

Typhoon Rai/Odette – Initial Environmental Scoping

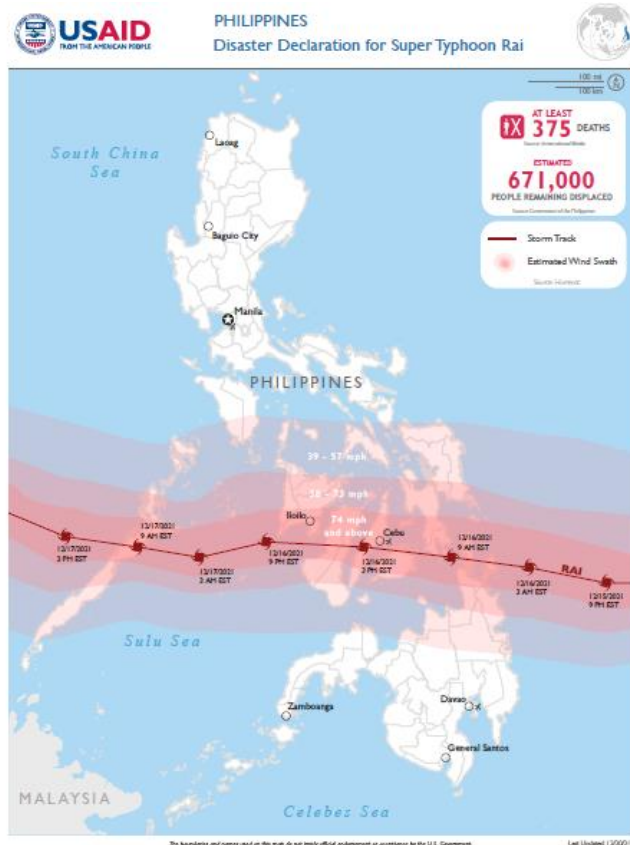
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Introduction

Typhoon Rai (local name, Odette) passed through southern Philippines between 14 and 18 December 2021, with winds reaching 240 km/hr. While the Philippines experiences an average of 20 typhoons per year, reports indicate that Rai was particularly destructive. Although the loss of lives was less than Typhoon Haiyan in 2013, the reported level of destruction to the built and natural environments appears to be significant over a large area. Current information on the disaster is available from [ReliefWeb](#) and [HumanitarianResponse](#)

This report provides an initial scoping of environmental issues which are likely to have arisen due to the typhoon or may occur as part of the humanitarian response. Note that several issues identified provide opportunities to reduce negative environmental impacts and support a safer and greener outcome.

This scoping is based on previous humanitarian responses to similar events, including Typhoon Haiyan, current assessments of damage from Rai and guidance on environmentally sound humanitarian responses. Scoping results can be expected to be updated, and expanded, as more data on damage is available.



Information and Support on Environmental Issues

Given the frequency of typhoons in the Philippines and increasing integration of environmental concerns into humanitarian responses, resources available at the [Philippines Shelter Cluster web pages](#) and from the [Global Shelter Cluster Environment Community of Practice web site](#) can be of significant use in “greening” the response to Typhoon Rai/Odette. Reviewing the [Shelter and Environment – An Overview - Typhoon Yolanda Response, Philippines](#) is recommended. Specific technical support is available from the [Global Shelter Cluster Help Desk](#) and the [WWF/US Environment and Disaster Management Help Desk](#).

Key Issues Identified

Compliance with Environmental Laws and Regulations

The Philippines has an extensive structure of laws, regulations and government bodies dealing with environment-related issues. Some variances from these laws and regulations are likely permitted under disaster conditions.

Humanitarian organizations, however, should understand and follow environment-focused laws and regulations as soon as the immediate lifesaving relief phase has been completed. Because the scope of environmental laws and regulations can be broad, a sector-wide assessment should be done at the cluster coordination level to benefit all assistance organizations.

Disaster Debris

The high winds, and to a lesser degree, storm surge associated with Rai, based on preliminary reports, generated a considerable volume of disaster debris. Part of this debris comes from the natural environment (e.g. branches, trees) and part from the built environment (buildings, roads, etc.)

Recovery, Reuse and Repurposing

In general, up to 90% of all debris can be recovered and reused or repurposed. This will (a) reduce the need for additional relief and recovery assistance, (b) provide opportunities to support local livelihoods (see below), and (c) reduce negative environmental impact by decreasing the volume of material going into dumps.

Projects to remove and process debris can provide significant support to livelihoods and self-managed recovery. Processed debris can be used in transitional shelter and other buildings, reducing the need to procure and deliver relief supplies to disaster-affected locations.

Guidance on debris management regulations and options can be secured from the Government of the Philippines' [Environment Management Bureau](#). Disaster Waste Management Guidelines [can be found here](#). [The UNDP Guidance Note Debris Management](#) provides guidance on developing and operating debris management programs.

