PHILIPPINES

Increased risk of disease outbreaks following typhoons

CRISIS IMPACT OVERVIEW

On 20 July 2024, Typhoon Prapiroon (Butchoy) brought heavy rains to several of the Philippines' municipalities, marking the beginning of the southwest monsoon (Habagat), followed by the more devastating 'super' Typhoon Carina (Gaemi) on 21 July. Both typhoons had a northwards trajectory, heavily affecting Metro Manila and the provinces of Bataan, Batangas, Bulacan, Cavite, Oriental Mindoro (Baco and Pinamalayan municipalities), Pampanga, and Rizal (Cainta, Rodriguez, and San Mateo municipalities) (Govt. Philippines 02/08/2024 a and 01/08/2024; IFRC 07/08/2024).

By 13 August, Typhoon Carina had affected over 1.5 million families (more than 5.4 million people) in 4,537 barangays[1] in the Bicol, Cagayan Valley, Calabarzon, Central Luzon, Central Visayas, Cordillera Administrative Region, Ilocos, Mimaropa, National Capital Region, Northern Mindanao, and Western Visayas regions (Govt. Philippines 13/08/2024; PhilAtlas accessed 08/08/2024). By 13 August, Typhon Prapiroon had affected 46,390 families (nearly 140,000 people) in the Caraga, Central Visayas, Eastern Visayas, Mimaropa, and Western Visayas regions (Govt. Philippins 13/08/2024; PhilAtlas accessed 08/08/2024).

By 5 August, **there had been around 48 casualties, 14 injuries, and five missing people** as a result of these typhoons (NDRRMC 05/08/2024).

Between 24–25 July, 461.4mm of rain fell in the Philippines, nearly a month's worth in two days, leading to floods (ABS-CBN 25/07/2024). This surpassed the effects of Typhoon Ketsana (Ondoy) in 2009, which dropped 455mm of rain, killed 295 people, and affected over 3.9 million people (IFRC 07/08/2024; OCHA 06/10/2009).

People in the Philippines are at high risk of contracting vector and waterborne diseases, as typhoons and heavy rains cause an increase in both floods and stagnant water, contaminating water sources and creating favourable breeding grounds for mosquitoes (CNN 25/07/2024). The prevalence of measles and dengue may also increase, as such diseases spread in crowded areas, such as shelters (PNA 18/05/2024; Govt. Philippines 31/07/2024; Rappler 16/07/2024).

On 24 July, over 100 cities and municipalities declared a state of calamity (an event caused by a natural or human-induced hazard that leads to mass casualties and major damage to the environment, property, infrastructure, livelihoods, businesses, and daily life in affected areas), requesting access to national hazard funds. Immediate needs include water, sanitation, hygiene, food, and shelter (IMC 30/07/2024; GMA 24/07/2024; Philstar 20/12/2021).

ANTICIPATED DEVELOPMENTS/IMPACTS

By 30 July, the Philippines' National Disaster Risk Reduction and Management Council was on day ten of red alert (the highest) because of the combined effects of the southwest monsoon (AHA Centre 30/07/2024; IMC 30/07/2024, Govt. Philippines 02/08/2024 a and 01/08/2024). By 13 August, there was no information available on the red alert's continuation.

There is a high probability (approximately 69%) that there will be a shift from El Niño and Southern Oscillation-neutral to La Niña conditions during the July–September 2024 season (Govt. Philippines 02/08/2024 b). There is also a high probability that La Niña, expected to last until 2025, will lead to wetter conditions, which can hinder the mitigation of virus or disease outbreaks (AHA Centre 30 /07/2024; Rappler 07/06/2024).

Drugs, cosmetics, devices, biologicals, vaccines, and in-vitro diagnostic reagents submerged or affected by floods may be difficult to purchase. Many factories, warehouses, and establishments that manufacture, process, pack, or store health products, including drugstores and retail outlets, have been flooded, compromising product quality, safety, efficacy, and purity. Such products are not sold or resold (Philstar 07/08/2024).

1 In the Philippines, a bangaray is a village, suburb, or other demarcated neighbourhood; a small territorial and administrative district forming the most local level of government (OED accessed 01/08/2024).

