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A large, detailed image of the Earth as seen from space, showing continents and oceans. A hand is visible at the bottom, appearing to hold the planet. The background is a dark space filled with stars.

# CPRG CHRONICLE

'A newsletter for public policy and governance enthusiasts'

## DISASTER MANAGEMENT

# AUGUST 2023 HIGHLIGHTS



## SECURITY & INTERNATIONAL RELATIONS

- The 15th BRICS Summit was held in South Africa.
- Indian Coast Guard signed an MoU with the Philippines Coast Guard on enhanced maritime cooperation; holds the first bilateral meet
- India and Bangladesh held the fifth Annual Defence Dialogue in Dhaka
- INS Sunayna entered the port of Durban, South Africa



## ECONOMY

- The Department of Expenditure, Ministry of Finance, GOI launched “Vivad se Vishwas 2” to resolve contractual disputes involving the government undertakings.
- Pradhan Mantri Jan Dhan Yojana (PMJDY) - National Mission for Financial Inclusion, completed nine years of successful implementation.
- DPIIT and Ministry of Rural Development jointly launch ‘One District One Product’ Wall at SARAS Ajeevika Store



## EDUCATION

- The Ministry of Chemical & Fertilizers, GOI notified the Scheme for Promotion of Research and Innovation in Pharma Medtech Sector (PRIP)
- The Union Ministry for Education and Skill Development & Entrepreneurship released the National Curriculum Framework for School Education (NCF-SE)



## SOCIAL

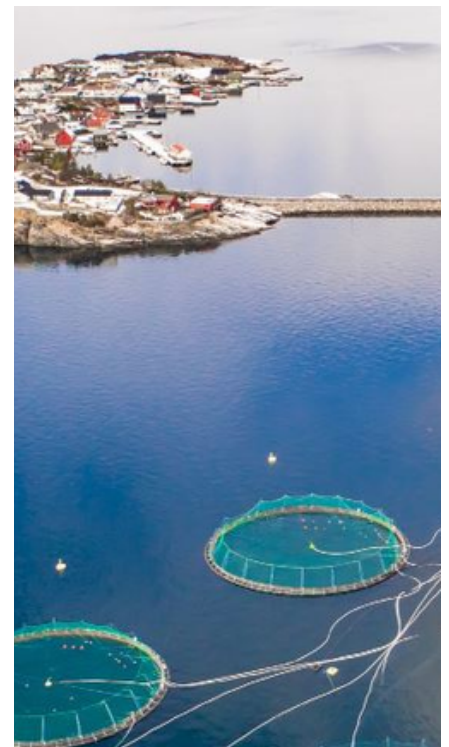


- The National Health Authority (NHA) has launched 100 Microsites Project under the Ayushman Bharat Digital Mission (ABDM).
- The GOI has announced the Vishwakarma Yojna which aims to provide financial assistance and training to artisan and craftsmen in traditional skills.
- The National Medical Commission notified the Registered Medical Practitioner (RMP) Regulations 2023 for regulating the professional conduct of registered doctors in India.
- The Union Cabinet has approved the ‘PM-eBus Sewa’ Scheme which aims to enhance city bus operations with the introduction of 10,000 Electric Buses through a Public Private Partnership Model.
- The Ministry of Road Transport and Highways, GOI has launched the Bharat New Car Assessment Programme, an indigenous star-rating system for crash-testing cars.



## TRAINING & GOVERNANCE

- The Digital Data Protection Bill, 2023 is the first Indian standalone data protection bill passed in the Parliament.
- The National Nursing and Midwifery Commission (NNMC) Bill, 2023 with an aim to bring changes in the nursing education and practising landscape.
- The Parliament passed the Anusandhan National Research Foundation Bill, 2023. The Foundation will act as the apex body to provide direction for research, innovation and entrepreneurship.
- The Coastal Aquaculture Authority Amendment Bill, 2023 was passed by the Parliament which has broadened the definition and expanded the scope of coastal aquaculture.





