

Socio-political and environmental dimensions of vulnerability and recovery in coastal Odisha

Critical lessons since the 1999 super-cyclone



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Executive Summary

Background

Odisha, on the eastern coast of India suffers cyclones, floods, droughts and heat waves, and parts of it are also susceptible to earthquakes. A devastating super-cyclone hit the coast of Odisha in October 1999. More than 10,000 people were officially reported dead, and many thousand others suffered devastation to their land, crops, livestock, houses and other assets. The super-cyclone was a disaster at an unprecedented scale and took the relief and rehabilitation machinery of the state government by surprise. Since then, Odisha has experienced severe drought and frequent floods, even in its dry western parts. The flooding episode in September 2008, in particular, devastated the coastal districts.

In the years since the super-cyclone, the government has taken various important measures to transform its level of disaster preparedness at an institutional level. Foremost amongst these is the creation of the Odisha State Disaster Management Authority (OSDMA) in 2000 to act as an independent apex governmental body to innovate, coordinate and oversee preparations. Its creation has been credited for similar innovative measures at the national level: the establishment of the National Disaster Management Authority (NDMA) and the passing of the Disaster Management Act in 2005. The National Policy on Disaster Management has also emphasised the ‘adoption of a holistic and pro-active approach towards prevention, mitigation and preparedness’ (MHA, 2004: 12). In several important respects therefore, the wider policy and institutional environment both in India and in Odisha are conducive for the pursuit of a truly multifaceted consideration of the issue of disaster vulnerability and recovery.

Research focus, key aims and design

In recent academic and policy debates, there have been important re-theorisations of ideas to do with risk, hazard and vulnerability. The principal change has been a more explicit concern with the social dimensions of risk, hazard and vulnerability, beyond their physical properties alone. These debates have cardinally changed the approach taken by agencies and researchers to disasters. These are no longer viewed as exogenous events that affect societies, but a reflection of a broad failure of social entitlements and state action. This also means disasters are not to be viewed as one-off or isolated events, but as phenomena with antecedents and consequences that span many years.

This formulation has shaped the focus of the study, which seeks to understand the nature of vulnerability and recovery for selected coastal communities in Odisha ten (plus) years since 1999. As much as vulnerability is a phenomenon that is marked by social differentiation, so is recovery. In order to recover from a disaster, people need to access a variety of environmental, social and political resources, and this process is not uniform for everybody. This also means the question of recovery from a disaster cannot be justifiably addressed in the immediate aftermath. If we are serious about understanding how a community that has suffered a disaster actually copes, not just with its immediate impacts, but with the challenges of reconstruction (through rebuilding of lives, livelihoods, housing and so on), then we need to consider these issues after the passage of a reasonable length of time. This focus allows for a consideration of how disasters, with their immediate effects, interact with everyday factors of marginalisation, access to entitlements and social difference, over a longer period of time. Accordingly therefore, the focus of the study is not to carry out an impact assessment

of the super-cyclone or of any one flood, but to analyse how communities that have experienced these disasters(s) have accessed various resources over a ten year period in their trajectory to recovery.

It is this focus that has shaped the design of this study, which is designed to answer the basic question: “Have households been able to recover their livelihoods and housing to a state that is better than in 1999? Are they in a better position to face disasters now than in 1999? Why or why not?”

The definition of **recovery** adopted for the study is:

‘We would suggest that in order to have “recovered”, a household should have *not only re-established* its livelihood, physical assets and patterns of access, but *should be more resilient* to the next extreme event’ (Wisner, Blaikie et al 2004: 359, italics added for emphasis.)

Finally, in keeping with a holistic treatment of vulnerability and recovery, this research is concerned with the environmental and physical as well as the social and political dimensions of such processes. By **environmental**, the research is concerned with the nature of hazards and risk, micro-environments and geographies of selected areas and the use of physical resources. By **socio-political**, the study is concerned with an array of societal relationships (based on caste, class, gender, kin) and relationships with political actors (gram panchayat leaders, MLAs and MPs), government functionaries at different levels (Revenue Inspectors, Tehsildars, Extension Officers, Collector) and NGOs. It is more broadly concerned with the wider politics of how socio-economic and political resources are used by households to access key benefits from within the community, and from the state and other NGOs. Together, these provide the multifaceted set of issues that the investigation has been concerned with.

