CHAPTER VII
PLANNING, MITIGATION AND ITS IMPACT: EMIC VIEWS AND ETIC INFERENCES

“Policies don’t do much to address the structural inequality that keeps a large number of people vulnerable. In fact, in a world without structural inequality and poverty, natural hazards may never turn into disasters”—Ahsan Kamal 2012.

The premise of the present thesis in the narratives and theoretical framework was to explore policy debates on ‘disaster management and public policy’ its ability to distinguish hazard (natural event) from disaster (hazard’s social implications). The citation with which this chapter makes a beginning clearly suggests that if there were no structural inequalities, natural hazards will never turn into disasters. Vulnerability in the present research is perceived as “physical, economic, political or social susceptibility or predisposition of a community to damage in the case of destabilizing phenomenon of natural or anthropogenic origin” (Canon 1994; Cardona 2006: 37). With a view to revise-established paradigms of disaster analysis and to emphasise the importance of pre-event planning, it was imperative to have a social cartography of vulnerable research populations. Essential also was to take into account social inequalities and citizenship rights of these marginalized sections of coastal populations. The role of social networks was critical in potentiating individual and group resilience and resistance to natural and technological hazards along with any indigenous modalities they have evolved after confronting natural hazards for decades.

A structured analysis of social inequalities related to hazards allows for a clarification and redefinition of the involved citizenship rights and their implications for the trust of citizens in public institutions. The concerned individuals, social groups and communities must participate in the knowledge production process about the territory and in the mapping of social vulnerability. Interventions must be set in a structural and long time perspective that deals with public health provision and poverty relief, instead of short duration and urgent response. It was with this mandate that data was generated and presented in the preceding chapters. In this final chapter that is generally titled as the concluding chapter or conclusion, attempt is made to read gaps between theoretical planning, its implementation and empirical perceptions of the actual beneficiaries. Participants and their narratives provide the emic view and
opinion of the experts, planners, administrators and researcher’s interpretation constitute the etic view.

Disasters provide unusual circumstances requiring human adaptation processes to make immediate adjustments. These are the true tests of human resilience. Social scientists are intrigued by human response patterns to these extraordinary circumstances. These are peculiar situations for studying human behaviour, at times, in which social adaptation and instinct are often more clearly revealed. Because disasters bring disruptions in the normal social life, create chaos, tear down social structure and contribute to destroy social order, disaster research may be viewed as the study of social pathology (Dynes, Marchi, and Pelanda 1987). The job of a researcher is to search for causes that are responsible for that pathological condition.

Natural disasters not only cause life and economic loss, but in many cases create social divisions within communities (e.g., Aeta after the eruption of Mt. Pinatubo in the Philippines in 1991, as noted by Tsuda and Tamaki 2001) and can also be responsible for creating political upheaval (e.g., the famine in Bangladesh in 1974 triggered by flood, as noted by Sen 1981, 1999). They also bring to the fore existing social, economic and political inequalities often addressed as structural inequalities in this study. Disaster management is intimately intertwined with fields such as environment, rural and urban planning, and community participation in its reconstruction.

Several approaches and models have been developed by several social scientists from different disciplines to comprehend complexities of vulnerabilities. These were discussed in the first and second chapter of the present thesis. Practically every study that I reviewed discussed poverty, gender, ethnicity, class and in the Indian context caste as inherent indicators of structural vulnerabilities. Traditional models have applied a top down approach to mediate between hazards and people. Conventional approaches have discussed the necessity to have technologies in place to address questions of pre-disaster warning and have worked with provisioning of post-disasters reliefs in the form of compensation packages. It was repeatedly asserted in the data analysis of present thesis that this model of intervention is not addressing the ‘root causes’ (Blaike et al. 1994) that convert natural hazards into disasters.
The following diagrammatic analysis by Cannon (1994:15) provides an alternative that facilitates understanding of existing vulnerabilities of fishing communities of Motto and Arakkakuda with the qualification that another vulnerability of caste has to be added to class. Fishing communities in India not only live below the poverty line but also carry caste alienation as additional burden.

**Figure 7.1: The relationship between the environment and social economic and political systems (Cannon 1994: 15)**

The diagram draws attention to the fact that environment provides both opportunities and risks. Fishing communities live near the sea, river or lakes as these natural water bodies provide natural resource for their livelihood. Living in the vicinity of this natural resource enhances the potential risk to natural hazards. But this...
is a precondition that can always be mitigated and help control a natural hazard from becoming a disaster or human catastrophe. However because of unequal regional distribution of technological and social interventions, in certain areas natural hazards immediately get converted to disasters. This happens when environment is neutral and posses same amount of risk or opportunities to all human beings. When some natural hazards become disastrous for few and not for everyone living in that region, then there is a cause or multiple causes to be explored. Some of these determinants that emerged in the present thesis as emic concerns are explored and analysed for critical understanding.

7.1 POVERTY – DETERMINANT OF SOCIAL VULNERABILITY

Disasters bring to the surface the poverty, which characterizes the lives of so many inhabitants Wisner (1993:128)

According to the 2011 census, the district Puri in the state of Odisha with a total population size of 16,97,983 has 163,639 individuals living below the poverty line. There were only 73,0632 households reported to be living above the poverty line. Poverty has thus become an inbuilt potential for vulnerability for a large portion of its population and research populations in the present study became natural victim of this economic vulnerability. Nearly 61% of customary fishermen in India live below the poverty line and when these fishermen reside in Puri district their susceptibility to poverty multiplies because of general social-economic state of the district.

The data provided in the text of the thesis supports the contention that both Keuto and Nolia communities are susceptible on this parameter. There were 36 Keuto families in the village Motto that were enrolled as BPL families but the fact was that more than 2/3rd of the sample was living below the poverty line. Their dilapidated living quarters located barely ½ kilometres from the seashore and their complete reliance on seasonal fishing provides enough evidence to augment inbuilt vulnerability of belonging to a Scheduled Caste. The Nolia’s living in the Arakhakuda village are in a slightly advantageous position in terms of their physical vulnerability as they live at a distance of 4 kilometres from the sea shore. But the Nolia fishermen are at greater risk to natural disasters as many of them live in temporary houses near the sea mouth and are far more susceptible to natural hazards vis-à-vis those fishers who go out to the sea or lake only to fish either during the day for marine fishing or at
night for fishing in the lake. Poverty compels them to use substandard boats and poor quality nets. The cost of repairing boats is exorbitant and many a times they are not able to find enough money to repair them.

One of the consequences of poverty is indebtedness. In chapter five and six, several case studies were cited in which villagers were telling their stories of misery because of their inability to emerge from indebtedness. Indebtedness caused because of lean seasons, damaged boats and fishing nets because of cyclones and storm surges. Many of them were not adequately compensated after the cyclones because their own community brethren responsible for disbursement of relief became corrupt. They gave compensation only when they were bribed. Philip and Rayhan (2004) rightly point out “corruption often accompanies centralization of power, when leaders are not accountable to those they serve”.

In chapter five the case of village Sarpanch was cited. The leader came from a Keuto family and his father was a fisher. He graduated from a college in the city and returned to the village to enter politics. Gradually he became the head of the village local body and acquired power and subsequently wealth by exploiting the local poor of the same village and of his own community. It was mentioned earlier that given the dismal economic condition of almost all the families surveyed for the demographic profile of the village, it was surprising that only 36 households had received BPL cards. The BPL cards were issued at the discretion of the Sarpanch. He also attempted to hide information relating to number of large motorboats owned by the villagers and the amount of compensation villagers received after the super cyclone of 1999.

Reducing the vulnerability of the poor is a development question, and such a question must be answered politically (Cunny 1983:7). There are commonly two views presented on the linkage between poverty and vulnerability. One is constructed as ‘risk centric view’ and the other is debated as ‘right centric view’ (Philip and Rayhan 2004). Risk centric view defines “vulnerability as variability in the living standard caused by consumption and income shocks” (Philip and Rayhan 2004: 11). The fisher of both Motto and Arakhakuda has experienced risk centric vulnerability on numerous occasions in their lives. Loss of livelihood because of climatic variation, due to heavy debt repayments, inability to sell fish in the local market on appropriate rates and reduction in physical working capacity because of disease and malnutrition are significant contributors. Few Keuto and Nolia fisher moved out of this risk bracket after attaining education and political power. These few families were often charged
with practising nepotism but in resource restricted environment they did help some members of their immediate families and certain members of their extended families flourish. Unfortunately the praxis is that this happened as a consequence of violation of social and political rights of other fisher in the community.

