

Typhoon Rai Response:

The Role of the Mobile Industry

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Introduction

On December 16, 2021, the Philippines was hit by Typhoon Rai (known locally as Odette) causing devastation in island and coastal communities in the east and flooding cities all over the country.[1] Typhoon Rai made an initial landfall in the Caraga region in north-eastern Mindanao and the Leyte and Southern Leyte provinces in the Visayas island, with gusts up to 270 km/h and winds of 195 km/h near the centre.

Considered a Super Typhoon, Rai was the strongest storm hitting the Philippines and the second deadliest disaster globally in 2021, after the Haiti earthquake.[2,3] Nearly 8 million people were affected by the typhoon—with many communities suffering compounding effects due to the ongoing COVID-19 pandemic. Across the Visayas and northern Mindanao, there was widespread damage to livelihoods, agriculture and infrastructure. Many people lost their homes and power lines, water supplies and communication networks were destroyed and interrupted in many communities. The lack of power and communication posed communications challenges, disrupting emergency response efforts.[4] A total of 379 cities experienced power outages and interruptions and 124 cities continue to face outages as of 2 February 2022.[5] In total, more than $100 million are estimated to be required to support the recovery in the two worst-affected regions. With over 800,000 people pre-emptively evacuated and more than 300,000 displaced, nearly 160,000 people were still in evacuation centres by the end of January 2022.

Typhoon Rai has proven to be one of the most damaging disasters to have hit the Philippines. However, around 400 lives were lost due to Typhoon Rai compared to disasters like Typhoon Haiyan in 2013, when 6,300 people died. The significantly lower number of deaths highlights the country's experience and improved coordination of the response to disasters, including the work from the national government, local government units (LGUs), international organisations, and the private sector, including mobile network operators (MNOs).[6]

1. International Federation of Red Cross and Red Crescent Societies (2021). *Emergency Appeal. Philippines, Asia Pacific. Typhoon Rai (Odette). Appeal No. MDRPH045*
2. Ibid.
3. United Nations Office for the Coordination of Humanitarian Affairs (2022). *Super Typhoon Rai. One month on: in numbers*
4. Ibid.
5. NDRRMC (2022) *Situation Report for Typhoon Odette.*
6. Ibid.

KEY MOBILE MARKET STATISTICS

TOTAL MARKET PENETRATION	138.58%[7]
4G COVERAGE BY POPULATION	99%
SMARTPHONE CONNECTIONS	82.87%
BASIC PHONE CONNECTIONS	8.13%[8]

OPERATORS

Globe Telecom
Smart (PLDT)
Dito Telcommunity

Mobile industry actions in response to Typhoon Rai

The mobile industry works closely with the authorities in the Philippines in preparedness, early warning and response. The country has a well-established system for disaster risk reduction and management at the national level, led by the National Disaster Risk Reduction and Management Council (NDRRMC) under the Office of Civil Defence. In addition to this, provincial and local levels must establish their own Disaster Risk Reduction and Management Office.[9]

As public utilities, MNOs are required to support disaster preparedness and response activities in the Philippines. Both Globe and Smart have been active in the response to the typhoon, supporting the government, first responders and the residents of the Philippines.

"It's important because we know communication is aid. It's like water and electricity. You need to be able to reach your loved ones and find out what's going on around you. To do that you need connectivity."

Emmanuel Estrada, Globe SVP, Technology Strategy and Service Integration

"The communication and relief aid of PLDT, Smart, the PLDT-Smart Foundation and their partners worked with others to mobilize resources to reach more people in need following Typhoon Odette."

Catherine Yap-Yang, First Vice President and Head of PLDT and Smart Group Corporate Communications.

7. This indicates that many people in the Philippines have more than one phone
8. GSMA (2022) *GSMA Intelligence: The Philippines*
9. Monteverde, C. et al. (2020). *Multi-Hazard Early Warning System (MHEWS) in the Philippines [Presentation slides].* Workshop on Strengthening Multi-Hazard Early Warning Systems (MHEWS) and Early Actions (EA) in Southeast Asia (SeA), UNCC Bangkok, Thailand, 18-20 February 2020

Box 1. The Humanitarian Connectivity Charter

Since 2012, the GSMA has been working with MNOs and policymakers as they navigate disasters and crises. In 2015, the GSMA launched the Humanitarian Connectivity Charter (HCC), an industry initiative to support MNOs in providing improved access to communication and information for those affected by crises to reduce loss of life and positively contribute to humanitarian responses.

Globe and Smart are both signatories of the HCC and have long been lauded as excellent examples both regionally and globally of MNOs with strong disaster preparedness and response protocols and business continuity management plans. More information on the HCC and how Smart and Globe prepare for and respond to natural hazards can be found in the report, Building a Resilient Industry: How Mobile Network Operators Prepare for and Respond to Natural Disasters.

