Orissa Super Cyclone 1999: Preparedness Strategies for Community through CSR Initiatives at Paradeep Phosphate Ltd., Paradeep

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Abstract

Orissa, being situated on India's east coast abutting the Bay of Bengal is extremely vulnerable to multiple disasters. The continual developments of natural disasters affect every sector of socioeconomic life together with the industrial sector. Therefore centered attention is needed for risk mitigation endeavors to consistently scale back the vulnerabilities by Corporate Social Responsibility (CSR). Perceiving the gigantic extents of the test presented by repeating rate of normal fiascoes, affiliation, and contribution of corporate division and their agent nodal associations for starting calamity hazard the executive's measures have been considered as fundamental to the achievement of the debacle of the board activities. This paper examines the impact of Orissa Super Cyclone 1999 in terms of infrastructure and involvement of the corporate sector in Jagatsinghpur, Orissa. With the aim of highlighting the social and psychological change after implementation of various developmental programs by the Government of Orissa through the CSR of Paradeep Phosphate Ltd., which was effective to combat Phailin and minimize its post-disaster impact. Community participation is a critical element of sustainable disaster management to develop a model integrating the Community Based Disaster Preparedness and Mitigation Process with the now-familiar Corporate Social Responsibility initiative.

Keywords: *Corporate Social Responsibility, Community Participation, Disaster Management, Disaster Preparedness Strategies*

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1. Introduction

Orissa, situated on the eastern coast abutting the Bay of Bengal is extremely vulnerable to multiple disasters. Due to its sub-tropical location, the state is vulnerable to tropical cyclones, storm surges, and Tsunamis. Its densely inhabited coastal plains are the alluvial deposits of its river watercourse systems. The rivers in these areas with a vital load of silt have little carrying capability, resulting in frequent floods, alone to be joined by broken embankments. Though an outsized part of the state comes under the purview of Earthquake Risk Zone-II (Low Damage Zone), the Brahmani Mahanadi Graven and their low triangular areas come beneath Earthquake Risk Zone (Moderate Damage Risk Zone) covering forty-three out of the 103 urban native bodies of the state. Other than these normal dangers, human-induced fiascos such as mishaps, fire, etc, vector-borne fiascos such as scourges, creature infections, and bother assaults and mechanical/ chemical fiascos include human enduring. Some commonly suspected outbreaks were of viral hepatitis (55 outbreaks; 1223 cases) followed by dengue (45 outbreaks; 1185 cases), chickenpox (30 outbreaks; 421 cases), viral encephalitis (27 outbreaks; 930 cases), measles (23 outbreaks; 464 cases), chikungunya (10 outbreaks; 593 cases) and rubella (1 outbreak; 60). The outbreaks peaked in frequency and intensity during the months of July and September in Orissa. The epidemiology of viral disease outbreaks in the region. Preparedness of health system based on evidence is essential for early detection and adequate response to these outbreaks.

2. Selection of Field of Study

The multi-Hazard map of Orissa demonstrates the vulnerability of the state. This overlapping nature of the hazardous zone played an important role in selecting the district for our study. This decision was coupled with the Orissa Super Cyclone, in which the Jagatsinghpur district was the worst hit has influenced the selection of our study locale. And, the Blocks where the field-work was conducted are Kujang, Ersama, and Balikuda of the district.

2.1 Orissa Super Cyclone and other Disasters in 1999

The state of Orissa severely faced a series of major catastrophes in 1999. There were extreme floods in August, which influenced seven beachfront regions. At that point,