The right centric view argues for ensuring fundamental social and political rights of every citizen. Amrata Sen’s theory of entitlements discussed in chapter one is centred on this argument. Given the vulnerable educational and economic background of the researched fisher communities, awareness about their fundamental social and political rights is dismal. On occasions, when they do want to assert their voices and articulate their protest, their dissent and demand for just rights is stifled in the absence of any proactive presence of support agencies. The NGO sector is virtually missing from these localities. Bodies of local governance like the Panchayat and district administration had a distant attitude. They appeared to be abetting the villagers’ attitudes of fatalism and assuming that this is their destiny.

Denial of fundamental human rights and constitutional rights because of being dalit to Keuto and absence of protest and failure of the state to provide equal opportunities is another observation from the Motto village, crying for immediate intervention by the state and civil society. Bosher, Penning-Rowsell, and Tapsell (2007) in a study based in Andhra Pradesh made similar observations and argued that the poor and powerless lower castes are able to utilize informal social networks to bolster their resilience, typically by women’s participation with CBOs and NGOs. This is quite unlikely to happen for the researched population in this study, unless educated youth from the community or a proactive NGO moves from outside to the village to create some proactive CBO’s in the village. Community empowerment is the key to any successful awareness and for that basic requirement is of community mobilization. Research findings suggest that these efforts are completely missing in the Motto village.

Nolia of Arakhakuda were relatively better placed as they were given the status of Socially and Economically Backward Class (SEBC) that did give them limited access to places of worship but the respondents argued that this access was a heavy price to pay because it denied the benefits that a dalit is entitled to get as per the provisions of Indian constitution. They wanted a Scheduled Caste status for their community even if it meant that they were opting for downward mobility and also voluntary surrender of some of their ritual rights that would be denied to them for
being a *dalit*. Contradictions and paradoxes of this nature were frequently encountered in the process of data collection and underlying tension that policy of affirmative actions by the state is generating in its jest to address questions of customary marginalization.

Education and occupational diversification are regarded as two most important equalizers in addressing issues of inequality. Planners and United Nations agencies supporting programmes on disaster management have also endorsed these arguments for education and occupational diversification as important arbitrators for the marginalized sections of the society (Philip and Rayhan 2004). In the next section, researcher addresses some of these factors and its empirical validation.

### 7.2 EDUCATION AS A MITIGATING AGENCY

One of the key indicators identified by the new age disaster researchers in mitigating vulnerability as stated earlier is education. Scholars argue that education enhances coping capacities of individuals, households and communities. In a recently concluded study by Muttarak and Lutz (2014) undertaken as part of the project on “Forecasting Societies’ Adaptive Capacity to Climate change” education as an important input for disaster management was critically assessed. The hypothesis proposed by the researcher’s stated:

Societies can develop the most effective long-term defence against the dangers of climate change by strengthening human capacity, primarily through education—which helps to improve health, eradicate extreme poverty and reduce population growth.

The study reviewed eleven empirical studies from diverse field sites across the world and found that education has a positive impact in reducing social vulnerability. Most of the models and literature that was reviewed in the first two chapters of the thesis did not include education as an important mitigating agent. National disaster management and Odisha disaster management societies have not overtly asserted importance of education in disaster management. The strategies discuss importance of introducing disaster management education as part of the primary and secondary education programmes but there is no emphasis on education per se.

Present study has clearly brought to the forefront importance of education in enhancing their coping abilities. Data from both the field sites demonstrate that education is not regarded as an imperative but as an additional attribute to be provided
under general education development schemes. Education in the country and also on both field sites received some momentum in the recent past because of the policies of Right to Education Act and Sarva Shikhsa Abhiyan. If attention is paid to the existing literacy figures from both the field sites, it is apparent that only 8.39% men and women from Arakhakuda and only 4.13% from Motto had access to high school education. Percentage of graduates was dismal at 2.48% and 0.38% for Arakhakuda and Motto respectively.

Education had certainly impacted the levels of awareness. It was evident that educated respondents from the field village Arakhakuda had made better use of welfare measures provided by the Disaster Management Authorities for coastal communities. Fishers from Motto were not even aware of most of the schemes. Records suggest that several self-help groups were formed as part of ICZMP strategy but not a single respondent from the field site confirmed their membership in any of these groups. These self-help groups were expected to encourage skill development for occupational diversification but for all practical purposes were non-functional for the relatively isolated village of Motto.

In the village Motto, the villagers made repeated references to basic instrument of social and economic mobility that they identified as ‘lack of education’. In perpetually every narrative cited in chapter five of the thesis, villagers lamented that when their children moved out of the village in search of jobs because of poverty, they were not able to get good work because they were not ‘well educated’. Most of the men and women after moving out from the village were working as wage labourers. Perpetual refrain was ‘if our children had better education, when they went to other states in search of jobs, they would have had better employment opportunities’. We have been in the past often told by some planning agencies that rampant illiteracy in rural India is because rural populations including fisher are not interested in sending their children to school. Data contradicts these commonly cited arguments. It was lack of enthusiasm on the part of the planners and state administrations inability to create adequate infra structure that was responsible for low literacy rates in the sample and probably across other fisher communities in the state.

Indifference exhibited by the planning agencies was visible in the fact that a polytechnic for giving technical education was being constructed in the vicinity of the village, when there was no high school in the village and girls were not able to go to
the high school because it was located at a distance of eight kilometres from the village and there was no concrete road from the village to the highway. Boys opting for high school education would either walk or cycle to the school on a rough terrain. There was no bus service that connected the village to the high school. Villagers lamented that ‘when our children are not able to go to high school, what is the purpose of having a polytechnic in our neighbourhood because our children will not be able to study there’.

Impact of education in occupational diversification and awareness generation was amply documented for the second field village Arakhakuda that had better educational facilities. After completing class X from the village high school, many young boys and girls moved to the nearby city or town higher secondary/colleges and diversified into other professions. One particular case study that was mentioned in chapter six is of significance in this context. Prabhat came from the Nolia community and had a graduation degree. He returned to the village after completing his graduation and started looking after the cyclone shelter. He also started using the vacant space of the cyclone shelter to which he had direct access for giving coaching classes to young children from the village. Two of his friends also joined him in giving coaching classes. These three tutors were helping nearly sixty boys and girls from the village studying from class Vth to Xth.

One of the tutors was masters in sociology and also had access to mobile internet. It was with the help of this facility that he received information about the recent cyclone Phailin that hit coastal Odisha on 4th October 2013 and moved to the coastal belt till 14th October 2013. These three educated boys from Arakhakuda after receiving the first information about the cyclone started disseminating information to the villagers and asked them to move to safe places. Later they helped police and local authorities and with the help of their students from higher classes, shifted large number of villagers to the cyclone shelter. If one examines it in the construct of Dwyer’s individual and social vulnerability model (2004 discussed in the introduction) then here was a case in which educated and relatively empowered individual used his entrepreneurial skills to add to his income generation activities. Education has played a pivotal role in individual mobility but we cannot forget the basic premise that education is a state subject and its access remains a major area of concern more for Motto then for Arakhakuda.
Muttarak and Lutz (2014) presented a flow chart that showed how education could play an important role in reducing the adverse impacts of disasters. Advocating a policy for providing formal education as part of disaster management training, authors of this model discusses direct and indirect flows of education. A direct flow ensures that individuals “acquire knowledge, skills and competencies that can influence their adaptive capacities” (Muttarak and Lutz 2014).

