

## Impact of Tropical Cyclone Trami (Kristine) and Kong-rey (Leon)

### CRISIS IMPACT OVERVIEW

- On 22 October 2024, Tropical Cyclone Trami (Kristine) brought heavy rain on Luzon, Mindanao, and Visayas in the south of the Philippines, causing widespread flooding and landslides (OCHA 24/10/2024; IFRC 30/10/2024).
- On 24 October, Trami made landfall as a severe tropical storm in Divilacan, Isabela province, in northeast Luzon, subsequently passed through Ifugao in the Cordillera Administrative Region, and continued to bring intense rainfall and winds across many regions, including Bicol, Calabarzon, and Central Luzon (OCHA 24/10/2024; IFRC 30/10/2024).
- On 25 October, Trami left the Philippine Area of Responsibility (the boundary of the Philippine Islands) and continued its approach towards Vietnam (IFRC 30/10/2024; PAGASA accessed 07/11/2024).
- On 30 October, Tropical Cyclone Kong-rey (Leon) intensified as it skirted the Philippines and passed over the country's eastern seaboard, bringing more rains and intense winds in regions already affected by Trami, specifically in northern Luzon and the Batanes group of islands (OCHA 05/11/2024; Bloomberg 30/10/2024; Zoom Earth accessed 06/11/2024).
- By 11 November, Trami and Kong-rey had affected over 9.6 million people in 17 of the country's 18 regions (Govt. Philippines 11/11/2024; CBI 31/10/2024; CNN 28/10/2024). By 12 November, there were nearly 893,000 people in humanitarian needs (HCT Philippines, OCHA 12/11/2024).
- By 12 November, Trami had caused 160 deaths and left 135 people injured and 21 missing (HCT Philippines, OCHA 12/11/2024).
- By 31 October, a total of 160 cities and municipalities across the country had declared a state of calamity (HCT Philippines/OCHA 01/11/2024). Of the 361 cities and municipalities experiencing power supply issues, 123 continued to face blackouts, and 32 of 39 cities and municipalities continued to face interruptions in water supply (HCT Philippines/OCHA 01/11/2024; IFRC 30/10/2024).
- By 30 October, the amount of damage to infrastructure had reached EU 1.5 billion (HI 31/10/2024).

Table 1. Regions and number of people affected by Trami and Kong-rey by 11 November

REGIONS	NUMBER OF PEOPLE AFFECTED
Bicol	3,320,793
Calabarzon	1,683,263
Central Luzon	1,145,184
Eastern Visayas	967,818
Western Visayas	584,240
Ilocos	571,275
Bangsamoro Autonomous Region in Muslim Mindanao	316,017
National Capital Region	292,168
Cagayan Valley	247,225
Soccsksargen	111,569
Mimaropa	92,361
Zamboanga Peninsula	68,933
Caraga	58,254
Central Visayas	55,141
Davao	50,712
Cordillera Administrative Region	27,726
Northern Mindanao	13,077

Source: Govt. Philippines (11/11/2024)

According to the Consolidated Rapid Needs Assessment, WASH, food, NFIs, and protection services, including support for gender-based violence (GBV), are the primary needs in storm-affected regions (OCHA 05/11/2024).

Trami was the most devastating cyclone to hit the Philippines in 2024, aggravated by Kong-rey, affecting 9.6 million people by 11 November (WFP 01/11/2024; Arab News 25/10/2024; Govt. Philippines 11/11/2024). In July, Typhoon Carina (Gaemi) affected over 6.06 million people in 11 regions of the Philippines, while Typhoon Yagi (Enteng) affected over 3.16 million people in ten regions in September (Govt. Philippines 25/09/2024 and 04/10/2024).

