

Role of Gram Panchayat in Disaster Preparedness and Management in Balasore District, Odisha

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Abstract

The Indian Sub-continent ranks among the world's most disaster-prone regions. Tropical Cyclones are defined by their rotating storm structure, a central zone of low atmospheric pressure, high-velocity winds, and heavy precipitation. According to the 2011 Census, approximately 14.2 per cent of the country's pollution is concentrated in the coastal districts, and this share continues to rise as these areas become increasingly polluted. Odisha stands out for its high exposure to tropical cyclones, making it among the most vulnerable regions. The study aims to understand the sarpanch's essential role in disaster preparedness and response. The study also aligns with the SDGs 11 and 13. The data were collected through semi-structured interviews with four sarpanch's, two each from Sadar (Hidigan and Dubulagadi) and Baliapal Block (Narayanpur and Aladiha) in the district. The study is qualitative in nature and draws on Strauss and Corbin's grounded theory approach, with the interview data analysed through the three sequential stages of open, axial, and selective coding. At the village level, sarpanch mobilise communities through door-to-door warnings and evacuation, prioritising vulnerable groups, yet face significant infrastructure, shelter, and resource gaps. As the outcomes showed, many critical bottlenecks were identified regarding essential infrastructure, an incoherent electricity supply, and other factors. Social media platforms such as, WhatsApp and YouTube played a significant role in effectively disseminating timely early warnings and information.

Keywords: Sarpanch, Disaster Risk Reduction, Cyclone, Balasore, Grounded Theory

Introduction

Tropical cyclones are referred to as 'cyclones' in the Indian context and pose serious threats to human life and livelihoods in the region. There is clear evidence of South Asia's vulnerability to climate risks, further exacerbated by high population density, poverty, and limited adaptive capacity. (Ahmed & Mahfuz, 2014). In this area, the coastal zones bear the brunt of these changes due to increased cyclone frequency, rising sea levels, and more intense storms. Among the nations facing such challenges, India is among the worst hit by climate change, with floods and cyclones becoming routine occurrences (Eckstein et al., 2021). Cyclones are accompanied by heavy rainfall and storms, and the repeated occurrence of such events continues to cause considerable property damage (Mandal & Mohapatra,

2010). However, due to the development of early warning systems and improved government preparedness for disaster management and prevention, the mortality rate has considerably decreased in recent years as a result of cyclones. Evacuation remains the most urgent consequence of cyclones, forcing people to leave their homes and seek shelter. For many of them, leaving their place of residence becomes inevitable due to the extent of destruction after landfall (Rahman et al., 2015). This research examines the role of Sarpanchs, or Heads of the Village, in disaster preparedness and management, and how they prepare for and manage disasters in selected villages in Balasore district, Odisha.

Review of Literature

Panchayats, village councils, and village leaders act as first responders in disaster preparedness, risk communication, and post-disaster recovery in South Asia and elsewhere (Mondal et al., 2016; Shah et al., 2019; Rumbach & Foley, 2014). Studies have shown, however, the capacity constraints that limit their effectiveness, stressing the importance of identifying the relevant local actors. Being close to people, having a constitutional role, and participation in local social networks may make these actors able to mobilize communities, provide information about risks, and organize relief. In India, Panchayati Raj Institutions have a constitutional responsibility for disaster management (statutory law formally includes Panchayati Raj Institutions (PRIs) under the definition of a "local authority"), where gram panchayats are supposed to prepare for disasters in both pre- and post-disaster phases (Mondal et al., 2016; Mondal et al., 2018). The connection between local government and disaster management goes beyond institutions and extends to communication. According to Yu et al. (2020), more frequent interpersonal communication between local authorities and villagers is positively related to an individual's disaster preparedness, and this relationship works through knowledge. The association is concentrated among those with higher self-efficacy; those with lower self-efficacy show little change in preparation from similar communication.

Odisha shows how effective this approach can be. After the 1999 cyclone, the state no longer relied solely on emergency help after disasters. Rather, it shifted to a resilience-focused, forward-looking strategy. The Odisha State Disaster Management Authority became the foundation of this new system. It included shelters, improved early warning systems, evacuation routes, and changes to local institutions (Agarwalla & Parida 2026; Pradhan et al. 2025; Walch, 2019). These modifications are now credited with reducing cyclone-related fatalities and strengthening preparedness. District-level authorities, local volunteers, village committees, and Panchayati Raj institutions all share accountability (Kanjilal et al., 2025). Village disaster management committees work with panchayats to strengthen local capabilities, and this approach depends heavily on community involvement (Pradhan et al., 2025). The sarpanch appears in this structure as a component of a larger grassroots government network that includes village committees, civil society organisations, Panchayati Raj institutions, and adaptable state structures with the goal of reducing the risk of disaster. Panchayati Raj institutions are community-facing, constitutionally based organisations that assist with preparedness planning, identify local vulnerabilities, and coordinate rescue, sheltering, health and sanitation, and crop and livestock protection. They also communicate with higher governmental levels (Mondal et al., 2016; Mondal et al., 2018). The effectiveness of the sarpanch and deputy sarpanch, who are elected local leaders at the heart of this organization, has been connected to things like education, exposure to the media, self-assurance, and training availability (Parmar et al., 2025).