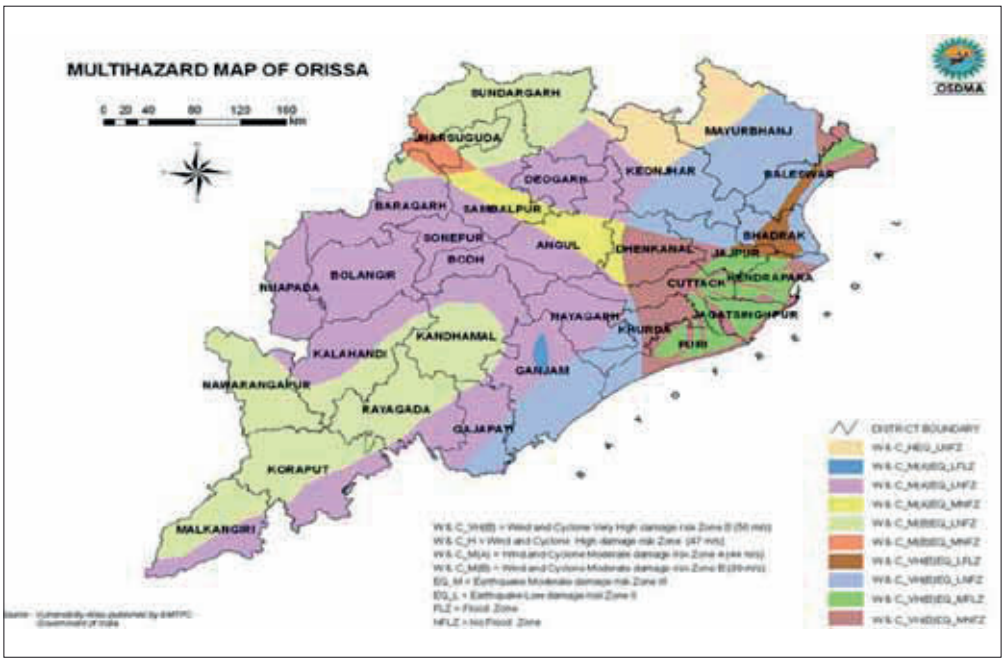

Figure 1: Multi-hazard Map of Orissa

in October, inside a range of only 11 days, 14 areas in the state were crushed by two typhoons. The main typhoon, kept going for the time being from seventeenth to eighteenth October 1999, was delegated an extreme cyclonic tempest with wind speeds arriving at 200 km for each hour. The subsequent typhoon, from 29 to 30 October, was an uncommon tornado of calamitous power, with wind paces of 300 km for an hour. It cleared the whole Orissa coast, influencing 12 areas and parts of neighboring West Bengal, destroying a 250 km stretch of eastern Orissa's coast. Ten thousand individuals were accounted for killed and a huge number more crushed.

The savage violent wind cleared the state with supported winds of 160 mph. It was the most exceedingly bad tornado in meteorological history; with one of the most elevated wind speeds ever recorded 223 mph. It endured 24 hours when most tornados final now not than three. The storm heaved 30-feet waves onto shore, washing absent whole towns, straightening mud cabins, and drowning thousands who overseen to outlive the effective winds. The super tornado uncovered the individuals and the scene to the effect of three natural disasters: Storm surges, High-speed wind, Heavy torrential

rain. These brought about three distinct impacts: (1) physical devastation; (2) saline inundation; and (3) flooding.

Within the recorded history of violent winds for the State of Orissa, the Super Violent wind of 29-30 October 1999 was without a doubt the foremost serious one. It had a few special highlights such as quick escalation, a little span of eye-wall restricting the huge surge near to the point of landfall and moderately long life after landfall. Climatologically there's a tall recurrence of dissemination of tornados in October since of solid easterly winds on high. Cyclone genesis more often than not ends at the organization of minimal violent winds. Sometimes improvement of tornados to hurricane drive winds and higher happens in September and October months because it happened in 1831 and 1885.

The official death toll was 9,893, but there were challenges in making precise gauges and nearby individuals demand the ultimate passing number was much higher. Entirety towns along the ocean and Ersama piece of Jagatsinghpur area were washed. No one knows how numerous individuals were misplaced. The violent wind too crushed the job of the coastal state's cultivating community and soaked more than 1 million hectares of cropland beneath salty water and killed 406,000 animals. Millions of individuals who squeezed out their living were cleared out destitute. The violent wind destroyed the agrarian community. All paddy areas, sugar cane, and vegetable crops were crushed. Around 11 million individuals, about one-third of the state's populace of 35 million, were assessed by the UN organizations to be straightforwardly influenced, having misplaced their shelter, crops, cattle, and livelihoods.

