

Tropical Storm Julia – Honduras

Summary of Environmental Issues

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Overview

This document summarizes key environmental issues in Honduras related to recovery and reconstruction after heavy rain in September and Tropical Storm Julia in October.

This summary focuses on:

- 0 to 1 month after the storm, identifying environmental issues expected to arise during continuing humanitarian response and initial recovery.



Honduras' federal government in September declared a countrywide emergency due to intense rains with above-average precipitation. In October, Tropical Storm Julia caused floods and river overflow throughout the country as it traveled along the Pacific coast of Central America. The storm also affected nearby countries including Nicaragua, Guatemala and El Salvador.

Damage assessments are underway. Information collected between October 9 and 11 indicates 820 Honduran communities in 162 municipalities (out of 298) were impacted by the rainy season and Tropical Storm Julia. So far, assessments show:

- More than 188,000 people affected
- 22 deceased
- 23,000 people evacuated

- 4,188 homes damaged and/or destroyed
- More than 12,300 people housed in more than 141 shelters in eight departments of the country (Atlantis, El Paraíso, Comayagua, Cortes, Francisco Morazán, Santa Barbara, Valle and Yoro)
- More than 100,000 hectares of crops damaged and/or affected
- 73 educational centers damaged
- Nearly 80 drinking water systems damaged

After Tropical Storm Julia hit, the government of Honduras issued a red alert in 10 departments (Cortés, Santa Bárbara, Copán, Ocotepeque, Lempira, Intibucá, La Paz, Valle, Choluteca and El Paraíso) and a yellow alert for the country's other eight departments (Atlántida, Yoro, Colón, Islas de la Bahía, Gracias a Dios, Comayagua, Francisco Morazán and Olancho) ¹.

Due to the heavy rainfall, Honduras has had landslides, rising rivers and floods, including the principal rivers (Ulúa and Chamelecón) in the Valle de Sula. Flooding has been caused in part by a failure of mitigation measures such as "*bordes*" (reinforced banks) and artisanal dikes that did not withstand the large amounts of rainfall. The same infrastructure was affected by Tropical Storm Eta and Hurricane Iota in 2020.

In the west of the country, road access and areas of coffee production have suffered severe damage. In the southeast, floods have threatened the safety of people such as displaced women and immigrants who entered Honduras in that region.

The northeastern Gracias a Dios department has experienced recurrent floods caused by the rainy season since May, before Julia. These floods have generated artisanal crop losses affecting more than 24,000 people in various communities.

Affected communities in the north also experienced the impacts of Eta and Iota during 2020, and they've been identified as areas with a large presence of gangs. These groups create challenges for agencies providing assistance and limit crucial access to resources for those who have been affected by disasters.

According to the Permanent Contingency Office of Honduras, or COPECO, the flow of the rivers could continue to increase and generate heavy flooding in low areas where many homes have already flooded. The agency's risk scenario shows around 200,000 people could be affected by floods in Valle de Sula².

Cooperación Española, a Spain-based development organization, collaborated with Honduras' government, providing basic necessities valued at 100,000 euros for at least 1,200 families in nine municipalities of Valle de Sula, the area most affected by Tropical Storm Julia. Each family received a hygiene kit, basic grains, non-perishable food, a biosafety kit, a mosquito net and cleaning and disinfection products³.

¹ <https://www.bloomberglinea.com/2022/10/10/honduras-en-alerta-por-tormenta-tropical-julia-y-suspende-clases-en-todo-el-territorio/>

² <https://reliefweb.int/report/honduras/honduras-tormenta-tropical-julia-informe-de-situacion-no-01-12-de-octubre-de-2022>

³ <https://reliefweb.int/report/honduras/ayuda-humanitaria-espanola-para-las-personas-afectadas-por-el-huracan-julia-en-honduras>

Anticipated Environmental Issues: 0-6 months

Disaster Debris Issues:

Recycle, Reuse and Repurpose: Julia likely generated significant volumes of organic debris, including from landslides and flooding. Clearing this debris is a first-order task in reestablishing access, shelter, commercial activities and food production. Debris should be considered an asset for recovery.

Debris management should follow the guidance set out in the United Nations' [Disaster Waste Management Guidelines](#). Where possible, debris should be reused or repurposed to support the recovery process (e.g., damaged trees processed into timber for use in rebuilding) or recycled through measures like composting to improve soil quality and crop production. The Pan American Health Organization guidance document ***Solid waste management in disaster situations***⁴ draws on regional experience accumulated after various disasters that have affected the region in recent decades.