Source: The Economic Times

## **DELHI FLOODS- CAUSES AND CONSEQUENCES**

### **Introduction**

Delhi, India's capital and one of its most populous cities, is no stranger to the recurring challenge of flooding. Located on the banks of the Yamuna River, Delhi has grappled with floods for decades, causing immense damage to property, infrastructure, and the livelihoods of its residents. Let us delve into the causes, impacts, and mitigation efforts related to the persistent issue of Delhi's floods. The water level in the river Yamuna reached a record high of 208.66 meters in July 2023, much above the last great flood in Delhi in 1978 – when it had reached 207.49 meters. (Pti, 2023). The Yamuna River had risen above the "danger mark" and submerged a few adjoining areas in the capital of 20 million people. (Reuters, 2023).

### **Causes**

The primary trigger for flooding in Delhi is the monsoon season, which typically lasts from June to September. During this period, the city experiences heavy and erratic rainfall, overwhelming its drainage systems and leading to waterlogging in low-lying areas. Massive infrastructure projects have led to significant environmental degradation, with even floodplains, forests, and the ridge being targeted for development. Drains are often covered for parking or road construction,

leaving little space for water to seep into the soil, resulting in frequent road and colony flooding during minor rainfall.

The unbridled growth of consumerism causes climate change and extreme weather phenomena globally. It is destabilizing the Himalayas leading to more silt in the rivers that raises the river bed and reduces its carrying capacity. Moreover, the discharge of pollutants into the river and attempts to harness the entire river's flow have further exacerbated the problem. Finally, in the name of 'development', construction on any vacant land, like the flood plains. (Development Gone "Rogue" and the High Flood in Delhi, n.d.)

Given the existence of all the causes of flooding in Delhi, the city has become vulnerable to climate related hazards such as floods caused by unpredictable rainfall patterns. The city has been experiencing floods of various magnitudes in the past due to floods in the rivers Yamuna and Sahibi (through Najafgarh drain). The flow of Yamuna within Delhi is by and large influenced by discharge from Tajewala Headwork 240 km upstream. In the event of heavy rain in the catchment area excess water is released from Tajewala. Depending upon the river flow level downstream, it takes about 48 hours for Yamuna level in Delhi to rise. The rise in water level also causes a backflow effect on the city's drains. The flooding of the Yamuna river has severely impacted Delhi and parts of Noida, showcasing rampant and destructive development practices.

The city also experiences floods due to its network of 98 drains whose catchment area extends well beyond the city limits. Since 1900, Delhi has experienced nine major floods in the years 1924, 1947, 1976, 1978, 1988, 1995, 1998, 2010 and 2013 when the Yamuna River crossed its danger level of 204.83 m. The 1978 witnessed the worst ever flood in Delhi when water level in Yamuna River in Delhi reached at 207.49 m with discharge 2.53 lac cusec at old railway bridge (7.0 lac cusec discharge was released from Tajewala) when 130 villages and 25 urban colonies in Delhi were submerged in water. The river has crossed its danger level 20 times in the last 33 years (DDMA, 2014-2015).

### **Consequences**

The recurring floods in Delhi have severe consequences for the city and its residents. Families living on the banks of the Yamuna River are compelled to evacuate their homes during flood events, leading to temporary displacement and loss of possessions. It has adverse effects on the local ecosystem, damaging vegetation and affecting aquatic life in the Yamuna River. Several parts of Delhi have been impacted by waterlogging. The areas that were heavily inundated during the 2023 floods includes, Rajghat road, Vikas Marg, Loha Bridge, Civil Lines, Shastri Park, Outer Ring Road, and low-lying areas in Wazirabad. Low-lying areas around Purana Qila were also impacted as the Yamuna river overflowed. Traffic jams were also reported in Sarai Kale Khan due to traffic diversion in different parts of Delhi. The approach road leading to the Yamuna Bank metro station was also inaccessible, but interchange facilities were made available. (Mehek, 2023). Floods have caused extensive damage to several landmarks in Delhi, such as the Red Fort and the Supreme Court.

### **Response**

National Disaster Response Force (NDRF) teams were deployed in Delhi to tackle the situation in view of increased water levels in the Yamuna. Three teams each were deployed in central, east and north-east Delhi while two were stationed in south-east Delhi and one in the Shahdara area of the national capital. The teams helped the administration evacuate the flood-affected residents and save

them from hazardous sites. (Jena & Jena, 2023). Flood monitoring portals were used and water was pumped out from flooded areas. (India, 2023)

#### **Examples of Successful Initiatives to Check Urban Flooding:**

The Mangalore City Corporation (MCC) has set up wastewater treatment facilities with connections to end-users to tackle the problem of inadequate and unpredictable water supply for industrial purposes.

