

## Sea-born Disaster Risk Reduction, Governance and Management in Odisha

*Sitaram Kumbhar\**

*Smart management of disasters has emerged as one of focal research agenda among the social sciences. The study of disaster management remained moribund for decades. However, climate change has emerged as a serious concern for human civilization. These have started instilling interests among the scholars to study climate change. These changes have made climates unpredictable. The frequencies of tropical cyclones have increased coastal vulnerabilities. The sea level is rising and coastal areas are more vulnerable to cyclones. Hence, there is a need to have desirable long-term policies and ever-ready state responses. In this context the Odisha state deserves comprehensive empirical inquiry as to how the former has developed disaster ever-ready coastal communities. This paper is an attempt to analyse the evolution of a successful disaster model in Odisha which has been widely acknowledged.*

[**Keywords** : Sea-born Disaster, Risk reduction, Governance, Management]

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\* Associate Professor, Department of Political Science, Shyam Lal College, University of Delhi, Delhi (India) E-mail: <sitaramjnu11@gmail.com>

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## **1. Introduction**

Natural disasters are common in the present world and it is necessary to evolve response mechanisms by the states to protect lives and properties. Many state responses to natural disasters have come to the public limelight in recent years. The states across the globe have come to realize the fact that the natural disasters are going to be more frequent in coming years mainly because of climate change. The centuries of anthropocentric development paradigms have ravaged the environment to such an extent that they have started to worsen the lives of many, particularly living in the coastal areas of the world. The damage is so big that it looks irreversible. The scientists are predicting that if these trends are not reversed collectively by global communities things will lead towards catastrophic collapse. Whatever might be the causes of frequent disasters, it is necessary to study how coastal state governments in India are responding, managing and rebuilding every time cyclone-caused disasters devastate the coastal areas. This research project is an empirical study of Odisha Government's responses to cyclone-caused disasters. It has attempted to analyse how the state has gradually developed capability to face the cyclone-caused disasters.

## **2. State and Disasters : Understanding the Problems**

In today's world only politically sensitive events receive wider public attention than natural disasters. In coastal areas of Odisha many villages have disappeared, submerged and rendered barren due to cyclones. Cyclone-caused disasters receive public and media attention during the actual occurrence of the disasters and not afterwards. Frequent cyclone-caused disasters have weakened the economic backbone of coastal villages. Coastal Odisha's villages were fully dependent on agriculture but multiple cyclones affected these villages and suffered irreparable damages to their agricultural lands. What are the policies to support the livelihoods of these villages? In what ways does the Odisha Government respond to issues of displacements, destructions, rehabilitation, resettlement, rejuvenation of agricultural lands, immediate social security supports, infrastructure development for sustainable empowerment of local communities? What are long term and short term policies besides the zero-casualty model in terms of preparedness by the

Odisha Government? This research investigates these questions of capacity building by the state government in managing the cyclone disasters. How did the state government innovatively engendered through public policies a unique model to manage disasters?

Odisha was invariably dubbed as the backwaters of development for long but it has started to exhibit satisfactory progression in various sectors. The economy of the state has gradually improved its size and vitality and the state leadership believes that Odisha is no longer a BIMARU state (Government of Odisha, 2018). Once the state was at the bottom of all parameters development has improved significantly since the 1990s and particularly in the last couple of decades. The economic growth of the state in the last couple of decades has remained impressive and it has been growing faster than the national average mainly since 2003.

Indian federalism has ushered in diversity in the welfare accomplishment of different states, so is the case in combating a myriad of disasters and pandemic.

How have Odisha succeeded in improving its capability to manage disasters? Natural disasters have started to threaten the very existence of most of the states which are small in size. The vulnerabilities of the state have increased manifold primarily because of the remarkable changes in the global climate. India is surrounded by water in the east, west, and south. And due to rapid changes in the global climate it is natural that many natural disasters will keep appearing in different forms. It is hard to fully eliminate natural disasters from the earth but we can reduce vulnerability. In India the occurrence of natural disasters primarily emanating from the ocean in the form of cyclones are managed ineffectively by different states. However, Orissa has evolved into a successful model in terms of disaster governance and management in India which has been recognized internationally. The proposed research will empirically analyse the evolution of disaster governance and management with a main focus on Odisha's experiences.