CRISIS IMPACTS (CURRENT AND ANTICIPATED)

WASH and health

The monsoon and rainy season, typically lasting from May–November, increases the risk of water and vector-borne diseases (Govt. Philippines accessed 31/07/2024; Bamboo Travel accessed 01/08/2024). Dengue and leptospirosis have already been on the rise since May 2024.

Floods and landslides are expected to contaminate water, increasing the presence of mosquitoes and the spread of viruses, as the stagnant water creates ideal breeding conditions. Dengue is endemic in the Philippines, and transmission is highest both during and after the rainy season (June–November) (Crisis24 07/08/2023 and 24/07/2024; PAGASA accessed 13/08/2024). Optimal mosquito breeding conditions created by the combination of warm temperatures (27° C on average) and stagnant water is the primary factor contributing to high transmission rates during and after the rainy season (Aakash Hospital accessed 01/08/2024; Asare et. al 30/03/2016).

Dengue typically peaks at the start of the rainy season, between June–November as a result of changing weather conditions, flooding, and the accumulation of contaminated water (Xinhua 07/08/2024; PAGASA accessed 13/08/2024). Prior to the flooding, from 1 January to 29 June 2024, over 90,100 cases of dengue and 233 deaths had been reported nationwide, 17% higher than infections reported in the same period in 2023 (Rappler 16/07/2024; Aakash Hospital accessed 01/08/2024). Ilocos was the most affected region, with 1,111 cases and eight deaths between 1 January and 22 July 2024. Within Ilocos, Lingayen provinces recorded 210 cases of dengue, the highest in the region, followed by 85 in Bayambang, 79 in Bugallon, 75 in Urbiztondo, 71 in San Carlos city, 55 in Binmaley, 53 in Mangatarem, 49 in Labrador, and 35 in Calasiao (PNA 26/07/2024). Following the typhoons, flooding could also increase the spread of dengue through an increase in infected mosquitos (CDC accessed 01/08/2024). The frequent spread of dengue highlights the need for prevention and control measures during disease outbreaks, namely by destroying potential mosquito breeding grounds and using mosquito repellents (Crisis24 02/07/2024).

On 24 July, the Department of Health (DOH) warned the public to avoid flooded areas, where the risk of contracting leptospirosis is higher (CDC 24/06/2024; Rappler 24/07/2024). The DOH recorded 1,258 leptospirosis cases from 1 January to 13 July 2024 (ABS-CBN 24/07/2024). The same period in 2023 and 2022 both saw more leptospirosis cases nationwide: 2,168 in 2023 and 1,423 in 2022 (PNA 01/09/2023). Leptospirosis is a disease contracted through the urine of infected animals, either from direct contact or contact with contaminated soil or water, and can lead to kidney damage, meningitis, liver failure, trouble breathing, and even death. Exposure to water contaminated by the waste of infected animals, particularly rats, can lead to leptospirosis (CDC 24/06/2024; Wang et. al 17/10/2022). Usually, leptospirosis is prevalent in urban flood-prone areas, such as Metro Manila (PNA 31/07/2023). Symptoms of leptospirosis include jaundice or yellowish body discolouration, dark-coloured urine, light-coloured stool, low urine output, and severe headache (ABS-CBN 24/07/2024). Symptoms, however, can also be mistaken for other diseases and some people are asymptomatic, meaning there is a high risk of not identifying or treating the disease in time (PNA 31/07/2023). After the floods, many Filipinos carelessly waded and played in dirty, potentially infected floodwaters (Rappler 09/08/2024).

Measles-rubella, which spreads via respiratory droplets, is also endemic in the Philippines. Between 1 January and 11 May 2024, the DOH recorded a total of 2,552 measles-rubella cases in the country (PNA 18/05/2024; ECDC accessed 01/08/2024). By comparison, there were 2,594 cases recorded between January–November 2023, showing a clear increase in 2024 (PNA 22/12/2023).

Pertussis is another disease endemic in the Philippines. Like all vector-borne diseases, pertussis is spread by the respiratory droplets produced when an infected person coughs or sneezes, and may spread more quickly in crowded conditions. Someone with a mild case or an infected individual without symptoms can also transmit the disease. Between 1 January and 11 May 2024, there were 2,521 pertussis cases reported in the country (PNA 18/05/2024; WHO accessed 01/08/2024; EVIP 13/03/2020). Between January–November 2023, there were 622 cases, indicating a significant increase in 2024 (ONT 21/12/2023).