Table 2. Regions and number of people affected by Typhoon Carina (Gaemi) and Yagi (Enteng)

REGIONS	PEOPLE AFFECTED BY CARINA (GAEMI)	PEOPLE AFFECTED BY YAGI (ENTENG)
National Capital Region	1,257,107	321,988
Ilocos	445,521	180,515
Cagayan Valley	15,115	8,178
Central Luzon	3,447,004	970,676
Calabarzon	499,149	186,829
Mimaropa	109,811	Not affected
Bicol	123,345	1,279,559
Western Visayas	23,078	1,199
Central Visayas	3,356	74
Eastern Visayas	Not affected	215,543
Northern Mindanao	2,716	Not affected
Cordillera Administrative Region	141,072	4,689

Source: Govt. Philippines (25/09/2024 and 04/10/2024)

## ANTICIPATED SCOPE AND SCALE

The tropical storm (known as Tropical Depression 27) will swiftly intensify into a typhoon while progressing west-northwest across the Philippine Sea until 13 November, before making landfall in Cagayan province early on 14 November and subsequently exiting the Luzon Strait shortly thereafter. The storm is expected to shift north westward across the Luzon Strait and approach the Babuyan Islands closely on the afternoon of 14 November (Crisis24 11/11/2024).

Most of northern and central Philippines is still recovering from the impact of Trami, aggravated by Kong-rey. Further rainfall is likely to cause additional disruptions and impede recovery efforts (Crisis24 05/11/2024). On 11 November, forecasts indicated that Luzon island would experience heavy rainfall, strong winds, and storm surges within the next 72 hours (ECHO 11/11/2024).

## HUMANITARIAN CONSTRAINTS

Many infrastructure objects have been damaged by Trami, including houses, schools, power infrastructure, bridges, and roads. 777 road sections and 103 bridges had been flooded and damaged by 31 October, causing access issues for both government and non-government responders. The most inaccessible roads were located in the Bicol and Calabarzon regions. By 31 October, the main road to Naga, in Bicol region, was submerged, delaying the transit of trucks delivering relief supplies. In Manito, the bamboo bridge connecting Cawit and It-Ba collapsed, cutting off a crucial route (OCHA 28/10/2024; HCT Philippines/OCHA 01/11/2024).

Power cuts affected 361 cities and municipalities, leading to unstable signal and internet connectivity in some areas and a total communication blackout in 57 municipalities and cities (HCT Philippines/OCHA 01/11/2024; IFRC 30/10/2024).

## CRISIS IMPACTS

### Shelter

By 11 November, over 187,000 houses had been affected by the storm, with over 32,000 completely damaged and more than 155,000 partially damaged, displacing nearly 517,000 people across 14 regions. Many houses had been flooded to the roof, complicating the rebuilding process. Nearly 77,500 people were sheltering in 485 evacuation centres, and over 436,000 were temporarily staying with relatives or friends (Govt. Philippines 11/11/2024; HCT Philippines/OCHA 01/11/2024). People staying in evacuation centres have restricted access to basic healthcare services, drinking water, and sanitation facilities, heightening the risk of disease outbreaks, while overcrowding increases women and children's exposure to protection risks, especially GBV. Many people have also lost personal possessions, clothing, and housewares (IFRC 30/10/2024; OCHA 28/10/2024; HCT Philippines/OCHA 01/11/2024).

As floodwaters begin to gradually recede in certain areas, communities have commenced clean-up operations and, where possible, people have started returning to their homes. Floodwaters typically have a larger impact when they recede, however, as they pull walls, increasing the risk of further housing collapse. Many houses in the Philippines are built of light materials such as wood or bamboo, making them easily swept away during Trami or at risk of collapse as water recedes (IFRC 30/10/2024; OCHA 28/10/2024; JJS Realty & Development accessed 06/11/2024).

## WASH and health

There is a need for clean water and suitable water storage, as many water sources have been damaged and contaminated. Sanitation facilities have also been submerged by floodwaters, with 32 cities and municipalities across the country seeing their access to drinking water and sanitation affected. In Baao and Nabua, in Bicol region, flooding has damaged sanitation facilities, resulting in increased open defecation (HCT Philippines/OCHA 01/11/2024; IFRC 30/10/2024). Stagnant and contaminated water pools during and after flooding may enhance the occurrence of vector-borne and waterborne diseases (Crisis24 26/10/2024). By 12 November, approximately 490,000 people were in WASH needs and 168,000 health (HCT Philippines, OCHA 12/11/2024).

