APPENDIX IV

SCHEMES IN FISHERIES SECTOR

A. CENTRAL PLAN SCHEMES (100% Central Assistance)

1) Strengthening of Data base and information net working for Fisheries sector
2) Introduction of Intermediate crafts of improved design
3) Safety of Fishermen at Sea
4) Development of post harvest Infrastructure
5) Enforcement of Marine Fisheries Regulation Act
6) Promoting of Fuel efficient Environment friendly Fishing Practice Promotion of CNG/LPG driven Engine

B. CENTRALLY SPONSORED PLAN SCHEMES

Development of Marine fisheries infrastructure & post-harvest operation (State share: Central share)

1) Fishermen Development Rebate on HSD Oil (25:75)
2) Safety of Marine Fishermen at sea (25:75)
3) Development of Shore Base Facilities (25:75)
4) Establishment of Fishing Harbour & fish landing centre (30:70)
5) Up-Gradation & Modernisation of Fishing Harbour & Fish Landing Centre (25:75)
6) Motorisation of Traditional Craft (50:50)

National scheme for Welfare for Fishermen (State share: Central share)

1) Group Accident Insurance for Fishermen (50:50)
2) Saving-cum-Relief fund (50:50)
3) National welfare fund for Construction of low cost house (50:50)
4) Fisheries Training and Extension (20:80)

Development of Inland Fisheries & Aquaculture (State share: Central share)

1) Devt. of water logged Areas through FFDA (25:75)
2) Integrated Development of Inland capture resources (Reservoir/Rivers) (25:75)
3) Devt. of fresh water aquaculture through FFDA (25:75)
4) Devt. of Brackish water Aquaculture through FFDA (25:75)
5) Innovative Initiative capacity Building & Training (25:75)

C. STATE PLAN SCHEMES (100% State assistance)

1. Infrastructure improvement
2. Mastyajibi Unnayan Yojana
3. Contribution towards NFDB assistance
4. Contribution towards RIDF Assistance
5. Organisation of skill up-gradation training & awareness meet
6. Survey & Investigation of Fishing Harbour & Fish Landing Center
7. Reactivation of Fisheries Co-operatives
8. Interest Subvention on Short Term credit to fish farmers- Crop loan for fish farmers
9. Interest Subvention on Long Term Credit Support to fish farmers
10. Integrated Management & Pro poor Support Project for Marine Fishermen in Orissa
11. Empowering Fishermen through Mobile Advisory Services & Establishment of Toll Free Call Centre for Fisheries Extension Service
12. Promotion of Intensive Aquaculture & Fish seed Hatchery
13. Matsyajibi Basagruha Yojana
14. Infrastructure for cage culture
15. Investment of Share capital in Fisheries Co-operative Societies

D. Central Assistance from outside Budget

1. Intensive Coastal Zone Management Project (ICZMP)
2. Orissa Community Tank Management Project (OCTMP)
3. National Fisheries Development Board (NFDB)
4. Excavation for Multi-purpose Farm pond for pisciculture under MGNREGS

1. RKVY (100% Central Assistance)
   I) Enhancing inland fish production through NMPS
      - Intensive Aquaculture in tanks & ponds
      - Reservoir fisheries development through Cage culture
   II) Aquaculture development through integrated approach in Rayagada district under NMPS
   III) Assistance to fishermen for livelihood development for marine & Chilika fishermen
   IV) Replacement of breeders & management of fish seed farm
   V) Development of Approach road to Chanadrabhaga prawn hatchery at Konark in Puri district
   VI) Establishment of fish net machine at OPDC Net Manufacturing unit

6. RIDF (20% state share: 80% NABARD)
   a) Construction of fish landing center at Markandi, Kanisi Block in Ganjam district
   b) Establishment of Fishing jetties with landing auction platform & other associated facilities at Gopalpur in Ganjam district
   c) Construction of CC road for Gudupahi shrimp cluster from Nuanai Ghant bridge Chhack to Bhimpurpahi Chhack in Balasore district (Reach - I, II & III)

MUY (Mastyajibi Unnayan Yojana)

1) Assistance for net & Boat for inland fishermen under RKVY
2) Assistance for fish marketing infrastructure for fishermen (Ice box with Cycle, Ice box with Motor Cycle and Ice box with Auto Rickshaw) under RKVY
3) Replacement of wooden country craft with FRP boat for marine fishermen under RKVY
4) Motorization of country craft for marine fishermen
5) Demonstration of cage culture in reservoirs under RKVY
6) Sea weed culture as an alternative livelihood for marine fishermen under RKVY
7) Award to meritorious children of fishermen community (100% State Plan)
8) Group Accident Insurance scheme for fishermen
9) NETRAJYOTI scheme for fishermen (state scheme)
10) Financial assistance for fatal diseases for fishermen (State scheme)
11) Financial assistance to fisher women SHGs (100% State Plan)
12) MO KUDIA scheme for fishermen (State scheme)
13) Basundhara For fishermen (State scheme)
14) Special PDS for marine fishermen affected during fishing ban (State scheme)