Most waste in the region ends up in open landfills, which are linked to health and environmental issues.⁵ For example, of Honduras' 298 municipalities, only 30 have appropriate disposal sites, meaning 268 municipalities have landfills where trash is incinerated in the open air. Landfills are often close to rivers, leading to water pollution. In Honduras, low-income settlements are often located near rivers, which increases the risk of waste and/or homes being washed downstream during the rainy season.⁶

Hazardous Chemicals: Improper hazardous chemical disposal could increase the risk of groundwater pollution. Household and commercial buildings likely contained varying quantities of hazardous chemicals (e.g., cleaners, pesticides, paints, etc.) which need special handling when removed. Debris management teams need to be trained in safe removal requirements and plans must be made for the safe processing and disposal of hazardous chemicals.

Based on experiences in 2020, a Fast Environmental Assessment (FEAT) should be conducted to assess the possible impacts of chemical releases from factories and farms (e.g., pesticides, fungicides and similar substances.).

Asbestos: Despite having banned the use of asbestos⁷, the Honduras National Institute of Statistics reported more than 70,000 houses with asbestos roofs in Tegucigalpa in 2019⁸, most of which were constructed in the 1960s and 70s. Additional detailed information on the past and current use of

⁴ *Solid waste management in disaster situations*, Pan-American Health Organization, 2003, https://www.paho.org/disasters/index.php?option=com_docman&view=download&category_slug=publications&alias=2507-gestion-residuos-solidos-situaciones-desastres-7&Itemid=1179&lang=en

⁵ *Municipal Solid Waste Management in Latin America and the Caribbean: Issues and Potential Solutions from the Governance Perspective*, 10 May 2018, Hettiarachchi et al., <https://www.mdpi.com/2313-4321/3/2/19>

⁶ *Waves of Pollution in Honduras: Understanding Poor Waste Management and Natural Disaster*, December 2020, Kawas Arita, <https://www.wilsoncenter.org/publication/waves-pollution-honduras-understanding-poor-waste-management-and-natural-disaster>

⁷ *El asbesto, una epidemia todavía por controlar*, September- October 2017, Alfonso Accinelli & Lidia Marianella López, <https://www.gacetasanitaria.org/es-el-asbesto-una-epidemia-todavia-articulo-S0213911117301231>

⁸ *En la capital de Honduras todavía hay 71 mil casas con el dañino asbesto*, 4 June 2019, <https://www.elheraldo.hn/tegucigalpa/1290464-466/en-la-capital-de-honduras-todav%C3%ADa-hay-71-mil-casas-con-el>

asbestos for roofing and in industrial settings is limited for Honduras. Pending more detailed information, any handling of possible asbestos should follow current good practices.⁹

Agriculture Pesticides: Particularly in the agriculture export-focused areas of the Valle de Sula in Honduras, but also elsewhere across the country, it is likely that flooding has affected on-farm, point-of-sale and wholesale stocks of pesticides. These sources of environmental pollution and human health threat need to be assessed and addressed with appropriately trained and equipped teams. It is not clear if facilities for the disposal of pesticides exist in Honduras.

Vector Control: Malaria, dengue and other vector-borne diseases are endemic across the country. Vector control efforts will need to increase given the existence of new vector habitats and the establishment of displacement centers. While chemical control may be necessary as an emergency measure, vector control should shift to an integrated pest management approach as quickly as possible. See **Reducing Environmental Impacts of Vector Control Chemicals in Emergencies**¹⁰ for operational guidance.

Water and Sanitation: Rainfall, flooding and landslides triggered by Julia have likely had significant impacts on water supplies, including damage to storage and distribution systems, contaminated water, and recurrent flooding along principal rivers (Ulúa and Chamelecón) in Valle de Sula. These events also likely damaged sanitation systems, including filling wastewater holding tanks. In Honduras, most water supply systems outside urban areas use gravity.¹¹ Chlorination is a common method to treat water in the region.¹² Unfortunately, a large percentage of the population in the region lacks access to safe water.¹³ Water quality, in formal supply systems and from unprotected sources, is likely worsened by excessive runoff, flooding and landslides, although a full accounting of damage is not yet available.

Restoring water supplies and ensuring adequate water treatment are clear priorities from disease prevention and hygiene perspectives. When making water supply repairs, whether temporary or permanent, officials should consider the potential for further flooding or landslides so they can avoid more repeated repairs and reduce disaster risks.

Food Security: Initial reports indicate Julia damaged food and cash crops, the latter including coffee, banana and palm oil production for export. This damage is likely to put immediate pressure on rural and some urban residents to find alternative sources of food and income.