This is an in-depth and intensive research study based in two blocks within two districts within coastal Odisha: Erasama Block in Jagatsinghpur District and Garadpur Block in Kendrapara District. There are four selected wards in each block. The study wards in Erasama are close to the sea, and suffered a devastating blow in 1999. The study wards in Garadpur are inland; intertwined between the Luna, Chitrotpala and Paika Rivers. They face the added problem of recurrent flooding (2001, 2003, 2006), and the episode in 2008 affected them seriously. All eight wards represent the prevailing social compositions of the area, in terms of caste, and ethnicity (Bengali-Odiya in Erasama). Further details of the development of the research design are contained in the Introduction.

Importantly, as this research is *not* an evaluation of any one programme or project intervention, and not a documentation of success stories in the field, the selection of field sites was chosen without any specific direction from any organisation, governmental or non-governmental. However, extensive consultations were carried out prior to fieldwork with key stakeholders in Odisha at the state level in an induction workshop in Bhubaneswar, November, 2009. The study rationale and design were both extensively discussed and appreciated, and suggestions regarding possible field sites were solicited, and later explored.

The study is based on multiple research methods, both quantitative (household surveys) and qualitative (in-depth interviews, key informant interviews, focus group discussions). The sample size for the surveys is 240 households (30 in each ward). Fieldwork lasted six months, three in each ‘site’,

and follow-up trips were made. The methodology is discussed at length in Chapter 2. Each site has been characterised at length in Chapter 3, with details of its physical, environmental, social and economic features. Note that throughout the report ‘Erasama’ and ‘Garadpur’ refer only to the study wards in these blocks, and not to the entire block, i.e. we do not intend to generalise to the block level.

Key questions and organisation of report

Stemming from the core question around recovery, four further sub-questions have framed the investigation. These correspond to the four main elements encompassed within the definition of recovery that is central to this study: ‘We would suggest that in order to have “recovered”, a household should have not only re-established its **livelihood, physical assets and patterns of access**, but should be more **resilient** to the next extreme event’ (Wisner, Blaikie et al 2004: 359).

- How have *livelihoods* changed in the past ten years? How have livelihoods been affected by disasters? How are pressures affecting livelihoods being addressed?
- In what ways has the state of *housing* changed in Erasama and Garadpur since 1999? And will the state of housing in the present day make households any less vulnerable to cyclones (and floods) than in 1999?
- What are the factors that have impacted upon household *access to assistance* from the community, NGOs and from the state at different points since the 1999 super-cyclone till the present day?
- What is the state of *disaster preparedness* of people, both at the household and at the community level, in the present day?

Each question has been addressed through detailed but succinct analysis in five sections of the report. Section 1 introduces the project, discusses the methodology and characterises the sites; Section 2 considers livelihoods trajectories; Section 3 presents the analysis on housing and cyclone shelters; Section 4 details access to assistance; and finally, Section 5 concludes with a consideration of disaster preparedness and ongoing vulnerability, and their implications for recovery. Each section has several constituent chapters, with independent chapter-wise summaries and policy recommendations. The reader is advised to use these summary/recommendations sections at the end of each chapter to navigate through this detailed study.

Livelihoods

This section considers trajectories of agriculture (including prawn¹ cultivation), other farm livelihoods (livestock keeping, fruit trees), fishing, wage work including the National Rural Employment Guarantee Scheme (NREGS), and migration. The study shows that in Erasama the super-cyclone affected paddy cultivation both directly, through crop loss, damage to land and loss of means such as bullocks, and indirectly through increased salinity levels, leading many households to convert their farmlands in the following years to prawn gheris (farms).

On converting their land to prawn gheris, a majority of households have made substantial losses in prawn cultivation, after borrowing and investing heavily and losing their harvest to disease. Prawn

¹ The term prawn, rather than shrimp, has been used in this study. There is a debate about the usage of the terms. Some argue the two can be used interchangeably, whereas others argue the two can be differentiated.

cultivation by locals peaked in 2004, after which it has reduced. Farmers became indebted and many have been forced to change their cultivation pattern due to gheri creation. The food security situation in Erasama today remains precarious, for over ten years it has barely recovered to pre-1999 levels, but has not improved. Reduced landholdings, increased salinity, and poor management of fresh and saline water, i.e. drainage, irrigation, have been the main challenges, although improved paddy varieties may have helped improve yields. Land mortgaging is on the rise, which is a worrying sign of indebtedness.

The pattern of agricultural landholdings is changing in both sites, partly due to generational subdivision, with increased areas of land having become idle due to the super-cyclone or repeated flood events. In several of Garadpur's wards land has been rendered idle or cultivation schedules have changed due to the effects of recurrent flooding. Sharecropping is on the rise in Garadpur, as it is in Erasama. Under this agreement, the landowner invests little, whereas the tenant invests his time and resources, and faces a greater risk should disaster strike. Calamity Relief Fund (CRF) norms for crop loss compensation fail to recognise sharecroppers, and it is more difficult for sharecroppers to take loans from co-operative societies with in-built non-negotiable insurance payments. In this regard, steps have been taken to cover sharecroppers through the formation of 'joint liability groups', an area for further research.