Shelter

Typhoon Carina damaged houses and left several residential areas inaccessible as a result of rising sea levels in coastal areas. By 13 August, 7,324 houses had been partially damaged and 1,122 destroyed across Bicol, Cagayan Valley, Calabarzon, Central Luzon, Central Visayas, Cordillera Administrative Region, Ilocos, Mimaropa, Northern Mindanao, and Western Visayas. By 13 August, there were nearly 595,000 people, more than 9,000 of whom were forced to seek temporary shelter, in 59 evacuation centres. An remaining 585,000 people were temporarily staying with relatives or friends (Govt. Philippines 13/08/2024).

By 13 August, Typhoon Papiroon had damaged 102 houses – 84 partially damaged and 18 destroyed – and displaced over 43,000 people in Central Visayas, Mimaropa, and Western Visayas. Over 5,000 of those displaced were staying in 89 evacuation centres, while more than 38,000 stayed with friends or relatives (Govt. Philippines 13/08/2024). At the BASECO Evacuation Centre, there were water-supply issues, resulting in the inability to flush toilets and urinals (RI 01/08/2024). Until 5 August, there was still no publicly available information on the condition of WASH facilities in other temporary shelters. Crowded spaces are more conducive to the spread of viruses and disease because people are often in close contact.

DRIVERS OF THE CRISIS

Monsoon season, Typhoon Carina, and Typhoon Prapiroon

Monsoon season in the Philippines typically follows the hot and humid months of May and June, which mark the end of the dry season. The transition usually occurs in July and continues until October, during which time the monsoon brings heavy rainfall (Bamboo Travel accessed 01/08/2024). The average annual rainfall in the Philippines is 2,348mm, but varies from 960mm in southeast Mindanao to over 4,000mm in Central Luzon. During monsoon season, rainfall can be even higher (WB accessed 09/08/2024; Cruz et al. 15/06/2012). Typically, the monsoon season triggers tropical cyclones, which lead to typhoons. Tropical cyclones develop when thunderstorms within the monsoon trough, converge, and adopt a spiral trajectory over tropical waters to the east of the Philippines (UPDCS accessed 01/08/2024).

By 10 August, nearly 5.6 million people in 13 (out of a total 18) regions had been affected by the collective consequences of the southwest monsoon, Tropical Cyclone Prapiroon, and Tropical Cyclone Carina (PSA accessed 08/08/2024; Govt. Philippines 10/08/2024 and 08/08/2024; PhilAtlas accessed 08/08/2024). Typically, the southwest monsoon and its accompanying typhoons are the predominant weather patterns from June–October (Insight Guides accessed 01/08/2024). About 20 tropical cyclones pass through the Philippines annually (ADRC accessed 08/08/2024). Warm ocean temperatures, ample convection air rising, a humid environment, and low wind shear cause tropical cyclones. These conditions, however, do not mean that tropical cyclones will necessarily form. Tropical cyclones over tropical oceans move west and north.

Subsequent floods

Floods are a direct consequence of heavy rainfall from monsoons (PNA 17/07/2018). Monsoons occur when large land masses heat up and subsequently heat the air above them, which rises through the atmosphere. This creates a low-pressure area that draws cooler, moister air, producing heavy rains (CDP accessed 05/08/2024).

Flash floods are common throughout the Philippine archipelago during the monsoon season. The prevalence of flash floods is higher in the country's capital, Manila, as it is a low-lying area. Most of Metro Manila is situated at an elevation ranging from 5–10m above sea level. Most of the country sits at an altitude only 442m above sea level, making it vulnerable to flooding. The timing of floods is very rapid in low-lying areas with widely developed rivers and highly concentrated populations. After a heavy downpour, low-lying streets often become waste-filled rivers in minutes. The waste management situation in the Philippines is dire; the country ranks third globally in the amount of mismanaged plastic waste, behind only China and India. Such an environment promotes disease transmission, particularly during floods. Many people go out in floodwaters barefoot and children swim in flooded streets, making the spread of various diseases extremely high (Wang et. al 17/12/2021; Easton 24/07/1999; Manila FYI 22/02/2023; World Data accessed 08/08/2024; UNEP accessed 10/08/2024).