Research unique to Odisha adds more nuance to this picture because panchayat-level feedback has helped identify village-specific vulnerabilities and has aided in the formation of self-help organisations, particularly groups of underprivileged women. In addition to mandated evacuation committees in coastal areas, more recent law changes have formalised panchayat participation through disaster management committees functioning at the village, panchayat, district, and state levels. When considered collectively, these results imply that elected local leaders may become more formally involved in the governance of disaster risk reduction (Kumbhar, 2025; Walch, 2019). Overall, this research indicates that institutionalised panchayat participation, skilled community networks, continuous resident communication, and larger state capacity-building initiatives are the best ways to assist the sarpanch's role in reducing disasters in Odisha. Few studies, however, separate the sarpanch as a separate decision-making actor; instead, they integrate this role into the broader panchayat apparatus (Abhi, 2024; Banerjee & Mohapatra, 2023; Patel, 2018). This study on the sarpanch's specific, individuated role in cyclone preparedness and management, which remains underexamined.

Research Methodology

This study used a qualitative research design to explore the role of Sarpanches in cyclone preparedness and disaster response. The study was conducted in Balasore district, Odisha, a region known for its high cyclone vulnerability, with four villages selected from two administrative blocks: Kasafal and Dubulagadi in Balasore Sadar block, and Aladiha and Narayanpur in Baliapal block. The sarpanch of each village was chosen as the respondent because they are the elected leader of the gram panchayat and have primary responsibility for local disaster preparedness. Data were gathered via semi-structured interviews, selected for their ability to maintain a uniform set of essential questions among participants while permitting exploration of particular details as they emerged; the interview framework encompassed preparedness planning, community mobilisation, coordination with block and district officials, shelter and resource management, and the application of local versus formal scientific knowledge in issuing alerts, with interviews conducted in Odia, Hindi, or a combination of both, subsequently transcribed and translated into English. The data were analysed using Strauss and Corbin's (1994) grounded theory method, carried out manually without QDA software, through three coding stages: open coding, which broke the transcripts into discrete units of meaning and labelled recurring concepts directly from the data; axial coding, which linked these initial codes to one another to identify relationships and grouped them into broader categories; and selective coding, which identified a core category tying the axial categories together into a single analytical account of the sarpanch's role in cyclone preparedness and response.

Research Findings

The analysis of the four Sarpanch interviews, drawn from the Aladiha, Kasafal, Dublagadi and, Narayanpur Gram Panchayats, followed the three-stage Grounded Theory procedure developed by Strauss and Corbin: open, axial and, selective coding. Open coding generated concepts directly from participants' accounts, including Gram Panchayat mobilisation, ward member involvement, door-to-door awareness, official BDO warnings, WhatsApp and social media communication, the identification of kutchha and coastal households, records maintained by ASHA and Anganwadi workers, local fishermen's knowledge of sea conditions, and infrastructural deficiencies such as non-functional generators and

sirens. These codes were organised through axial coding into related categories and then integrated through selective coding into five core themes characterising cyclone preparedness at the village level.

Theme 1: Panchayat-Led Mobilisation and Household Outreach.

In all of the above cases, it is clear that the Gram Panchayat is considered to be the necessary last mile institution for preparing against the cyclone. The activities of awareness-raising, evacuations, and running the shelters are done by the Shelter Secretaries, Ward Members, Gram Panchayat Members, Volunteers, Police, and ASHA and Anganwadi workers, while door-to-door communication is considered to be the main form of reaching out to people. Thus, it can be said that the official plans for preparation, created on a higher level of administration, are mainly followed through face-to-face mobilization rather than through administrative instruction alone. Another sub-pattern is evacuation compliance; residents, especially those from kutchha houses, do not want to leave their places, and therefore Panchayat members, shelter secretaries, ward members, and even police explain the danger and help people evacuate.

Theme 2: Layered Warning Transmission and Information Verification.

The second theme deals with how warnings are disseminated at the village level through an intricate and multi-layered system of communication involving formal, digital, mass-media and interpersonal mechanisms. Warning messages reach the villages through BDO and administrative means like telephonic conversations and letters. They are supplemented with warnings through means like WhatsApp, SMS, Television, Mass and Electronic media, Social media, Public Announcements and door-to-door dissemination. The important aspect that emerges from the research relates to information verification. The sarpanch of Aladiah noticed that there could be rumors and untruthful information on social media; hence, formal BDO communications are considered more credible before undertaking any preparedness measures. It means that warning communication in villages is not just a matter of receiving information, but also involves verifying, translating and disseminating it further.

Theme 3: Differentiated Evacuation and Care for At-Risk Groups.