Table 1: Districts with Maximum Human Casualties (OSC 1999)

District	Human Casualties	Population affected		
		Total	Rural	Urban
Jagatsinghpur	8,119	13,62,760	15,99,295	64,117
Cuttack	471	24,17,048	18,47,923	5,69,125
Kendrapara	469	13,70,000	13,03,200	75,800
Puri	303	15,63,000	13,70,000	1,93,000

Source: "Orissa Super Cyclone 1999", National Center for Disaster Management

Table 2: Districts with Maximum Washed away Houses (OSC 1999)

Name of District	Fully Washed Houses
Jagatsinghpur	12,124
Balasore	11,483
Kendrapara	276
Mayurbhanj	262

Source: "Orissa Super Cyclone 1999" National Center for Disaster Management

Table 3: Districts with Damaged Boats and Nets (OSC 1999)

District	Boats	Nets
Chilika Lake	7,560	11,599
Jagatsinghpur	6,988	16,271
Kendrapara	6,354	8,905
Puri	3,181	7,945

Source: "Orissa Super Cyclone 1999", National Center for Disaster Management

Table 4: Districts with Maximum Number of School Damaged (OSC 1999)

Name of Districts	No. of School Damaged	
	Primary School	High School
Jajpur	2,115	208
Ganjam	1,972	315
Cuttack	1,617	424
Balasore	1,288	152
Jagatsinghpur	1,111	275

Source: "Orissa Super Cyclone 1999", National Center for Disaster Management

Other sectors which were badly affected by OSC were:

i. ***Agriculture Sector:*** OSC has completely devastated the agricultural base and logistics in the affected areas of *Orissa*. In coastal belts, due to high tidal waves, the standing crops were damaged affected 15 lakh families and the worst affected areas were Jagatsinghpur, Cuttack, Kendrapada, and Puri districts.

ii. Loss of Livestock: More than 0.4 million cattle were killed by the super cyclone. Cattle death was reported highest in Jagatsinghpur(Highest), Kendrapara, Cuttack, Khudra, and Puri.

iii Infrastructure: Complete collapse of communication networks and the surface communication was hampered due to damage to the Road and Rail network. The water supply system and irrigation infrastructure were adversely affected. Drinking water sources were either destroyed or contaminated by strewn carcasses compounded the already vulnerable state of the populace.

iv. Research Institutions: Research Institutes and all facilities in the coastal area were severely damaged by the super cyclone.

3. Community-Based Disaster Preparedness (CBDP) Model in Orissa

Sensitive communities have been at the frontline of disaster management operations in Orissa on various occasions due to the training and skills they receive from governmental and non-governmental agencies. Community preparedness is not limited to their participation in disaster management activities alone, it takes care of the effective and active cooperation of the community members with the local and national disaster management authorities. Lessons from past disasters are also kept in mind while designing prevention and response strategies. Orissa had witnessed a Super Cyclone which led to the loss of 10,000 lives in 1999. The unfortunate experience propelled the state to build multipurpose cyclone shelters along its 480 km long coastline, equipped with community kitchens and life-saving equipment. The shelter offers all type of services that are required during emergencies and have allotted announcement vehicles. Some buildings have also been designated as cyclone shelters so that evacuees do not get scattered at different locations but can stay within their communities. Achieving the goal of "zero casualty", Orissa completed one of the biggest evacuation activities in human history, moving around 1.2 million people just before Super Cyclone Fani in 2019.

As a result of the Pilot Orissa Disaster Management Project, a local disaster management (preparedness and mitigation) system was installed within the 10 Blocks from the Block level to the Gram Panchayat (GP) to the village levels. Increased level of appreciation, especially with case stories of successful disaster preparedness activities

in the June 2001 floods and November 2002 cyclone threat, has increased the demand for the replication of the preparedness and mitigation activities in other Blocks within the coverage districts of the Project and for the other districts in Orissa.

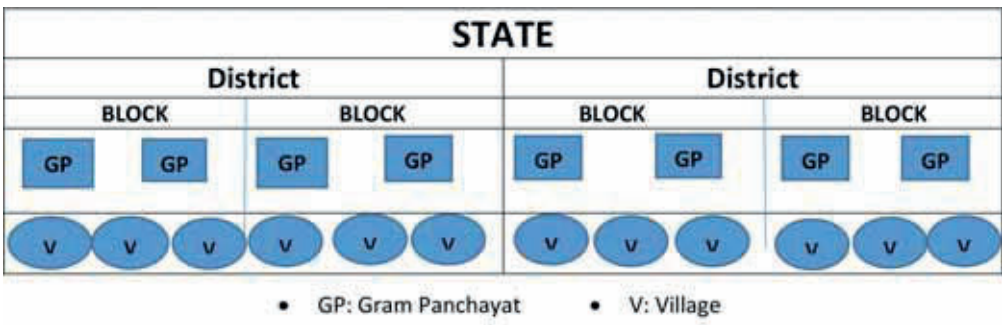

Figure 2: Diagrammatic Representation of CBDM

Community-based disaster management (CBDM) encounters have indicated that when villagers comprehend "what to do to and how to ensure them," especially after the experience of a major disaster such as Super Cyclone of 1999, Floods in 2001, and 2009 and Phailin in 2013, they can proceed and continue the procedure.