In Bengaluru, the Kaikondrahalli Lake has undergone a restoration process involving desilting, the removal of vegetation, and an increase in its depth and storage capacity by 54%. This effort aims to mitigate the issues related to sewage inflow and eutrophication.

**Some countries are experimenting with the concept of Sponge Cities.** Sponge City is a type of city which is designed in such a way that it acts like a sponge for rainwater. The water is absorbed and allowed to naturally filter through the soil to reach the aquifers. The aquifer recharge helps fulfill the water needs of the city. (Feroze Varun Gandhi, 2023)

#### **Conclusion**

The recurring floods in Delhi result in significant consequences, including temporary displacement, ecological damage, traffic disruptions, and damage to landmarks. However, there have been efforts to combat urban flooding, such as the deployment of National Disaster Response Force teams and the use of flood monitoring portals. Initiatives like wastewater treatment plants and the restoration of water bodies in other Indian cities offer valuable lessons. To address the issue comprehensively, Delhi must invest in early warning systems, drainage network expansion, and the revival of traditional water bodies and the creation of blue-green infrastructure can lead to improved water quality, flood mitigation, and sustainable urban development. These strategies can help mitigate the devastating impact of flooding and build a more resilient and sustainable urban environment.

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Source: Moneycontrol

## **BUILDING A SAFER TOMORROW: ODISHA'S INFRASTRUCTURE SUCCESS STORIES IN DISASTER MITIGATION**

### **INTRODUCTION**

Natural disasters, including cyclones, floods, and earthquakes, are unavoidable events that can inflict extensive damage on communities and economies. Given India's vast geographical diversity, it is susceptible to a range of natural catastrophes. Among the states grappling with their fair share of these challenges, Odisha has emerged as a remarkable paradigm of proficient disaster management. Through assiduous planning, substantial infrastructure enhancements, and active community involvement, Odisha has crafted a disaster management framework that has notably mitigated the adverse consequences of disasters on both its populace and assets.

#### **Historical Perspective:**

Odisha's historical vulnerability to cyclones is rooted in its extensive coastline along the Bay of Bengal. The state has endured some of India's most devastating cyclones, notably the 1999 Odisha cyclone, also known as Cyclone Paradip (Odisha Super Cyclone 1999), and the 1971 Orissa cyclone (OB Bureau, 2021), both inflicting profound human and property losses. However, these tragic episodes acted as a pivotal turning point, compelling the state to re-evaluate and revolutionize its disaster management strategies. In the wake of such calamities, Odisha embarked on a path of resilience and transformation, prioritizing proactive



disaster preparedness, infrastructure fortification, and community engagement. These initiatives not only safeguarded lives and assets but also established Odisha as a beacon of effective disaster management, offering invaluable insights to regions grappling with similar vulnerabilities worldwide.

### **Infrastructure Development:**

Odisha's remarkable achievements in disaster management owe much to its strategic investments in infrastructure development. The state has consistently prioritized the construction of critical assets such as cyclone shelters, early warning systems, and flood control measures. These investments have been instrumental in safeguarding the lives and properties of its residents, setting a precedent for effective disaster mitigation.

The "One Stop Risk Management System" (OSRMS) implemented in Odisha is a groundbreaking initiative in disaster preparedness. This comprehensive system integrates data from various sources to provide real-time risk assessment and response coordination. OSRMS facilitates timely decision-making by predicting the trajectory and intensity of cyclones, floods, and other natural disasters. It also enhances inter-agency communication, enabling rapid deployment of relief efforts. In essence, OSRMS is a pivotal tool in safeguarding lives and property in Odisha, showcasing the state's commitment to resilience and effective disaster management. This innovative system sets a benchmark for disaster preparedness not only in Odisha but also globally.

One of the standout achievements is the establishment of a robust network of multipurpose cyclone shelters. By 2020, Odisha boasted over 880 such shelters strategically located in vulnerable areas across the state. These shelters are designed to accommodate a substantial population, with a capacity to shelter over 15 lakh people during cyclonic emergencies. They serve as secure refuges, providing protection and relief to residents when faced with the imminent threat of cyclones.