The third theme is that at the village level, there is increased coordination in targeting houses and persons that need help. Kutchha houses, those along the sea, and other vulnerable settlements are given priority, and the vulnerable sections such as the elderly, young children, pregnant women, and disabled are specially targeted. The ASHA and Anganwadi workers maintain records of vulnerable houses, while vehicles are made available for those who cannot travel on their own. The Dublagadi example offers an illustration of this differentiated strategy, where pregnant women registered in the ASHA and Anganwadi records are taken to the district hospital prior to the expected arrival of the cyclone.

Theme 4: Coexisting Environmental Knowledge and Household Coping Strategies.

There is a complex and, in many aspects, contradictory trend regarding traditional knowledge in the case under study in the four interviews. Some of the Sarpanchs say that the traditional methods of predicting weather have lost their importance since societies now depend more on sophisticated warning systems. In fact, the story of Kasafal directly says that traditional methods of predicting weather are no longer used since there have been replaced with scientific forecasts. In contrast, Dublagadi and Narayanpur stories show that observations of the environment take place along with warning. The fishermen of Dublagadi observe exceptional wave movement known as *Khalbani*, loud sea, and strange behaviour of sea birds as the signs of the approaching cyclone. At the same time, the Narayanpur sarpanch noticed the migration of animals and birds before the cyclone hit the area. Moreover, the interviews describe

household adaptation measures that include putting tarpaulin (tarp) on kutcha houses, moving valuable belongings and documents, and protecting animals and agricultural resources.

Theme 5: Persistent Deficits in Shelter and Support Infrastructure.

This is followed by an overview of constraints that were documented in the Gram Panchayat level. All four interviews highlight the scarcity or absence of proper cyclone shelters, where schools are being used temporarily and create problems in their management as well. Other constraints include the non-functioning of generators, outdated or unavailable warning sirens, inadequate microphones, lack of proper drainage systems, road obstructions, and other bridge and accessibility issues. These interviews also deal not just with the problem of evacuating humans but also cover the aspects related to livestock and agriculture, with the Dublagadi case study focusing on veterinary issues while the Narayanpur interview focuses on agriculture.

Discussion

By looking at these five themes through selective coding, it becomes clear that Sarpanch plays an important role in the institutional hierarchy of cyclone preparations which is characterized not as much by its administrative power but rather by long-term interaction with the people. While the Gram Panchayat doesn't just deliver instructions from the Block Administration but also implements them through door-to-door communication and verification of warnings, the village level represents the point when all these arrangements take place not only as administrative decisions but also become personalized and concrete actions aimed at protecting people.

In Theme 2, not all sarpanches relied on social media; they waited for confirmation and orders from the Block Division Officer to start the work. Rather than treating all incoming information as credible, the Sarpanches seem to favour official sources over social media, on the grounds that the latter may be unreliable. Therefore, at the village level, both communication and evaluation functions are at work.

The combination of science and local based knowledge about the environment found in the narratives of Dublagadi and Narayanpur, is interesting to mention from the point of view of Grounded Theory, as it was generated inductively from participants' narratives and was not predicted by the researcher beforehand. This material shows that scientific prediction does not replace local-based knowledge in the sense implied by a simple modernization theory. On the contrary, it becomes an extra source of environmental knowledge alongside the existing warning system.

The difference between the number of people reporting the reduction in traditional practices versus those who reported its continuity indicates that the shifting of focus among the community is not uniform, perhaps because of the coastal proximity, dependence on the sea for work, and the lineage connection with the Panchayat. But the present data available is inadequate to make any final assessment on this aspect.

On the other hand, the presence of infrastructure and resource constraints ranging from shelter, equipment, drainage facilities, roads to specialized services, despite the centrality of the role of the Sarpanch in executing them, highlights the growing gap between the responsibility and capacity of the villages. The Panchayats are responsible for last mile evacuation, mobilization, and protection. Also, Sarpanch's are the President of the cyclone shelters. Yet the resources needed to undertake this responsibility are not being made available in proportionate measure. The result adds a new dimension to the more general association between responsibility and capacity found throughout the higher institutional levels of this study, supporting the notion that vertical coordination within the institutional

structure in cyclone preparedness, although certainly evident in theory, is limited by unequal capacity at the level of last mile protection delivery.

Conclusion

Level of Sarpanch highlights that the Gram Panchayat is the important 'last mile' institution when it comes to cyclone preparedness by converting administrative alert into household response through door-to-door mobilization, information confirmation and differential protection of vulnerable groups. This process is facilitated by community involvement to a greater extent than institutional authority, since village level becomes the level at which preparedness assumes its relevance for those affected by natural disaster. Also, data reveal the existence of scientific predictions and local environment-based understanding without any contradiction, with local observations becoming supplementary form of consciousness in many communities. This is an important inductive finding showing the constant necessity for community-based knowledge in organized alert system. Nevertheless, regular shortages of resources in shelters, tools, drainage systems and special services show that the key role in implementation performed by the Panchayat is not compensated by corresponding institutional capacity.

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