Hurricane Melissa Response Operations
Environmental Screening for Humanitarian Response Activities:
Shelter, Cash and Voucher Assistance, Debris and Logistics

Contents

Background

Humanitarian operations need to assess and address the environmental impacts of the assistance provided. These actions are in line with Sphere Shelter Standard 7, the Climate and Environment Charter, the ECHO One-Form requirement for environmental review, the ECHO minimum environmental standards for shelter and other assistance, the Humanitarian aid donors' declaration on climate and environment and the Common Donor Priority Actions for Greening Humanitarian Assistance.

Assessing humanitarian operations-related environmental impacts is relatively simple. Most negative and positive impacts and mitigation measures are known. Tools like NEAT+ or SMAC (for carbon footprint) can be used to quickly assess environmental impacts.

Not all responses Melissa may have conducted environmental assessments. This document provides a summary screening (scoping and summary of response) for Shelter, Cash and Voucher Assistance (CVA), Debris, and Logistics.[1]

A set of good practice mitigation measures are provided to guide project-level impact mitigation actions. This document expands on an earlier version, with the addition of CVA and additional mitigation measures. The mitigation measurers have been drawn largely from the ECHO minimum environmental standards, with some consideration of local conditions.

[1] As CVA is an operational mechanism it does not need scoping.

The screening and mitigation measures summarized below are general to the humanitarian response in Jamaica. In line with good practice, organizations should conduct NEAT+ or mitigation-checklist-based assessments of ongoing or planned operations to ensure project and site- relevant issues and mitigation measures are identified and addressed.

How to Use This Report

1. Review the environmental **Scooping** and **Summary of Response** for each topic.
2. Review the **Mitigation Measures** and refine the list to ones which are appropriate for the specific intervention under consideration. Note that, for ECHO-funded projects, some mitigation measures may be specific requirements.
3. Modify project plans or procedures to incorporate the mitigation measures.
4. Establish specific performance indicators for each measure and monitor implementation.

A short record should be kept of decisions about selecting mitigation measures for tracking and evaluation purposes.

Shelter

Scoping

Hurricane Melissa contributed to between 40,000 and 95,000 housing units being identified as having minimal to total damage. This damage has led to significant levels of debris (discussed above) and significant demand for rebuilding supplies and activities. The demand for rebuilding is likely to put significant pressure on imported and natural resources, including an interest to replace wooded roofs with concrete roofs.

It appears that a lack of hurricane straps, wall cross bracing and other structural elements led to an increase in damage to some types of housing. This indicates that risk reduction should be part of rebuilding efforts.

Land tenure and a lack of land ownership have been noted as an issue in parts of the Melissa-affected area. These housing-land-and-property (HLP) issues can have a significant impact on access to official resources for rebuilding, leading to an increase in unofficial resource extraction to cover recovery cost and conflict over access to land and natural resources.

According to Think Hazard, Jamaica has a medium risk of damaging earthquakes. While the risk is estimated at 10% in 50 years, this risk should be incorporated into shelter repairs and new shelter construction.

Summary of Response

The Government and NGOs have established projects to repair or rebuild damaged shelter. These projects involve options which include (1) voucher assistance, (2) cash assistance, (3) a combination of both, (4) direct rebuilding and (5) provision of prefabricated shelters. The Government program is intended to work primarily through the online registration of houses for cash or cash and voucher assistance.

The focus of Shelter, Land and Site Coordination Working Group partners is primarily on repairs to roofs and buildings with some efforts expected to involve rebuilding heavily damaged houses

or providing prefabricated shelters. Information on the specific location of housing units to be repaired or replaced is emerging slowly.

Mitigation Measures

The first two measures, environmental screening and reporting, are also covered in Sphere Shelter Standard 7 and other commitments by humanitarian organizations. The remaining 23 measures should be considered as good practice for humanitarian organizations and implemented to the extent appropriate for the scope of a specific shelter and settlement operation. The first 18 measures are requirements for ECHO-funded projects. Items 19 to 25 are recommendations when shelter and settlements efforts are funded by ECHO.[2] **All measures** are relevant for any shelter-related project.