Odisha has been a laggard story in the landscapes of governance literature in India. The dramatic and paradoxical emergence of the successful model of disaster governance internationally has brought the state into global limelight as a blockbuster successful model of disaster governance. How the state with the highest percent of households below poverty line despite many flagship anti-poverty

schemes has demonstrated capabilities to nurture good governance practices with substantial success. How a state with chronic blemished governance records in most fields has become champion of disaster governance when most states with good governance track records in other areas fail in disaster governance is an important conundrum of academic inquiry.

The natural disasters have become one of the undesired frequent visitors ravaging lives and properties of many in India. It is more so in the coastal states but the rest of the states are vulnerable to natural disasters emanating from different sources. Natural disasters-induced casualties in India have become common. In most instances, the disasters crepitate into the ears of our ruling elites after they have already caused irreparable havoc to mother earth, lives both human and non-human and properties. One of the sobering facts about disaster management is that aids reach the victims when it is already late. The Indian ruling elites have become synonymous with cunctation culture and embezzlement of public resources. However, footling they might be, governments after governments have been legislating new laws to remove corruption and improve human conditions.

Heartrending cases of siphoning off of resources and prejudice during natural calamities relief operation causes incommensurable damage to the victims of disasters. Some states experience more natural disasters than others in India but disasters have become a universal phenomena. Public responsiveness to natural calamities cannot depend upon the lenity of political leaders of different genres. It deserves robust institutions and mechanisms with adequate synergy among stakeholders. The national disaster management in practice has been reduced to one way traffic. A great deal of politics is involved in disaster management activities of India. Hence, it is essential to create autonomous agencies and insulate them from political interference. However, it is difficult to have such institutions in the short-run because many institutions grow from past experiences and build on it.

The disaster relief assistance from the Centre in recent past had caused invective, execrable and acrimonious verbal tussles between the Centre and disaster-victim states. The latter expects munificent relief assistance from the former in all cases of disasters. In the Indian scenario, greater synergy between the Centre and States is required to

fight debacles in post-disaster situations and institutionalising a disaster prevention policy regime in order not to reduce it to a competition between the Centre and the States. Most political parties, their sister organizations and leaders were vying with each other in sharing images of relief operations and how their affiliated organizations were contributing to it. It is highly ignominious that most political leaders attempt to refurbish the public image of their political parties by undermining the works of public agencies. This is how they want to remain in the imagination of the people and ensure a political future.

The relief, rehabilitation, rebuilding and resettlements in cases of disasters pay scrupulous focus to human issues and neglect non-human issues. The non-human matters both living and non-living are greatly subordinated to the former. How many animals, birds, forests are substantially perished as they are more susceptible to disasters are often a least concern for policy makers. The anthropocentric approach to disaster is both inhuman and unscientific. Our development approaches are also inherently anthropocentric which undermines eco-system and encourages unsustainable economic development. The environmental catastrophe which is making earth unsuitable for living deserves serious circumspection by all. The claims of nature, birds and animals are inveterately repudiated by the present 'development model' and the 'way of life' men have been practicing invariably. The centuries old traditional knowledge system which recognized the centrality of the environment, inculcated a sense of sustainability and respect for the entire animate world gradually got divorced from modern approaches of economic development. The more we are economically progressing and achieving scientific and technological progress the more we are becoming inimical to the holistic understanding of environment and development. Therefore, the problem is not the paucity of political will on the part of the governments alone but it is in the roots of approaches to development.

The history of humanity is synonymous with destruction of animals and forests. Technology and the current development model needs a moral compass to prevent overshooting and disciplining development. Things actually would have turned for the better if policy makers would not have played down the real proximity between environment and development practices. The acknowledgement of this fact in a collective spirit can bring in dramatic

changes. Battling unrelenting devastation of the environment requires radical revamping of our policies and development model. It is like rewriting our destiny amidst unprecedented challenges because it will require considerable lifestyle changes and by setting virtually overly-ambitious goals.

It is ludicrous that leaders and parties in an unfettered and asinine way claim that they can successfully manage post-disaster reliefs, rebuilding and rehabilitations works. Such hyperboles have abilities to capture the imaginations of wider public which conceal the real understanding of disaster management and failures to manage devastation caused by disasters in a holistic manner. Hence, we need to better understand disaster management practices through holistic approach and not just in standalone geocentric or anthropocentric ways.

