

Reading the perfect storm

Only an integrated approach to disaster preparedness can work, especially in the context of artisanal fisheries

November 1996

One of the most severe cyclones of recent times hit East Godavari district of Andhra Pradesh, India on 6 November 1996. Although cyclone warnings kept coming out from early morning, there was no way the information could reach the fishers at sea or in the outlying areas. Conventional warning systems more or less depended on the time-tested word-of-mouth technologies, which were unfortunately not adequate to deal with emergencies and long-distance transmissions. When the cyclone did hit the coast, the damages were enormous, and as many as 2,560 people lost their lives, of whom, as many as 1,435 were fisher people. Of the fishers, 600 died at sea fishing on mechanized boats, and 830 people lost their lives while collecting shrimp seed. They had been away at sea before the cyclone started, and had no warnings, except for those who had transistor radios. Some of those who had received such warnings could not move to safer locations fast enough. Around 7.12 mn people (over 80 per cent of inhabitants of the Godavari delta) were affected by the storm.

There were very few deaths in the villages due to the cyclone, in spite of the great loss of housing and property. The deaths occurred at the seed collection grounds: about 830 people—women, children and men—died while engaged in shrimp seed collection in remote seashore areas away from the villages. These were some of the poorest people in the region, and also the most vulnerable.

A baseline study done by Action for Food Production (AFPRO), sponsored by the Food and Agriculture Organisation of the United Nations (FAO) soon after the cyclone, indicated the following factors to be responsible for the high death toll in the worst affected areas.

To begin with, the communities were caught mostly unawares; the last experience of a cyclone of such intensity was in 1969, and the development in the area since then—construction of flood banks, bridges to the mainland, roads connecting the remote villages, cyclone shelters, and general overall improvement in the quality of life as well as infrastructure—have all led to complacency. Fishing activities generally peak during May and November, which are also the most cyclone-prone periods of the year, and a period of high risk for the fishers. Moreover, according to the Indian Meteorological Department, one of the reasons for the high death toll was the atypical nature of the cyclone itself, which manifested in unusually rapid development and highly organized form.

Although phones were available in most of the villages, investigations revealed that most of them had been defunct, and were not used to send warnings anyway. The cyclone shelters in most places were hardly functional, and were scarcely used during the cyclone. Only a fraction of the houses in the villages were of concrete, and the rest afforded poor protection to the inhabitants.

Radio transmissions

The only source of information on the impending cyclone during this period was the All India Radio transmissions, and more sporadic warnings on the television. Most trawlers did not carry a transistor radio, and the crew did not regularly listen to the weather forecasts. Many fishers did not take the warnings seriously until it was too late. The local administrative structures were ill equipped either to receive or transmit emergency information. The chain of information flow in such cases was found to be tortuous and lengthy, and was prone

to breaks or delays that could significantly or completely erode the useful time left for a response at the village level before the cyclone struck. It was also found that people had a very poor comprehension of the warnings.

The community-level preparedness to face catastrophes of this intensity was very low. The fishers were not prepared to meet a cyclone either at sea or in their place of work or in their villages. The erosion of natural barriers such as forests and mangroves too was found to have increased the vulnerability of the fishing communities. However, it was also noted that the strategies adopted by fishermen and their families in the face of disaster—though fatalistic in most instances—were also more collective, indicating a strong sense of social cohesion.

The boats were not built for manoeuvring in rough seas, particularly in times of cyclones, and consequently, either foundered or capsized. The boats carried little by way of floatation devices, and, where available, these were seen to have saved many lives. The safety equipment on board was neither adequate, nor properly maintained. The Coast Guard reported that, without exception, fishing boats fail to carry the mandatory safety equipment. Being so ill-equipped, it was not surprising that so many fishing crews perished when the vessels foundered. Moreover, the fact that none of the fishing boats carried any means of communicating with the outside world made it impossible to search and locate these vessels.