The construction of early warning systems and flood control measures further underscores the state's commitment to disaster preparedness. These investments, combined with community awareness and preparedness programs, have contributed to Odisha's exemplary track record in disaster resilience. Through continued government schemes and projects, Odisha remains dedicated to strengthening its disaster management infrastructure and ensuring the safety and well-being of its people in the face of natural calamities.

### **Effective Early Warning Systems:**

Odisha has developed a robust early warning system that provides timely and accurate information about impending disasters. The state's Disaster Warning System (DWS) ensures that residents in vulnerable areas receive alerts well in advance. This system combines meteorological data, satellite imagery, and local knowledge to predict and track the path of cyclones, enabling the government to evacuate residents promptly. The effectiveness of this system is evident in the fact that Odisha managed to evacuate nearly two million people in anticipation of Cyclone Phailin in 2013, resulting in minimal casualties.

### **Community Preparedness:**

Odisha places a strong emphasis on community involvement in disaster preparedness and response. Various programs and awareness campaigns have been launched to educate residents about the importance of early evacuation, the location of cyclone shelters, and the need to secure their homes and belongings. The state has also established community-based disaster management committees that play a vital role in disseminating information and coordinating evacuation efforts at the grassroots level.

### Success Stories:

**Cyclone Phailin (2013):** One of the most significant success stories of Odisha's disaster management efforts is the handling of Cyclone Phailin. Despite being one of the most powerful cyclones in the region, Phailin resulted in minimal casualties (44 reported deaths) thanks to timely evacuation efforts and the utilization of cyclone shelters. The disaster management model in place ensured that people were well-prepared, and the state machinery swung into action seamlessly.

**Cyclone Fani (2019):** Cyclone Fani, a Category 4 storm, made landfall in Odisha in May 2019. The state was able to evacuate over a million people within a short timeframe, reducing the death toll to 64. The preparedness and response to Cyclone Fani demonstrated the state's resilience and adaptability in the face of adversity.

Over the years, Odisha's disaster management efforts have yielded remarkable results. Data shows a significant reduction in casualties due to cyclones in the state:-

In the 1999 Odisha cyclone, the death toll exceeded 10,000.

In Cyclone Phailin (2013), the death toll was 44.

Cyclone Fani (2019) resulted in 64 reported deaths.

This remarkable decline in casualties underscores the effectiveness of Odisha's disaster management model.

### Conclusion:

Odisha's journey from being one of the most vulnerable states to a model of effective disaster management is a testament to its resilience and commitment to the safety of its people. The state's investment in infrastructure, early warning systems, community involvement, and efficient response mechanisms has not only saved lives but also minimized economic losses. The success stories of handling cyclones like Phailin and Fani have set a benchmark for other disaster-prone regions to follow.

This success story not only serves as a beacon of hope but also underscores the critical role of preparedness, resilient infrastructure, and community engagement in minimizing the impact of natural calamities, setting a precedent for other disaster-prone regions to follow suit. Odisha's transformation from vulnerability to resilience holds valuable lessons for the nation and the world, emphasizing the imperative of proactive disaster management strategies in an era of heightened climate-related challenges.

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# SOCIAL CAPITAL



Participation



Network



Reciprocity



Belonging



Engagement



Trust

## ROLE OF SOCIAL CAPITAL IN DISASTER MANAGEMENT

The frequency and severity of natural disasters have alarmingly increased during the past few years. Floods stand out as one of the most destructive forms of disasters that harm the environment, people, and infrastructure. Delhi, the nation's capital, has also borne the brunt of these floods, and the issue has only gotten worse as a result of the city's increasing population and urbanization. The thriving city of Delhi saw an unprecedented catastrophe in July 2023: a terrible flood that left millions of citizens dealing with its aftereffects.

While the immediate response efforts were essential in mitigating the disaster's impact, the role of social capital in disaster management became increasingly apparent. Delhi's vulnerability to flooding is not a new phenomenon. The city is situated on the floodplains of the Yamuna River, making it susceptible to annual monsoon floods. However, the severity of the 2023 flood was exacerbated by several factors, including rapid urbanization, climate change, and inadequate infrastructure. These floods emphasized the need for effective disaster management strategies, where social capital can play a pivotal role.