Anticipating hazards, disseminating warnings

During Typhoon Rai, the NDRRMC continuously monitored and disseminated warnings on rainfall, weather and general flood advisories. MNOs are mandated to deliver emergency alerts and warning messages at regular intervals.[10] Messages are provided and validated by the NDRRMC, and must include details of the emergency, and specific regions or areas affected by the hazards.

For instance, when hazards are imminent, Globe sends geo-targeted SMS warnings and cell broadcasts to customers and has partnered with LGUs to provide them with free services and charging stations in affected areas.[11] Smart also sends blast SMS messages to their customers, via their Infocast to reach specific target communities.[12]

In addition to providing immediate warnings during Typhoon Rai, operators continued to support emergency services to provide advisory services. For instance, in the recovery efforts post-Typhoon Rai, Globe set up a service to provide local government units with free SMS blast services to send public advisories to communities affected by the typhoon and to alert them where networks have been restored.[13]

10. National Disaster Risk Reduction and Management Council (2015). *Joint Memorandum Circular. No 001 s.2015*
11. Globe (2020). *Early Preps, Good Comms Key Factors in LGUs' Disaster Resilience*
12. Smart (2014). *Smart Infoboard as an Emergency communication tools gains traction*
13. Globe (2022). *Globe provides Typhoon-hit LGUs free 30-day SMS blasts to reach constituents with one click*

Box 2. Smart's hazard monitoring and early warning support

Smart has developed a comprehensive Disaster Preparedness and Response Programme which includes early warning and alert dissemination, and the development of decision support tools for different agencies and communities, and response plan to support people affected by disasters.[14] Some examples of Smart's strategy include:

eCBS or Emergency Cell Broadcast System (ECBS): A system that quickly sends public warnings from the NDRRMC, such as evacuation notices and earthquake and tsunami warnings, to activated mobile devices within the disaster-affected area, to spur action. It operates on a radio channel separate from those used by voice calls and text messages or SMS, which may get congested in times of calamities.

Smart Infocast: A web-based SMS broadcast solution that enables LGUs and other groups to easily distribute important public information within their community such as news broadcasts, and weather bulletins. For disaster response, Infocast works both at the national level, via the NDRRMC, and at the community level. Smart works with LGUs and local churches to provide the platform for free and help them design their community-based disaster communications for both early warning and emergency alerts.

Batingaw (or "bell" in Filipino): A free-of-charge mobile app that provides government agencies, organisations, and individuals, immediate access to disaster warnings, advisories, location data, and disaster mappings. It features step-by-step instructions that can guide users to safety during disasters. The app also enables users to contribute information to emergency agencies more easily and quickly. Launched by Smart in partnership with the NDRRMC, the mobile app is the digital version of the warning bells distributed by Smart to communities to warn residents to prepare or evacuate when telecommunications infrastructure is unavailable or affected by the disaster.

Partnering to strengthen hazard monitoring and reporting: Smart has built different collaborations to improve hazard monitoring and reporting. For instance, Smart has collaborated with the Philippine Institute of Volcanology and Seismology (PHIVOLCS) and the University of San Carlos to develop and implement low-cost monitoring systems for geotecnic events. Other partnerships include a collaboration with the Philippines Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) to prepare communities in the event of flash floods and lava eruptions, and a collaboration with Ateneo de Manila University to pilot rainfall monitoring systems that use SMS to record data.

Preparedness and pre-positioning

Because the Philippines is at such consistent risk from natural hazards, the country's MNOs have developed strong preparedness plans. This includes at least one simulation drill annually, the Metro Manila Metrowide Shakedrill, conducted with both Globe and Smart and organised by the Metro Manila Development Authority (MMDA). During the drill, the operators provide broadband connectivity tools to the MMDA and emergency units through the deployment of cell-on-wheels, cellular-on-a-light-truck, power generators, and generators-on-a-truck. For more information about Globe's involvement in these drills, visit Globe's website. PLDT and Smart also take part in nationwide simultaneous earthquake drills being conducted by the NDRRMC. These types of drills and simulations allow employees to test whether plans are fit to purpose under difficult conditions.

Prior to the typhoon's landfall, both Globe and Smart activated a quick response team

14. GSMA (2013). *Designing an effective disaster preparedness and response programme*

to ensure continuity of operations and prepositioned back-up power generators and network equipment, and emergency communications stations (free calls, free WiFi, and free charging) to be deployed in areas forecasted to be affected by the typhoon.[15]

Additionally, the MNOs work with governments to preposition aid and supplies in key areas to allow them to best support customers, employees, and the wider community in the immediate aftermath of a disaster.