(Source: http://www.orissafisheries.com/File/2014/schemes/list-of-schemes.pdf)
Identifying Social Vulnerability to Natural Disasters: Perspectives and Challenges from Anthropology- A Case Study of the Motto Village in Puri District of Orissa

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Abstract: Vulnerability is socially determined and depends on many factors that include exposure, marginalization, physical susceptibility, socio-economic fragility and lack of resilience. It is made up of the characteristics of a person or group and their situation that influence their capacity to anticipate, to cope with, resist and recover from the impact of a natural hazard. In this research article an attempt is made to locate the term vulnerability due to natural disaster. This paper is based on the field study conducted in the Motto village in Puri district of Orissa. The study conducted was depended mainly in qualitative methods in which the data were collected by using qualitative tools like case studies, narratology, conversations and visual Anthropology. Motto is one of the villages which were severely affected by the Orissa Super Cyclone of 1999. This village is inhabited by the fishing community called Keuta. In this paper the researchers discussed the vulnerability of this fishing community from the natural disaster.

Some people within the social systems like ethnic minorities, disempowered castes or classes, religious groups, or occupations may live or work in physical areas that are relatively disaster-prone are more vulnerable to natural disaster. Factors that affect social vulnerability include lack of access to resources such as information, knowledge, and technology and marginalized from the society which was also found in this village.

Keywords: social vulnerability, disaster, Behra, Motto, marginalized, physical susceptibility, socio-economic fragility

INTRODUCTION

Contemporary researches in anthropology have moved beyond chronicles of classic ethnographies of communities. These researches have successfully combined classic ethnographic methodology with vital concerns that researched communities are confronting. One is not getting into dichotomies of applied and action, but discussing pragmatics of studies that contribute to challenges faced by humanity. My reasons for pursuing this study are rooted in the uniqueness of anthropological approach.
and its holistic instrumentality having the potential to uncover hidden texts of social vulnerability that other disciplines may not be in a position to unravel.

Disaster in this context is interpreted as an unexpected happening causing a huge loss of life and properties which may be both natural as well as manmade. Natural disaster which originates from a natural geological event such as Tsunami, Cyclone, Earthquake, Cloud burst or heavy rainfall, flood, hurricanes, etc. is seen as a regular part of life around the world. Disasters are “events, observable in time and space, in which societies or their larger sub-units (e.g., communities, regions) incur physical damages and losses and or disruption of their routine functioning. Both the causes and consequences of these events are related to the social structures and processes of societies or their sub-units”. Kreps (1984:312). In Barton’s opinion (1970) disaster is a severe, relatively sudden and unexpected disruption of normal structural arrangements within a social system over which the system has no firm control.

CONCEPT OF SOCIAL VULNERABILITY

The text of social vulnerability is a by-product of social inequalities. It is defined as the susceptibility of social groups to the impacts of hazards, as well as their resiliency, or ability to adequately recover from them (Cutter and Emrich 2006) and a social dynamic rooted in gender, class, race, culture, nationality, age, and other power relationships (Enarson, Fothergill, and Lori 2006). Social vulnerability is influenced by a variety of factors. Social class is one of the largest contributors to social vulnerability (Burton and Cutter 2008). It includes employment (type and stability), income, savings, and education levels (Zahran et al. 2008; Burton and Cutter 2008; Cutter 2006a; Fothergill and Peek 2004; Dwyer et al. 2004; Lindell and Perry 2004; Cutter, Boruff, and Shirley 2003; Buckle, Marsh, and Smale 2000; Milet 1999; Morrow 1999; Bolin and Stanford 1998; Dash, Peacock and Morrow 1997; Blaikie et al. 1994), the quality of human settlements (housing type and construction, infrastructure and lifelines) (Dwyer et al., 2004; Cutter, Boruff, and Shirley 2003; Bolin and Stanford 1998), tenure type (Dwyer et al. 2004; Cutter, Boruff, and Shirley 2003), built environment, family structure (Cutter, Boruff, and Shirley 2003; Buckle, Marsh, and Smale 2000; Morrow 1999) population growth, commercial and industrial development, medical services, and special needs population (Cutter, Boruff, and Shirley 2003). This is a central component of vulnerability, particularly in combination with other marginalization factors (Blaikie et al. 1994) and these factors have an influence on economic losses, injuries and fatalities from natural hazards (Cutter, Boruff, and Shirley 2003).