**Figure 7.2: Flowchart displaying the processes through which education contributes to vulnerability reduction**

![Flowchart](source)

(Source: Muttarak and Lutz 2014)

Extending these arguments, researchers cite studies that have systematically examined positive impact of education on health (Lutz and Skirberk 2013) cognitive abilities (Neisser et al. 1996, Nisbett 2009, Reynolds, Temple, and Ou 2010) and on learning and numerical skills. In addition to this formal education facilitates better comprehension of risk information as was demonstrated in the case study cited earlier and ensures better dissemination of this information to others, interpretation supported in the presents study also (Mileti and Sorensen 1990, Spandorfer et al. 1995). A large body of data generated in previous studies and in this study also indicates that education helps develop problem solving skills thus enhancing educated individual’s coping capacities (Ishikawa and Ryan 2002, Moll 1994, Schnell-Anzolla, Rowe, and LeVine 2005).
One of the most significant indirect contributors to disaster management strategy in this flow chart is education's role in reducing poverty, providing opportunities for employment diversification and better access to information (Cotton and Gupta 2004; Psacharopolous 1994; Psacharopolous and Patrinos 2002; Wen et al. 2011). Number of case studies cited in the chapters 5 and 6 of the present thesis provide significant evidence to this effect. Keuto men and Nolia men and women teaching in the two field village schools are important conduits for enhancing knowledge, risk perception skills and centres for dissemination of information, not only to young children coming to the school, but also to their families either through direct contact or through their students. In the later section, I would also discuss the role education plays in the political empowerment of locals and brings them in the domains of authority enhancing their negotiation skills. Immediate intervention by the centre and the state is required to integrate disaster management education funding with the formal education funding for the disaster prone and socially vulnerable regions.

According to the report of FAO Bay of Bengal Programme (BOBP 1987b: 10), the literacy rates of the coastal villages were far below their respective districts and also below the national average. It also further suggests that marine fishers literacy rate were even lower. Illiteracy figures for both the research villages were significantly high in the case of female population (details discussed in chapters five & six). There is a popular saying that educating one woman means educating an entire family but this maxim has not translated into operational reality in either of the field sites. Insensitivity of the local administration was apparent in the absence of any significant local programmes for promoting education in general and for the girl child in particular.

One of the objectives of this research was to flag local concerns and emphasize the need to make these integral to the policy framework. The district authorities had abrogated their responsibility and were content in promoting the centrally sponsored Sarva Shiksha Abhiyan without even incorporating local needs and additional responsibility of educating local children on various social, occupational and ecological vulnerabilities that they are likely to confront them in the future. There was hardly impetus given in the school curriculum on skill development and vocational training. In the last chapter, a list of self-help groups was provided that was procured from the website and was not provided by any member of the local
body. Some of these self-help groups were formed to promote poultry, cold chain marketing and dairy farming. Poultry (62 projects for Arakhakuda and 52 for the Motto village) was the predominant additional or alternative occupational activity planned for a traditional fishing village, without doing any feasibility study and without training school going youth to learn its nuances in the village school.

Various studies have suggested that pre-disaster warnings in coastal areas leading to pre-disaster evacuation can significantly lower the risk to human life. If individuals are educated, their ability to absorb pre-disaster warning is far better and evacuation becomes easier for the disaster rescue agencies. Nevertheless, there is no concrete study (Sharma, Patwardhan, and Patt 2013; Striessing, Lutz, and Patt 2013) to show that educated individuals always heed to pre-disaster warnings. Individual attitudes, kind of security one evolves by way of assumption that they are living in steadier quarters as compared to the poor, and fear of greater loss of economic wealth, due to probability of post disaster looting of goods by desperate disaster victims, may act as deterrents. These are some questions that future studies will have to address.

The study populations were living below the poverty line but they did share concerns of post disaster looting and gave it as one of the major reasons for not evacuating, even after the disaster warning. Even if there were these limitations, the role education plays in improving social vulnerability in empowering local populations is undeniable. In the next section, the role education has played in occupational diversification is examined for both Keuto and Nolia communities.

7.3 OCCUPATIONAL MOBILITY AND POWER STRUCTURE

Socio-economic vulnerability of coastal fishing populations is a direct consequence of the nature of their occupation. Being artisanal fisher both Keuto and Nolia are completely dependent on this sole economic activity. They do their fishing activity in Chilika Lake and at sea. Most of the time they remain at the sea and the lake. They would leave the village by dawn and come back by dusk after catching fish on the sea. But in the lake they moved by evening and retreat early morning. Like agriculture, fishing is also seasonal. Hence dependence on fishing as a source of livelihood is not only vulnerable to structural forces of politics and economy but also seasonal fluctuations. During lean season they try to manage their daily needs from the scanty savings but most of them whom I met in the villages had mortgaged their meagre belongings to borrow money from the local moneylenders. The loan was
given to them on the condition that it would be returned in cash or kind during the fishing season. Calculations for return were made with heavy interests. If they failed to return the money with interest during peak fishing seasons, the money lenders would force them to supply their daily catch on subsidized rates.

It troubles me to recall that throughout my fieldwork, none of the respondents mentioned any financial assistance that they could get either from the state or the centre in case of damage to their boats or fishing nets. When policies for fishing communities were scrutinized, the realization came that there are two direct provisions namely Group Accident Insurance for Fishermen and Saving-cum-Relief fund to be provided to all active fisher with a 50% contribution by the state and another 50% contribution by the centre. There is also provision for assistance for motorization of traditional boats. There is a long list of schemes, some of these would be discussed in the later part of the chapter but there is hardly any dissemination of information to the poor and illiterate fisher of both the villages. If local power heads like the Panchayat members were aware of these provisions, they did not share the information with me.

Over the years in this coastal belt quantum of fish available even during the peak season has declined considerable. This is due to overexploitation of marine resources and clogging of channels connecting the lake to the sea. Silt is not flushed out regularly which results in decreased outflow into the sea and reduced levels of the salinity of the water (Ayappan and Jena 2000: 243). The loss of depth is also responsible for declining breeding grounds in the lake. Pesticides used in agricultural fields, industrial discharges and other upstream activities in the coastal areas have also contributed to the destruction of its biotic life (Mishra 1998:82)\(^1\). The state government created Odisha Coastal Zone management authority constituted under the Environment protection Act 1986 to monitor environment issues relating to the coastal regulation Zone has created protected zone for endangered coastal species but did little to regulate pollution of the lake.

The village Motto lacked qualified individuals as compared to Arakhakuda village. So even if they moved out to acquire jobs, they get low wages. But in Arakhakuda village there are signs of some improvement as the numbers of educated youths were more. So improving literacy rate as well as increase in the number of

educated youngsters in future could help in improving the socio-economic conditions of the other fisher in the village. They would also be able to help others in decision-making processes and contribute significantly at the community level. For integrative development, it is essential that community mobilization takes pace and this is best achieved by the educated, informed and politically empowered local youth.

The empirical picture in the field is far too dismal to make this a probability in the near future. We tried looking for probable causes in the narratives. Answers suggested that those few who moved out did it out of sheer poverty. They went on to accept jobs that paid meagre salaries and lack of education became major restricting factor in getting better paid job. Only two respondents from the Motto village opted for white-collar jobs after attaining college degrees from educational institutions located at considerable distance from the village. Many more fisher from the Arakhakuda had voluntarily moved out of fishing to get jobs in the cities or to create alternative income generation activities in the village itself.

In Cannon’s diagrammatic presentation (presented in the first section of the chapter) on social systems, inherent power structures are listed as important instrumentalities. Narratives from the Motto village demonstrated complexities that are emerging in the village as a consequence of changing power equations within the Scheduled Caste community of Keuto. Motto is an exclusive Scheduled Caste village of fishermen. It is located close to famous Bali Harchandi temple but Keuto are socially debarred from entering the temple because they belong to an unclean caste. This denial of fundamental rights ensured by the article 15 giving Right to Equality to every citizen of India by the Indian constitution is not contested by the fishers. There has never been any protest by the village fishermen. They offer fish to the temple goddess everyday but have never ventured against century old social and religious sanctions. The village Sarpanch belonging to the same caste has acquired legal position by virtue of power acquired through the mediation of education and wealth but has never questioned this ritual denial.

Foucault’s (1998:63) maxim that “power is everywhere and comes from everywhere” had only partial manifestations in the village. The same Sarpanch exercises his authority and power over the villagers. He has moved out of fishing after his political elevation. He and some of his siblings have college degrees and they use their education to monitor activities of the villagers. Translating access to education into an agency for control, they monitors welfare measures available for the villagers,
decides who gets the BPL card. The Sarpanch has also assumed the role of an intermediary. He has also become exclusive agency for mediating and negotiating with the higher functionaries of the district and the state. He pioneered protest against acquisition of land in the village for the construction of a Polytechnic because his commercial interests were involved but did nothing to restore human dignity to his fellow brethren by launching an organized movement to obtain entry in the Harchandi temple. These empirical realities require us to examine some of the existing policies to look for reasons as to why these failed to reach the people for whom these were drafted.

