Humanitarian Logistics Management – A case of Phailin

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Abstract
This case study aims to validate the framework for disaster relief logistics, by using the events that occurred before, during and after the cyclone Phailin, when it hit the east coast of India in October 2013. Validation of the framework would help in future while managing a disaster relief logistics.

Keywords: Disaster, Relief, Logistics

"We have been successful in minimizing the loss of lives. Now rehabilitation is a very big challenge for us as property worth several crores of rupees has been destroyed. I will see to it that the people are actively rehabilitated, we have successfully evacuated nine lakh people. This is one of the largest evacuation operations to have taken place in the country", Naveen Patnaik, Chief Minister of Odisha said at a press conference on 13th October 2013. Odisha was hit by Phailin and whole state was under a trauma, exact figures of total destruction were yet to come but the estimated figures pointed that they would be high.

This was the second time Odisha experienced a cyclone of such big scale. Earlier in 1999, Odisha was hit by a storm with 8 meter surge, which traveled up to 20 km inland. 17,110 km² of crops were destroyed and an additional 90 million trees were either uprooted or had snapped. Approximately 275,000 homes were destroyed leaving 1.67 million people homeless. Another 19.5 million people were affected by the super cyclone to some degree. A total of 9,803 people officially died from the storm, with 40 others still missing, though estimates of the dead and missing have been as high as 15,000. 8,119 of those fatalities were from the Jagatsinghpur district. Another 3,312 people were injured. 2,043 out of 5,700, or 36% of the residents of Padmapur perished. The number of domestic animals fatalities was around 2.5 million though the number of livestock that perished in the cyclone amounted to only 406,000. The high number of domestic animal deaths may have possibly had to do with around 5 million farmers losing their livelihood. The damage across fourteen districts in India resulted from the storm was approximately $4.5 billion (1999 USD, $5.1 billion 2005 USD) (BAPS Charities, 2014).

But this time, Cyclone Phailin struck with adequate warning. Hence the administration was able to take preventive measures to save precious lives and infrastructure. The India Meteorological Department (IMD) issued early warnings for the cyclone. Since the Orissa Super Cyclone of 1999, a lot of modernization has been undertaken for correct and timely early warning. The early warning starts from the time the System is formed "Depression" (The first warning is "Cyclone Watch", given 72–96 hours before the land-fall. From then on a close watch is kept on the cyclone's movement, its speed, direction and likely areas of land-fall. The information is gathered through
satellite imageries and Doppler radars deployed at vulnerable places, with over-lap, sensors in the sea and through the ships. The second warning called "Cyclone Alert" is given 36–48 hours before the Landfall and the third warning called "Cyclone Warning" is 24 hours before the cyclone hits the land. This is when the evacuation is ordered by the District Collector. The last warning is the, "post land-fall alert", when the eye of the Cyclone hits the land, giving the direction it will follow, with speed of wind and rain fall prediction).

The model suggested in literature (Kova´cs & Spens, Humanitarian logistics in disaster, 2007) for any organization to effectively deal with any disaster has three phases namely:
- Preparation phase
- Immediate response
- Reconstruction

![Diagram: Preparation → Immediate Response → Reconstruction]

**Preparation**

The Orissa State Disaster Management Authority (OSDMA) team and the ministry for disaster management managed the largest-ever evacuation exercise in the state and planning large-scale relief preparations. Various departments took an initiative in preparedness.

The panchayat raj ministry issued detailed guidelines for preparedness for the impending cyclonic storm as early as on October 9, 2013. Control rooms were set up in Ganjam and other nine districts, mobile phone numbers were updated and verified, and leaves were cancelled to have almost all the staff on stand-by, and food and relief stocks was kept in readiness. Block Development Officers visited cyclone shelters to keep them ready for the likely influx of those fleeing from the cyclone. The Odisha government ensured that there is enough coordination among the various ministries, from panchayati raj to social welfare. A plan of action — on which department will do what and when once the cyclone strikes — was drawn up in detail. The state government held meetings with international NGOs to draw up a roadmap to tackle the aftermath of the cyclone. The National Disaster Management Authority facilitated local efforts in Odisha, mobilizing rescue teams and sending equipment to possible hot spots. The NDMA deployed nearly 2,000 personnel of the National Disaster Response Force in Andhra Pradesh, Odisha and West Bengal. Evacuation of people started from danger zones in Andhra Pradesh and Odisha. Rescue and relief teams were positioned in vulnerable coastal area. Some additional teams were kept as reserve. Twenty nine teams of the NDRF were deployed along with rescue equipment in Odisha. The teams were equipped with satellite phones and wireless sets to maintain smooth communication.