The 'green economists and economic' have been loquacious about the duality of eco-centrism and techno-centrism. The economic development and disaster responses have been melancholically reduced to mere techno-centrism. The technological progress excessively focuses on organization, management, preparedness, response and minimize destruction during the disasters. The scientific and technological progress has not been able to protect the ecosystem to the extent it could have protected.

### **3. Odisha's Tryst with Cyclone-Caused Disasters**

The state of Odisha has been fighting cyclone disasters which come from the eastern coast (the Bay of Bengal). The media and overall expert views commend the state of Odisha for managing natural disasters like cyclones. There have been many cases of successful management of cyclone disasters and the very recent example is the management of Severe Cyclone YAAS. The severe cyclones are managed efficiently these days by the state government. The improvement in the state's capability can be attributed to the fact that compared to 1999 Super Cyclone where more than 10,000 people killed casualties subsequently has declined significantly to mere 3 casualties in 2021 when (YASS) a severe cyclone struck the state. Hence, the rapid progress in capacity building in disaster management has been one of the biggest hallmarks of the state.

The 1999 Super Cyclone is the century's most terrible cyclonic natural disaster which hit the state of Odisha. It made landfall in

Paradip on October 29, 1999 and caused enormous devastation. In a massive loss, more than ten thousand people were dead and over 3.5 lakh people became homeless, striving hard to get food for their existence. It was that day when wind speed of two hundred sixty kmph stormed for above thirty-six hours, failing the anemometer to record the data.

In between the 1999 super cyclone to severe cyclone YAAS, the state of Odisha has witnessed landfalls of a number of very severe cyclonic, like cyclone Phailin in 2013, cyclone Hudhud in 2014, cyclone Titli in 2018, cyclone Bulbul & Fani in 2019, and cyclone Amphan in 2020.

The disaster management by Odisha government, like timely mobilization of the disaster management team, senior officers were deployed to supervise rescue work, timely evacuation of low lying areas in advance, increasing cyclone shelter, medical teams were sent to cyclone-hit areas for immediate treatment of people. Odisha has not only managed the disasters proficiently but also succeeded in decreasing casualties.

#### **4. 1999 Super Cyclone**

Tropical cyclones are known to cause destruction and damage along with the coastal areas, around the location and time of the landfall. The devastation is due to strong gale winds, torrential rain, and associated tidal waves. Though the intensity and the frequency of the tropical cyclone over the north Indian Ocean are less than those over the Pacific and Atlantic oceans, more devastation was caused over the coastal areas of the Indian subcontinent because of the socio-economic conditions and the coastal topography of this region. For the north Indian Ocean region, prediction of the movement of the tropical cyclones is very important to initiate proper mitigation measures. Though the general behavior of the movement of the tropical cyclones is well known, it is desirable to have as accurate a prediction as possible of the landfall for effective implementation of disaster mitigation. For a long time, conventional synoptic methods are used for tropical cyclone forecasts. However, these methods are helpful, their effectiveness is limited due to the inconsistency of tracks of cyclones.

In the history of disasters in Odisha the Super Cyclone of (29-30 October) 1999 is singled out to be one of the devastating disasters

both in terms of intensity and areas affected. The Super cyclone “had unique features such as speedy intensification, a small radius of eyewall confining the giant surge close to the point of landfall, and a relatively long life after landfall” (Kalsi, 2006).