7.4 PUBLIC POLICY AND HAZARD MANAGEMENT

Natural hazards when get translated into social disasters often disrupt the development efforts of a country with a widespread human, material, economic or environmental loss (Quarantelli 1998). Developing and underdeveloped countries struggling to feed its millions and meeting other socio-economic challenges are often the worst victims of social disasters and natural hazards. The World Bank data suggests that low-income countries account for more than 70% of the world’s disaster “hotspots”. Environmental scientists and planning experts are unanimous in their opinion that one of the top priority concerns of any modern nation state is to evolve national policies that focus on ‘prevention strategies; rather than calamity relief.

India had been lax in its political management of disaster prior to the occurrence of Super Cyclone of 1999 followed by Bhuj earthquake 2001, Tsunami in 2004, and it was only after these colossal human tragedies that the government agencies swung into action and for the first time in the history of Independent India, there was a formal document on National Policy on Disaster Management in 2009. Thereafter, disaster management became a buzzword in the NGO sector and in national, state and district planning documents. The government of India have brought a new paradigm shift in the approach to disaster management that proceeds from the conviction that development cannot be sustainable unless disaster mitigation is built into the development process. It took a defining step by enacting the Disaster Management Act, 2005 which envisaged the creation of the National Disaster Management Authority (NDMA), headed by the Prime Minister, State Disaster Management Authorities (SDMAs) headed by the Chief Ministers, and District

Disaster Management Authorities (DDMAs) headed by the Collector or District Magistrate or Deputy Commissioner as the case may be, to spearhead and adopt a holistic and integrated approach to disaster management (http://ndmindia.nic.in/NPDM-101209.pdf).

National disaster management Policy in its approach presents the philosophy of “community based Disaster Management (DM), including last mile integration of the policy, plans and execution” and also talks about “multi-sectoral synergy and capacity development in all spheres”. The diagrammatic presentation in the policy document presented here talks about a “typical continuum comprises of six elements: pre-disaster phase includes prevention, mitigation and preparedness, while the post-disaster phase includes response, rehabilitation, reconstruction and recovery” bound by a legal and institutional framework.

Figure 7.3: Disaster Management Cycle


Critical objective of data generation in the field for the present thesis was to examine if the roadmap proposed in the policy development has reached some of the worst affected communities of previous disasters. The results obtained from the empirical study and cited in the first section of this final chapter disappoint to provide an optimistic outlook. Nearly fifteen years after the super cyclone, both research villages Motto and Arakhakuda had cyclone shelter. The cyclone shelter in Motto had the capacity to provide shelter to all the inhabitants of the village but the cyclone shelter in Arakhakuda was too small for a large Panchayat village of nearly 4500...
people. This inadequacy was recently confronted, when the villagers were evacuated under the potential threat of Cyclone *Phailin* that made a landfall in the coastal areas in the vicinity of these two villages in the year 2013. When attempts were made to connect with district authorities to get their perspective on several of these shortcomings that were noticed in the course of fieldwork, most of them refused to come on board and share their constraints. There were also several questions relating to maintenance of the cyclone shelter and emergency supplies required in place to support large number of refugees for an uncertain period. One time grant of rupees five lakh was given to the *Arakhakuda* cyclone shelter. This was purportedly meant for day-to-day maintenance and for emergency provisions. The money was put in a fixed deposit in the local branch of Odisha Gramin Bank and interest earned from it was used for maintaining and repairing the Cyclone shelter.

The positive outcome of policy on disaster management was that the district authorities were able to shift locals from their homes to the safety of the cyclone shelter. There were local constraints as many fishers refused to leave their homes believing that cyclone will not hit their homes and suggesting that these warnings keep coming from time to time and we fishers are quite accustomed to it. Our traditional knowledge that we have acquired from our ancestors helps us to know whether this storm will damage our boats and houses or not. None of them elaborated on what that traditional knowledge was and how they learnt either about the wind speed or about the possibility/probability of the storm hitting the coast or passing by it.

Another positive that emerged from it was that the local authorities had the warning system in place. The police patrols were on the beat 24x7 making announcements about the impending storm and possibility of its hitting the coast. They also helped in shifting old, pregnant women and women with small children, and disabled to the cyclone shelter. The positive role of the educated youth in helping pre-disaster rescue operation has already been discussed in the section on education. Preparedness and outreach of communication systems, starting from initial internet messages received by one of the teacher’s giving coaching classes in the cyclone shelter to effective use of radio and television by the broadcaster also played a very significant role in what could have been another major social disaster.

Important difference was made because of the electrification of both the villages. *Motto* received electricity only in the year 2009. This helped some villagers
acquire television sets and radios. These important instruments of entertainment are now being effectively used in disaster preparedness and reaching out to the people. Centrality of these essential communication tools was recently witnessed in the Kashmir floods that hit the state on 4th September 2014 that failures of mobile connectivity; electricity and satellite communications have serious implications in providing post-disaster relief. Disaster management agencies will now have to look for alternative technological solutions to ensure that this kind of total blackout of communications can be averted in any future natural calamity.

To extend the discussion beyond positives and examine the quality of long-term interventions that provide internal empowerment without external agencies coming for rescue, relief and rehabilitation, the ground reality was far from being satisfactory. According to the Tenth Five Year Plan of India, “The future blue-print for disaster management in India rests on the premise that in today’s society while hazards, both natural or otherwise, are inevitable, the impacts that follow need not be so and the society can be prepared to cope with them effectively whenever they occur”. It is for the first time that official document of the state delinked natural hazards from Social disaster. The subject of disaster management does not find any specific mention in any of the three lists (Union, State and Concurrent Lists) in the 7th Schedule of Indian Constitution, where subjects under the Central and State Governments are also subjects that come under both are specified.

To examine the extent to which this spirit of the planning document has been translated into reality on the ground, I return to the original narratives and infrastructure development in these two post-disaster villages. From the first chapter in this thesis, it has been repeatedly asserted that there was hardly any visible infrastructure development in these two coastal villages. Condition of infrastructure and availability of road connectivity to the poorer Motto village was conspicuous. The village had only one primary school without a toilet, desk and basic teaching amenities. There were only four schoolteachers responsible for teaching classes from 1st to 8th. Most of the girls from the village school dropped out of school because the secondary school was located at a distance of 7 to 8 kilometres and there was no means of transport in the village or immediately outside the villages to ferry them to

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the secondary school. There was no concrete road connecting the village to the highway. There was a motored road going to the Bali Harchandi temple that is just about two kilometre on a divergent road but none for the village itself. If another natural hazard strikes the village, evacuation from the rescue centre will be a herculean task. The district authorities had very recently woken to this reality after the cyclone Phailin hit the coastal areas and one of my respondent informed me that a concrete road is now being built to connect the village to the highway.

The district and state authorities have still not registered the importance of education in disaster preparedness. Instead of building a high school next to the village, they have acquired the village cashew nut orchards for constructing a polytechnic. This infrastructure instead of meeting the community needs has taken away their additional resource for livelihood and shall deprive local girls from high school education. For years villagers are deprived of adequate health infrastructure in their vicinity. There is no primary health centre in the village and villagers have to walk many miles carrying their sick on bicycles, motorcycles or on their shoulders to the nearest health centre located at distance of 6 kilometres from the village. Coastal communities live under perpetual stress. There were number of cases of mental illness reported from the Motto village. Even after the 1999 post cyclone disaster relief, no effort was made to bring a counsellor to the village.

Empirical evidence collated from both research villages suggest that long term planning by the district authorities for disaster preparedness for these two very vulnerable sites is both dismal and disappointing. It continues to rely on chance factors rather than incorporating the harsh reality of climate change and increasing number of natural hazards striking with much more ferocity then they did in the past. There were no visible signs of reforestation in the area. Hardly any effort was made to enhance the quality and provisioning of infrastructure for both education and health—two imperatives for disaster preparedness. The planners failed the villagers completely on the issue of occupational diversification. Most promises made under the ICZMP programme remained on paper. I learnt from the internet sources that there were 33 self-help groups formed for the Arakhakuda and 16 for the Motto villages.