Race and ethnicity also contribute to social vulnerability through a lack of access to resources (based on language, culture, educational levels), the economic marginalization that is often associated with racial and ethnic disparities (Burton
and Cutter 2008; Wisner et al. 2004; Cutter, Boruff, and Shirley 2003; Bolin and Stanford 1998) and age (specifically elderly) (Burton and Cutter 2008; Cutter 2006a; Dwyer et al. 2004; Cutter, Boruff, and Shirley 2003; Buckle, Marsh, and Smale 2000; Morrow 1999; Bolin and Stanford 1998; Blaikie et al. 1994) as well as gender (females considered more vulnerable than males) (Burton and Cutter 2008; Dwyer et al. 2004; Wisner et al. 2004; Buckle, Marsh, and Smale 2000; Mileti 1999; Bolin and Stanford 1998). Vulnerability is a characteristic of individuals and groups of people who inhabit in a given natural, natural, social and economic space, within which they are differentiated according to their varying position in society into more or less vulnerable individuals and groups. It is a complex characteristic produced by a combination of factors derived especially (but not entirely) from class, gender and ethnicity. (Cannon 1994:19)

METHODOLOGY

The data generated for this research paper was conducted with the help of qualitative tools like case studies; re-call of personal experience, observations, and in-depth interviews with the help of interview guides and schedules having mostly unstructured or partly structured questions. Snowball sampling was used to collect primary data whereas secondary data was collected from OSDMA (Orissa State Disaster Management Authority), NDMA (National Disaster Management Authority) web sites, and other various internet sources etc.

Motto village in Puri district of Orissa was selected as a field area. It is inhabited by a traditional Oriya fishermen community known as Kaibarta or Keuta. It is a very remote village situated near the bank of the Indian Ocean (Bay of Bengal). It is around 26 km. far from the district headquarter Puri and is located in Brahmagiri block, Rebana Nuagaon Gram Panchayat of Puri district.

LOCATING SOCIAL VULNERABILITY IN THE MOTTO VILLAGE: AN ANTHROPOLOGICAL INSIGHT

The physical isolation or marginalization of coastal communities makes them highly resource-dependent and reduces access to alternative livelihoods which in turn enhances their vulnerability to any kind of natural disasters. Other root causes of vulnerability in coastal communities are social and economic power imbalances, lack of participation in decision-making, limited asset ownership, resource dependence, and laws and regulations that influence people’s ability to use assets.

Some of the embedded causes of social vulnerability unravel from three months field work from the village Motto includes socio-economic condition which includes poverty, education, occupation, health and nutrition, caste, political condition, marginalization, location and structural arrangement of society.

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Poverty: A Social Evil For Enhancing Vulnerability

According to the report of Government of India 2000, nearly 7 million people in India depend on fisheries-related activities as a means of livelihood. A large percentage of fishers are involved in artisanal, small-scale fishing operations in open water bodies including the sea, rivers and creeks, as well as in fish trading, processing and related activities. Based on the definition of poverty as the inability to secure a minimal standard of living (National Institute of Rural Development – NIRD 1998:5), the majority of coastal fishers can be defined as poor. In fact, the nature of their livelihoods and their living conditions make them one of the poorest and most marginalized groups in the country. Their livelihoods have been affected by various factors, such as:

- Declining access to and availability of fish resources;
- Increasing competition for fishing grounds and in the marketplace;
- Overcapitalization of fishing and post-harvest activities; and
- Macro-economic factors that undermine the traditional structures and mechanisms that used to protect fishers’ livelihoods. (Venkatesh 2006)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1973-74</td>
<td>66.2</td>
<td>67.3</td>
</tr>
<tr>
<td>1977-78</td>
<td>70.1</td>
<td>72.4</td>
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<tr>
<td>1983</td>
<td>65.3</td>
<td>67.5</td>
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<tr>
<td>1987-88</td>
<td>59.6</td>
<td>57.6</td>
</tr>
<tr>
<td>1993-94</td>
<td>48.6</td>
<td>49.7</td>
</tr>
<tr>
<td>2004-05</td>
<td>46.6</td>
<td>46.8</td>
</tr>
</tbody>
</table>


Table 1 shows the percentage of poor living below the poverty line in total and in rural Orissa from 1973-74 to 2004-05. Although there is slight decrease in percentage of poverty, poor percentage is still very high.