The fourteen districts of the state were battered due to the super cyclone. The roads, bridges, houses and all means of communication remained cut off for more than 24 hours. This caused total collapse to power supply as entire infrastructure such electricity poles and cable were washed away by the cyclone. It took days to reach the surviving victims of the cyclone as villages were cut off from each other, and from the local administration. There was a total disconnect with the district administration due to destruction of roads and the help in any form could not reach them. They remained in darkness for days together. The coastal railways also suffered interruption due to numerous damages to railway track. The only port located in the state (Paradip Port) also suffered excessive damage to its infrastructure and remained shut for many days. Similarly, the Bhubaneswar Airport was forced to be closed for operation as multiple air traffic control equipment were battered by the cyclone. Airport started operation from second November 1999. Many important research institutions and public facilities located in the coastal districts were affected. Some infrastructures of the Department of Ocean Development and India Meteorological Department including IMD’s Cyclone Detection Radar (CDR) at Paradip got dilapidated. Heavy rainfall along with cyclones caused multiple irreparable destruction. The heavy rainfall in the neighboring districts also damaged standing crops. The Gangetic West Bengal also received heavy downpour. Heavy downpours in these districts created floods and havoc. The Erasma block of the Jagatsinghpur districts in coastal Odisha was severely affected. The administration could not shift them to a safe place before the landfall of the super cyclone. There was no preparedness to actually confront the super cyclone by the state government and the district administrations. Neighboring districts like Balasore were affected by the floods which was the northernmost landfall of the super cyclone. Over twenty-five international NGOs were involved in the relief effort.

Leadership is central to endorsing an efficient response system also as responding to complacent world views. The state government stepped in and provided the disaster-ravaged state a much needed



leadership it deserved. It prioritised disaster preparedness by injecting motivation into the state civil servants. He started Disaster Preparedness Day for the state from the year 2000 onwards on 29<sup>th</sup> October. This started infusing among the local bureaucracy and local coastal communities the culture of disaster preparedness to a significant scale. The disaster management culture came in the long run due to long term efforts of the state with huge investment in erecting infrastructure such as cyclone multipurpose shelter homes. International financial organizations financially supported the efforts of the state to make the state ever disaster-ready. (Ray-Bennett, 2016).

## **5. Anatomy of a Successful Disaster Mitigation and Management Model**

The new narratives of successful governance that we are hearing are embedded in the state's past experiences of fighting disasters. Among many inspiring governance achievements of the state in the immediate past, disaster governance, management and risk reduction stands alone as a global success story. Why the state with limited resources is comparatively doing better among Indian states in fighting COVID-19 lies in its capacity building infrastructure, and disaster fighting world-view.

The worst ever super cyclone which battered the state on 29<sup>th</sup> October 1999 is a turning point in the post-colonial history of the state which as per official figures killed 10000 people. It affected over 13 million people, washed away houses, livestock and other valuables of the coastal districts of Odisha. It spelled a catastrophe on the state's economy and lives and properties of those affected by the cyclone about which one can elucubrate at length.

The lackadaisical attitude of the state machinery was clueless in responding to the highest intensity and destructive potential of the cyclone. The Indian Meteorological Department informed about the impending cyclone to the concerned officials at the Centre and the Chief Secretary of the state well in advance. The head of state bureaucracy had the responsibility of galvanizing the big bureaucratic apparatus to face the impending disaster. When the cyclone made landfall the state officials and state machinery became dumbfounded and at the last moment could not communicate with local level officials from the state headquarter because all communication links abruptly collapsed. No evacuation of people

took place to protect them from nature's fury. The worldview about the disaster or emergency response system of the state was mired in a myriad of complexities, lack of coordination between state and Central agencies, local and state machinery, and a total disconnect with people.

The disaster management and governance world view never thought people to be integral to disaster preparedness and response systems. People and communities were not integral to relief measures undertaken during the disaster. Astonishingly the senior state bureaucrats directly concerned with the post-disaster relief operation had proceeded on leave. The state/governance failure was not confined to disaster management alone. Pathetic state of governance was the hallmark of the state and was the epicenter of bad governance, corruption, starvation deaths, hunger and poverty. The turning point in Odisha's disaster fighting endeavor began with the establishment of the Odisha State Disaster Management Authority in the aftermath of the super cyclone in December 1999. It was established ahead of the Disaster Management Act of 2005 and the establishment of National Disaster Management Authority (NDMA) in 2001.

The state realized that institutional architectures, capacity building and preparedness are the key to face the cyclonic disaster to which the developed and comparatively prosperous parts of the state were vulnerable. The development of institutional architectures did not happen in a year or two; it was with continuous efforts, and the will power of the state government, in the long run it could build a robust disaster response system.