But in the Motto village, there was not even iota of evidence of the presence of any one of these self-help groups. What the villagers need immediately is some kind of price security and fixation of minimum price of its daily catch of fish in the local
market. Merchants from outside come and exploit their poverty by paying prices much lower than the market price for the fish caught by the fisher. There is no regulatory mechanism in place.

Another important problem being faced by fishers of both the villages were contentious issues of encroachment on fishing areas both in the sea and in the river and Lake. Outsiders have started coming to their customary fishing territories with big trawlers and catching fish. They have access to better fishing boats nets and other technologies. They deprive traditional fisher of their fundamental rights to livelihood and if one may use Sen’s connotation to their ‘entitlements’. Bishu Behra-a Keuto fisher from the village Motto said:

Earlier fishing was practiced by certain castes only. But due to economic margins, other non-traditional fishing caste groups such as Khandayats have also taken to this occupation. Khandayats predominantly practiced agricultural activities but they entered sea fishing by investing their money from agriculture in fishing boats and nets. This increases competition among us since the number of fish is decreasing day by day. They sometimes unplugged our fishing nets and took our fish from it. They even destroyed our fishing nets. We tried to retaliate but end up being bashed by them. Since we are a minority group with small populations and no money to bribe and have no political clout, we are forced to remain silent. Any violence will further impinge on our livelihood. We did complain in the local police stations but they took no action as they all belong to the same power structure.

This narrative draws attention to decreasing spaces and increased competition for limited resources that not only adds to the vulnerability of the researched populations but also draws attention to emerging areas of conflict. The use of highly technical mechanised means of fishing by non-traditional communities with surplus resources further marginalises technically-mechanically “unventured” people into greater vulnerability. If the district authorities in the letter and spirit of disaster management policy do not take note of this growing tension, they will have a complicated situation on their hands because there will be growing competition for compensation and participation in the policy initiatives designed only for customary fishing communities.

The models discussed in the first chapter of the thesis steadfastly maintained that efficient disaster management requires paying particular attentions to the most vulnerable sections of the population that includes women, children, elderly and
differently abled people (Canon 1994; Cutter, Boruff, and Shirley 2003; Enarson 2007). The mandate in disaster management policy echoes similar sentiments in its objectives stating “Ensuring efficient response and relief with a caring approach towards the needs of the vulnerable sections of society” (http://ndmindia.nic.in/NPDM-101209.pdf; Government of Rajasthan 2014). Nonetheless, there were no structured programmes on the ground for meeting these objectives. It was asserted time and again that women in coastal areas were most affected in disaster situation. Customarily, fisherwomen are not engaged in fishing, but when men of the family fall to natural hazards or to accidents in the sea, these women are left to fend for themselves. In the absence of any accident or hazard insurance they have no choice but to break from tradition and take to only vocation available to them. Under these circumstances they are allowed to fish in the river and sea or buy fish from the market, dry it and then sell it. These women do earn some money particularly during the lean season but this certainly is not enough to provide for a secure livelihood for the family. Many of them have to support their elderly in-laws, as most fishers are not able to go to the sea after the age of generally fifty-five years. There are hardly any programmes or policies for them except for a pitiable widow pension scheme that offers a meagre sum of rupees five hundred to each of them. Support for the elderly and differently abled men and women are negligible.

7.5 MONETARY INVESTMENTS IN DISASTER PREPAREDNESS

One of the most frequently heard refrains in the corridors of power in the district headquarters and in the state secretariat of Odisha is that it is a poor state and has little money for development and disaster mitigation. It was in response to these refrains that the Thirteenth Finance Commission recommended special allocation for disaster management. The Ministry of Finance, Government of India (GoI) has allocated funds for strengthening disaster management institutions, capacity building and response mechanisms on its recommendation. The 13th Finance commission created a State Disaster Response Fund: Section 46(I) and Section 48(I) of the Disaster Management Act, 2005 stipulate the constitution of a National Disaster Response Fund (NDRF) and State Disaster Response Fund (SDRF) at the national and State levels respectively. The SDRF funding received by the state has 75% contribution from the centre for states listed under the general category. Odisha falls in the general category for getting central grant. The share of the Central Government in
SDRF is stipulated to be remitted to the state government in two instalments—June and December—in each financial year.

It is ironic that coastal state of Odisha that has experienced three major cyclones in the last two decades and is one of the poorest states of the country and ranked 21 in the HDI report for India is included in the general category. Under this scheme Odisha is expected to receive rupees 2163.75 crores over a period of five years. Following figures present the amount received by the state in the last four years and the remaining amount expected to be received for the year 2014-15.

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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Odisha</td>
<td>391.58</td>
<td>411.16</td>
<td>431.72</td>
<td>453.31</td>
<td>475.98</td>
<td>2163.75</td>
</tr>
</tbody>
</table>


According to the recommendations of the 13th Finance Committee this funding is to be spent on capacity Building for Disaster Response: The document asserts that it will help the States to provide essential trainings and support capacity building of stakeholders and functionaries, preparation of Disaster Management Plans based on hazard, risk and vulnerability analysis, and setting up/strengthening of Emergency Operation Centres (EOCs)\(^4\). With the support of these resources, states are required to formulate disaster management policies in accordance with the perceived threats from natural hazards taking into cognizance social vulnerability factors that are locality and context specific.

**7.6 POLICY INTERVENTIONS**

Famous historian Marc Bloch made a profound statement, when he wrote: **Just as the progress of a disease shows doctor the secret life of a body, so to the historian the progress of a great calamity yields valuable information about the nature of the society so stricken** (Marc Bloch 1961).

\(^4\) The Thirteenth Finance Commission has recommended this scheme with a grant of Rs 525 crore for better handling of disaster response and for preparation of District and State level disaster management plans as envisaged under the Disaster Management Act 2005. The state of Orissa has allocated Rs 25 crore under this scheme. Annex 11.3 of Thirteenth Finance Commission report Vol. II, Ministry of Finance, Govt.
To a large extent social history of society reflect the policies that political and administrative institutions of the state have adapted and the extent to which these addressed the concerns of the poorest of the poor and the most vulnerable sections of the affected people. The traditional perception relating to the management and mitigation of natural disasters has been limited to the idea of “calamity relief,” which is seen essentially as a non-plan item of expenditure. However, the impact of major disasters cannot be mitigated by the provision of immediate relief alone, which is the primary focus of calamity relief efforts. There is thus a need to look at disasters from a development perspective as well.

The need of the hour is to chalk out a multi-pronged strategy for total risk management, comprising prevention, preparedness, response and recovery, on the one hand, and to initiate development efforts aimed towards risk reduction and mitigation, on the other. Only then can we look forward to “sustainable development”. Based on this philosophy, a holistic framework for national disaster management is mandatory, which highlights the interdependence of economy, environment, and development. This framework also links the issues of poverty alleviation, capacity-building, and community empowerment, on the one hand, and structural and non-structural issues of prevention, response, and recovery, on the other, for effective management of disaster risk (Chakrabarti 2011).

Keeping these issues in mind, to draw attention on the schemes and grants commenced by the government to tackle the disasters is immensely important. From these schemes, the main focus or the direction proposed by the state and planning agencies could be assessed. Taking overview of the state policies also helps us understand the gaps that exist in the proposed intervention situation and empirical situation mapped during the course of the present fieldwork. Some of the schemes are discussed here and its presence or relevance for the study villages is examined.

7.6.1 Externally aided schemes

**GoI-UNDP Disaster Risk Reduction Programme**: The UNDP (United Nations Development Programme) in partnership with Ministry of Home Affairs, Government of India implemented a Disaster Risk Management (DRM) programme from 2002-2009. After its successful implementation in 176 multi-hazard districts spread over 17 States, they launched again a new programme for Disaster Risk Reduction (DRR) with an outlay of $ 20 million (Approximately 100 crore). The UNDP programmes have been reviewed and renewed till 2017. Some of its initiatives
were also witnessed in the state of Odisha. Objectives of these programmes is to
develop methodologies and modalities for ensuring risk reduction through integration
in development programmes of all partners at National, State and Community levels.
To strengthen the recovery framework, through which the people affected by disasters
(especially the most vulnerable) are able to access resources for rebuilding their lives
and reviving their livelihoods. These efforts also endeavour to strengthen the
knowledge and information sharing platform in disaster management. Some of the
initiatives undertaken by this interventions strategy include capacity building
workshops in government schools and separate workshops for primary stakeholders
like fisher communities, agriculturists and others living in disaster prone area.