As the enormity of the disaster took time to sink in, the State government realized the need for a comprehensive disaster preparedness programme to deal with such emergencies in future. It sought the help of the Government of India for a Sea Safety Development Programme (SSDP), which, in turn, approached the FAO for assistance. The FAO sanctioned a project, TCP/IND/6712, to assist the State Department of Fisheries in the implementation of a pilot project in and around Kakinada, which investigated and introduced measures that could reduce casualties amongst fishers both on sea and on land in times of cyclones. The

project involved setting up a Very High Frequency (VHF) shore-to-vessel communication system, provision of life-saving equipment, provision of diesel engines to assist in the rescue of shrimp-seed collectors in emergencies, and a comprehensive programme for community-based disaster preparedness in fishing villages, which involved facilitating the formation of self-help groups in 30 remote villages.

As part of the radio communication system, two VHF shore stations were established, one in Kakinada and the other at Balusutippa, both in East Godavari District, which, between them, covered most of the area affected during the cyclone of 1996. FAO-trained Department of Fisheries (DOF) personnel were employed to monitor these stations round-the-clock. The shore stations are meant to ensure:

- Life safety of fishers when they are at sea
- Periodic broadcasts of the weather forecast
- Transmittal of cyclone warning messages well in advance for the fishing community (at land and on sea)
- Co-ordination of search-and-rescue operations in case of any emergency at sea

The range achieved by these shore stations exceeds 50 km radial distance. The shore stations were equipped to receive the cyclone warnings from the Meteorological Office in Visakhapatnam via the East Godavari District Collector's office on VHF channels 15 and 16. Once a message is received, it will only need to be broadcast on the VHF frequency to all vessels having the handsets.

VHF sets

As part of the FAO project, a total of 150 25W VHF radio transceivers (powered through 12V batteries) were provided to the mechanized boatowners based at the Kakinada fishing harbour free of cost. Training in using the VHF sets was given to two members of each boat's crew. Even those boats that did not have handsets

received information almost as quickly because most boats tend to congregate in particular fishing grounds.

Fixed VHF radio transceivers with 3 dB GP antennas, mounted on 90-ft masts, were considered for installation in the remote villages on the coastal islands to establish a voice communication link during the cyclone periods as a disaster preparedness measure. These radios are powered through 12v lead acid batteries as standby power supply.

Two safety workshops were conducted for boatowners, operators and inspectors to provide them the necessary information on the maintenance and management of the VHF sets in vessel-to-vessel and vessel-to-shore communications, besides discussing the safety aspects in boatbuilding, amending and enforcing regulations and using sea safety equipment.

The project demonstrated a prototype Fibreglass Reinforced Plastic (FRP) life float for carrying on board the mechanized boats, which costs less than Rs7,000, but has the advantage of being locally made and maintenance-free. It can keep the survivors together in case of their boat capsizing, and, being brightly coloured, can attract rescue boats or aeroplanes. The float can be fitted on the top of the boat's wheelhouse in such a way

that it will float free in case of capsizing. The project manufactured and distributed 100 life floats to the mechanized boats to increase awareness about their usefulness.

In spite of much improvement in relief and rehabilitation efforts of the government and NGOs, there were still areas where the responses were not adequate.

Very little work had been done to enable the communities themselves to be more prepared and able to receive, comprehend and respond to warnings. The cyclone of 6 November 1996 focused attention on the need to take a fresh look at disasters and their management.

The awareness programmes for disaster preparedness included:

- Training 20 Storm Safety Extension Officers (SSEOs), two of whom were sent to observe disaster preparedness systems in Bangladesh and also attended a training course on Community Disaster Preparedness at the Asian Disaster Preparedness Centre, Asian Institute of Technology, Bangkok. Of the 20, ten SSEOs were drawn from the DOF and the rest from local NGOs, with the express intention of building stronger working relationships between the two.

