

Tropical Revolving Storms – Burma/Myanmar 2008

– Cyclone Nargis

By The British Geographer

Place Context

Burma as the British refer to Myanmar is located in South Asia to the East of India and Bangladesh to the west of Tibet China Laos and Thailand. Its coastline, 1200 miles long (1930km) runs along the warm tropical waters of the Bay of Bengal and the Andaman Sea.



Figure 1

Climate Characteristics

Burma has both a Tropical Monsoon Climate and a Tropical Wet and Dry Climate. Both of which are characterized by an extended period of dry anticyclonic conditions that lasts from November to April and a wet humid season that last from May to October. The Monsoon affect mainly the narrow coastline in south west that runs along the bay of Bengal and Tropical Dry Wet Climate affect mainly the central regions of Burma and it south east region that runs alongside the Andaman Sea. Despite being located in a tropical region in close proximity to warm oceans, Burma is not frequently subjected to tropical revolving storms as their track is often pushed more western within the Bay of Bengal.

The Severity of the Storm

Cyclone Nargis was the worst tropical revolving storm to impact Burma in recorded history.

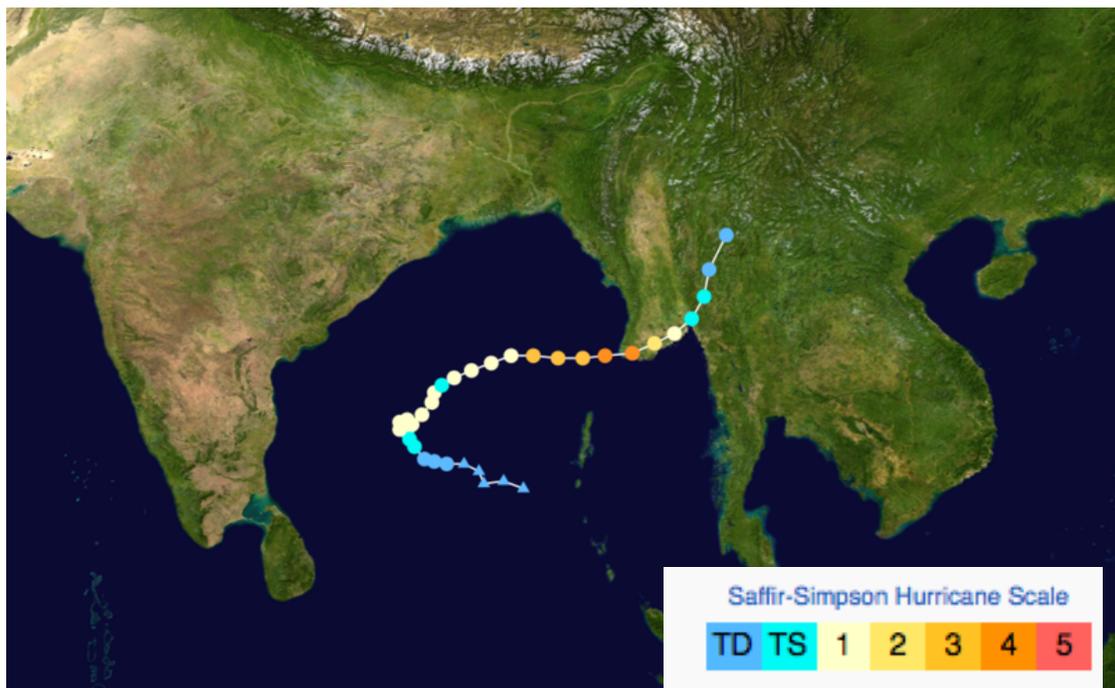


Figure 2: Wikipedia

Cyclone Nargis was a category 4 Tropical Cyclone when it made landfall at the Irrawaddy Delta on the 2 May 2008. Its peak wind speeds reached 135 mph or 215 km/h. As it travelled over land it weakened slowly but rapid reduction was reduced due to its proximity to the Andaman Sea. It passed just north of the Burmese capital Yangon with speeds in excess of 80 mph or 135 km/h. The system brought in a 4-meter storm surge that extended as far as 25 miles inland across some of the lowest land elevation in the country. Figure 3 shows the track and altitude of the land across the Irrawaddy Delta.