Later in 2022, GSMA Mobile for Development will publish research on how digital and mobile technologies can help strengthen early warning systems in the Philippines and provide a closer look at the opportunities for the mobile industry. The report will be published on our website.

Box 4. World Food Programme (WFP) and the Emergency Telecommunications Cluster (ETC) response

The ETC is a cluster within the UN system that coordinates the recovery of telecommunications systems in humanitarian emergencies and provides shared communications services during the period of network recovery. The ETC was activated following Typhoon Rai and engaged closely with local mobile network operators, both Globe and Smart, to set up connectivity for the response operations under the coordination of the Government's Department of Information and Communications Technology (DICT). Additionally, information communication technology (ICT) specialists from Ericsson Response and from WFP's Fast IT and Telecommunications Emergency Support Team were deployed to support the national response.[16]

Four Mobile Operations Vehicles for Emergencies (MOVE) units and 14 Very Small Aperture Terminals (VSATS) were employed in 16 locations as part of this response to provide emergency connectivity for responders. These mobile emergency connectivity stations provide common connectivity at the humanitarian hubs in in Surigao City, Massin City, and on Bohol Island, allowing both responders and users (community members) to access connectivity.[17]

To learn more about this response, watch the ETC video.

Resilient infrastructure and network repair

As soon as the immediate danger of Typhoon Rai had passed, MNOs began to think about how to restore damaged infrastructure and connectivity. While measures are in place to ensure network infrastructure can withstand strong winds, both Globe and Smart reported infrastructure damage.

The government coordinated all response efforts, advising responding agencies to involve MNOs and other service providers in their planning so that major infrastructure and services were re-established as a joint response effort. To reach damaged sites, MNOs cleared access roads with chainsaws to allow vehicles through. In the Visayas, certain areas were particularly challenging to reach due to severely damaged roads, bridges, and power lines. As of February 2022, Smart reported almost full restoration of mobile services in Mindanao (98 per cent for wireless services);

15. Smart Communications (2021). PLDT, Smart activate quick response teams as tropical cyclone brews east of Mindanao ETC (2022) "ETC Philippines - Typhoon Rai (Odette) - Situation Report #3". *Read here for more*
16. ETC (2022) "ETC Philippines - Typhoon Rai (Odette) - Situation Report #4".
17. ETC (2022) "ETC Philippines - Typhoon Rai (Odette) - Situation Report #4".

while there is still work to do in the Visayas and Palawan, where services have been brought back online in 62 and 74 per cent in the region. Likewise, Globe reports full restoration of mobile and wireless services in the provinces of Aklan, Antique, Biliran, Capiz, Eastern Samar, Guimaras, Iloilo, Northern Samar, Roxas, Samar, Siquijor, and Western Samar in Visayas; Agusan del Norte, Agusan del Sur, Bukidnon, Misamis Oriental, and Surigao del Sur in Mindanao.

Power

Unavailability of commercial power is often one of the biggest challenges for both MNOs and customers in accessing connectivity following an extreme weather event. Even if the network is operational, without power, first responders and users alike will be unable to access services. And, while generators, fuel cells, and batteries are prepositioned near at-risk sites, users themselves need access to power to charge devices. Recognising this challenge, both Globe and Smart provided free charging stations for affected communities as part of response. Additionally, Smart's networks were severely affected by the Typhoon in Visayas and Mindanao. While the inter-island submarine cables remained undamaged and helped to maintain connectivity, the damage to the power cuts meant the disruption of all services in the affected areas. The restoration of commercial power started as soon as the typhoon had passed, but the damage was so extensive that the work to restore power lines was still ongoing in February 2022. However, Smart's quick deployment of generator sets on standby has helped to power cell sites while the commercial power lines continue to be restored. The power generators allowed Smart to operate the *Libreng Tawag* (free calling) and *Libreng Chargning* (free charging) stations installed in the areas affected by the typhoon.

Box 5. Globe's disaster preparedness and business continuity management

In the case of unforeseen events or disasters, Globe ensures resilience through flexible, ready-to-deploy solutions that provide LGU's communication technologies. Once these have been established and implemented, the restoration of the network follows for wider area coverage.

These solutions include Cell Site on Wheels (COW) and Tower on Wheels (TOW), both of which can handle up to 1,000 simultaneous calls within a three-five kilometer radius. Additionally, the company regularly activates a complete mobile cell phone network system called Cellsite on-a-LightTruck (COLT), which is powered by mobile generators.

Globe has also introduced innovative solutions such as Network-in-a-Box (NIB), an transportable cell site that can be easily carried like a backpack by personnel and, also, a deployable mobile command center (MCC) to manage resources on ground.