Floods can increase the prevalence of both water and vector-borne diseases. Waterborne diseases, including typhoid fever, cholera, and leptospirosis, are caused by water contamination, the primary risk factor linked to flooding. Vector-borne diseases, such as malaria, dengue, and yellow fever, tend to increase as a result of stagnant water, the perfect breeding environment for mosquitoes (PCHRD accessed 05/08/2024).

By August 2024, there were already cases of dengue, leptospirosis, measles-rubella, and pertussis, with the potential spread further as a result of monsoon floods and crowded temporary shelters.

Vaccinations and access to laboratory testing

The overall state of vaccinations in the Philippines is dire. The country ranks among the top five nations facing the issue of unvaccinated children, as there is only 70–80% routine immunisation coverage (UNICEF accessed 09/08/2024). In 2021, there were nearly 1.05 million zero-dose children (UNICEF 20/04/2023). This low vaccination rate can be attributed to outdated vaccine monitoring methods that depend on manual tallies conducted by regional offices using spreadsheets or paper-based reports. These outdated processes are not only cumbersome but also result in a lack of immediate information for those overseeing the vaccination process (UNICEF accessed 09/08/2024).

As some of the country's health centres lack adequate vaccine storage facilities, the Philippines also faces challenges in vaccine distribution in some areas, resulting in immunisation lapses (Inquirer 11/04/2024). In spring 2024, uneven vaccine coverage resulted in a longer-than-expected vaccination response to measles and pertussis outbreaks (DT 03/05/2024). There is a need for more deliberate vaccine distribution, predictability of vaccine stock-outs, and improved vaccination programmes as a whole (Philstar 23/04/2024). The DOH is currently awaiting more than a million doses of pentavalent vaccines, which are expected in the third quarter of 2024. These vaccines protect against diphtheria, tetanus, pertussis, influenza B, and hepatitis B (PNA 18/05/2024). The Philippines also expects 3 million doses of pertussis vaccine (PNA 26/03/2024). By 9 August, there was no publicly available information confirming the arrival of these vaccines.

The Philippines experiences a lack of in-house laboratories, a persistent problem in the healthcare system. Many healthcare facilities, particularly those located in remote areas, do not have the means to obtain cutting-edge diagnostic equipment and specialised testing capabilities. As a result, patients experience delays in receiving diagnoses, which in turn leads to prolonged suffering and compromised health outcomes (Shinagawa 04/10/2023).

COMPOUNDING/AGGRAVATING FACTORS

Poverty

Poverty affects millions of people in the Philippines. In 2023, approximately 17.5 million Filipinos (15.5% of the population) lived below the national poverty line, with an income insufficient to meeting their minimum basic food and non-food needs (PSA 09/08/2024). Poverty is mostly prevalent in remote areas, where many also face healthcare poverty, as they live long distances from the nearest healthcare facility, have insufficient health literacy, and are unable to afford healthcare costs. This is common in rural areas and urban slums. In remote rural areas, there is also lack of access to laboratory testing (OI 09/2023; Shinagawa 04/10/2023; PAA accessed 09/08/2024).

Children who live in poverty spend more time helping their families meet their basic needs and are less likely to attend school and reach age-appropriate grade levels. This limits children's access to higher education and future opportunities, limiting earning potential, economic growth, and community development, making it harder to break the cycle of poverty (OI 09/2023).

Aside from socioeconomic issues, the Philippines also faces environmental hazards such as typhoons and floods. These hazards cause horrific effects for poor people, as they often lose their homes or livelihoods, worsening their situation. Environmental problems such as pollution and deforestation also put people's food security and health at risk (The Borgen Project 30/03/2024).

Environmental issues

According to the Philippines forecast institution, most climate models combined with expert judgements suggest a 70% chance of La Niña forming in August–October 2024 and likely to persist until the first quarter of 2025 (PAGASA 12/07/2024). As El Niño caused dry periods in 2024, it is expected that La Niña will cause wetter conditions (Manila Observatory 1999; Govt. Philippines 06/05/2024). The shift from El Niño to La Niña increases vulnerability to floods, as soil dried by El Niño cannot effectively absorb heavy rainfall, leading to flash floods (Concern 30/09/2022; PE 05/09/2023; Malteser International accessed 09/08/2024).