4. Corporate Social Responsibility: With Special Reference to Paradeep Phosphates Ltd.

The Paradeep Phosphate Ltd. (PPL), has focused on improving the quality of life in the communities around. PPL perceives acknowledged obligation of being an impetus in the financial change process, through specialty intercessions that supplement the administration's endeavors in various sectors. PPL accepted that prosperity should be shared. Being proactive and aware of our commitments denotes our endeavors intending to comprehensive development – connecting through inventive network-based intercessions. With a focal point of comprehensiveness, a system that empowers investment of key partners, a proactive methodology, and a drawn-out vision of change – we work inside socio-legitimate structures, in a period serious, process-driven way. Activities of PPL could be categorized under various heading along with a glimpse of initiatives:

Peripheral Activities: The PPL is focused on the turn of events and government assistance of the bigger network in its zone of activities. The organization proceeds with its endeavors for country uplifting with a large group of projects and intercessions. As a commitment for the government assistance of detainees of the Nivedita Ashram Orphanage, a lobby with appended latrines, a recreation center for open use, fixing old clinics, and giving facilities are simply few instances of initiatives.

Health: With a target to provide awareness and assistance health camps are organized by PPL. There are especially focused camps like Diabetes Camp conducted in collaboration with Kanungo Institute of Diabetes Specialties.

Education: Apart from community outreach activities, there were initiatives where PPL distributed study kits in the schools located near the plant site.

Community: The PPL's progressing community activity in two Gram Panchayats – Bagadia and Mangarajpur, covering 11 towns at Paradeep has established an essential premise by a child-centric approach. The strategic vision is to give a stage to aggregate activity all together that at least two towns can be created as model towns in a range of three years. While a few sources of info particularly regarding exercises, activity research and participatory occasions are being led in the effort towns, the attention is on basic contributions to training, wellbeing, water, and sanitation, and occupation (in light of improvement plans made by a network of individuals who organize their felt needs) in 2 towns as an exhibit model. The PPL has been working as an organization, with the Forum for Integrated Development and Research (FIDR); and, helped by nearby Panchayati Raj Institutions and a regional organization.

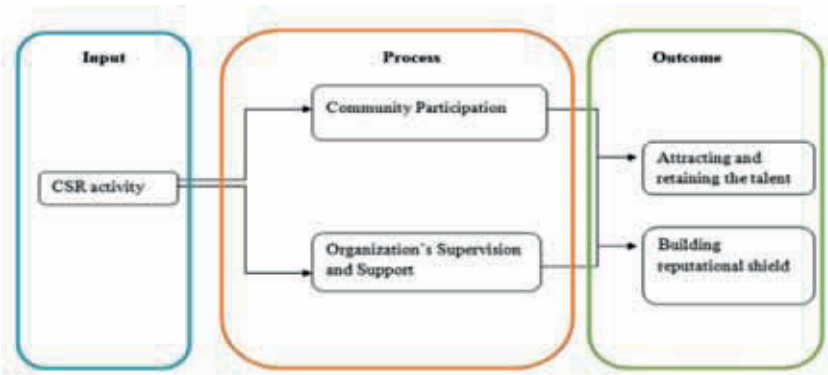

Figure 3: CSR Activity and Final Outcome Focused in Long Run

The data gave us a relative report between both the twisters. The way that the Government of Orissa and the CSR wing of PPL are taking care of the circumstances is worth appreciation. The investigation caused us to comprehend that mindfulness assumes such a major job in dealing with a debacle circumstance. Being a Disaster Management master, it turns out to be significant for us to comprehend these measurements. With all this, we ended our discussion by thanking them for their precious time and information that they have shared with us.

i. ***Psychological:*** The fear of cyclone was evident and the memory seemed to be new. The impact depends upon the damage caused to the community. During the discussions, Phailin was never given any priority. Since everyone was prepared, therefore the damage to life was zero. This was reflected in the form of confidence to face any other disaster. Hence the villages required a psychological habilitation program to prevent the impact from being carried by the next generation.