The company also supports the government in its rescue operations through the deployment of emergency equipment, as well as Globe personnel from strategic locations to disaster-stricken areas, by land and air.

The company has strengthened partnerships with local government units, trade distributors, and communities across the Philippines for the provision of free calls, texts, charging, and internet connectivity in disaster-affected areas. Moreover, Globe has also established relief measures with the distribution of food packs, provision of communications and/or connectivity support for emergency responses, among other institutional donations.

In the case of tropical cyclones, Globe continues to redesign and retrofit the company's towers along the typhoon path, to comply with the latest National Structural Code of the Philippines. This is to ensure that the towers can stand strong, despite powerful winds and heavy rains. Globe complements backup batteries with higher capacity generators to address prolonged commercial power outages.

Read more about Globe's Business Continuity Management through their 2020 Integrated Report.

Supporting customers

To help those in need in the most heavily affected areas, Globe provides internet through their "GoWiFi" service in selected malls, government offices, and airports in Visayas and Mindanao areas affected by Typhoon Odette.[18] A total of 134 *Libreng Tawag* and *Libreng Charging* stations were also deployed in affected areas.

Globe provided free A2P messaging services to affected local government units (LGUs) in Palawan, Visayas, and Mindanao to aid their ongoing community disaster recovery operations. The free SMS blast service was made available from December 2021 and rolled-out to affected provinces until the end of February 2022 to support communities to recover and restore wireless networks.[19]

In addition, Globe supported customers by allowing them to send unlimited texts to all networks and free unlimited calls to Globe and TM numbers at onset of the disaster; provided affected customers with a free month of access to KonsultaMD, a telehealth service owned and managed by Globe's 917Ventures; and provided eligible Globe At Home Prepaid WiFi customers with free 5GB valid for three days.[20] To further support affected customers, Globe extended bill rebates and payment due dates.[21]

Likewise, Smart had different initiatives to support customers affected by the Typhoon. Following Typhoon Rai's devastation, Smart SIM cards were distributed for free to enable immediate access to call, text and data in affected areas. Customers could also access the SOS load – airtime credit that they could borrow to place calls and send texts when they run out of load. Affected subscribers of Typhoon Rai in Visayas and Mindanao were also given bill reprieves, bill rebates, and calamity load assistance.

Conclusion

Typhoon Odette demonstrated the lessons that operators in the Philippines have learned from past responses. Operators are now familiar with operationalising disaster response plans, early warning systems and coordination mechanisms to ensure a unified, informed, and prepared response.

MNOs can play a key role in the Philippines by restoring connectivity faster, supporting community needs better and working with the government for a coordinated response. Globe, for instance, is redesigning and retrofitting towers along the typhoon path, fortifying essential sites and deploying higher capacity gensets to address prolonged power outages. This will help to reduce the impact of future disaster in their infrastructure. For example, the Globe Service Command Center (GSCC) helps to continuously monitor conditions that can rapidly escalate into emergencies or disasters, and guides the company in its continuity plans for services and business operations.

Likewise, Typhoon Odette had an impact on Smart's infrastructure and the operator continues to work to restore connectivity. Smart recognises that there is a need for deploying specialised quick response teams based in various network nerve centres, which need to be adequately equipped and prepared to react after a disaster.

Both operators consider that there are opportunities to better coordinate and expand the use of communications technologies for dissemination of warnings beyond mobile technologies, including as print media, radio, TV broadcast, two-way radio systems, and even analogue warning bells. There is a need to build capacity from governments and disaster response agencies to improve their skills to

18. Globe (2021) *Typhoon Odette Service Advisory*, Jan 4, 2022
19. Globe (2021) *"Globe Provides Typhoon-Hit LGUs FREE 30-Day SMS Blast to Reach Constituents in One Click"*
20. Globe (2021) *"Globe Offers Free Data, Unli Calls and SMS to Customers Affected by Odette"*
21. Globe (2021) *"Globe Extends Bill Rebates, Payment Due Dates for Customers Affected by Odette to January 2, 2022"*

effectively use the various platforms to disseminate warning information.

Additionally, Typhoon Odette showed once again that support needs to be expanded for vulnerable sectors of society, such as children and persons with disabilities, who are often further marginalised during disaster situations. This can only be done through coordinated efforts of multiple stakeholders. Operators understand that effective disaster response is a collaboration of stakeholders from different sectors, supported by innovative programs and efforts that will not only be essential, but also value-adding to recovering communities.



Looking forward

Typhoon Rai demonstrates the lessons that operators in the Philippines have learned from past responses. Operators are now familiar with operationalising disaster response plans, early warning systems and coordination mechanisms to ensure a unified, informed, and prepared response. MNOs can play a key role in the Philippines by restoring connectivity faster, supporting community needs better and working with the government for a coordinated response.

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