This situation is worsened by the absence of appropriate assistance from various state departments: irrigation, agriculture, fisheries- in the research sites. Irrigation facilities are non-existent or decrepit, and agricultural extension officers rarely visit villages. Banks rarely serve as credit sources for households although co-operatives and Self Help Groups (SHGs) are performing a role in providing farmers with credit, though with limitations. The wider politics of fresh and saline water management has also compounded matters for marginal and small paddy farmers along the Erasama coastline.

Other livelihoods relating to livestock ownership, fruit cultivation and fishing (river and sea) are on the decline. Lack of pasture for animals, especially in Erasama, has been a key contributory factor responsible for the difficulty in restocking animals lost in 1999. Fruit trees have also declined in number in both sites, though to a greater extent in Erasama, and there is no evidence of any state assistance for replanting in the years after the super-cyclone. Sea fisherfolk are witnessing a decline in their catch and continue to receive no support from the government, directly with equipment or indirectly through infrastructure. Pisciculture – mostly on homestead land – is on the rise as the increasingly marginalised population strategise to improve their diets.

The National Rural Employment Guarantee Scheme (NREGS) is a near total failure if judged by its objectives, and is not serving as a necessary complement to local employment provision. The use of machinery is widespread, and contractors are using peoples' job cards to draw wages on their behalf, while passing on a portion of the wage to the job cardholder. Even as agriculture and related farm livelihoods are facing increasing constraints, migration is on the rise in both sites. The study considers the arduous and risky nature of migration, and the variable (though generally pitiful) amounts of remittances. It also documents the observable trend of the return of some migrants, following various difficulties in sustaining life while away.

Housing

The super-cyclone thoroughly destroyed strong *kutchha* (earthen) houses in both sites in 1999. Garadpur, being a little further away from the coast than Erasama, suffered comparatively lower levels of devastation. Even the stronger *kutchha* houses in Erasama were decimated thoroughly as a result of the seven metre high tidal surge. People struggled a lot in ensuing months to reconstruct their *kutchha* houses, living in a variety of makeshift shelters, most up to six months, but some especially in Erasama for more than 24 months. In 2010, there are more *pucca* (concrete) houses in both sites than there were in 1999. But there is a critical difference. There are more households in Garadpur with houses that are in a better state than there are in Erasama, and housing recovery is clearly more evident in the former site.

The evidence of improvement in Garadpur came in the latest 2008 floods, when nearly half of our sample (50 households out of 120 surveyed in this site) reported no damage to their *pucca* house, although, an almost equal number reported significant damage to their *kutchha* house. However, nearly all of them were able to seek shelter in a *pucca* house, including those of neighbours or kin in the village. There were a few exceptions nevertheless, and their circumstances embody a call for further action. For Erasama, the housing situation remains particularly grave, and in some senses worse than in 1999. People are generally dissatisfied with poor quality NGO-provided *pucca* houses that in their perception will not withstand even an ordinary cyclone, let alone a super-cyclone. They have also not reinvested in building strong *kutchha* houses, which before 1999 had shielded them effectively during regular intensity cyclones. Materials have become expensive, the soil needed for construction has become saline, and there is an abiding fear that should another super-cyclone occur, it would destroy their *kutchha* house.

The main factors for the situation in Erasama are to do with the challenges confronting effective NGO assistance for housing. Lack of involvement and ownership by beneficiaries has led to the gradual deterioration in quality of NGO-provided housing to some households in Erasama, though people do not admit to their part in this process and freely express their dissatisfaction with the 'poor' quality of these houses. Besides, severe problems in the implementation of the government's Indira Awas Yojana (IAY) have constrained households in both sites. But more households in Garadpur have been able to complete construction than in Erasama, and invest larger amounts in doing so, which further testifies to stronger economic opportunities around Garadpur.

Access to assistance

People relied on each other *during* the super-cyclone, and *during* flood events in Garadpur. Usual social barriers such as those based on caste generally broke down, giving way to numerous acts of generosity, but with some exceptions. However, people could not get any sustained assistance from within their communities, even on the basis of reciprocity, for reconstruction in ensuing months. This is because people generally found themselves in a similar situation of resource constraint.

NGOs helped with relief materials, psycho-social counselling, housing, food-for-work programmes and other support including livelihoods (following the super-cyclone). Assistance with relief and psycho-social counselling, wherever it was made available, was widely appreciated. But the study also raises key issues concerning NGO accountability towards their beneficiaries, and their ability to

coordinate with the government more effectively to move from reactive to proactive work in disaster prone areas.