Motto village which is inhabited by the fishermen community is not favourable for practicing agricultural works. Being a coastal area, the soil is saline. Fishing is their main occupation and only source of income for their livelihood. During cyclone season, fishing is halted due to unfavourable weather conditions. At this time some of them work as daily wage labourers in nearby villages. From the household survey conducted by the researcher, it was found that this village has a total of 191 households. Out of these 36 households live below the poverty line. With increasing...
prices of essential commodities and food items day by day, they are facing a tough life. Some of the fishermen mortgage their land to money lenders of the nearby village in case of financial needs. Indebtedness is one of the major causes of poverty in the village. With declining fish resource and increasing number of fishermen, villager’s face a major threat in their source of income. The poverty of fishermen is reflected in their substandard housing and sanitation systems, their meager access to basic amenities such as clean drinking water and health care, and inadequate transport services. Most of the houses were built with unbaked bricks with thatch roofs. Some of them own lands with cashew nut sowing in their lands as a minimal substitute for source of income. Wholesale fish sellers from district headquarter Puri and neighbouring areas used to buy fishes caught by them in a subsidized rate. Lack of permanent local market and unable to access major markets enforces them to sell fish at subsidized rate. The time consuming in catching fish and the profit made after selling has a wider gap which causes a problem for them to earn an ample amount of money. So their economic condition remains poor. Food insecurity is also another main issue confront by the villagers. It is primarily a seasonal feature which leads to a host of other social maladies. Some of the case studies have taken up by the researcher to describe the current issues of poverty and their root causes.

Case 1: Balabh Behara (Pseudo name), 42 year old makes a living by fishing. He has a wife and four children (two daughters and two sons). His family belongs to below poverty line (BPL) and getting some benefits through BPL card. With fishing depends upon the season; he is not able to support his family. He has shared some of his difficulties confronted by him since childhood, “I was around 15 years old when I had taken up this occupation along with my family members. Since then I have been engaged in fishing as the only source of income for the maintenance of my family. I made mistake in my life by not going to school. Life of fishermen as well as the location of our village is very highly vulnerable from cyclone. But there is no option for us as we would not get any better jobs by leaving this occupation. I would try my level best to educate my children so that they don’t have the same fate as I have. But lots of constraints are confronted by us nowadays due to scarcity of fish resource on one side and increasing of the number of fishermen on the other. Fishing is practiced by forming groups of 10-20 individuals of different households. So, total income which earns by selling fish is distributed among the members equally. So there earning is not fixed and it depends upon the catch fish of the day. He is the lone earner in his family. His wife is illiterate and helps in household chores.

Case 2: Sedarchan Behra (Pseudo name, 45 year) has two sons. He makes a living by catching fish along with his community members. One of his sons (15 year old) left the school at 7th standard and is working in Tamil Nadu. Due to
poverty which makes him unable to feed twice in a day forced his son to drop out of school. He was not able to provide details of his son’s job as well as salary when I enquired him. He was of the opinion that his son might be working in a factory as wage labourer. His son was handed over to some of his community members who are working in Tamil Nadu. He along with his wife used to work together to run their family. His wife used to visit nearby villages for selling dried fishes. Their family belongs to below poverty line. With meager income earned from this traditional occupation makes a hard living for their family.

**Case 3:** Batu Behra (Pseudo name) an illiterate 60 year old man along with his wife and five children makes a living by fishing. Due to poverty he was unable to educate his children properly. He ceased to go for fishing, as his age was not suitable for this occupation. His two elder sons (25 and 20 years old respectively) replaced him in this occupation. With full of grievances he narrated the stories of how he has brought up his family. Being a large family with one daughter and four children, he was unable to send them to school at one hand and feed them properly on the other. He has been getting some benefit through BPL card. In his point of view income from fishing alone find difficulties in running a big family like them. He was exclaiming that their destination lies in this occupation as the land in this locality is not favourable for agricultural practices. At the same time their landholdings are very less as compared to other community members in the village.

Fisher folks in this locality depend upon fishing as the main source of income for a livelihood. Fishing is seasonal occupation so they remain unemployed during the off-season when cyclones usually strike the Bay of Bengal. At this time they make their living from their little savings. Lack of economic and food security is the major cause of poverty in this area.