- Establishing and training 30 volunteer disaster preparedness groups called Storm Safety Action Groups (SSAGs) in 30 villages, which was expected to reduce vulnerability within the villages. Each SSAG comprised 25 volunteers, who were mobilized by raising awareness about cyclones and disaster preparedness in their village, and then trained in a range of disaster preparedness skills by a team of SSEOs.
 - Equipping the SSAGs with transistor radios to receive warnings, megaphones to transmit the warning throughout the village, torches, first-aid kits, coats, hats and boots (for the SSAG members), lifejackets (for the shrimp seed collector rescue crew). The SSAG will manage the safety of the community through their Community Cyclone Contingency Plan (CCCP), and, ultimately, everyone in the village should know where to go, and who to help, etc., in the event of a cyclone warning.
 - Specific components to warn and rescue the shrimp seed collectors in times of cyclone threat, for, besides the mechanized boat crews, shrimp seed collectors were the other group of worst affected people in the cyclone.
 - Making an educational video about Community Disaster Preparedness and Storm Safety Action Groups.
- The project took into consideration the need to maintain a gender balance amongst the SSEOs, and tried to ensure equal participation from men and women in the programme.
- June 2001*
- Prior to 1996, cyclones were mostly taken for granted and fishers looked upon them as no more than occupational hazards, at best upsetting the fishing operations for a few days. But now, all that has changed. Cyclones have come to be taken more seriously, and so are the VHF sets.
- “November 1996 will not happen again, not in this area anyway,” insists Siva, a mechanized boatowner based at Kakinada. “The radio handsets are easy to carry on board, cost next to nothing in maintenance, and are a great source of comfort and protection; having them on board is like taking a life insurance,” he says.
- Five cyclones**
- In the last three years, there have been at least five cyclones which came close to the shore in the area, and every time, it was

possible for the Kakinada boats to reach the shore quickly.

Another boatowner, Srinu, adds, “It is not as though the VHF sets are useful only in emergencies. Once we started using VHF handsets, we quickly found other uses for them such as keeping in touch with the base regularly and communicating from boat to boat on possible good fishing grounds and so forth.” The DOF is also exploring possibilities for relaying remote sensing application data on possible fishing grounds in a consistent and reliable manner, which will automatically add to the value of the service.

The Government of Andhra Pradesh, which was convinced of the efficacy of the FAO project, stepped in with a project of its own to set up more shore stations and to provide handsets to the boatowners at a subsidized price. The DOF in Andhra Pradesh has so far provided 400 VHF sets after the pilot phase came to an end, and the programme will continue. The boatowners quickly realized the multiple uses that the VHF sets can be put to, and the DOF constantly receives enquiries for VHFs from other boatowners. The Government of Andhra Pradesh also set up a Vulnerability Reduction Fund (VRF), under which in the year 2000, 10 more shore stations have been established along the coast of Andhra Pradesh.

Gangadhar, a semi-retired fishworker of 70, who lost a son in the cyclone, can not help wondering if having VHF sets on board could not have saved his son. “I understand how painful it is to lose someone so close. I did not allow my other sons to go fishing for fear they may not return, although we were starving. Now, with the radios on board, I feel more confident, and my sons have started fishing once again.”

A cyclone of such magnitude affects a wide range of people with different backgrounds and livelihood strategies, and the response to it should necessarily have to be as wide-ranging as possible. One particularly significant outcome of the programme, which has long-term implications not only in terms of disaster preparedness, but also in other development initiatives in the coastal

areas, is the networks that the project managed to establish: between the government and the NGOs and between the secondary stakeholders and the fishers. Even between different government departments, it was possible to establish horizontal linkages through training and awareness generation.

Most SSEOs, both from the DOF and from the NGOs, have reported that the project helped them understand one another’s roles and responsibilities better. It also sensitized them to the problems and constraints that each organization and individual within a system is regularly exposed to, and this, in turn, has led to very productive post-project interactions and the establishment of personal relationships. This appreciation of the integrated nature of development—be it disaster preparedness, sea safety, resource management or sustainable livelihoods—has also led to joint initiatives with a holistic approach to all these issues.

Most importantly, it is the response of the fishing communities to the programme that is overwhelming. Interactions with the fishers involved in the programme indicated that they felt it had been instrumental in opening doors to many agencies and individuals previously considered unapproachable.

In summary, it can be concluded that an integrated approach to the issue of disaster preparedness—which means considering not just the technical issues, but also the social, cultural and economic implications of any intervention among the artisanal fishers, and recognizing the need for a multidisciplinary and multisectoral approach, involving the primary stakeholders at every level of decision-making—does not only work, but also provides a framework for development as a whole. 🍀

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