Another project was launched by government of India in collaboration with
USAID Disaster Management Support\(^5\): The project was initiated in the year 2003
with a funding outlay of $ 4.715 million and $ 5 million to integrate Disaster Risk
Reduction and Climate Change. The impact of this assistance is recorded by USAID
agency in its focus on ‘Pounds of Prevention’ - a disaster risk reduction story-focus
India. The story states that the advance warning system support provided by weather
forecast agencies in the United States to Meteorological Department of India helped in
giving advance warnings for the cyclone Phailin. This helped Indian agencies in the
field to evacuate nearly one million people to safe locations. The website also notes
that it was advance training and skills provided through this project that helped
strengthen ‘first responder capacity’. The case study of cyclone shelter caretaker cited
earlier in this chapter is a case in point as he was trained to take quick decisions and
started early evacuation.

One of the most important project for coastal communities in Odisha is the National
Cyclone Risk Mitigation Project\(^6\): The government of India has approved a National
Cyclone Risk Mitigation Project (NCRMP), to be implemented in cyclone prone
coastal States/UTs in three phases as a centrally sponsored Scheme with 75% contribution by the Central Government and 25% contribution by the State

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\(^5\) The major objectives of this project is to reduce vulnerability to disaster and build capacity of key
institutions in India by strengthening forecasting and early warning systems, providing technical
support of over 200 computer modelling and better use of radar data etc. cf. Ministry of home affairs,
\(^6\) The main objectives of this project are to upgrade cyclone forecasting, tracking and warning systems
and capacity building in multi-hazard risk management as well as to construct major infrastructure
including multi-purpose cyclone shelters and embankments. Cf. ibid.

250
governments. The NDMA (National Disaster Management Authority) is designated as the implementing agency and is regulated by MHA (Ministry of Home Affairs). The project and its ramifications for the study villages and its inability to reach common fisher has already been discussed in chapter five and six. However for a nuanced discussion, it is important that proposed mandate of the project is discussed at some length as this is an exclusive programme for the coastal zones of the country. Following table gives a glimpse into resources being made available for the project from the year 2011-2015.

Table 7.1: Budget spent in the project of NCRMP for the states of Odisha and Andhra Pradesh

<table>
<thead>
<tr>
<th></th>
<th>Budget spent (Rs. in Crore)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Community mobilisation and training</td>
</tr>
<tr>
<td>2</td>
<td>Cyclone risk mitigation infrastructure (construction of cyclone Shelters, roads/missing links and construction/repair of saline embankments etc.)</td>
</tr>
<tr>
<td>3</td>
<td>Technical assistance for capacity building on disaster risk management (risk assessment, damage and need assessment)</td>
</tr>
<tr>
<td>4</td>
<td>Implementation assistance (operational cost, technical assistance cost and IEC material etc.)</td>
</tr>
<tr>
<td>5</td>
<td>Others</td>
</tr>
</tbody>
</table>


All the major activities supported by the NCRMP are generally focused on infra-structure development. Maximum funding is given in the construction of shelters, roads and saline embankments. Under this project the states of Andhra Pradesh and Odisha are being covered in Phase-1. This development project has benefitted the coastal areas. We do know that there are some cyclone shelters built in the state under this scheme. The cyclone shelter built in the village Motto was constructed with the help of funding from the Red Cross Society. The cyclone shelter in the village Arakhakuda was constructed with support from this project. The

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2 Centre allocation of grants in aid for Andhra Pradesh and Orissa are Rs 62686.72 and 16513.28 lakhs whereas state contribution is Rs. 52092.88 and 13285.12 lakhs respectively.
funding for the construction of roads was apparently not adequately used as there was no concrete road to go to Motto almost fifteen years after the 1999 super cyclone.

The NCRMP claims that it has made the following deliverables in the two states of India.

Table 7.2: Showing the development projects provided in the States of Odisha and Andhra Pradesh under NCRMP.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activities</th>
<th>Odisha</th>
<th>Andhra Pradesh</th>
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<tbody>
<tr>
<td>1</td>
<td>Cyclone shelters</td>
<td>130 Nos.</td>
<td>148 Nos.</td>
</tr>
<tr>
<td>2</td>
<td>Cyclone shelters for fishing communities</td>
<td>19 Nos.</td>
<td>Na</td>
</tr>
<tr>
<td>3</td>
<td>Shelter-cum-godown</td>
<td>6 Nos.</td>
<td>Na</td>
</tr>
<tr>
<td>4</td>
<td>Approach roads to proposed cyclone shelters</td>
<td>130</td>
<td>206 (208km)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(150.35km)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Approach roads to existing proposed cyclone shelters</td>
<td>61 (112.8km)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Roads connecting habitations of less than 500 or unconnected habitations</td>
<td>Na</td>
<td>272 (479km)</td>
</tr>
<tr>
<td>7</td>
<td>No. of Bridges</td>
<td>Na</td>
<td>22</td>
</tr>
<tr>
<td>8</td>
<td>No. of Roads</td>
<td>3 (23km)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Saline embankments</td>
<td>23 (157km)</td>
<td>2 933.6 km</td>
</tr>
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</table>


For a nearly 480 kilometre long coastline having 3878 fisher villages in the state of Odisha, out of which 813 are marine fisher and 3237 are inland fisher villages. The total fishermen population as per 2010 census is about 1,480,704 of which 605,514 are marine fisher and the remaining 875,190 are inland fishermen (Government of Odisha Fisheries & A. R. D. Department 2014). For a coastline of this length and given the number of villages inhabited by fishing and other poor communities, construction of only 130 shelters and 19 cyclone shelters cum Godowns is not a very laudable deliverable. It has already been mentioned in the first section of the chapter that one cyclone shelter built in Arakhakuda was found to be inadequate at the time of Phailin to accommodate a village of 4500 individuals.
In the month of June 2013, central government announced that it would construct 155 cyclone shelters in the state of Odisha till 2015 under its Cyclone risk mitigation programme and had sanctioned additional funding of Rs. 1500 Million to address cyclone related risks in Andhra Pradesh and Odisha. The Indian Red Cross Society (IRCS) is accredited with having built some of the best multipurpose cyclone shelters in the state. The society constructed 59 shelters in the state in the year 2009 alone with support from the German Development Bank and German Red Cross society under the aegis of Odisha Disaster Mitigation Programme (ODMP 1 & 11). IRCS is managing 75 multipurpose cyclone shelters in the state. They had built 23 shelters in the state prior to the super cyclone of 1999 in comparison to none by the State.

There are several lessons that the state can learn from the way these shelters function. The society runs primary schools and crèche for children there. The task force prepared by them is trained to give first aid and help in search and rescue mission. In ODMP 11- the cyclone shelters built by the IRCS, there are separate living areas for men and women, separate toilets for men and women and all these are equipped with rain water harvesting and hand pumps to ensure safe supply of water to the shelters. It was a cyclone shelter built by the Red Cross Society in the village Motto that gave shelter to the villagers at the time of cyclone Phailin recently. Unfortunately, the condition of the shelter was dilapidated. The villagers informed me that it is now maintained by the OSDMA and the caretaker of the centre also comes from the other field village Arakhakuda. The space also remains underutilized. The Motto cyclone shelter ceremonially becomes active only on 29th October every year that is remembered as the commemoration day and the secretary of the local OSDMA society addresses the community giving some tips on risk mitigation and distributes sweets to young children from the village.

All the government officers with whom I had the occasion to meet after perpetual struggle for appointments were cagey about providing any information about the amount of money utilized till date on any of these projects. Most of the websites of the government do not display average expenditures and what they have been able to achieve. Many of these projects are coming to an end in 2015 but there was hardly any substantiation of having made significant inroads into most vulnerable zones in the region. Official apathy remained a grey area for me through out this research. Nonetheless, it is evident from the discussion above that most international
funding for disaster management is focused towards providing infra-structure development and in strengthening technocratic solutions like giving better technology support for cyclone warning and helping in pre-disaster preparedness. International projects and financial support that came after the super cyclone of 1999 was informed by UN general assembly resolution 44/236 adopted on 22nd December 1989 that argued for prioritizing information dissemination and sharing of pre-disaster warning technologies to developing nations in accordance with the norms set by the developed nations (Bankoff 2001; de Senarcens 1997; Ray-Benett 2009).