There is a 50% probability of above-average precipitation in August–October, with the potential to bring stagnant water, which promotes the transmission of various diseases (Columbia University accessed 31/07/2024).

Deforestation is also a common factor influencing the flood situation in the Philippines. The country is currently losing around 47,000 hectares of rainforest annually and has lost approximately 60% of its forest cover over the last 80 years. The expansion of agriculture, mining, urbanisation, and the conversion of forests into resorts, roads, and dams are all factors contributing to forest loss (Eco-Business 11/08/2023). For instance, the country lost about 42,700 hectares of forest in 2023, with tree cutting accounting for the loss of 30,700 hectares and commodity-driven issues contributing to the loss of 9,520 hectares (GFW accessed 09/08/2024).

Deforestation causes not only carbon dioxide emissions but also floods and landslides. Deforestation specifically stimulates flooding vulnerability by decreasing the earth's capacity to absorb and manage severe weather patterns. Forests reduce the force and volume of heavy rain. Without trees, the ground cannot absorb water as well, causing more runoff in waterways. Land stability is also maintained by trees. In particular, tree roots stabilise land, so their absence can increase the risk of landslides and mudslides, especially during heavy rains (Emission Index 17/01/2024). The Philippines is in the western Pacific Ocean's typhoon belt, where nearly one-third of the world's tropical cyclones form, and experiences 20 major storms per year. This, coupled with deforestation, has caused soil erosion, landslides, and flash floods (Eco-Business 11/08/2023).

Typhoon Carina caused an oil spill in Manila Bay on 25 July, as a tanker and at least two other vessels were sunk by heavy rains and rough waters. The tanker was carrying 1.4 million litres of industrial fuel and one of the vessels was carrying diesel fuel. The sinking caused massive water pollution 6.5km east of Lamao barangay, Bataan province (Crisis24 25/07/2024; Oceana 07/08/2024). By 30 July, the oil spill covered approximately 27km2. This is expected to have a 50% impact on Manila Bay, affecting livelihoods, agriculture, the environment, health, tourism, fishing, and may disrupt supply chains and maritime transportation. Spills could also affect mangrove trees in the Philippines, which serve as vital buffers against rising sea levels. Oil spills can also contaminate water, causing illness, disease, and further strain on the health system (Oceana 07/08/2024; UNDRR 08/08/2017).