Debris Disposal Sites

The design and operation of temporary and permanent debris disposal sites should meet national standards and international good practice. Debris processors can establish temporary sites to provide cost and workload-efficient locations for processing debris, but they need to be designed and operated in a way that reduces any negative environmental impacts. Agencies should ensure that temporary sites are returned to better-than-before conditions once the sites are no longer used.

The Haiyan response highlighted the challenges agencies face on the operation of permanent disposal sites. While few humanitarian organizations specifically deal with debris disposal, organizations do need to consider the *do-no-harm* principle. In line with this

Asbestos

The Philippines allows the importation of asbestos roofing sheets. Currently available data, however, indicates that asbestos imports to the Philippines are relatively small (Advance Data Release of the 2020 Annual Tables, USGS Minerals Yearbook 2020) and primarily consist of brake linings and pads (National Asbestos Profile Philippines, 2013. Department of Health, Republic of the Philippines and University of the Philippines).

At the same time, organizations involved in debris management or clearing buildings for repairs or replacement should be aware of the potential for asbestos. Guidance on dealing with asbestos is noted at the end of this report.

principle, humanitarian organizations should support proper waste disposal to avoid additional harm to the disaster survivors and as well as harm to communities where disposal sites are located.

Temporary Shelter and Reconstruction

In general, disaster survivors will use available resources, including materials from damaged buildings and downed vegetation, to construct temporary shelters. The plastic sheeting normally provided after a disaster is a useful asset in this owner-driven process.

At the same time, agencies should consider issues related to [land tenure](#), hazard zones, and access to livelihoods in the building and upgrading of temporary shelter and shelter sites, and in rapidly planning for the transition to permanent shelter. Both the [settlements and area-based approaches](#) are useful in this process. [Sphere and other humanitarian standards](#) need to be followed to ensure that transitional and permanent shelter is less prone to damage than before the typhoon.

Shelter and Environmental Impact

Sphere standards and good practice indicate that shelter assistance providers should assess the:

1. Environmental impact of assistance provided, including ex-post for immediate assistance, so that any negative environmental impacts can be mitigated.
2. Carbon dioxide equivalent (CO² eq) footprints of shelter and other assistance to aid in defining low carbon assistance options.

The Philippines Shelter Cluster developed the [Shelter Environment Self Assessment](#) tool following Typhoon Haiyan. Although the tool has not been updated to the current Sphere Standards text, it remains useful to assess shelter-related environmental issues. Support on the use of the tool is available through the [WWF-US Environment and Disaster Management Help Desk](#).

Assessing the CO² eq footprint can be a technically complicated process. However, the Environment Community of Practice together with BRE and WWF-US have developed a Excel®-based [Shelter Methodology for the Assessment of Carbon](#) tool to provide comparative CO² eq numbers for emergency and transitional shelter designs. Comparing the CO² eq for different shelter designs enables designers and decision-makers to select shelter designs based on a better understanding of the environmental impact of each design. Support on calculating CO² eq numbers and the Shelter Methodology for the Assessment of Carbon tool are available from the [Global Shelter Cluster Help Desk](#).

Shelter designs should also incorporate means to collect rainwater as a way to reduce the impact of dry weather, decrease demands on groundwater (groundwater may be an issue on some islands), and reduce the work needed to collect water. Coordination is needed with the WASH sector on:

- Water supplies to assure NFI assistance provides sufficient means to collect and safely store water.
- Solid and liquid waste disposal, including whether latrines are communal or provided on a house-by-house basis, and who is responsible for upgrades and replacements.

Packaging and Plastics

The Philippines is in the process of legally mandating a phase out of single use plastic. In the meantime, based on the Global Shelter Cluster [statement on single use plastics](#), humanitarian organizations should minimize using single-use plastics.

Where minimization is not possible, single use plastic recovery and reprocessing plans should be implemented. This is also a livelihoods support opportunity. Information on how single use plastics can be reprocessed is available from the [Global Shelter Cluster Help Desk](#).

Relief packaging other than single use plastics (e.g. cardboard, plastic jugs, metal cans, etc.) is often used by disaster survivors in transitional shelter or rebuilding. Assistance providers should monitor how packaging is used through surveys.

Where packing does enter the waste stream, steps should be taken to reuse, repurpose or recycle this packaging. Information on how to reuse, repurpose or recycle packaging is available from the [Global Shelter Cluster Help Desk](#).

Palm (Coconut) Wood

Wood from downed palm trees is a useful resource for upgrading emergency shelter and for building permanent shelter and other buildings. Processing palm wood is also an opportunity to support livelihoods and generate income to fund self-recovery.

Organizations with plans to use or process palm wood need to consider:

- The use of chain saws is restricted in the Philippines. The Haiyan response demonstrated that chain saws can be made available for processing under conditions which meet restrictions imposed in the Philippines.
- Palm wood needs to be processed and stored correctly to ensure it is available for use over the multi-year recovery process.