**Occupational Hazard: A Source of Vulnerability**

Fishing is the main occupation of the villagers and their life is interwoven with catching fish in the sea and river. Small and large scale fishing are practiced on the river and ocean respectively. Both mechanized and non-mechanized boats are used for catching fish. Fishing depends upon the season so it is not practicable throughout the year. Generally tropical cyclone strikes in the Bay of Bengal during the months of September-November. So they remain in their village most of the time during these months. Some members used to work in nearby villages. Living in the coastal areas makes them highly vulnerable. Sometimes misfortune awaits them ahead. A case study of a fisherman is given below:

**Case 4:** Kelu Behra (Pseudo name) a 53 old fisherman lives along with his wife and four children. At the age of 17, he began fishing with his community members. He has faced three major cyclones so far. He told that the most dangerous and powerful cyclone was that of the 1999 Orissa Super Cyclone. Some of them
were unaware and even ignored the news announcement made on the radio. During that time electricity was not available in the village. The village was partially submerged under water. He narrated one incident which had happened a few years ago. He was sleeping in the boat along with his companion. The boat was tied by a rope to a big wooden stick near the bank of the ocean. Suddenly a strong windstorm swept away the boat towards the ocean. Some fishermen resting nearby shouted loudly. When they woke up their boat was very far away from the bank stuck in the windstorm. They started praying mother goddess (Baliharchandi Mata) to save their life. In their viewpoint mother goddess somehow save their life. So they made their promise by offering fish.

As the main occupation of the people of this area is catching fish, they have to spend most of their time in nearby sea and river. For them the sea is their mother which provides them food and shelter where they grew up in her lap. So many fishermen lost their lives in the 1999 Super Cyclone due to communication barriers. Most of them did not notice the early warning system transmitted on the radio. Lack of proper warning system in the village was the major cause of the casualty. It was also the major factor in the great loss of life.

Health and Nutrition of the Village

Indian sub-continent has a diverse socioeconomic condition. The picture of health scenario of the people in the country can be well perceived if we can analyse the health status of rural people, tribal, women and people of different regions of the country (Dash 2011). The social determinants of health depend upon the following factors like Housing, Education, Transportation, access to services, Physical Environment, Socioeconomic status/ position, Discrimination by social grouping, social and environmental stresses, etc. In the development approach, improvement in health status is viewed primarily as a product of socioeconomic development. By definition, development implies improved nutrition, hygienic living and working conditions, greater awareness of health problems and wider accessibility to health care services, which have a favourable effect on the health status of the people (Gangadharan 2011).

But this definition is not favourable for the village Motto, which is located in a very remote place without any health care centre. Health which is the main priority of every human being is being grossly ignored in this village. The nearest primary health centre is situated in Rebanuagaon, which is at a distance of six kilometers far from this village. There is not any chemist shop available in the village premise. In case of emergency, they have to travel a few kilometers ahead to access medical facilities.

Case 5: Novita (Pseudo name) who is 18 years old is the eldest daughter of Daitari, a poor fisherman. Her family belongs to BPL (Below Poverty Line).
According to the information provided by her father, she had started developing some mental problems at the age of 10. At that time she was studying in class VI at the village school. As soon as some abnormal behavioural changes were visible, her father resisted her from going to school and kept inside the house. Earlier her family members believed that some evil spirits has occupied her mind and body. So they took her to the temple (Mata Harchandi) to seek blessings of goddess and wipe away the evil spirits seated in her mind. In the temple Pujari (caretaker of the temple) offered agarbati and padus to appease the mother goddess. After a few months her father took her to a Veda in a nearby village. The Veda worshipped Bantei goddess in her name. As there was not any sign of improvement in her mental condition, she was taken to a nearby primary health centre located in Rebananuagaon in Puri-Sapatada highway. Due to poverty stricken family, her father was unable to take her in advanced hospital.

Potable water and domestic uses of water is drawn from the hand pump and water tanks. Since the place is located near the seashore, there is a high percentage of salinity in drinking water. This village has a very poor sanitation system. Improper disposal of human excreta, open defecation’s are the major sanitary problems face by the villagers. Most of the houses have poor sanitation system. Garbage’s were thrown out in nearby houses. It was like a nightmare for the villagers who have seen the 1999 super cyclone, floods and other cyclones in the recent past. The village was fully submerged under water due to which no drinking water was available and nauseating smells had spread over the entire village.

**Caste and Ethnicity: An Integrating Factor of Social Vulnerability**

Caste is an ancient institution which exists at least 2000 years among the Hindus. Caste system practiced among the Hindus also developed a complex theory to explain and justify those practices (Dumont 1970). In Hindu society caste rank is heredity and linked to occupational pursuits. Castes also tend to be endogamous and the boundaries and differences in rank between castes are expressed and maintained by restrictions on commensal relations and intermarriage. Bougle (1971) postulated a set of three underlying characteristics- hierarchy, economic interdependence and separation-based on an opposition between the pure and impure. Other theorists, such as Marriot (1976) and Inden (1976) have increased our understanding of castes as moral systems. Dumont (1970) also considers caste systems as moral systems of relations, though his point of departure is the whole rather than individual castes or persons.