From 1 January to 4 October 2024, there were 269,467 confirmed cases of dengue, representing an 82% increase on the 147,678 cases seen in 2023 (PNA 22/10/2024).

Between 1 January and 5 October 2024, there were a total of 5,835 cases of leptospirosis reported across the country, representing a 16% increase from the corresponding period in 2023 (PNA 18/10/2024). Leptospirosis is a disease contracted from 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 and Dunn 10/09/2024). Usually, leptospirosis is prevalent in the country's urban flood-prone areas, such as Metro Manila (PNA 31/07/2023). Cases of leptospirosis are anticipated to rise across the country in the coming two weeks as a result of the severe flooding caused by Trami (GMA 27/10/2024).

People with disabilities and many older people, as a result of their likely additional health and mobility needs, are more at risk during and after hazards; more attention is needed to address barriers impeding their access to essential services. Around 12% of Filipinos aged 15 and older have severe disabilities, 47% have moderate disabilities, and 23% have mild disabilities (IFRC 30/10/2024).

For further contextual information, please read the following ACAPS report: [Increased risk of disease outbreaks following typhoons in the Philippines](#).

## Livelihoods

Over 111,000 farmers and fisherfolk have been affected by the storm, which submerged nearly 62,000 hectares of crops, resulting in significant food access challenges for at-risk and inaccessible communities whose livelihoods have been affected by the floods. Field assessments indicate that much agricultural land remains flooded, with no definitive

timeline to begin replanting (HCT Philippines/OCHA 01/11/2024; OCHA 05/11/2024; IFRC 08/11/2024). By 5 November, agricultural losses totalled USD 102 million (around PHP 6 billion) (OCHA 05/11/2024). Low-income families need assistance and support as they frequently deal with hazards, such as the recurring extreme weather events affecting the Philippines this year, and may find it challenging to afford essential items such as food, clothing, and shelter (IFRC 30/10/2024).

Trami and Kong-rey struck areas previously affected by other typhoons (WFP 06/11/2024). This will significantly hamper recovery efforts and intensify already existing problems associated with livelihood losses and food scarcity caused by natural hazards.

## Protection

By 12 November, around 719,000 people were in protection needs (HCT Philippines, OCHA 12/11/2024). As many people have been displaced and are sheltering in overcrowded spaces that lack privacy, women and children are exposed to protection risks, particularly GBV. In places experiencing electricity interruptions, flashlights and solar lamps are important to improve safety and protection, but this does not completely resolve the issue. Looting incidents have been reported at a supermarket in Naga city, in Bicol region. There is also need for mental health and psychosocial support, especially for people who have lost loved ones or possessions (IFRC 30/10/2024; HCT Philippines/OCHA 01/11/2024).

## Education

Trami caused damage to almost 40,000 schools across 16 regions, affecting the education of around 19.4 million children and the work of more than 808,000 teaching and non-teaching staff. Some schools are also currently being used as evacuation centres. The restoration of extensively damaged schools will require PHP 2.7 billion (exceeding USD 46 million), and an extra PHP 680 million (over USD 11.6 million) is needed for major repairs (HCT Philippines, OCHA 12/11/2024; STC 28/10/2024; Wise accessed 08/11/2024). By 11 November, education had been suspended in seven regions, including Bicol, Cagayan Valley, Calabarzon, Central Luzon, Cordillera Administrative Region, Ilocos, and the National Capital Region (Rappler 10/11/2024).

Natural hazards frequently hit some areas multiple times, significantly affecting education as a whole. Approximately 78% of public schools and 96% of students in the Philippines encounter different risks. From 2021–2023, approximately 4,000 schools sustained damage from various hazards, causing educational disruption for two million children (Context 12/06/2024).