State interventions, both specifically disaster related, but also more generally are the only sustained source of assistance available to households through the years. Relief is absolutely critical for survival right after the disaster, whereas ex-gratia assistance is a vital source of much needed cash assistance for households at a time (generally a few months after a disaster) when cash stocks are low to cope with the multiple demands of reconstruction. The provision and effective delivery of disaster relief after 1999 posed an unprecedented challenge. There were widespread problems with communications, transportation, looting and orderly distribution. Yet, this is an area that has seen considerable improvement since, with focused measures such as better communications between districts, blocks and gram panchayats; and better stocked gram panchayats and more secure delivery. The positive effects of these were perceptible during the 2008 relief effort in Garadpur, though some challenges remain.

The disbursement of ex-gratia assistance from the state's Calamity Relief Fund continues to pose serious challenges. While not compensation in a strict sense, assistance in this form plays a critical role for households suffering wide ranging losses in disasters (from kin, to housing, to crop, and means of livelihoods). The paying of bribes by people to officials (Revenue Inspectors, *sarpanches*) has been an abiding problem, typically aimed at getting the 'fully damaged' as opposed to 'partially damaged' rate for housing damage. The state government took very stringent steps to minimise corruption in 2008, and while this has made a difference, people and some officials continue to connive to subvert such measures. There are some serious issues with respect to the process of distribution of crop loss compensation, and sharecroppers are seriously disadvantaged.

The study also extends consideration to the key question of whether general state interventions for welfare, unrelated to disasters in particular, are functioning effectively in these disaster-prone areas. Access to Public Distribution System (PDS) rice and pensions by Below Poverty Line (BPL) households is patchy in both sites. A considerable number of households report problems to do with accessing these schemes (despite eligibility), similar to those witnessed elsewhere in the country. However in a disaster prone area, this can have severe consequences for the most vulnerable households. The analysis establishes that failures in accessing these critical schemes in fact make poor households more vulnerable to suffering the effects of the next major disaster. When poor households are deprived of basic minimum food security (through the PDS), or cash for survival (pensions), or wages through state-provided employment (as NREGS), or a good quality *pucca* house (through the IAY), then these collectively amount to a failure of entitlements that undermines their chances of long-term recovery since 1999, and of their preparedness for future hazard events.

There is growing awareness of entitlements on all fronts, especially with respect to the contractor driven malpractices concerning NREGS. But households are constrained by social relations, lack of information and apathy or worse, hostility, by richer/more influential actors in their communities. The government has on paper created ombudsmen etc., but people cannot and are not accessing these.

Disaster preparedness

The state government of Odisha, supported by agencies like UNDP, Red Cross and the World Bank has undertaken important measures for improvement in disaster preparedness. 23 Red Cross cyclone shelters along Odisha's coastline, although few in number, played a key part in saving thousands of lives when the super-cyclone struck in 1999. Since then, the state government (supplemented with resources from the centre and other agencies) has made the construction of well equipped and accessible cyclone shelters a key priority. 203 'Multi-purpose' cyclone shelters have been built till the date of this research, including 65 by the Indian Red Cross Society. There are also school-cum-shelters and shelters built by other state governments and agencies in the worst affected areas right after the cyclone, though the Odisha State Disaster Management Authority (OSDMA) does not involve itself in these shelters' operation and maintenance.

While increase in number of shelters is important, this report presents a micro-level assessment of the factors that are likely to impact upon actual usage should another cyclone occur. These are spatial, physical and demographic in nature, and also social to an extent. In the Erasama wards, wherever shelters are not in their own ward, people are afraid to travel to them only to find them over-filled by people from wards closer to the shelter. Other social prejudices (Bengali/Odiya, or high/low caste) can compound these basic apprehensions regarding space. The gravity of this situation is intensified by Erasama's acute vulnerability to cyclones/super-cyclone, and the rarity of strong *pucca* houses.

Garadpur being an inland block has thinner coverage of cyclone shelters, and people prefer to stay in *pucca* houses in their own village during flood events. However, capacity and access to cyclone shelters is an important issue here as well, especially for the most vulnerable households. A thorough study that examines the ratio of cyclone shelters to target populations is required in coastal Odisha. Simply emphasising numbers of cyclone shelters without correlating these to capacity is not useful. The state of school-cum-shelters, which are more numerous and more accessible to local communities needs to be drastically improved, starting with OSDMA taking them under its fold.

