



Debris Management Considerations Cyclone Gita – Tonga 21 February 2018

Purpose

This note provides a summary of key debris and waste management considerations arising in relation to the passage of Tropical Cyclone Gita over Tonga. The note is based on reports available on ReliefWeb and through desktop-based research.

Key Environmental Considerations in Tonga Debris and Waste Management

1. Asbestos removal

In 2015, Tonga was identified as being at high risk for significant potential to release asbestos fibers if disturbed and significant health risk to occupants of affected buildings. According to the 2015, Contract Environmental Ltd and Geoscience Consulting *Survey of the Regional Distribution and Status of Asbestos-Contaminated Construction Material and Best Practice Options for its Management in Pacific Island Countries Report* prepared for SPREP (Secretariat of the Pacific Regional Environment Programme), Tonga had 2,550 m² of asbestos containing materials. [1] In 2014, it's estimated that Cyclone Ian generated more than 300 tonnes of disaster debris, including asbestos waste, in Tonga (Ha'apai). [2]

2. Climate change [3]

The predicted effects of climate change could have significant impacts on efforts to manage waste, chemicals and pollution in the Pacific region. Coastal inundation and floods could damage waste management infrastructure and release harmful chemicals and leachate that pollute the land and groundwater and intensified tropical cyclones could generate increased volumes of disaster debris and waste that overwhelm existing management capacities. In the face of these impacts, it is crucial that adaptation to climate change impacts be integrated into national waste management planning.

3. Environmental degradation

Cyclone Gita destroyed or partially damaged close to 2,000 homes along with infrastructure. Rebuilding efforts can significantly increase the rate of resource extraction for building materials degrading the environment and increasing future disaster risk. Exponential increases of material extraction, processing and disposal can cause significant environmental and social impacts such as erosion, deforestation, landslides, and floods; deprive communities of essential livelihood resources; and put people, infrastructure, and ecosystems at greater risk of future disasters. Using disaster debris, or recycled materials in the rebuilding process can reduce this risk. WWF developed the [Building Material Selection and Use – An Environmental Guide](#) (BMEG) to provide guidance on better practices for government agencies, private sector companies, NGOs, and community-based organizations (CBOs) for environmentally responsible selection, sourcing, use and disposal of construction material.

General Debris Management Guidance

- Identify existing waste management plans and waste management regulations. Waste management planning should recognize that disaster debris is intrinsically valuable to the owner and can provide an initial source of emergency shelter or fuel; and the process of collecting, sorting and reusing disaster debris can provide a source for funds through cash-for-work cleanup programs.[4]
- Locate waste disposal sites, with the help of local authorities and environmental agencies, away from water sources, environmentally sensitive areas, and land used for housing, livelihood production, schools, or vulnerable communities. Improperly sited and poorly designed disposal sites can contaminate water sources, degrade natural resources, such as fisheries, agricultural land, and wetlands, result in leachate, and negatively impact public health.
- Avoid burning waste where possible to minimize potential health impacts.
- Separate toxic and hazardous wastes, such as medical waste, from domestic waste and dispose of in an appropriate manner in consultation with solid waste management experts.
- Recover, reuse repurpose, and/or recycle disaster debris to the extent possible. One environmentally responsible option for construction projects in a post-disaster setting is the reuse of building materials found in disaster debris. If using disaster debris, project managers must ensure that the debris meets applicable specifications for strength and safety. Compost is another straightforward way to dispose of solid waste, increase food security, and decrease carbon footprint.

Examples of how disaster debris was used in Tonga after Cyclone Ian in 2014 include [5]:

- Wood: fencing, furniture
- Roofing material: fencing
- Tires: tables, plant containers, swings for children
- Damaged vehicles were scrapped or dismantled for recycled car parts

These efforts were linked to alternative livelihoods where possible including farming and agriculture. [6]

Tongan Waste Management and Select Environmental Legislation

•Waste Management Act (Revised 2016)

https://ago.gov.to/cms/images/LEGISLATION/PRINCIPAL/2005/2005-0011/WasteManagementAct_2.pdf

•Waste Management (Plastic Levy) Regulation (Revised 2016)

https://ago.gov.to/cms/images/LEGISLATION/SUBORDINATE/3218/3218-0001/WasteManagementPlasticLevyRegulations_2.pdf

•Hazardous Wastes and Chemicals Act (Revised 2016)

https://ago.gov.to/cms/images/LEGISLATION/PRINCIPAL/2010/2010-0028/HazardousWastesandChemicalsAct_2.pdf

•Environment Management (Litter and Waste Control) Regulations 2016

https://ago.gov.to/cms/images/LEGISLATION/SUBORDINATE/4702/4702-0002/EnvironmentManagementLitterandWasteControlRegulations20_2.pdf

•Environment Management Act (Revised 2016)

https://ago.gov.to/cms/images/LEGISLATION/PRINCIPAL/2010/2010-0027/EnvironmentManagementAct_2.pdf

•Environmental Impact Assessment Act of 2003

<http://extwprlegs1.fao.org/docs/pdf/ton49306.pdf>

•Renewable Energy Act 2008

http://prdrse4all.spc.int/system/files/renewable_energy_act_2008_with_amendment_2010.pdf

Additional Resources

•**Emergency Shelter Cluster Quick Guide Post-Disaster Debris Management**

<https://www.humanitarianresponse.info/system/files/documents/files/Quick%20guide%20post%20disaster%20debris%20management.pdf>

•**Asbestos in Emergencies: Safer Handling and Breaking the Cycle (ProAct)**

<https://www.alnap.org/help-library/asbestos-in-emergencies-safer-handling-and-breaking-the-cycle>

•**Disaster Waste Management Guidelines (UNEP)**

http://web.unep.org/ietc/sites/unep.org.ietc/files/Disaster_Waste_Management_Guidelines.pdf

•**Guidance Note on Debris Management (UNDP)**

<http://www.undp.org/content/undp/en/home/librarypage/crisis-prevention-and-recovery/signature-product--guidance-note-on-debris-management.html>

•**Building Material Selection and Use - An Environmental Guide (BMEG)**

<https://buildingmaterialguideblog.wordpress.com/>

•**Green Recovery & Reconstruction: Training Toolkit for Humanitarian Aid (GRRT)**

<http://envirodm.org/green-recovery>

References

1. CLEANER PACIFIC 2025 Pacific Regional Waste and Pollution Management Strategy (SPREP & JICA) <https://www.sprep.org/attachments/Publications/WMPCCleaner-pacific-strategy-2025.pdf>
2. Ibid.
3. Excerpted from Ibid.
4. Emergency Shelter Cluster Quick Guide Post-Disaster Debris Management <https://www.humanitarianresponse.info/system/files/documents/files/Quick%20guide%20post%20disaster%20debris%20management.pdf>
5. DEBRIS MANAGEMENT CASH FOR WORK - REVIEW REPORT HA'APAI - TONGA April -June 2014 (UNDP) <https://info.undp.org/docs/pdc/Documents/TON/Review%20report%20CFW%20debris%20removal%20-%20Ha'apai.pdf>
6. Ibid.

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