ii. ***Lack of Financial Institutions:*** The presence of financial institutions was found to be very negligible. Insurance companies, banks, and other financial institutions could not perform well during that period.

iii. ***Insurance:*** There was increased demand for insurance, but when compared to the size of the community,it was negligible. Hence a wide scope for insurance and a better way of disaster preparedness is required.

iv. ***Community Participation:*** Community participation in our opinion was more noticeable at Nuagaon. During the visit to a Multi-Purpose Cyclone Shelter hub,

the condition of the toilets and rooms seemed to be degraded. The responsibility for the maintenance was not taken care of by the officials or the local people. Whereas the condition at Nuagaon was far better along with the training sessions; and, the awareness level among the women groups was quite high. Besides, it had Self-Help Groups to take care of the civic amenities, sanitation, and livelihood interventions in the villages by companies like PPL added to their competence. The SHG at Nuagaon was well versed with the strategies for mother and child care. This was missing in the nearby regions. Though the need of SHG and plays a vital role in bringing awareness among the most vulnerable group of the society, i.e., women and children.

v. ***Awareness:*** Awareness about disaster management was found to be quite high among the masses. The importance of communication channels like roads, telecommunication devices was more. Awareness for the forest was observed and its need is being felt. But due to industrial intervention, people also understand the hazards which are present in the region.

vi. ***School-Based Disaster Reduction Plan:*** Schools in the villages were found to have a good infrastructure. This followed the guidelines of School-Based Disaster Risk Reduction.

vii. ***Sanitation:*** Sanitation and other interventions by PPL were appreciable. This ensured control over the diseases caused due to unhygienic sanitation conditions. Reducing the impact could be caused after the disaster occurrence.

viii. ***Lack of Strategic Interventions:*** The interventions of PPL and its reputation was found to be far better than the other organizations in the villages. Still the interventions were more philanthropic in nature and increased the dependency of the people on the organization's intervention.

ix. ***SHG Model Adopted was Multifunctional:*** The SHG functioning performed activities including disaster preparedness and livelihood generation, e.g., Nuagaon.

x. ***The Need for Infrastructure:*** There is a need to build more cyclone shelters, which would help and result in both direct and indirect benefits. Thus, the need to build more Multipurpose Cyclone Shelters to provide refuge to the vulnerable people in the study locale is justified.

xi. ***The Negative Impact of Support and other Government Programs:*** During a disaster, the support and other relief activities are the only support to bring back life to the

mainstream. But the negative impact could be observed in the long run where people take initiative to build basic requirements. Like building the concrete houses and other types will bring other basic requirements. There is a lack of coordination when it comes to bringing any change for preparing a self-dependant sustainable model. In terms of financial backup or integrating people into the financial system, the maintenance function should be taken up by the community. But this was perceived ignored, as they passed the responsibility of maintaining Multi-Purpose Cyclone Shelters (MPCS) to the government officials. Even today people seemed to be relaxed by being very sure there is no need to have a developed model that should need the least dependence on the external relief. It's apparent that the villagers have been ignoring the fact that disaster preparedness needs proper advanced health and education systems to tackle the debilitating effects of emergency through awareness building of the local community. Besides, overlooking recovery function from the impact in the minimum possible time amounts to passing the buck to the grassroots bureaucracy.

5. Suggestions

i. ***Core Competency:*** The main strengths or strategic advantages of a business enterprise include the core competencies in conjunction with pooled knowledge and technical capabilities which would allow a business to be competitive in the marketplace. Theoretically, a core competency should allow a company to expand into new end markets as well as provide a significant benefit to the customers. It should also be hard for competitors to replicate. Therefore,PPL has its strength in fertilizers, giving a cutting edge towards hazards and proper application of research inputs.

ii. ***The Benefits to Organization:*** Redefine new practices in the disaster-prone coastal region. In point off act, people in the nearby areas would be the main beneficiaries. And most important, it will help in building a reputational shield for the organization's employees. This process can be viewed and well understood by the diagram above.

iii. ***Need for Partner Organizations/Village Groups:*** Like all other interventions will not be included in the competency of PPL/organization, the partner and village group organizations in a few vital sectors will be benefited.