## DRIVERS OF THE CRISIS

### Monsoon season and subsequent floods

Monsoon season in the Philippines typically follows the hot and humid months of December–May, which mark the end of the dry season. The transition usually occurs in June and continues until November, during which time the monsoon brings heavy rainfall (PAGASA accessed 07/11/2024). Average annual rainfall in the Philippines is 2,348mm, but can differ from 960mm in southeast Mindanao to over 4,000mm in Central Luzon. During monsoon season, rainfall can be even higher (WB accessed 04/11/2024; 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 04/11/2024; SERVPRO 04/09/2024). Warm ocean temperatures, sufficient convection air rising, a humid environment, and low wind are the conditions needed for tropical cyclones to form. These conditions, however, do not mean that tropical cyclones will necessarily form. Usually, tropical cyclones over tropical oceans move west and north (UPDCS accessed 04/11/2024; NOAA 08/09/2023).

The Philippines is hit by several typhoons each year. Although Cyclone Trami was not a very strong storm when it made landfall (around 85km/h), the severe rainfall it brought caused destruction and affected over 9.6 million people in 17 of the country's 18 regions (CBI 31/10/2024; CNN 28/10/2024; Zoom Earth accessed 05/11/2024; ECHO 28/10/2024; Govt. Philippines 11/11/2024).

Floods are a direct consequence of heavy rainfall from monsoons (PNA 17/07/2018). Flash floods are common throughout the Philippines during monsoon season, the prevalence of which 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 and most of the country sits at an altitude only 442m above sea level, making it vulnerable to flooding (World Data accessed 04/11/2024; Manila FYI 22/02/2023). 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 (Wang et. al 17/12/2021).

### La Niña phenomenon

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, with a likelihood to persist until the first quarter of 2025 (PAGASA 07/11/2024). As El Niño caused dry periods in 2024, it is expected that La Niña will cause wetter conditions (Manila Observatory

22/10/1999; Govt. Philippines 06/05/2024). The shift from El Niño to La Niña increases vulnerability to flooding, 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 04/11/2024).

### Deforestation

Deforestation is also a common factor influencing the flood situation in the Philippines. About 47,000 hectares of rainforest are lost every year, and the country has lost around 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 04/11/2024).

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 12/09/2024). The Philippines is in the western Pacific Ocean's typhoon belt, where nearly one-third of the world's tropical cyclones form, and experiences around 20 major storms per year. This, coupled with deforestation, has caused soil erosion, landslides, and flash floods (Eco-Business 11/08/2023).

## COMPOUNDING/AGGRAVATING FACTORS

### Poverty

In 2023, approximately 17.5 million Filipinos (15.5% of the population) lived below the national poverty line, with an income insufficient to meeting minimum basic food and non-food needs (PSA 15/08/2024). Poverty is most 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 (OI 09/2023; Shinagawa 04/10/2023; PAA accessed 04/11/2024). Children who live in poverty spend more time helping their families meet basic needs and are less likely to attend school and reach age-appropriate grade levels. This limits children's access to higher education, future opportunities, earning potential, economic growth, and community development, making it harder to break the cycle of

poverty (OI 09/2023). Climate hazards compound poverty for affected people, as they often lose homes or livelihoods, worsening their situation and ability to recover. Climate change is making the Philippines even more vulnerable to natural hazards, and it is already one of the countries at highest risk of natural hazards globally (STC 28/10/2024).

There are around 20 typhoons in the Philippines annually, and many can transform into highly destructive super typhoons, seriously affecting people's livelihoods. Such a situation plunges people deeper into poverty and makes them less capable of coping, as some typhoons hit areas more than once (UNSDG 14/10/2024).

## Waste management system

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, aggravating the spread of various diseases (Wang et al. 17/12/2021; BMJ 24/07/1999; Manila FYI 22/02/2023; UNEP 02/2022).

