whether it is due to natural causes or during fishing in the sea.

Although insurance cannot be a substitute for the men who died, in the event of the death of the main earner it provides some security for the family, and freedom from harassment by moneylenders who had loaned them money, as well as provided a modest amount of money for the family to sustain itself for some time. Fishermen who owned boats had also insured their boats, paying premiums of rupees 1500 to rupees 2000 a year to insure the boat for a sum of rupees 50,000.

CONCLUSION

We have looked at the living conditions and lifestyles of the people of two neighbouring villages, with different occupations as the main sources of income. In the context of recurring disasters, mainly cyclones, and their existential condition of acute poverty, particularly in the fishing village, what we have seen is their determination to live out their lives even in difficult circumstances. Despite several vulnerabilities, including their poverty, their living conditions, poor education and the location of at least the fishermen’s village which is very near the sea shore, they have built up the means of sustaining themselves from the frequent cyclones, and recovering sufficiently to carry on with their lives.

Despite the vulnerabilities and poverty that make them susceptible to disasters, certain important patterns of resilience and coping are also evident in these villages. Taken individually, each of these means of protecting themselves may not sound sufficient or even barely adequate, but the fishing village has been able to carry on with their lives, and occupation, with minimal support from the state. They had earlier lived in houses which were weak and not able to withstand cyclonic winds and rain, but after the 1999 super cyclone, they are now getting together funds to build small but more robust houses with brick and cement, and concrete roofs. With loans from moneylenders, they continue with the means for their existence, and survive cyclones even though they have acute hardship both during and after the cyclones. One of the means of coping is that they can survive with less than what others may consider as the minimum for a reasonably comfortable life. However, this also limits them to their occupation, in the sense that their poverty restricts their access to education and job opportunities, and confines most of the them (among the fishermen for example) to an occupation that has risks but few avenues for social mobility. The agriculturists too have certain factors that inhibit their acquisition of skills and mobility, and confine them to an occupation and income that are not sufficient to get them into new areas and occupations. Some practices based on the local knowledge of the people about the place are being used from their ancestor's times to develop resilience to disasters, such as protection by sand dunes, about which side to build houses to avoid direct wind, or building their houses on higher ground wherever possible.

The resilience of the fishermen is more to be noted, since the risks that they live with are more pronounced and regular than that faced by the agricultural village. Margins are low, and they live on the edge of starvation if they cannot earn regularly. Farmers do not live with such a low margin of survival, and have greater ability to face disasters, although when their crops fail, they can be in trouble too.

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