1. Conduct a project-level environmental screenings/assessments in coordination with fellow partners, using the Nexus Environmental Assessment Tool (NEAT+), or a similar tool to identify negative environmental impacts of planned interventions.
2. Prepare an environmental report based on the findings of the environmental screenings/assessments outlining the environmental risks associated with the response and the measures planned to mitigate them.
3. Include environmental parameters or mitigation measures in the Monitoring and Evaluation plans of S&S programmes, based on the environmental risks and potential negative impacts identified through the risk analysis and in line with the environmental requirements applied for that context.
4. Consider the impact of the intervention on the host population's current and future needs for natural resources and identify mitigation measures. This is especially pertinent in terms of deforestation and water access risks.
5. If new humanitarian settlements, or extensions of existing ones are planned, ensure as much as possible they are linked to existing infrastructure, facilities and livelihoods.
6. During programme implementation, avoid areas of special scientific interest - areas of land and water considered to represent natural heritage in terms of their: flora, fauna, animals, geology, and geomorphology.
7. Closely coordinate with national, and local planning authorities as well as existing and well-functioning coordination mechanisms, such as clusters throughout the settlement design process (including for assessments) to avoid overlapping of efforts and ensure long-term sustainability.
8. Avoid deforestation and removal of vegetation as much as possible to maximise shading effects, protect from winds, and reduce erosion and flooding. To the maximum extent possible, avoid major land transformations. Maintain the existing groundcover and establish appropriate drainage systems and soil retention engineering techniques.
9. Ensure hazard risk analysis and mapping of flooding, landslides (topography) and static water bodies in the site of intervention to avoid building in hazard-prone areas and prevent secondary displacements and cyclical humanitarian interventions.
10. When conceiving the design of different structures (shelter solutions, communal facilities) favour sustainable materials and practices that do not deplete local natural resources or contribute to long-term environmental damage.
11. When procuring timber, bamboo or any related products be aware of the

[2] HLP measures are not specifically covered, with land tenure requiring a separate assessment.

environmental impact and ensure procurement from local or international certified suppliers where possible.
12. In urban or peri-urban areas and when the shelter response is delivered through renting accommodation, work with owners where possible to ensure the housing unit is properly insulated, including adaptation of windows, in order to save energy on cooling and heating.
13. Wherever possible, unused building materials can be sorted and stored so that they can be recycled, reused, or repurposed. Reuse and recycling of tarpaulins and emergency tents should also be practiced if possible.
14. Prioritise local labour as much as possible for construction-related activities.
15. Ensure distribution and user training of clean cooking energy and energy efficient cooking stoves as standard items (through in-kind or cash) and avoid as much as possible establishing dependency on locally harvested biomass – or demonstrate that another project(s) exists which is covering these needs (e.g., through food assistance).
16. Ensure that energy systems for cooking, lighting, powering/charging and heating/cooling are affordable, sustainable, safe, and appropriate in the longer term. Consider energy needs at household level and at the settlement level covering a variety of activities (communal facilities, commercial activities, and street lightning) and favour renewable energy sources as much as possible.
17. Where reliable grids exist, advocate for the promotion and/or support grid-tie solar photovoltaic (PV) plants to reduce dependency on fossil fuels and decrease expenditure on electricity. Where reliable grids are distant or absent, support access to decentralised clean electricity generation, such as mini-grids or home solar systems, if suitable.
18. In the aftermath of a disaster or conflict, reconstruction efforts should be guided by ‘building back better’ principles and by promoting the rehabilitation and re-purposing of existing buildings and infrastructure where applicable.
19. Coordinate with government, humanitarian, development and private sector actors to continually optimise the electricity options available to refugees and host communities by introducing technological innovations and new approaches to service delivery.
20. Create a culture of energy efficiency by designing and upgrading community facilities and shelters to be energy efficient, choosing energy efficient appliances and providing energy efficiency training. As much as possible, consider alternatives to the distribution of short-lived low-quality products and ensure selection of quality components and appliances through compliance with appropriate manufacturing certifications. Promote the use of components and appliances that are more reparable, re-usable and recyclable.
21. Promote the salvaging of solid waste found in humanitarian settings for reuse and re-purposing in a safe and dignified manner. Humanitarian settings provide opportunities for inventive reuse of materials.
22. Provide capacity-building activities for the local communities and make sure local labour is trained and sensitized on integration of both Disaster Risk Reduction (DRR) and environmentally-friendly practices in construction.
23. Complement shelter programming with blue - green infrastructure networks and resilient farming and gardens.
24. Integrate rainwater capture and greywater capture into shelter and facilities designs.
25. Consider including environmental training and awareness sessions into S&S programmes to build knowledge and skills necessary to address

environmental issues and sustainable resource management.

Additional information can be found in **Working Note Melissa Response - Construction**.

Cash and Voucher Assistance

Summary of Response

Assistance based on cash, vouchers, or a combination of both ("CVA"), can be used as general support to an affected population or as a part of project, for instance, shelter repair. The two main challenges with unconditional cash assistance are that the person receiving the cash can (1) spend it on anything, including scare natural resources or pesticides and (2) a large number of people spending their unconditional cash in one location or on one product can lead to significant increases in prices. Where these purchases are, for instance, for timber harvested locally, this can lead to excessive cutting and environmental and short and long term environmental damage. Because damage to the environment is often not understood as a negative consequence of CVA assistance, the following mitigation measures are important to avoid untended harm.