The robust disaster response system and institutional architectures developed in evolutionary process building on the previous accumulated skills and experiences. The bureaucrats in the state enjoy utmost autonomy in the state with least interference of the state government and local political leaders. This encouraged a chunk of committed bureaucrats to give their best by innovating and developing newer ways of tackling disaster menace. Similar developments in welfare delivery mechanisms were witnessed with newer innovative initiatives by bureaucrats who found space to maneuver. The top level state leadership backed the bureaucrats which gradually transformed into efficiency, transparency and better targeting in the Public distribution System. Recognizing the significance of bureaucracy in welfare delivery the state leadership nurtured the bureaucratic talent.

The state government went ahead with changes in the service conditions of the state government servants and particularly the state civil servants. The government incentivised them by upgrading the salary and other services conditions at par with the Central Government and the Grade B Civil servants were upgraded into Grade A Civil servants. The top level bureaucrats provide leadership but the local level bureaucrats have a daily interface with the public and are directly involved in the execution of public programs.

In this process, the state bureaucracy got motivation to give their best. Fighting disaster required a unique pool of bureaucratic talents and skills which the state developed as a first step towards capacity building in terms of human resources. It established Odisha Disaster Rapid Action Force (ODRAF) in order to assist the civil administration in multirole. The ODRAF have been equipped with modern implements and skills to handle various disasters. The ODRAF is an integral part of disaster preparedness. The Disaster Management Training Cell, State Institute of Disaster Management, GO-NGOs, seminars and conferences, Training and workshop, and Aapada Mitras are continuously working towards capacity building.

State in collaboration with international institutions invested and built disaster resilient physical infrastructures like houses for residents living in proximity to the high tide zones, and building for multipurpose cyclone/flood shelters. The continuous training and skills enhancement nurtured capacity building of the human resources in a big way. Disaster resilient infrastructures and preparedness of the concerned agencies such as: ever-ready ODRAF, Early Warning Dissemination System (EWDS), Doppler Weather Radar DWR, Lightning Detection System, satellite phones, shelter building, Multipurpose Cyclone/ Flood Shelters, Shelter Equipments, Cyclone/ Flood Shelter Management & Maintenance Committee (CSMMC/ FSMMC), disaster resilient houses, One Stop Risk Management System, and monitoring cell constitutes the backbone of the disaster mitigation mechanism developed in the state.

The involvement of communities, non-governmental organizations and volunteers through continuous interactions with them helped garner active community participation. The processes of disaster mitigation and preparedness must develop strong synergy and interface with the local communities to succeed which the Odisha model could achieve. It sees people as an integral part of the disaster

mitigation and preparedness, not as a problem. It helped in precise and direct communication with the people in times of disasters. Coastal populace gradually became integral to disaster preparedness and disaster mitigation. It transformed into a workable model of disaster preparedness and mitigation, saving precious lives and properties. Institutionalisation of the unique governance model gave a leg up to the morale of the state government in facing severe disasters.

It added to the genesis of an indigenous “Zero Casualty” model of disaster mitigation. The “Zero Casualty” model strives to protect all human lives even during the worst kinds of disasters. Hence, the state without taking any chance evacuates millions of people in a short span of time to safe shelters. The state machinery evacuated 12 lakh people during Cyclone Fani; more than a million during Cyclone Phailin; and state machinery is fully prepared to evacuate over 11 lakh people in the ongoing Cyclone Amphan following the “Zero Casualty” model amidst COVID-19 challenge. The state machinery is alert and ever-ready to face disaster and committed to rebuild a better state every time although post-disaster rebuilding requires more resources.

Margareta Wahlstrom, UN Special Representative of the Secretary General for Disaster Risk Reduction said: “The Odisha government managed to reduce human deaths during Phailin by evacuating around one million people from the seaside areas. The authorities also made people aware of the areas which were vulnerable and saved many lives,”. UN Said : “Today, Odisha is a global leader in disaster management and risk reduction”. It suggests that Odisha has done remarkable in reducing disaster risk reduction. In previous extremely severe cyclone Fani would have caused thousands of deaths but due to the policy and disaster governance model that Odisha has evolved, lakhs of people were relocated to safer places and the casualties could be reduced to a significant extent.

