

Beyond just weathering the next storm: Odisha's experience and lessons for Mozambique and elsewhere.

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Hazard plus vulnerability and exposure do not always result in a disaster

Cyclones Idai and Fani, which made landfall just two weeks apart, are among the fiercest cyclones originating from the Indian Ocean. Cyclone Fani, with a wind speed of 201 km per hour at the time of landfall and wind gust of up to 240 km per hour, is one of the strongest cyclones to make a landfall in Odisha state on the eastern seaboard of India. A cyclone with a comparable destructive potential killed 10,000 people in the same state 20 years ago.

On the other side of the Indian Ocean, Cyclone Idai battered coastal Mozambique with a sustained wind speed of 160-180 km per hour and wind gust of up to 200 km per hour. It is one of the most severe cyclones to have made a landfall in Mozambique and the second in the southwest Indian Ocean in recorded history.

Idai and Fani both struck low-lying, heavily populated areas – textbook conditions for hazards to become disasters. Beira, the center of Idai's destructive path with a population of half a million, is Mozambique's fourth largest city and is very low-lying. In fact, some portions lie below sea level. Odisha's population exposure was more than ten times higher than Mozambique's - more than 10 million people, many of them are at risk to storm surges and flooding, were in the path of Cyclone Fani as it moved towards the town of Puri.

As we already know by now, Fani's casualty has been kept to a minimum (63 people) while Idai left more than 1,000 people dead across Mozambique, Malawi and Zimbabwe despite the higher severity of hazard characteristics, exposure and vulnerability levels in Odisha.

How did Odisha manage to avert what could have been a mega disaster?

Capacity made all the difference

The success of Odisha in averting a mass casualty is a testament to the power of early warning, coupled with robust disaster preparedness and response systems, to save lives.

The devastation and loss of lives suffered by Mozambique highlights the urgent need to build its capacity to manage cyclones. Typical in many developing countries, the coastal zones in Mozambique are sites of important economic activities. This means that more and more economic assets could be on the harm's way as cities grow and assets accumulate in coastal areas. Establishing a robust early warning and disaster management systems in place is thus indispensable in preventing a vicious cycle of disasters undermining development.

What strategies proved useful in Odisha which could be adopted in Mozambique?

The key take-away is to optimize the use of cyclone forecast while also considering the uncertainties. Since the Orissa super cyclone in 1999, the Indian Meteorological Department (IMD) and the Orissa state have made massive improvements in developing an end-to-end early warning system for cyclones and other extreme weather events. Huge dividends have paid off repeatedly, as witnessed during the recent Cyclone Fani and Cyclone Phailin in 2013.

IMD's forecast on Fani's track, landfall and intensity all performed very well. The successful execution of evacuation and disaster risk management depended to a large extent on the accuracy of the forecast, as well on a good understanding of the uncertainties involved.

The state authorities of Odisha started tracking Fani's movement from 27 April, that is seven days before landfall, and activated their contingency plan. A record 1.2 million people were evacuated in just 12 hours as Fani roared towards Odisha coast on 3 May.

The ability to undertake rapid evacuation to match the rapid intensification of the cyclone is a clear benefit of hard wiring disaster preparedness into the state's development in the past 20 years. The state's income is below the national average and yet, it had managed to build and maintain over 1,000 evacuation shelters in the coastal districts; designed a land use plan that could facilitate quick evacuation; and installed communication infrastructures that could reach all at risk populations at short notice.

From zero casualty to zero disruptions and damage

Beyond just weathering the storm, Odisha has poised to raise the ambition of its cyclone policy from zero casualty to zero disruptions and damage. Considering lessons from past disasters as well as the evolving dynamics of risks and societal vulnerabilities, the state is transforming its disaster risk management and development approaches to reduce damages and disruptions. These transformations will be powered by forecast technological advances and ICT innovations.

In early 2019, the State Government has established an impact-based early warning system called SATARK (System for Assessing, Tracking and Alerting Disaster Risk Information based on Dynamic Risk Knowledge) on an experimental basis to guide both short and long-term cyclone preparedness strategies. Enabled by cutting-edge ICT and data storage technology, the system will analyse short and medium range weather forecast (5 to 7 days) vis-à-vis social and economic data to inform the design and implementation of contingency plans. This will help the authorities restore normalcy much more rapidly. For example, requirements for restoring basic services, such as power, transport and communications, can be anticipated and secured in advance based on information generated from SATARK.

SATARK can also guide long-term planning and decision making by producing periodic assessments of vulnerabilities to and risks of primary hazards (the cyclone itself), as well as the secondary (e.g. storm surges, flooding, landslides) and tertiary impacts (e.g. cholera outbreak) in both coastal and non-coastal districts. This is a data-intensive undertaking which requires pooling data and information from several state agencies. It is also an ambitious one; but without a doubt the present leaders of Odisha are well-positioned to bring yet another major transformation in disaster risk management.

Bringing the lessons to the other side of Indian Ocean

The different impacts of cyclones Idai and Fani is a classic example of how *unnatural* disaster is. Ultimately, a hazard can be prevented from becoming a disaster through human and institutional capacity building. And as Odisha demonstrates, this is possible even for low-income jurisdictions and countries. It can be also recalled that Bangladesh also made the same commendable improvements on a shoestring budget.

Reflecting on the success of Odisha in averting mass casualty, Mr. Bishnupada Sethi, I.A.S, the state's special relief commissioner, who supervised the operation said in an interview with the New York

Times: “This is not the work of a day or a month but of 20 years.” While it is important to seize the window of opportunity to introduce major improvements following a disaster, it is equally important to commit to long-term improvements in early warning and disaster response systems to respond to changing demographic and risk patterns.

With the vast experience already available in Odisha, it should not take another 20 years to cyclone-proof Mozambique, or any storm-prone locations for that matter. With its ongoing transformation to improve its systems, Odisha state can serve as a living laboratory. Leveraging Odisha’s experience, Mozambique’s post-Idai recovery policy can realistically aim to leapfrog to zero casualty in just a few years’ time and gradually catch up with Odisha on aiming for zero disruption and damage in the long term. This process could be replicated across the globe.

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