## RESPONSE CAPACITY

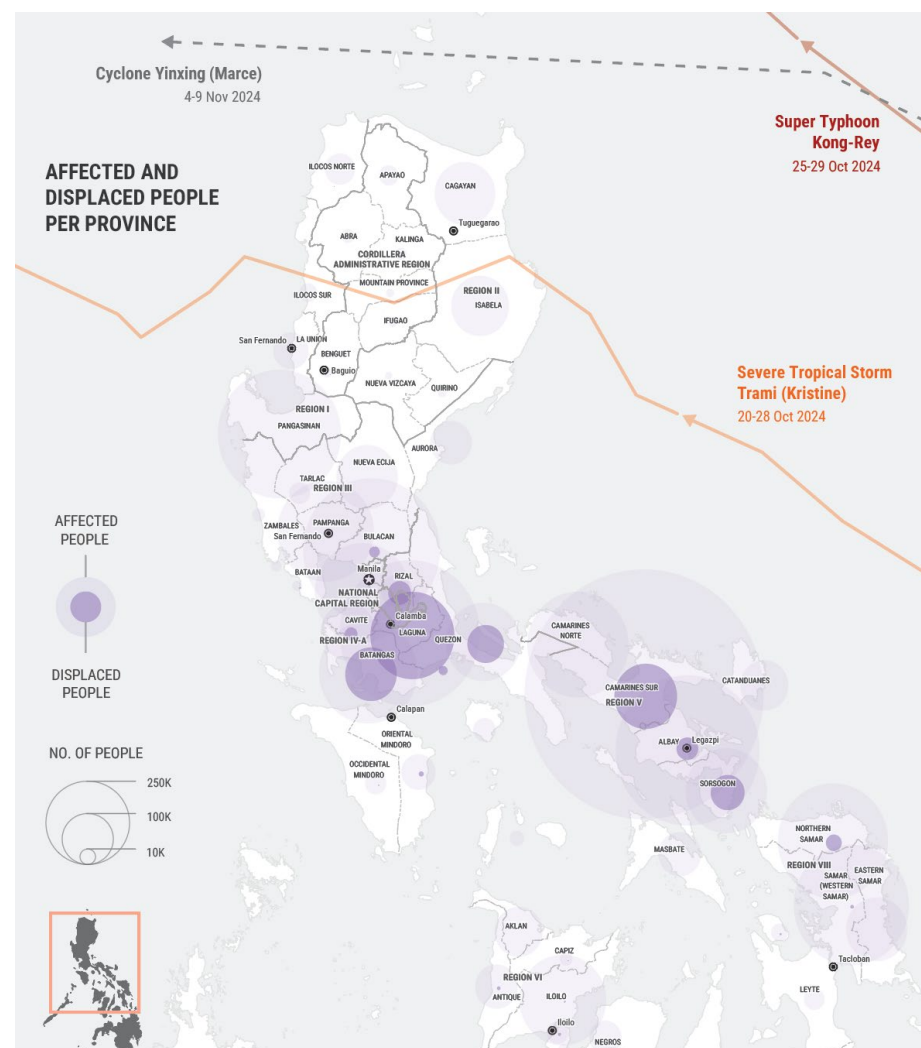
The National Disaster Risk Reduction and Management Council is coordinating the emergency response for the Philippines, with regional and local authorities directing relief efforts and the national Government enhancing local capacities. On 27 October, the Government requested air assets from Singapore and Malaysia to support response efforts (OCHA 28/10/2024; UN-SPIDER accessed 07/11/2024).

The International Federation of Red Cross and Red Crescent Societies has launched an emergency appeal to assist the Philippine Red Cross in responding to Cyclone Trami. This operation aims to provide immediate relief to over 71,200 people, addressing basic needs, health, hygiene, sanitation, and livelihood opportunities (IFRC 30/10/2024).

The National Housing Authority announced a one-month moratorium (for November) on housing loan repayments nationwide for borrowers affected by Cyclone Trami (PNA 04/11/2024).

The Rice Competitiveness Enhancement Fund, which aims to improve the competitiveness and income of rice farmers, has increased from PHP 10 billion (over USD 171 million) to PHP 30 billion (over USD 514 million). This fund will provide assistance to farmers and fishermen displaced by Trami (Philstar 05/11/2024; Wise accessed 05/11/2024; Department of Agriculture accessed 07/11/2024).

Map 1. Passage of Tropical Storm Trami (Kristine), Typhoon Kong-rey (Leon) and Cyclone Yinxing (Marce)



Source: HCT Philippines, OCHA (12/11/2024)