In the past, each caste was associated with a distinct traditional occupation, and a caste might be divided into sub castes in keeping with differences in occupational practice. The emergence of a large number of modern, ‘caste-free’ occupations have greatly weakened the specific association between caste and
occupation; but still there is a general association, such that those in superior non-
manual occupations are mostly from the upper castes, and those in inferior manual
occupations mostly from the lower castes. Motto village which is inhabited by the
fishermen community belongs to caste group Behra better known as Kaibarta/
Keuta. This caste belongs to Scheduled Caste (SC). Caste based occupation has
been practiced since time immemorial in this coastal village. In early days traditional
occupations were practiced according to the caste which one belongs. With the passage
of time there is a slight change in this concept due to poverty and unemployment.
Some higher caste groups landed in the Bay of Bengal for catching fish. This creates
a tough competition among the caste groups. Some of the case studies which were
noticed during my field visit are noted below to support this concept.

Case 6: Rathi Behra (Pseudo name) 50 year old, the sole bread earner of the
family has been engaged in fishing to support his family. He was only 14 years old
when he had taken up this occupation. Earlier they used traditional boats for fishing
and the quality of the net was poor. But now they have modern mechanized boats
with the best quality of the nets. But he said that during his childhood number of
fishermen was less. Nowadays due to unemployment and poverty, people have
taken up fishing to earn money. This gives them a tough competition in their
occupation as well as in fishing grounds. In his opinion the availability of fish
resources is also decreasing day by day due to the changing environment. This
creates lots of hindrances in their occupation as well as in their earnings.

Case 7: Amarinder Behra (Pseudo name) along with his group consisting of 10-20 people
makes living by fishing since his childhood. He narrated the stories of bygone
days where the occupation was purely based on caste system. Fishing was practiced
by their community during the early days. With the passage of time this scenario
has changed in this coastal area. Some higher caste groups had taken up fishing as
a means of earning. With the increasing prices of some basic commodities and
food items they are left with no choice but to follow up this job. This is a danger
signal in our occupation where the majority of us are illiterate was the message
conveyed by him. The coming of other caste groups will create some hindrances
in their source of income.

Case 8: Ankan Behra (Pseudo name) a young 27 year old man has to follow up
fishing as his occupation to support his poor family. He had studied till V class. He
had no choice as he dropped out of the school in very early age. With this
educational qualification there is a limited option for jobs was the idea shared by
him. He went to Chennai to work in a factory. He got a meager sum of Rs. 3000 as
his monthly wages. With this amount of money he was not able to support himself
as well as to send money for the family. So he had to come back to his native
village. Once he came back, he had to join fishing as there is no other source to
earn money.

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Case 9: Bitu Behra (Pseudo name) a 54 year old fisherman has been engaged in this occupation since his childhood. He was unable to recall the exact age of taking up of this profession. During his childhood almost all his community members were involved in fishing. So their community Keuta is known for fishing. He proclaimed that with the passage of time everything has changed. Caste based occupation is fading slowly and slowly even though caste system is still prevalent in this area.

The concept of the caste system is hidden and has a firm root in this area despite its practice is punishable according to the constitution of India. Inter-caste marriage occurs very rarely. Taking care and performing of rituals in village temples are being carried out by the Brahmans which are hired by them.

Education: A Root Cause of Vulnerability

According to the census of India 2011 definition “a person aged 7 years and above who can both read and write with understanding in any language is to taken as literate. A person who can only read but cannot write is not a literate. It is not necessary that to be treated as literate, a person should have received any formal education or passed any minimum educational standard. Literacy would also have been achieved through adult literacy programmes or through any non-formal educational system. People who are blind and can read through Braille will also be treated as literates” (Census of India 2011). Literacy rate of Indian male and female are 82.14 and 65.46 respectively with an overall 74.04 percentage. Literacy rate in Orissa has seen upward trend and is 73.45 percent, male literacy rate is 82.40 percent while female literacy rate is at 64.36. Male literacy rate is higher than all India level.