See the [Coconut Lumber Technical Working Group Report](#) for more information on using palm timber.

Mining of River and Beach Sand

As rebuilding gets underway, demand for sand-cement brick is expected to increase, for both repairing buildings and constructing brick buildings. The challenge is that the increased demand for bricks will increase sand mining from rivers, which can lead to local and downstream negative environmental, social, and community safety impacts, including a lack of sand to replenish beaches. In some cases, beach sand may be used to manufacture sand-cement bricks. However, due to the salt in beach sand, the resulting bricks are less durable than those made with sand from other sources.

Reconstruction planning and the design and construction of shelter and other buildings should assess the source and overall quantity of sand used in making bricks to avoid short and long-term social and environmental damage. Any plans to use sand-cement bricks or concrete for construction should:

1. Assess the impact of overall demand for sand on possible sources.
2. Develop alternatives where possible to reduce sand extraction.
3. Comply with Filipino laws and regulations concerning sand extraction, including the need for permits and limitations on areas where sand extraction can take place.

Cooking and Stoves

Fuelwood, charcoal, and other sources of biomass make up a significant part of the fuel used for cooking. Issues have been noted with indoor air pollution (principally affecting women). Poor combustion from inefficient stoves has been noted as an issue and provides a justification for including fuel efficient stoves as part of NFI relief or recovery packages.

Agencies should take care, however, to provide stoves that are adapted to local cooking methods and fuels, and preferably familiar to affected populations. Experience with distributing stoves in crisis situations indicates that education about the use and benefits of fuel-efficient stoves and after-distribution support are critical to the successful use of the stoves. See [Fuel Efficient Stove Programs Humanitarian Settings: An Implementer's Toolkit](#) for guidance on program design and operations.

Cash, Vouchers and Environmental Impact

Paying disaster survivors for working to clear debris and other response activities can be a significant source of income to meet immediate needs and finance self-recovery. The direct distribution of cash or vouchers (together or without food) can also be a significant source of support for self-recovery.

Local purchasing by the affected and humanitarian organizations may seem more efficient and generate less of a carbon footprint than transporting in and distributing humanitarian assistance. Unfortunately, this approach can also lead to environmental damage by triggering overexploitation of natural resources such as wood, sand and gravel.

Addressing whether cash or vouchers could lead to environmental damage involves three steps:

1. Conduct an [emergency market mapping and analysis](#) to understand supply potential in response to disaster-triggered demand.
2. Assess whether any of the disaster-related demand could be met from locally available natural resources.
3. If the disaster-related demand could be met from local natural resources, assess whether this demand would be met sustainably, recognizing that during relief and recovery, demand is usually many times greater than in normal times.

Note that this analysis is best done at the level of overall relief or recovery requirements. For instance, six organizations each planning to build 1,000 shelters may find that the market and environmental analysis justifies an individual organization's target of 1,000 shelters. But the results could be quite different when considering the construction of a total of 6,000 shelters.

Ideally, this type of macro analysis would be done by a Shelter Cluster technical working group as the results would benefit all shelter partners. Better would be if the analysis were to be done for the whole of a response based on the expected number of shelters, schools, clinics and other buildings to be repaired or replaced.

Wildfire

Although the typhoon-impacted area is not subject to wildfires in the same way as temperate zones, the vegetative debris from the typhoon, together with activities like charcoal production or land clearing, may lead to wildfires. These fires could affect displaced person sites (particularly where fire safety plans are not in place) and contribute to poor aid quality and negative health impacts. If wildfire does become a problem, a labor-intensive public works approach can be used to form and train teams to control fires where they are significant threats. Support on managing wildfire and fire safety in camps and urban settings is available from the NGO [Kindling](#).

Additional Resources

Asbestos

(From Information from Session Summary, Humanitarian Networks and Partnerships Week, Asbestos and Humanitarian Response – A Life-Threatening Humanitarian Challenge, International Conference Center, Geneva, 7 February 2020. UNEP/OCHA Joint Environment Unit, Geneva.)

- [Asbestos Essentials: Equipment and Method sheets](#) (2017), Health and Safety Executive UK.
- [Review of asbestos management practices in disaster planning](#) (2017) Government of Australia.
- [Disaster Waste Management Guidelines](#) (pgs. 5-6, 9, 17, 34), (2011) UNEP/OCHA Joint Environment Unit
- [A Brief Guide to Asbestos in Emergencies: Safer Handling & Breaking the Cycle](#), (2015) UNEP, Shelter Centre and the ProAct network.
- [General Strategy for Risk Reduction linked to Asbestos Cement](#) (2019) Mozambique Shelter Cluster and UNDP.
- [Cases studies of significant asbestos removal projects](#) (2018), Australian Government – Asbestos Safety and Eradication Agency.
- [UK Asbestos Training Association](#)
- [Independent Asbestos Training Providers](#)