Figure 3: Wikimedia

As can be seen from Figure 3 the track of the storm impacted very low-lying areas of the Irrawaddy Delta. The vast majority of this coastline lies less than 1 meter above sea level and would have been devastated by a 4-meter storm surge. The surge would have experienced very little resistance. With the main land-use, rice paddies the surface offered an almost frictionless terrain for the surge to glide across, helping it to extend very large distances inland.

The Impacts

The cyclone caused catastrophic destruction across its track and along the low-lying coastal delta. At least 138,000 people were killed. The death toll was highest in the western and central regions of the Delta compared to the capital Rangoon. The Labuta Township alone was reported to have 84,000 dead, and a further 4500 missing. There were 10,000 more deaths reported in Bogale. In addition there were 55,000 further deaths or reported missing people in and round the townships. Wikipedia suggest that the Burmese Government stopped reporting deaths above 138,00 to minimize political fallout. Figure 4 shows the track of Cyclone Nargis and population density of Burma.

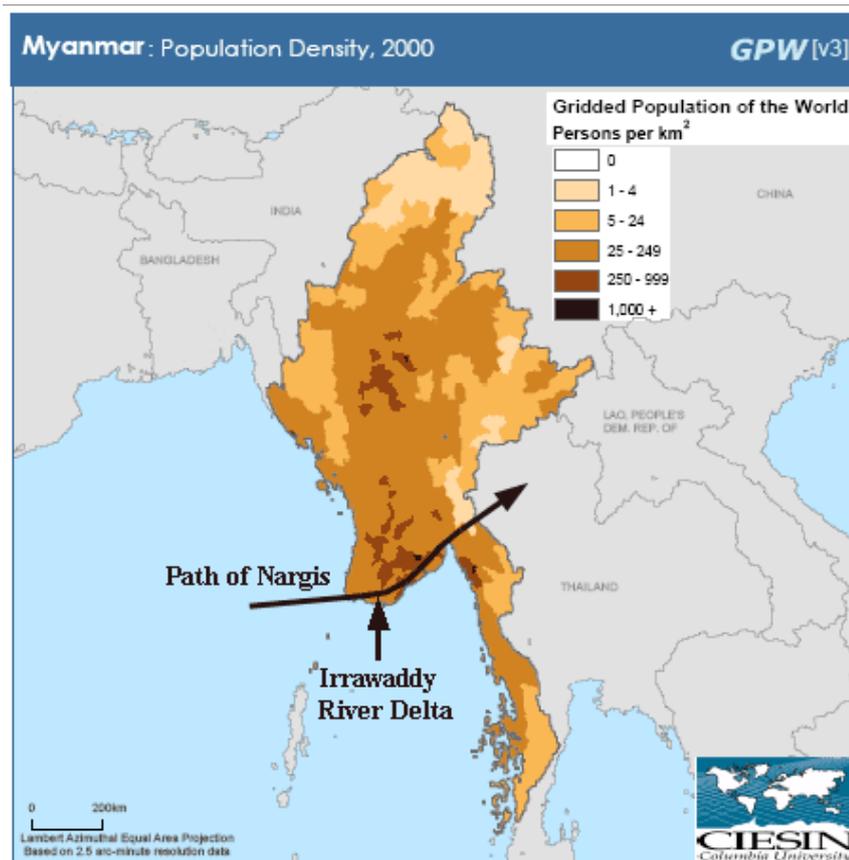


Figure 4: Source - Columbian University

Although the storm passed close to Rangoon, with of a population between 5 and 6 million, fatalities were reportedly far lower due to the absence of a storm surge, better building structures and the diminishing intensity of the storm. However, slum settlements outside of Rangoon were heavily damaged as these were made of only basic thatched and bamboo materials. The slums are the areas where the city's poorest people live.

In total 2.4 million people of which 1 million were children were directly affected by Cyclone Nargis with widespread loss of basic housing amounting to over 450, 000, a further 350 000 were damaged. 630 health clinics, about 75 percent within the region and over 3900 schools were swept away. 65 percent of the annual rice harvest and 60 percent of all farming implements were lost, which led to widespread food shortage and potential famine conditions on the ground. There was also widespread concern that disease would spread in the aftermath of the storm but luckily this didn't materialise. In total the economic cost was thought to be over \$4 billion. A figure kept so low only because of the low level of development status in the country. The lives and livelihoods of survivors were also severely disrupted with up to 800,000 people displaced. There was a substantial loss of food stocks, equipment, infrastructure and rice paddy.