The state’s well-functioning disaster risk reduction (DRR) system which includes preparedness activities by families, communities, governments and non-governmental organizations (NGOs) have developed a solid disaster risk reduction model. Odisha was invited to Japan to share its experiences in the evolution of the successful model of disaster risk reduction (DRR). In most cases state mechanisms rise up after the disaster already caused huge irreparable

havoc to lives both human and non-human and properties but in case of Odisha it is a matter of the past now.

The sobering facts about disaster response are that aids reach the victims when it is already late. Embezzlement of resources is common in many cases. However, footing they might be government after government have legislated new laws to remove corruption and improve human conditions. But many of them fail to realize their objectives.

This successful disaster management and governance model of Odisha has received International attention and lots of international organizations have recognized this as a successful model worthy of replication in other nations of the world in meeting the disaster challenges. United Nations development programme UNDP and United Nations Disaster Relief Organization you and Aao 1992 to another view of disaster management is a major policy document which have attempted to incorporate various practices of disaster governance internationally. Most Nations are concerned about the sea-born disasters.

India has membership with many international agencies in the field of Disaster Management Services Global platform for disaster risk reduction GPDRR, United Nations disaster assessment and coordination UNDAC, International Search and rescue advisory group INSARAG, United Nations office for the coordination of humanitarian affairs UNOCHA. Big Global facility for disaster reduction and recovery is a global partnership program administered by the World Bank group.

There is an increased politicization of disaster relief operations and more particularly the Central assistance to the disaster-victim states in the absence of settled parameters to convert the destruction in monetary terms. The motivation of agencies engaged in rescue operations suffers due to politicization and lack of coordination and synergy between the existing agencies at different levels. In many cases, the agencies are not adequately equipped to prove their vitality during relief operations. These create inordinate delays in reaching the victims after the actual occurrence of the disaster. The State Governments demand more assistance from the Central Government not merely because they are resources-less but the real rescue, rehabilitation and resettlement are long-term activities and for more fiscal resources than previous estimations. A post Disaster Needs

Assessment (PDNA) by a UN team in an estimation suggested that Kerala would require Rs. 27,000 crore in the coming five years to rebuild following the devastation caused by recent floods (Krishnakumar, 2018). The rescue operations take less time than rehabilitation and resettlements. The rebuilding of infrastructures takes years but Central assistance is often confined to immediate relief operations.

The post-disaster works by the State Governments require far greater resources. This issue deserves a revisit by the Centre through appropriate legislation. The Central assistance whether it is in human resources, materially or monetarily must introduce undisputed parameters to overcome this contestation. It is one of the ignominious problems of disaster management policy in India. India is both democratic and somewhat federal nation. But we have not been able to build vibrant, autonomous and federal institutions to meet the growing challenges of disasters. In the absence of such institutions it is hard to fix responsibilities in the disaster management process.

## **6. Conclusion**

It's not easy to face the challenges posed by the cyclone-caused disasters without preparing local communities. In the process of fighting the cyclones the first thing the state government did was to prepare the local communities for any future eventualities arising out of cyclones coming from Bay of Bengal. It did so along with the development of sustainable infrastructure. Destruction of infrastructure due to cyclones and floods coming from the bay of Bengal was a common phenomenon. It weakened the economic backbone of the coastal villages. It was also a big economic burden for the state which is at the lowest ladder in most parameters of development in India. Minimizing destruction of infrastructures, livestock, lives and properties deserved immediate attention of the government. It started erecting durable infrastructure or cyclones resistant infrastructure.

One should not be ebullient about the disaster policy governance and risk reduction successes in Odisha because it lacks resources to cope with invariable incidences of disaster in the long run. In India's federal polity a single state cannot maneuver and succeed in all its initiatives because most of the states lack sufficient resources to meet the unforeseen exigencies particularly in the

management of natural disaster. Disaster management needs joint efforts by the state government and central government or among the state governments. In fact most of the policies in India have certain Federal characteristics.

Therefore, any success in disaster management must involve a multi-pronged approach with the involvements of centre and states. Despite all paradoxes, Odisha has emerged as a successful example in disaster management. How have Odisha evolved innovative changes in addressing disaster? The disaster governance management and state policies are anthropocentric in nature which neglects nonhuman claims in the management and Governance of natural disaster. In the Indian Union few states have managed both natural and man-made disasters in a successful manner. How policies succeed and fail in a democratic polity like India is a chronic question for policy makers and administrators.

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