The Odisha State Disaster Management Authority (OSDMA) was instrumental in coordinating between various governments departments to affect this mass evacuation. For instance, the Panchayati Raj Department, goaded by the OSDMA issued detailed guidelines for preparedness for an impending cyclonic storm started as early as October 9, 2013. The cancellation of the holiday leaves of all back-bone staff on stand-by and stocking food and other relief material at the district level was a crucial decision to make the state prepare well to counter the cyclone. Another
important reason for the successful preparedness during cyclone Phailin is that the Government of Odisha (GoO) sought counsel from the best in the field: United Nations Development Program (UNDP) for coordination and cluster preparedness as well as the visiting CDKN global chief for ways to integrate climate change and development concerns in preparedness from evacuation to rescue teams (The advice included ways to reduce mismatch between what citizens expect and what public institutions can deliver. Loss of livelihoods of women, especially during evacuation was discussed).

NDMA placed 56 teams of the National Disaster Response Force (NDRF) at the vulnerable places as a proactive measure, with reserves for each of the two states and West Bengal, kept in interior places. The States were also advised on where to keep their State Disaster Response Force personnel to avoid duplicity of efforts. The NDRF personnel, the only force of its kind in the World, highly trained exclusively in disaster management and has the state of the art equipment, also helped the district administration in evacuation of population as also informing them on actions to be taken by them at different timings.

Immediate response

Army columns and helicopters and fixed winged aircrafts from Indian Air Force were moved nearer to the impact area at safe distances. The Indian Navy and the Coast Guard helped the fishermen and ships which were caught in the grip of Cyclone Phailin. Central Medical teams were kept ready to be moved at short notice. Although the States had catered for rations, water and medicines in each shelter for 36 hours, Centre also kept rations to be moved forward as and when the need arose. The Indian Railways were informed not to run trains in the impact area till the cyclone passed over the area. The Department of communication and National Highways Authority of India (NHAI) kept their resources (men, material and machines) ready to be moved at a short notice to restore the communications and make the roads pliable for responders. NDMA also kept the media informed on the movement of the cyclone as also the measures taken to minimize its effect.

One instance of level of response the people and government had:
Team members from the All India Disaster Mitigation Institute (AIDMI) visited Jaipur village in the Puri district of Odisha to assess the preparedness of the community ahead of the advent of cyclone Phailin expected to make landfall between 18:00-20:00 hours at Gopalpur. It was observed that the community members were moving to safer locations such as schools and pucca buildings with important documents and materials. In addition to this, several trees felled by community members as pre-emptive measures to prevent death caused by trees falling over people during or after the cyclone. All these actions provide incontrovertible evidence that not only has the community received the early warning messages but have taken them seriously as well.

The preparedness level in the face of this natural disaster was exemplary. The greatest contributing factor to the minimal loss of human life resulting from this cyclone was the mass evacuations that took place in Odisha and Andhra Pradesh. In Odisha alone 700,000 people have been evacuated from the coastal districts to various storm shelters. The evacuees were put up in some 20,000 cyclone shelters, schools, colleges and other safe places. In Andhra too close to 80,000 people have been evacuated which was responsible for minimal deaths. This raises the question of what
actually worked to lead to minimal loss of life. All evidence points to the indomitable will of the state government to effectively plan and coordinate the one of the largest evacuation exercises that in India in recent history. The state government in its efforts was also supported by an empathetic and alert central government that was wise enough not to dictate decisions to the state government. The uniqueness of the preparedness efforts for this cyclone was that the centre facilitated the processes that were initiated by the state government.