The Management of the Cyclone

Firstly, it's important to understand that Tropical Cyclones in Burma are not frequent atmospheric occurrences; there had only been two category 4 cyclones hit Burma in the previous 15 years, before 2008. However there have now been three in the last 6 years and so the frequency of the storms and irregularity of their tracks appears to be changing.

The reason I clarify this point is in part defense of the Burmese government. A storm of this size and scale would devastate the economy of any country at any state of development or political orientation. The sad retrospective and damning comment to make on the management of this storm reveals itself in the tragic and massive loss of so many lives.

When examining the management of hazards it's important to investigate three key phases; namely, the preparation, emergency response and long-term recovery.

Preparation

The Burmese Government was given a 48 hours early warning from India's meteorological agency, which monitors cyclones in the Indian Ocean. The warning informed the Burmese on where the storm would hit and its severity. However, many Burmese have since complained that they were not properly alerted. Certainly state media did give some warnings of a storm, but people in Burma say the severity of the cyclone was unclear and no instructions were given as to what action they should take. According to the BBC at the time the UN suggested that it was clear many people did not have time to seek refuge in secure buildings and that the scale of the devastation suggested there was not a proper early warning system.

The sad truth of the matter lies in the development status of the Delta region. Poor rural communities do not have universal access to TV or radio and so many thousands of people would not have heard the message. In addition, due to poor governance, there was no organised communication system for taking the message into remote rural regions, for example through community coordinators, like that seen in Bangladesh. This failure is further compounded by the low frequency of such cyclones in Burma. Low frequency of hazards lowers the perception of risk. In this light the people had no living memory or poor memory of the hazards associated with cyclones. Unfortunately for the people of the Irrawaddy Delta, there was a failure to increase their perception of risk. Very little information appears to have been communicated on the hazards of the cyclone or in regard to evacuation.

Emergency Response

There were a number of mitigating circumstances that hindered the emergency response phase of the management. Firstly, many regions affected by the worst of the cyclone were located in remote regions of the delta. Prior to the cyclone these were only accessible by the most rudimentary of roads that had all been washed away. Access to the remotest areas could only be made via traditional wooden boats that could carry only a limited amount of aid. Luckily, there was a broad range of NGOs such as the Red Cross who already had well established local networks from which to distribute much needed emergency aid including food and water sterilization kits. Unfortunately these organization were only local based and lacked specialized skills of hazard management.

The general response of the Burmese government (military junta) was considered inadequate. Despite showing in its political rhetoric, a greater willingness to accommodate international support, very little changed on the ground. The first 10 days were characterised by an unwillingness to allow specialized foreign personnel into the country. Cargo loads of aid remained offshore in ships and at border points; flights were refused entry. To say that there was a complete ban on incoming foreign aid would be misjudged as Burma did accept aid quickly from some of its regional partners, such as Thailand, India and China and other external agencies were also able to support the relief effort. Aid agencies were able to use established Burmese contacts.

"We have an existing operation within the country, we have an existing relationship with the government. They understand how we work and have allowed us to mount an operation in the delta," said a spokesperson for the World Food Programme.

However it took one week for the first World Food Program flight carrying aid to be allowed to land in Burma. The UN complained of obstacles being put in the way of the humanitarian response, visa controls and lengthy bureaucratic systems led to unreasonable delays. There were reports from within Burma that suggested insufficient food was getting through, reports of village lotteries for access to food aid, single families being given one cup or rice, one potato and one fish each and border control officers accepting bribes to allow the Burmese out and into Thailand. Other eyewitness reports described how the military were observed cleaning rubble away whilst there were still corpses on the streets. This led some commentators to suggest the junta were more concerned for the upcoming referendum than the welfare of their people. The emergency response problems are best highlighted in the debacle concerning the use of UN helicopters. Out of 9 desperately needed and available UN helicopters only one had been allowed to fly missions into Burma 1 month after the cyclone.