Table 2

<table>
<thead>
<tr>
<th>Description</th>
<th>Rural</th>
<th>Urban</th>
</tr>
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<tbody>
<tr>
<td>Population (%)</td>
<td>83.32%</td>
<td>16.68%</td>
</tr>
<tr>
<td>Total population</td>
<td>34,951,234</td>
<td>6,996,124</td>
</tr>
<tr>
<td>Male population</td>
<td>17,584,859</td>
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</tr>
<tr>
<td>Female population</td>
<td>17,366,375</td>
<td>3,379,305</td>
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<tr>
<td>Population Growth</td>
<td>11.71%</td>
<td>26.80%</td>
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<tr>
<td>Sex Ratio</td>
<td>988</td>
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<tr>
<td>Literates</td>
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<td>Average Literacy</td>
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<td>Female Literacy</td>
<td>61.10%</td>
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</table>

(Source: http://www.census2011.co.in/state/orissa.html)
In a report of FAO Bay of Bengal Programme, literacy rates in the coastal villages of Orissa were below their respective districts and also below the national average, and suggested that among marine fishers the literacy rates were even lower. These low levels of education in fishing communities were attributed to the open access nature of the resources, which encourages involvement of children in productive activities in the short term. The relative isolation of several fishing villages also played a key role in undermining access to education in the fishing communities (Venkatesh 2006).

Table 3
Educational Qualification of Female 18 Years and Above (Motto Village N= 263)

<table>
<thead>
<tr>
<th>Age</th>
<th>Illiterate</th>
<th>Lower primary (I-V)</th>
<th>Middle Primary (VI-VIII)</th>
<th>High/Higher Secondary (IX-XII)</th>
<th>Graduate and above</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-25</td>
<td>18</td>
<td>32</td>
<td>14</td>
<td>10</td>
<td>1</td>
<td>75</td>
</tr>
<tr>
<td>26-33</td>
<td>19</td>
<td>23</td>
<td>2</td>
<td>1</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>34-41</td>
<td>40</td>
<td>13</td>
<td>1</td>
<td></td>
<td></td>
<td>54</td>
</tr>
<tr>
<td>42-49</td>
<td>23</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>24</td>
</tr>
<tr>
<td>50-57</td>
<td>21</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>23</td>
</tr>
<tr>
<td>58-65</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>66-73</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>74-81</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>163(61.97%)</td>
<td>71(26.99%)</td>
<td>17 (6.46%)</td>
<td>11 (4.18%)</td>
<td>1(0.38%)</td>
<td>263(100%)</td>
</tr>
</tbody>
</table>

Figure 1: Educational Qualification of Female
Table 4
Educational Qualification of Male (N=282)

<table>
<thead>
<tr>
<th>Age</th>
<th>Illiterate</th>
<th>Lower primary</th>
<th>Middle primary</th>
<th>High/Higher secondary</th>
<th>Graduate &amp; above</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-25</td>
<td>11</td>
<td>22</td>
<td>24</td>
<td>23</td>
<td>3</td>
<td>83</td>
</tr>
<tr>
<td>26-33</td>
<td>20</td>
<td>16</td>
<td>8</td>
<td>12</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>34-41</td>
<td>21</td>
<td>11</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>37</td>
</tr>
<tr>
<td>42-49</td>
<td>25</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td></td>
<td>34</td>
</tr>
<tr>
<td>50-57</td>
<td>24</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>58-65</td>
<td>20</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>66-73</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>74-81</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>140(49.64%)</td>
<td>58 (20.57%)</td>
<td>38 (13.48%)</td>
<td>39 (13.83%)</td>
<td>7 (2.48%)</td>
<td>282 (100%)</td>
</tr>
</tbody>
</table>

Figure 2: Educational Qualification of Male

There is only one primary school in the village. This school is a middle primary school which imparts education up to VIII standard only. After completing primary education, students shifted to a nearby village for higher studies. The number of dropouts after primary school is fairly high in this village. Table 3 & 4 shows the educational qualification of the village Motto. The percentage of illiterate in case of females is 61.9% and male is 49.64%. Whereas the percentage of graduate and
above in case of female is 0.38% and male is 2.48%. This attribute unemployment problem in the village. The majority of the senior citizens were unaware of their status of educational qualification. For the development and social upliftment of a society education plays a pivotal role. Due to low literacy rate and unavailability of highly qualified youths, employment in this community is very low. Without higher education they were not able to get high income jobs. Some cases are listed below which have recorded from the fieldwork.

**Case 10:** Bittu Behra (Pseudo name), a 45 year old man has been supporting his family members for the last twenty years by catching fish. At the age of 12 years, he dropped out from the school. He was studying in class IV during that time. At a very young age he started learning fishing along with his community members. He shared some of his personal feelings during our conversation, “I was eager to learn during my childhood. But poverty compels us to go for fishing with our elders. So I left the school at a very young age.”

His family is run by the only source of income which he gets from catching fish. He has a son and a daughter of five and seven years respectively.