Ray-Bennett’s (2009:283) following Zaman (1999) observes, “as a result of the UN general assembly resolution (italics mine), structural measures such as building concrete houses, cyclone shelters, embankments and dams, attained primary importance (over non-structural measures), despite the fact that evidence on their efficacy at the household level in parts of Africa and Bangladesh showed that they were extremely ambiguous”. Critics of these structural interventions argue that United Nations also suffered a colonial hang over and failed to relate to the needs of the people and unequal impact that natural hazards have on people’s vulnerabilities to these calamities. It was only after the loss of thousands of human lives and mid-term evaluation of intervention strategies that a new initiative was launched and social vulnerabilities came to occupy important place in this discourse. The United Nations –International Strategy for Disaster reduction (UN-ISDR) mooted in 2004 defines disaster “as a serious disruption of the functioning of a community or a society, causing widespread human, material, economic or environmental losses” (Ray-Bennett 2009: 275).

Following this alternative approach that acquired primacy in disaster management that OSDMA along with UNDP worked out a Community Contingency Plan (CCP) after the super cyclone of 1999. However its impact was limited as Ray-Benett (2009) points out ‘largely because of the restricted nature of its coverage, funding constraints, the exclusion of local Panchayats, and a shortage of human resources in the field”. Many of these concerns are addressed in the National Policy on Disaster Management (GoI, MHA 2009) and several programmes funded by the centre and state agencies have been put in the public domain. However, the outreach has remained restricted and it is these concerns that are explored in the next section.
7.6.2 Internally added schemes

Interventions imperative for meeting the inherent challenge of social vulnerability has to come from internal sources. The issue of vulnerability requires holistic management strategies that are expected to bring long-term mitigation measures. Some of these were discussed in the first section of this paper and these include, better access to quality education, access to health services (completely missing in the region), occupational diversification, alternative schemes for women in particular widow rehabilitation programmes, insurance not only life and health insurance but also insurance for loss of livelihood, self help groups and better banking facilities and provision for loan at lower rate of interest, special provisions for disabled, political empowerment and holistic management of poverty alleviation programmes. In the following and final section of the chapter, some of these initiatives listed on various websites of the disaster management agencies in India are listed and examined for evidence of any empirical validation on my research sites during the duration of my field work in the area.

Schemes in fisheries sector

From time to time central government provides Central Assistance from outside the Budget and in the recent years one of the most important projects discussed in the previous chapters of the thesis is the Intensive Coastal Zone Management Project (ICZMP). In addition, there are also other programmes like

- Odisha Community Tank Management Project (OCTMP).
- National Fisheries Development Board (NFDB).
- Excavation of Multi-Purpose Farm Pond for Pisciculture under MGNREGA.

These centrally sponsored plan schemes support development of Marine fisheries infrastructure & post-harvest operation and function on shared funding basis in which centre would contribute a certain portion and state is expected to contribute remaining funding requirements from state revenues. Some of these include Safety of Marine Fishermen at sea; Development of Shore Base Facilities; establishment of Fishing Harbour & Fish Landing Centre; up-Gradation & modernisation of Fishing Harbour & Fish Landing Centre and Motorisation of Traditional Craft.

Then there are several National schemes for the Welfare of Fishermen that also operate on a State and Central share basis that includes Group Accident Insurance for Fishermen, Saving-cum-Relief fund, National Welfare Fund for Construction of low cost house, Fisheries Training and Extension. There are also
Some schemes put in place for the Development of Inland Fisheries & Aquaculture. In addition there are several state plan schemes with 100% state assistance and one of the most important is Motorization of country craft for marine fishermen. Financial assistance for fatal diseases for fishermen (State scheme) Financial assistance to fisher women SHGs (100% State Plan) (details of all the central and state schemes is given in the appendices-) (http://www.Odishafisheries.com/File/2014/schemes/list-of-schemes.pdf).

Some of these plans and its impacts are discussed next:

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. *

Out of these six schemes listed above only central plan functional in the research area was enforcement of Marine Fisheries Regulation Act. The act deprives marine fishing communities’ the right to fish in the sea for more than 200 days in a year. The duration that is open for sea fishing and large catch is prone to cyclone hazards. One of the most important schemes specifically meant for the fisher communities being surveyed for the present research is assistance to fishermen for alternative livelihood development for marine & Chilika fishermen. We do know that thirty self-help groups were formed in the Arakhakuda village; though the website reports formation of 33 self-help groups for Arakhakuda and 16 for Motto.

The primary task of these SHGs is to create alternative livelihood opportunities during the period of ban on fishing. The village self-help groups received a funding of Rupees 5 Lakhs and 36,000 for constructing infrastructure and for the purchase of chicken. Laxman Behra secretary of the ICZMP informed that the building construction and battery cases for the poultry project were completed on March 2014. Funding was also provided to this village for opening grocery shops. A total of Rupees 4 lakh and 69 000 thousand was received for it and the amount of money generated in return for that investment was only Rupees 4,00,000. Besides Arakhakuda village, four other villages were also covered i.e. Gopinathpur, Berang, Parikut and Balugaon under this scheme, but none of these villages were part of the...
research villages and details for the funding received and spent by them was not incorporated in this study. The project has appointed a community mobilize to look after this project. All the villagers did not get opportunity to be included in these groups. Though similar claims were made for the Motto village and we were informed that there were 15 self-help groups in the village but in the course of my interviews, nobody from this village ever talked about having received any funding under any of these schemes. The Motto self-help groups were formed to engage in different livelihood activities like fresh water pisci-culture, prawn farming, dairy and poultry farming etc.

Another respondent by the name of Yadav Behra of Arakhakuda village belonging to Nolia fisher community told that they had formed a self-help group for micro-financing. He is the secretary of a SHG known as Maa Durga Society and the society is registered under Marine Society of Puri. This society consists of 130-140 members registered under it. The society provides saving scheme for the benefit of its member. The members were required to save Rupees 600 for nine months. After twelve months they got Rupees 1800 in return. They were also encouraged to register their fishing boats and nets and report it to the Marine Fisheries Office. In the recent cyclone Phailin, those members whose boats and nets were destroyed by it got compensation of Rupees 5500-8000 depending upon the extent of its damage.

These case studies do endorse the fact that policies are in place and the financial resources are available with the managers of these projects to provide necessary assistance at the time of disasters. It is ironic that people for whom this assistance has been provided are not aware of these assurances. The major problem as it has been repeatedly said in the course of this thesis is that of dissemination. Those responsible for the dissemination of this information appears reluctant to share or one may assume are not equipped with relevant IEC material to disseminate it to the deserving. Data gaps that were reported in the study between data collected from primary sources and data obtained from secondary sources are a possible outcome of this communication limitation.

On examining documented schemes either with central or state funding, it is apparent that hypothetically several interventions have been devised by various administrative agencies to mitigate impact of disasters for these vulnerable populations. The success of these schemes is not palapable, primarily because of weak political involvement of many poor fishermen. Majority of them were unaware of the
policies and programmes under which they could have got financial assistance to tide over some of their immediate problems. In most of the case studies cited in chapter five and six, it was obvious that the fisher had no inkling about any financial support that they could avail for repairing their boats, for buying new fisher nets, for educating their children, or group accident insurance in case of any accident while fishing. Those villagers whose physical assets like houses, boats and nets were damaged by the cyclone borrowed, instead of seeking legitimate assistance marked by the state and the centre to support them under such climatic adversity. Voices of discontent were discernible in several cited case studies in the previous chapters. There was an old woman who said “I have no approach to get a BPL card” and others lamented that even after the cyclone they did not get adequate compensation, as they had “no connections”. Charges of nepotism were often levelled against the individuals responsible for disbursement of relief and compensation. Many respondents from the field village Arakhakuda complained that they were not included in the self-help groups that were recently constituted for getting support for starting alternative livelihood activities under the ICZMP. Residents of the Motto were not even aware of the presence of any of these self-help groups though as discussed above the ICZMP shows that there are number of self help groups functional in the village.