There is one argument in defence of Burma, which should be mentioned as part of our examination of the facts. The Burma situation was and still is an incredibly politicised one. Burma is controlled by a military junta, which countries like the USA and UK refuse to even recognise. The USA has

maintained a long-standing embargo on all trade with Burma. One can understand Burma's position in refusing to cooperate both with the US and organisations like the UN that have questioned and threatened their legitimacy and ability to develop as a country. A second point concerns the US aid ships outside Burmese waters, which were Navy ships. This can understandably, given the political context and strong political rhetoric at the time, be understood as a threat. It is also fair to say that western media was in many ways imbalanced in its reporting. There was heavy reporting on the Burmese refusal to accept US and UN aid. In stark contrast there was very little coverage on the cooperation of Burma with its neighbouring regional partners, although the BBC did feature this in some of its reports.

All said, it must be noted that there were clear failures in government response to the cyclone, that only exacerbated the humanitarian disaster that was unfolding on the ground. Both the Burmese military and the networks of NGO in the country lacked the experience and skills to manage the impacts of a natural disaster of such scale. There appeared to be no organised operative system and their efforts were hindered by the difficulty of access into remote delta regions. Whilst there was some cooperation with regional countries partners, the amount of aid reaching the people was inadequate for many thousands of people. The government's refusal of UN aid and the bureaucratic barriers to international assistance were unacceptable given the scale of the humanitarian disaster. There were clear examples of poor response, where some of the basic first of providing food, water and body recovery were missed and in many ways given the inadequacy of aid it was simply a miracle that widespread disease didn't further decimate the population

Recovery

The resilience and resourcefulness of the people of Burma affected by Cyclone Nargis and the accommodating attitudes of communities hosting displaced people to aid the recovery is one of the most striking positive comments. Resilience is common in all poverty stricken regions of the world. The poor and downtrodden always seem to have that ability to move on and fend for themselves. A skill that I feel is in short supply in more privileged developed countries, whose response to natural disasters in many cases could be likened to that of spoiled child.

In terms of the long-term recovery reports from the UN and the regional body ASAEAN at the time of the cyclone suggested that over \$1 billion would be needed to aid the recovery. This estimated figure was to cover the most urgent needs such as food, agriculture and housing for the next three years. One month after the cyclone the Burmese government relaxed its rules on foreign aid workers entering the country and so the local network of agencies were provided with the much-needed expertise to organize the aid effort. Huge natural barriers continued to hinder the recovery. Access to remote villages was painfully slow. Villages of between 20-40 families were only accessible by motorboat and still could take many hours and up to a day to reach. Many such villages saw no aid for months after the disasters and

eyewitnesses commented on corpses of both people and cattle still in the waters months after the cyclone.

One year on from the cyclone aid agencies like the Red Cross, World Vision, Unicef and Save the Children and many more had been able to ramp up the recovery, although over 100 000 people were still living in temporary shelters under tarpaulin sheets, stronger raised housing and stronger schools were built but only for a fraction of the numbers needed. NGOs and civic society groups spearheaded the recovery of Burma and the UN also played an important role. However there is clear evidence of a dependency on foreign funds and support.

Farming yields in the long term have fallen across the area due to salinization of soils from the storm surge. NGOs and partner countries have supported the recovery with new farming techniques and rural development schemes. Quality strains of rice, more resistant to salt and pests have been introduced to thousands of unproductive farms and harvests have seen successes, but this remains a small fraction of what is needed. Many households remain crippled by debt from loans they took out to purchase tools and seeds for their first harvest following the cyclone.

One organization, the Red Cross launched a cash-for-work-livelihood project. In this project, the community decided on the specific projects that were important to them and also decided those who could participate in the project, earning a daily wage of \$2 a day. In other ways community support projects provide *psychosocial* support to those people most affected by trauma. Trauma recovery is an important part of the recovery and following training many people in the community have volunteered to help in the process, many of whom have suffered trauma themselves.

The ability of developing countries like Burma to recover from massive scale natural disasters like Cyclone Nargis is very difficult. Development factors alone are a massive barrier. The physical geography and remoteness of rural communities have been difficult to overcome. The political situation is incredibly complex and this inevitably has an impact on the scale of international support and their willingness to support. A great trust-divide exists between the military junta and the international community. Within this vacuum civic society groups and NGOs appear to be leading the way. However, both the scale of their reach and funding is limited and inevitably the recovery progress has been protracted. A grass-roots approach and community leadership of the recovery reflects positively on both the resilience and spirit of the Burmese people but unfortunately little can be said for the Government. Within the political sphere there have been no winners.