**Case 11:** Api Behra (Pseudo name) is a 48 year old married man. He has one son and two daughters. He could not recall the exact age of leaving school. He left his native village and went to Pondicherry to work in the cotton textile industry. During that time he was paid only Rs.1200 as monthly salary from that industry. With this meager amount of money, he was facing financial constraints. So finally he made up his mind to retreat to his native village. Dreaming for a better life by earning a good sum of money couldn’t be fulfilled was the view point narrated by him in our long uninterrupted conversations. He told me that all of his community members worked as labourers in that factory because they don’t have higher qualification.

Education and improvement in literacy rate will help in empowering villagers to make a better society. This way the problems of social vulnerability may reduce in the long term process. From the case studies mentioned above, it can be drawn that most of the villagers which even try to catch a job find so many difficulties due to lack of higher education. Some of the community members who wish to shift in safer places were reluctant to do so because they knew that without higher qualification they would not get any job.

**Location and Structural Arrangement: A Contributing Factor of Social Vulnerability**

There are six maritime districts in the state: Balasore (80 km), Bhadrak (50 km), Kendrapara (68 km), Jagatsinghpur (67 km), Puri (155 km) and Ganjam (60 km), with Puri district covering more than a third of the coastline (DOF 1998: 61).
These six districts cover 14.5 percent of the total land area in the state. According to the Handbook on Fisheries Statistics of Orissa, 2000/01 (DOF 2002), Orissa has a total of 589 marine and 3289 inland fishing villages.

Motto village is located in the very high damage risk zone. Tropical cyclone disturbed coastal areas of the Indian Sub Continent frequently. There is no public transport system plying in this village. Concrete roads connected to village are not available. Unavailability of the public transport system is one of the major problems of dropping out of school by the children of this area. Villagers face a major hindrance in transportation system due to unavailability of public transport as well as poor road condition.

These two maps (Map 1 and 2) show the vulnerability level of various coastal districts of the state Orissa. Map 2 highlights the surge values of storm in meters above mean sea level. The field area for this study lies in Puri district (Brahmagiri and Krushnaprasad Blocks) where the storm surge values are 4.9 and 4.7 meters respectively above the mean sea level.

Map 1: Wind and Cyclone Zones of Orissa

www.osdm.org (Retrieved on 28/3/2013)

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Vulnerability in this community can be recognized as pre-existing patterns of community settlement and development processes including the on-going social order and its everyday relations to the environment. Therefore the effect on any particular household results from a complex set of interacting conditions such as the geography and location, the dwelling, as well as the social and economic characteristics of the people living in this area. The pattern of human settlements and the quality of housing type and construction, infrastructure, and the environment are also important in understanding social vulnerability, especially as these characteristics influence potential economic losses, injuries, and fatalities from natural hazards. The village lies near the sea shore which is one of the most disaster prone areas. The structure of the house and the location of the houses near the sea shore make them more vulnerable from natural disasters like cyclone. The houses were built with unbaked bricks, muddy walls covering with thatch roofs (straws or leaves of date palms). The geographical isolation of fishing communities has a strong bearing on their poverty and vulnerability and is reflected in their limited access to infrastructure and development assistance, poor transport and communication systems, alienation, extreme poverty and vulnerability to natural disasters. Some poor planned and development programs generate unsafe conditions.

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in which this village people live and work. These unsafe conditions include both spatial location of the village and its characteristics of the built environment which include fragile livelihoods, occupation, inadequate income and inactive political involvement etc.

CONCLUSION
Social vulnerability of Motto village is due to poverty, marginalization and structural arrangement of society. Caste and ethnicity, education, weaker political power and representation are also the major causes of vulnerability. Physical, social, economic, and environmental factors or processes, which increase the susceptibility of a community, also determined disaster vulnerability.

The policy makers and planners of government of India focused mainly on physical vulnerability like building of multipurpose cyclones, installing warning systems, saline embankments, and improving building capacity to withstand and cope with disasters etc. in disaster prone areas. Less focus is given to the social vulnerability which is also one of the root causes of disaster vulnerability. Government and related agencies should focus on immediate and long term vulnerability reduction, both in terms of natural disaster risk and social vulnerabilities. Anthropologist must hire and engaged in decision and policy making processes. There must be interdisciplinary and cross-cultural studies of natural disaster impacts and social vulnerabilities. Vulnerable and weaker section of the society must be empowered and ensure development. To tackle the root causes of social vulnerability, such as poverty, poor governance, marginalization, inequality and inadequate access to resources and livelihoods is also equally important in the long run process of reducing disaster vulnerability.

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