Detailed scrutiny of all the available schemes for providing assistance, security and insurance to villagers suggests that there are provisions in place to give these vulnerable sections of society adequate safety nets but deliverables on ground are insignificant. One of the significant causes of this limitation was the delivery and dissemination of information and awareness. Charges of corruption and its rampant presence have weakened these safety nets. Even when fisher came to know of the possible assistance that he/she could get, but soon realised that without network and political connections getting their legitimate right was not feasible. Delivery systems have for long assumed that if distribution of relief or responsibility of dissemination of information is entrusted with the mangers assigned to achieve targets but absence of local agency as the important intermediary makes targets and deliveries difficult. If local community was involved and provided backing for creating local leadership and networks, distribution of available resources will become more effective. It was evident In the case of Sarpanch of Motto who came from the same fisher community, that when power vests only with few individuals, they will not necessarily distribute the benefits to all others in an equitable manner. Strategies for information, education
and dissemination for improving coping strategies, for receiving legitimate compensation from the relevant agencies require urgent reorientation and strengthening. The entire community has to be empowered instead of present focus on empowering few and believing that they will disseminate it further.

The data documented in the thesis draws our attention to the innate structural contradictions in the state programmes, which were designed to counter the vulnerabilities of the people. Atamand (2003) said, in India, most of the losses resulting from natural disasters are not insured and therefore many people receive no financial compensation for the loss of life of family members or the loss of their livelihood. It was not pointed out by him that provisos for accident insurance for fisher community exist but they were not informed.

The interaction between poverty, inequality, and lack of entitlements were frequently noticed in many previous research studies too. These studies also informed about the entrenched political ideologies and power structures that regulate access to resources and form the fundamental causes of hazard vulnerability as they exacerbate the dynamic pressures acting on communities and leading to unsafe conditions within an already fragile environment and local economy (Tomkins and Hurlston 2005). The limitation of access to entitlement, such as shortcomings of the underlying social welfare and insurance and credit systems aggravate inequality (Zou and Wei 2010). I want to offer a caveat here that emanates from the observations recorded in the preceding paragraph that in my field sites, limitation was that there are provisions but knowledge of these provisions has remained confined to select few. In our capacity as researchers, we have to find alternatives to address that challenge and evolve strategies for more effective policy for communication.

Whenever disaster occurred, victimisation of the poor or marginalised section of the society is significant. Earlier disaster mitigation programmes were focused upon only when the major disasters hit the entire society killing many lives and damaging properties. But there is paradigm shift from the post disaster focus to pre-disaster preparedness and it has paid dividend as was recorded in the case of Phailin.

Winchester (2000) had studied history of development and disaster prevention strategies in cyclone-prone areas of Andhra Pradesh from 1978-1998. His 20 years research had shown that the programmes and policies have failed to balance economic growth and disaster mitigation measures. It was imperative to integrate these, if successful disaster mitigation procedures were to be put in place. Post liberalization
period in India brought economic mobilization but its unanticipated consequences added to the number of poor in the country and also pushed several marginalized sections of the population to further marginalization. Winchester (2000) had emphasized economic growth and growing urbanization had subjected increasing number of people to vulnerabilities because of the effects of cyclones and floods. He suggested that the best way to reduce vulnerability is to improve the socio-economic condition of the most vulnerable people. And at the same time these people must have an assured income based on assets that will enable them to acquire social and economic credit-worthiness within the local economy. There is a stated paradigm shift in our stated policy document but there is negligible evidence in the local contexts that will endorse the stated with the actual.

Contrary to the evidence that present field study generated, Chakrabarti (2011) reasoned that in the past two decades, India’s policy on disaster management has shifted from a focus on relief and rehabilitation efforts to holistic management of disasters. The mainstreaming of disaster risk reduction in development, building capacity through education and greater awareness at all levels, and utilizing advanced technologies, have enhanced India’s preparedness for each phase of disaster management. Nevertheless, he went on to suggest that in spite of significant achievements made in post-disaster response and reconstruction, there are still formidable challenges to reduce the risk of future disasters. He mooted a case for the disaster management policies to incorporate programmes to protect the most vulnerable segments of society such as the poor, marginalized, women, children, disabled, and elderly etc. One can read contradictions in Chakrabarti’s reasoning but without calling it a paradox of the present system, he has taken a soft stand on it. The fact is that even ambitious programmes meant only for the coastal regions like ICZMP that was launched in the year 2010 and the first phase is likely to end in 2015, have started acquiring some visibility in the field villages only in the year 2014. Sceptics will question this sudden upsurge suggesting that fear of audit after the first phase is responsible for this delayed enthusiasm.

It is unfortunate that record number of the proposed schemes has remained on paper. There is growing concurrence among the academia, activist and planners that it is the delivery system that requires innovative inputs is not improved, there would be no significant change in the lives of these vulnerable sections of the population and natural hazards would keep becoming social disasters. Zou and Wei (2010) rightly
suggest that to meet challenges of coastal hazards vulnerability, we have to address human conditions and basic rights and the present study suggests that these remain as dismal as before the cyclone.

We have to evolve a holistic perspective that includes questions of development, macro economy, livelihood, infrastructure, institutions, society, culture and behaviour, demography, geography and environment. Ideal process from research to the development of policies and actions to reduce hazard vulnerability is an integrated process with linkages and feedbacks from different parties. To achieve this realization, we need more efforts from both the research community and the practice community comprising of activists, local planners and agencies. There is also need to address disaster management through enhanced regional cooperation and effective regional response system. It is important that to develop regional cooperation, regions must pool capacity for mutual benefit. The regional pooling should not only confine itself to inter-regional cooperation within a particular nation-state but must cut across international boundaries on the principle of contiguity.

The major findings from the two fishing communities, which enhance their vulnerability, were their occupation, which depends on season, lack of education, poverty, geographical location, poor health and hygiene as well as caste etc. These factors of social vulnerability were all interlinked with each other. These factors, which contribute to their vulnerability, are inherent characteristics of their society, which continuously affect them in multiple ways. In the true spirit of a holistic approach, vulnerability was examined for this research study in the context of their local knowledge and living conditions, cultural backgrounds, present socio-economic status, political and environmental awareness. These were local texts located in their context and examined in the background of theoretical knowledge acquired by examining other studies. Context is a must for disaster mitigation and planning. The context that demands immediate attention for understanding local texts is the persistence of vulnerabilities of poverty, lack of entitlements, and resource access, and inequality in both the field sites. Tall claims were made by the agencies responsible for disaster mitigation and its implementation but empirically it turned out to be rhetoric without any concrete programmes for effective implementation. Fisher in Motto and Arakhakuda has shown remarkable courage for perseverance. They have faced many cyclones in the past and are mentally prepared to face many more in the coming future. Their only expectation from the state is that it will ensure safe
livelihood for them and would assist them without adding to the existing burden of poverty and additional burden of indebtedness.

It thus requires reinterpretations of existing public policy on disaster management and several of its priorities have to be reviewed. We have to seriously examine the proportion of funding being spent on bringing technological solutions as primary mitigating agents to investments made to strengthen people’s inborn capacities by using external factors like education and ensuring health. This not only applies to the state or national agencies but equally to international funding organizations grappling with some of the obvious concerns of climate change and increasing instances of natural hazards getting converted to major social disasters.

It is ironic that Odisha having been a state prone to disasters never had concrete disaster management policy. The only policy that ever existed prior to the National Disaster Management Act mandated in 2005 and National Policy on Disaster Management for the state of Odisha was The Odisha Relief Code (Government of Odisha 1996). It was symbolic of dominant approach in which relief to calamity victims was the stated objective. The authorities today simply dismiss any suggestions for district or state level redrafting of priorities stating that there are central guidelines for it. A proactive approach requires village level planning with the participation of the community and not with few representatives of the community but with the active involvement of the entire community. It is feasible and is a certain way forward.

Finally, I want to assert that this is just a beginning and certainly not the end of my engagement with disaster management research. I started like a new-born baby, struggling to live without the security of his mother’s womb. I have learnt to crawl and have to go many miles before I learn to stand and walk alone with my convictions and predicaments. Kashmir floods have once again brought us face to face with harsh truth that we have not done enough to strengthen our disaster preparedness. If urban disasters pose a fresh challenge, threat of growing disasters looms large on Keuto and Nolia and millions of other fishermen and other coastal communities in the country. We can do justice to their needs only if as Green and Loraine (2007) said we acquaint ourselves with ‘the use of language- people’s language, their narratives and their demands and not external imposition of structured hypothetical arguments of sustainability. But to do that, people have to be empowered to articulate those needs and alternatives that they desire.