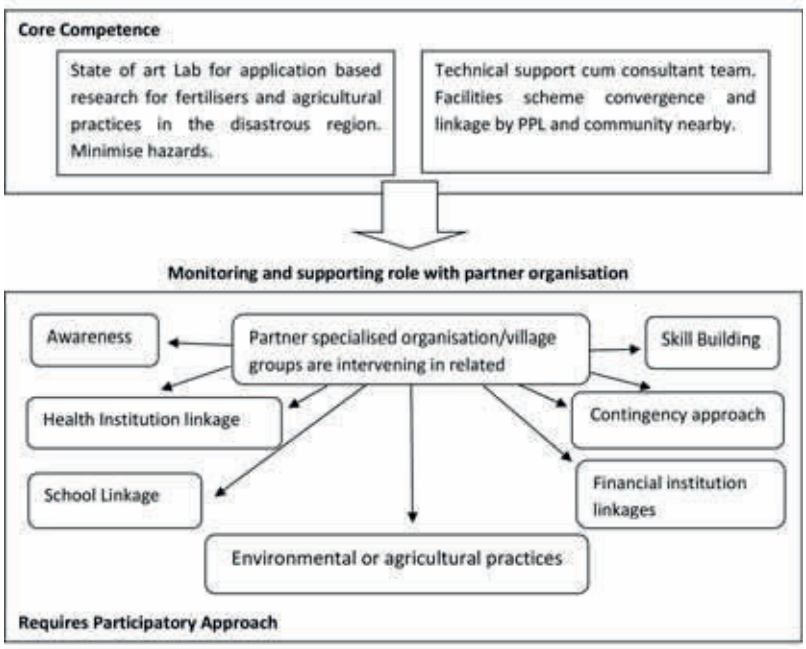

Figure 4 : Proposed Model

iv. ***Awareness, Skill-building Contingency Practices:*** These applications directly deal with disaster management practices. In the main, the skill development could have a diversified intervention in developing skilled laborers for the organization and empowering the vulnerable class of people.

v. ***Financial Institution Linkages:*** The know-how of fiscal practices and linkages to the financial institutions are necessary for any community to shore up group activities.

vi. ***Health and Educational Linkages:*** There should be a proper link between the institutions functioning in the form of the status of equipment and the specializations. The school curriculum should have a blend of disaster management as well as the development of skills like masons, carpentry, electricians, etc.

vii. ***Environment/Agriculture Practices:*** Here it talks about the awareness of the community's Common Property Resources (CPRs) like the forest produce, ponds, rivers, etc. These features demonstrate a new technique for agriculture and other livelihood practices such as fish processing via aquaculture, etc.

This aspect also includes helping the community to upgrade and adopt suitable practices since the industrial interventions have been affecting the priorities of the rural population.

6. Conclusion

The Orissa Super Cyclone-1999 investigation has given significant exercises to presenting measures on moderation at the network level. Generally significant of which has been the need to address the limitations and the inspiration of individual family units, enhanced by fortified network structures through the Corporate Social Responsibility. Additionally, the activity in relief saw the collaboration of multilateral offices at another level. Expanding on one another's qualities and assets with the goal of reinforcing the powerless network have ended up being a one of a kind and elating experience. These exercises gained from the involvement with PPL are currently being applied in various parts of India, the prepared bricklayers from Super Cyclone-1999 are presently venturing out more than thousand kilometers to prepare individual artisans.

References

1. Gupta, M. C. and Sharma V. (2000). Orissa Super Cyclone 1999. National Center for Disaster Management, IIPA, New Delhi.
2. Kalsi, S. R (2006). Orissa Super Cyclone – A synopsis. Mausham. IMD, Delhi.
3. Pant, J.C. (2000). High powered committee for preparation of Disaster Management Plans- Interim Report.
4. Parsuraman, S. and Unni Krishnan (2013). India Disaster Report II redefining disasters" Oxford University Press.
5. Samal, K. C. (2006). Facing Sudden Impact: Experience of Orissa Super Cyclone 1999.
6. Sinha A. K. (2001). Disaster Management: lessons drawn and Strategies for Future. Indian Institute of Public Administration, New Delhi.
7. Sinha A. K. (2002). Report on Recovery and Reconstruction Followingthe Orissa Super Cyclone in October 1999. Indian Institute of Public Administration, New Delhi.
8. J.S. Kshatri, J. Turuk, J. Sabat, S. Subhadra, L.M. Ho, S. Rath,S.K. Palo, D. Bhattacharya,B. Dwibedi, and S. Pati (2020). Epidemiology of viral disease outbreaks in Orissa, India (2010–2019). Epidemiology and Infections, Cambridge University Press.