HUMANITARIAN RESPONSE

Humanitarian constraints

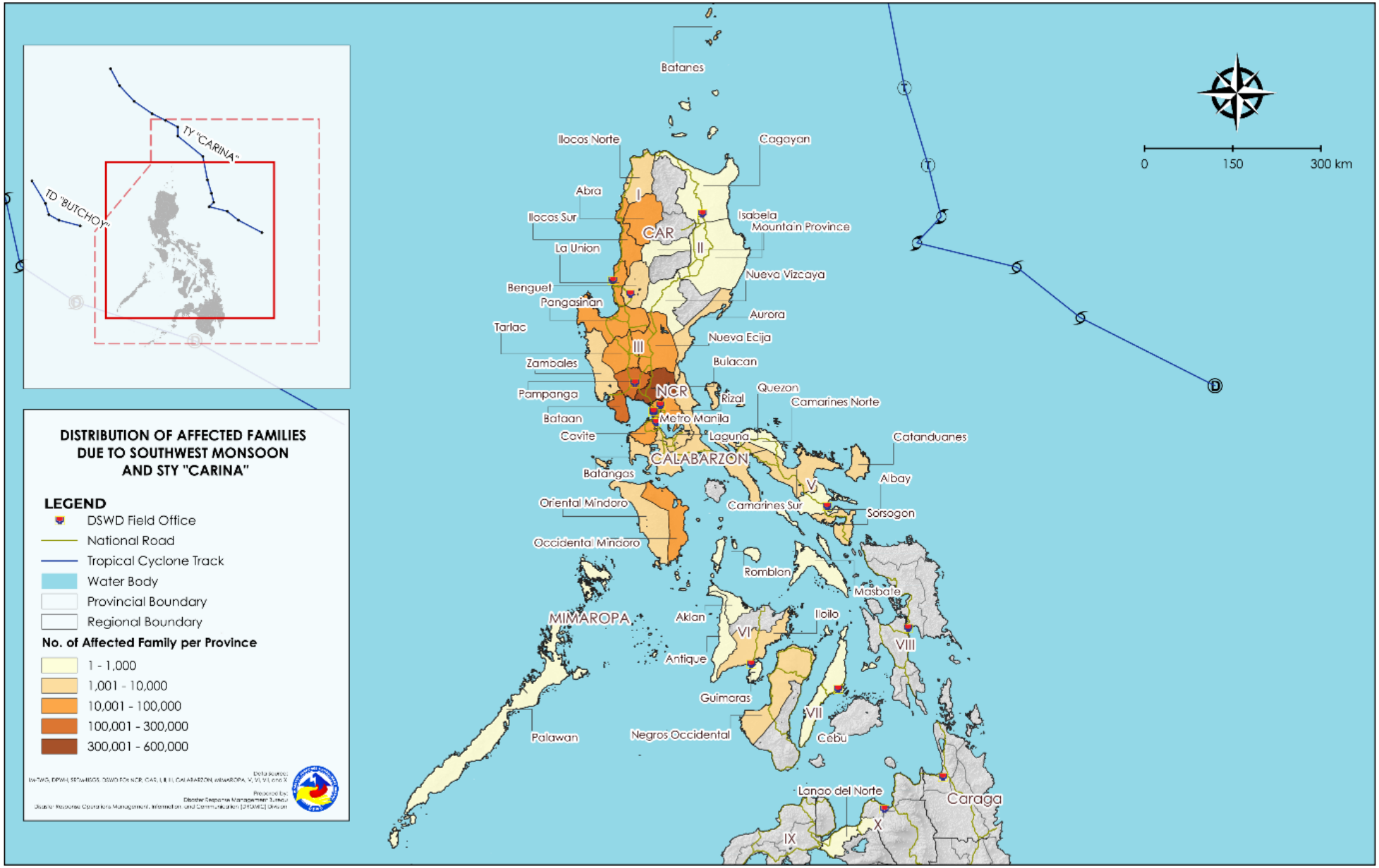
Flooding and landslide-induced damage to roads and bridges is expected to hamper the humanitarian response. Several roads and bridges have been made impassable and dozens of municipalities have been affected by power outages (Crisis24 24/07/2024). By 30 July, the typhoons had affected 362 road sections and 24 bridge sections, 54% of the total of both passable to all types of vehicles (AHA Centre 30/07/2024).

The heavy rains left thousands of people stranded in escalating floodwaters (Govt. Philippines 31/07/2024; CNN 25/07/2024). Flooding will likely affect humanitarian access to affected communities.

FUNDING AND RESPONSE CAPACITY

- The Philippines Government has led the response, particularly the Department of Social Welfare and Development. The estimated cost of damages across various sectors – including housing, agriculture, livestock, poultry, fisheries, infrastructure, and other assets – amounts to approximately USD 82.1 million (AHA Centre 30/07/2024).
- On 30 July, USAID provided USD 1 million in humanitarian aid to communities affected by Typhoon Carina's widespread flooding (USAID 31/07/2024).
- Both the Government and NGOs have been providing food, NFIs, and modular tents to support displaced populations (OCHA 31/07/2024).
- The implementation of an efficient early warning system is crucially dependent on the use of mobile and digital technologies (GSMA 17/06/2022).
- International Medical Corps is working within a multi-organisation medical mission (IMC 30/07/2024).
- By 25 July, the Philippine Red Cross had deployed first-aid stations and ambulances throughout Bataan, Manila, and Pasig (OCHA 25/07/2024).
- By 1 August, Relief International, in collaboration with UNICEF and the Rural Health Units of Ligawasan and Pagalungan, was continuing to provide vaccinations to children under the age of five in order to protect them from disease and potential outbreaks (RI 01/08/2024).

NUMBER OF PEOPLE AFFECTED BY THE SOUTHWEST MONSOON AND TROPICAL CYCLONE CARINA BY 31 JULY



Source: Govt. Philippines (31/07/2024)