According to Aldrich and Meyer (2015) the communities with strong social capital tend to respond more

effectively during disasters. They emphasize that social ties and networks enhance information sharing, cooperation, and the availability of resources. The networks, linkages, and social ties that exist within a society or community are referred to as social capital. It includes both official and informal ties, including those with family, friends, neighborhood groups, and local institutions. It exists in three forms: bonding (within close-knit groups), bridging (across diverse groups), and linking (with institutions and organizations). These connections are essential instruments to assist people and groups in collaborating effectively, building trust, and taking cooperative action.

In the case of Delhi floods, the role of social capital was visible in the fact that neighbors were helping each other, community organizations were coordinating relief efforts, and individuals were collaborating to address urgent needs. In Delhi, numerous neighborhoods had strong social bonds, where residents knew each other well and often participated in community activities. These bonds became invaluable during the flood. Neighbors came together to provide support and assistance to those in need, whether it was sharing resources, offering shelter, or rescuing trapped individuals. This sense of community helped reduce panic and ensured a more organized response to the disaster.

### The Power of Community Networks

One of the most significant aspects of social capital in disaster management is the strength of community networks. In Delhi, various associations, community groups, and civil society organizations played a critical role in disseminating information, mobilizing resources, and providing assistance to those in need. These networks served as a bridge between residents and formal disaster response agencies. For instance, residents of low-lying areas, who were at higher risk, were able to receive early warnings and evacuation instructions through these community networks. This timely information saved lives and reduced the extent of damage. Additionally, these networks facilitated the rapid distribution of relief supplies, such as food, water, and shelter materials, to affected areas. The role of NDRF during the Delhi flood is one of the examples of community networks. The NDRF's flood relief and rescue efforts were in full gear in Delhi's flood-affected neighborhoods. The NDRF teams were tasked with helping flood victims right once and doing all possible to deliver aid to those in need, whether they were people or animals.

### Trust and Cooperation

Trust and cooperation are essential components of social capital that are invaluable during disasters. The trust that residents had in their community leaders and organizations fostered a sense of unity and collective action. This trust encouraged individuals to follow evacuation orders and cooperate with authorities, reducing the risk of casualties. Furthermore, cooperation among different community groups and organizations allowed for a more coordinated response. NGOs, local businesses, and volunteers worked hand-in-hand with government agencies to provide immediate relief and support to affected communities. This collaborative effort ensured that resources were effectively utilized and that assistance reached those who needed it most. People voluntarily donated and helped others in rescuing human beings as well as animals. For instance, NGOs like Friendicoes, All Creatures Great and Small (ACGS), and Wildlife SOS provided boarding homes for the animals that were relocated due to flooding.

## Early Warning and Response

Social networks play a crucial role in disseminating early warnings and mobilizing responses. Trust and communication within communities facilitate the sharing of information, ensuring that people are informed and can take prompt action when a disaster is imminent. In August 2023, Government of India had taken an initiative and launched a Floodwatch App, which utilizes advanced technologies such as mathematical modelling, data analysis and real-time monitoring to deliver accurate and timely flood forecasts.

While social capital is a valuable resource in disaster management, it faces several challenges since all communities do not have equal access to social capital. Vulnerable populations, such as low-income neighborhoods, may have limited social networks, making them more susceptible to disasters. Building and maintaining trust within communities can be challenging, and trust deficits may hinder effective disaster response.

To harness the potential of social capital fully, disaster management strategies must address these challenges by bridging social divides and ensuring that marginalized communities have access to social capital resources. Encouraging community engagement and participatory disaster management approaches can help build and strengthen social networks. Further, the utilization of digital platforms and social media can enhance communication and information-sharing during disasters, but it should be done with a focus on inclusivity.

## Conclusion

The Delhi flood of 2023 serves as a poignant reminder of the critical role played by social capital in disaster management. Building and maintaining social networks, promoting trust and cooperation, and leveraging these connections in both preparedness and response efforts can significantly enhance a community's resilience. Strong social networks, trust, cooperation, and civic engagement were instrumental in minimizing the impact of the disasters and facilitating a more effective response. However, it also revealed disparities in social capital across communities and the need for more inclusive strategies in disaster preparedness. As cities around the world face the increasing threat of climate-related disasters, recognizing and harnessing the power of social capital will be essential in building resilient communities and ensuring a safer future for all. To create more disaster-resilient cities like Delhi, it is imperative that policymakers and disaster management authorities recognize the value of social capital and work towards its equitable distribution and utilization. In doing so, we can better prepare ourselves to face the unpredictable challenges that the future holds.

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