In the ten years since the super-cyclone, the state government, supported by other agencies, has undertaken an array of measures to promote community based mobilisation around disaster awareness and preparedness. Despite this however, there is a real deficit of preparedness and consciousness about preparedness at the grassroots. *Sarpanches* in vulnerable gram panchayats have not had even annual training, there have been few (if any) mock drills involving communities, and there is practically no equipment (radios, boats, other vehicles) held at the gram panchayat level. Funding constraints, according to OSDMA officials, severely curtail what can be done in this regard.

Community awareness about the risks of cyclones is understandably transformed since the fateful events of 1999, and people do and will take warnings seriously. Their strategies may be seriously curtailed by the lack of access to cyclone shelters. There are also constraints to the institutionalisation of community-level preparedness in the study wards. Community level committees are dormant (formed but never having had received training), and there are no community-level assets to systematically deal with a disaster warning, although many individual households do have small measures in place. On the whole however, people exhibit resignation to their luck and fate, rather than systematic or determined preparedness.

Conclusion

The larger message of this study can be contained in three main points, though each chapter includes specific conclusions and recommendations.

- The study reveals areas of concern as well as of improvement. Livelihoods present the most pressing area of concern, showing the least signs of recovery, especially in Erasama. Housing is a more mixed area, with at least Garadpur's households showing perceptible signs of recovery, though households in Erasama continue to suffer from poor quality *kutchha* and *pucca* housing. There are also important improvements in state level disaster preparedness, though much more needs to be done for institutionalising and substantiating such measures at the grassroots. Coverage of cyclone shelters has vastly improved, though micro-level access remains an issue for the population continues to greatly exceed the number of shelters.
- The study shows that the pursuit of two sites for research, sea-side Erasama and relatively inland, riverine Garadpur has been instructive for the understanding of recovery. The two sites are not strictly comparable as they have very different economies (with Garadpur's populace having better access to economic opportunities than remote Erasama's). However, for this precise difference, it has been possible to appreciate that in the longer-term, recovery is a function not just of the scale of the disaster, but also of the resources that people are able to access. Only studying Erasama, which suffered the brute impact of the super-cyclone, would have produced a more one-dimensional understanding of the challenges and opportunities for recovery. Besides, studying the significance of recurrent floods in Garadpur has provided a valuable extra dimension to this study, not least because it has allowed for a more recent assessment of how state responses to disaster have transformed since 1999.
- Finally, the study confirms that recovery is not a definitive state, rather a transient one that many poorer households struggle to achieve over time. In this process, their chances are most hampered by their inability to access state assistance effectively. The study confirms there is no substitute for effective state action, both disaster-related and general. Though there have been key improvements with regard to relief delivery and ex-gratia assistance, there are systemic failures in the performance of key state schemes: PDS, IAY, NREGS to name the principal few. Disaster preparedness in the broadest sense, and especially for the poorest and most vulnerable, can only be achieved when such state schemes function effectively.

Further areas for research

This wide-ranging study has thrown up a number of linked and further areas for research. A few major areas are listed below.

- More systematic research is needed on agriculture in flood prone areas, crop loss compensation and insurance-waiver schemes, and on how different categories of farmers are able to access two sets of subsidy/insurance. There is a particular need for emphasis to be placed on sharecroppers' access to new insurance schemes.
- A better understanding of the credit environment for farmers, and how this can be improved, is required. Farmers have huge debts, banks seem able to ignore state instructions to waiver debts, and households increasingly mortgage their land for tiny loans.

- The relationship between prawn cultivation and mangroves regeneration along coastlines, and implications for key tradeoffs impacting the poor and the ecosystem need to be studied. Identification of and purchase/confiscation of non-locals' gheris (farms), to replace them with mangroves would be an obvious, albeit politically difficult starting point.
- Gender sensitive research on the increased exposure of women to outside wage work and livelihoods strategies after disasters is thin.
- There is an urgent need for the government to consider the systematic dovetailing of IAY with NGO assisted housing in disaster prone areas.
- Poorer households are left to their own devices to rely on social networks to seek shelter during a disaster, which can sometimes fail to secure their safety. There is an urgent need to conduct community-led mapping of houses to identify those located in particularly risky spots. Action research to sensitise local communities to especially vulnerable persons/households living in these areas at the first signs of a hazard could save many lives.
- A cyclone shelter capacity/population feasibility study needs to be urgently commissioned. This could easily be done with the imminent (2011) census results assessed together with Google Earth satellite footage, and consultations with local people.
- Relationship between democratic processes (party politics, participation in decision making) and disaster management needs further research. This study highlights the damaging effects of business as usual political games and lack of local democratic participation upon disaster preparedness and recovery, and further understanding of this is essential.