**Reconstruction**

Worldwide efforts were made to reduce losses due to disasters. Heat was one example where preparedness paid. India witnessed a major cyclone over the week end which could have killed hundreds of people if an effective early warning and response system would not have been put in place. Cyclone Phailin hit the Bay of Bengal on the eastern coast provinces (states) of Andhra Pradesh and Odisha on Saturday with winds over 200 kmph and heavy rainfall. Number of deaths due to cyclone was an astonishingly low number considering the 12 million people who live in the storm's path. Thanks to an efficient early warning system and rapid evacuation measures deployed by national and local governments, nearly 500,000 people were able to be evacuated in time and moved to higher grounds and safer cyclone shelters. As the cyclone approached, many villagers tried to stay behind to safeguard their land and livestock during the worst of the storm but almost none were unaware of the coming danger said witnesses, which was a big change. People knew about the coming storm and were able to take some measures to reduce their exposure. Early warning messages sent out through cell phones and TV channels helped saving lives even in the most remote rural areas. A boom in the construction of cement houses, schools and businesses is said to have provided also crucial shelter to villagers who had somewhere to go for safety.

Lives were spared but economic losses were high—in rural agriculture, fisheries—this will have long term consequences on people in the region who are among the most poor. An estimated 5,000 sq km of mostly paddy crops were destroyed by the cyclone causing an expected loss of some $320m (£220m). Recovery in Delta will take time. With some of the world's warmest waters, the Indian Ocean is considered a cyclone hot spot. The Bay of Bengal region is among the most vulnerable in the world to the effects of climate change, and experts have predicted that storms are likely to become more intense and frequent. Citizens and authorities saved lives with determination. Same determination will help address the challenge of loss of livelihoods of the poor in coastal areas.

The preparedness measures taken by NDMA bore the required results. Due to the war footing measures taken by NDMA, India responded in a robust manner to Cyclone Phailin. Due to the prevention, mitigation and preparedness measures undertaken by all the concerned stakeholders, viz. the States, Union Government, NGOs or the community at large, the loss of life was restricted to 33 casualties. It impressed the world and the UN so much that the latter has requested the Govt. of India to permit it to be used as a model of response for other countries to emulate. There are challenges yet at the ground level, as the people have to be fed in relief camps, as a large number of houses have been destroyed. It also needs to be ensured that no epidemic is spread as a result of the stagnant waters of the storm surge. Rehabilitation and reconstruction work have simultaneously started to restore normalcy which is going to take some time. Odisha will recover in due course of
time with financial support from the Union Government, other States and the corporate world and organizations/individuals. India should feel relieved and proud that they have been able to face a very severe cyclone, with minimal collateral damage.

Disaster Management Division, Ministry of Home Affairs, Government of India has revised its Manual on Administration of State Disaster Response Fund and National Disaster Response Fund in 2013. In the event of a severe natural disaster this manual is a guide in preparation of Memoranda to the State Governments/UTs seeking additional financial assistance. The revised items and norms of assistance, instructions and formats for submitting of monthly/annual reports relating to the response funds are highlighted in it. The overall objective of the revised manual is to further streamline the entire process of timely release of funds for disaster response and making the processing of financial assistance proposals smoother and quicker.

Odisha has set an example for the rest of India by using all the resources efficiently in the pre-disaster stage. This efficient planning of preparedness activities in the predisaster state is perhaps the greatest reason behind the minimal loss of life after the cyclone. Other reasons include the constant monitoring of weather patterns and warnings, clear instructions to district authorities, positioning of relief materials and teams well in advance, coordination with the central government for defense and other agencies’ assistance, and most importantly, the evacuation of a large number of vulnerable citizens to safe locations.

**Conclusion and Future recommendations**

The mapping of events in a chronological order according to the model in the literature (Kova´cs & Spens, Humanitarian logistics in disaster, 2007) clearly depicts that the model is valid and different agencies/organizations/government bodies can follow this model while dealing with a disastrous situation and this would help them to sail through the disaster in a most effective way with minimized losses to all. In the paper the disaster discussed occurred in India, which is one of the developing country this means other developing countries which are prone to natural disasters can easily adapt this model as well.

The model is studied mapping the events of a natural disaster further research can be done to see that whether this model is applicable for handling man-made disasters as well.

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