⁹ *A Brief Guide to Asbestos in Emergencies: Safer Handling & Breaking the Cycle*, 03 March 2010, ProAct & Shelter Center, <https://www.humanitarianlibrary.org/resource/brief-guide-asbestos-emergencies-safer-handling-breaking-cycle-0> and *Disaster Waste Management Guidelines*, 01 March 2011, OCHA, <https://www.unocha.org/publication/disaster-waste-management-guidelines>

¹⁰ *Reducing Environmental Impacts of Vector Control Chemicals in Emergencies*, 21 March 2019, C. Kelly, <https://ehaconnect.org/wp-content/uploads/2019/05/Reducing-Environmental-Impacts-Of-Vector-Control-Chemicals-In-Emergencies-2019.pdf>.

¹¹ *Designs of potable water supply systems in rural Honduras, 2003*, Nathan W. Reents, <https://www.mtu.edu/peacecorps/programs/civil/pdfs/nathan-reents-thesis-final.pdf>

¹² *Source Book of Alternative Technologies for Freshwater Augmentation in Latin America and the Caribbean*, 1997, UNEP, <https://www.oas.org/dsd/publications/unit/oea59e/ch23.htm>

¹³ *Progress on household drinking water, sanitation and hygiene 2000-2017, Joint Monitoring Programme*, 2019, WHO/UNICEF.

These efforts to secure food and income may in turn put pressure on natural resources, particularly near cities and towns. While the provision of food and cash support can reduce pressure on local resources to some degree, support will need to continue for up to six months to provide sufficient time for crops to be harvested. The sudden discontinuation of support too quickly can increase uncontrolled natural resource harvesting, leading to future risk.

Shelter and Settlements: Flooding in Valle de Sula of Honduras has likely affected many housing units. Communities across west and central Honduras also have likely experienced damage to housing.

Housing damage contributes to three primary environmental issues:

1. Flood-damaged housing generally contains a range of debris, which requires environmentally sound disposal. This debris often includes stoves, refrigerators and electrical equipment, all of which require well-planned disposal programs incorporating recycling and reuse.
2. Replacing lost or damaged housing units will require extracting natural resources at considerably greater levels than in normal conditions, risking damage to the environment from overexploitation. In some places throughout the region, mudbrick (adobe) is traditionally used as a construction material. While adobe is environmentally friendly, concrete has been the most commonly used material for housing and commercial buildings in Honduras in the last few years¹⁴. Rebuilding houses with concrete can take a significant environmental toll.
3. It is unlikely that most of the damaged or destroyed housing units will be repaired or rebuilt in less than 12 months, meaning transitional shelter arrangements such as camps will be necessary. In addition, there may be arrangements where affected residents live near or next to their home while it is being repaired. These transitional shelter arrangements need to be planned so they are in locations as safe as possible from flooding, as they will continue to be utilized through the next hurricane season, if not longer. Transitional shelter planning needs include the provision of services such as water and sanitation, schooling, health care, markets, and shelter-based economic activities such as food preparation, carpentry or motorcycle repairs, to ensure the rebuilding process places minimal demand on neighboring natural resources.¹⁵

Additional Information Sources for Environmental and Disaster Information and Guidance

1) WWF *Environment and Disaster Management* program. The WWF Honduras office and the WWF Environment and Disaster Management program (wwfedm@wwfus.org) are available to respond to requests for information or guidance on the environment and the response to Tropical Storm Julia.

¹⁴ *Conozca los materiales de más usan en la construcción en Honduras*, 18 November 2017, Luis Rodriguez, <https://www.elheraldo.hn/economia/1127319-466/conozca-los-materiales-que-m%C3%A1s-usan-en-la-construcci%C3%B3n-en-honduras>

Evolución de la vivienda en Guatemala, 27 July 2014, Ana Lucia Gonzalez, <https://www.prensalibre.com/revista-d/vivienda-en-guatemala-normativa-sismo-resistente-materiales-construccion-0-1181281992/>

¹⁵ See *The Programmatic Environmental Impact Assessment for the IOM Temporary Relocation Program In Haiti*, 29 December 2010, Sun Mountain International, available by email to havedisastercallkely@gmail.com.

2) Key Local Environmental Organizations:

- a) In Honduras, [the CONROA](#) is a coalition of more than 30 environmental, agricultural and other related organizations that work together on several issues including agroecology, mining, water and forest protection, among other things. Members of the CONROA include: [Instituto para el Desarrollo Ambiental de Honduras \(IDAMHO\)](#), [Movimiento Madre Tierra](#), and [Asociación de Mujeres Defensoras de la Vida](#).
- b) Other relevant organizations include Fundación Vida who work on water and climate issues.

3) [*EHA Connect - Connecting Environment and Humanitarian Action*](#).

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