Mitigation Measures[3]

1. Include potential environmental and climate impacts as part of the CVA risk matrix assessment.
2. Conduct the NEAT+ sensitivity module to identify environmental issues in the project area of operations.
3. Include environmental considerations in programmatic tools used in cash and voucher assistance in order to anticipate indirect and negative impacts on the environment more effectively and analyse its potential contribution to environmental degradation (e.g. analysis of the energy supply in local markets and the types of energy used, selection of service providers and suppliers, etc.).
4. Promote continued monitoring of the environmental impact of purchases made with multipurpose cash transfers (e.g. through beneficiary surveys) to detect any behaviours or choices incentivised by cash that may be environmentally damaging and then introduce mechanisms to manage these situations where feasible.
5. Check declarations from Financial Service Providers (FSPs), and if needed ask for documentation, to see if they invest in environmentally harmful sectors (oil, gas, coal extraction; arms production) and prioritise those who do not.
6. Promote complementary approaches outlining environmental considerations and risks, with market-based interventions: technical assistance, capacity building and awareness raising.
7. Recognising energy needs (and the related costs when fuel is not taken directly from the natural environment) by taking them into account in the Minimum Expenditure Basket (MEB) can limit the adoption of environmentally harmful practices (such as cutting trees or bushes), particularly in contexts of displacement.

Debris

[3] Number 1 is a requirement for ECHO-funded projects.

Scoping

Hurricane Melissa resulted in an estimated 4.8 million tons of debris, including metal roofing, plastics, biomass, raw and treated timber, household goods and furnishings and other items. In addition, debris from Hurricane Beyrl is present in some locations. Rural areas are challenged with regular waste removal, and, in some locations, there is a significant backlog in the disposal of white goods (e.g., inoperable refrigerators, etc.). Melissa does not seem to have generated any significant quantity of hazardous materials. Associated with Melissa is an outbreak of Leptospirosis, and a risk from mosquito-transmitted Dengue, where debris and bulk waste provide significant opportunities for vector breeding.

Summary of Response

Debris management has been handled by the Regional Solid Waste Management organizations in the Melissa-affected Parishes. These efforts have broadly covered urban and some near-urban rural areas, with more distant rural areas covered to a lesser degree. Several NGOs are planning on initiating debris projects in Melissa-affected areas.

The Western Regional MoHW Vector Control program has begun debris clearance, primarily in urban areas as part of vector control efforts to address Leptospirosis, and Dengue. These efforts may be expanded.

Mitigation Measures

The reduction of debris would reduce disease vector hosing sites and permit the reuse, repurposing or recycling of debris for relief and recovery programming. Repurposing and recycling will reducing the need for external assistance.

Specific measures to manage and reduce debris are listed below. Consult Working Notes – Debris and Recycling - Hurricane Melissa for more information on debris disposal.

1. Expand existing debris management initiatives to underserved areas to reduce disease risks and mobilize materials for recovery.
2. Establish source-to-grave debris management plans using the **Disaster Waste Management Guidelines**.
3. Conduct project and location specific environmental impact screenings and impact management plans.
4. Provide workers with personal protection equipment appropriate for the work they are undertaking.
5. Separate debris into elements which can be reused, recycled or repurposed, with a target of reducing the quantity of initial debris collected by 80%. (Separation can take place at waste transfer points.)
6. Avoid damaging (crushing) large white goods (e.g., refrigerators) during collection to avoid creating additional debris and environmental pollution.
7. Separate electronics from other debris and provide to the Regional Solid Waste Management authority or private companies for processing.
8. Separate hazardous waste (e.g., paint, pesticides) from other debris and provide to the Regional Solid Waste Management authority for processing.
9. Separate metals and plastics from other debris and sell or donate to approved waste processors.
10. Separate wood and vegetation which has not been painted or treated, as well as brush and other organic materials, from other waste and either reuse, repurpose or recycle.
11. Convert organic waste into ground cover (chips) or compost.
12. Cover vehicles transporting waste to reduce materials from blowing away.

13. Clean up after each collection (using brooms and shovels) and return transfer sites to conditions at least as good as before their use for debris transfer.

Logistics

Scoping

Significant volumes and a range of types of physical assistance have been provided to Jamaica following Hurricane Melissa. Details of this assistance are not fully available at this writing. Delivery of commodities to Jamaica involved air and sea lift, with personnel transported by air to and from the country. Transport within Jamaica is by personal vehicle and small to large trucks. Warehouses to support relief operations are used but the location and capacity of these facilities have only partially been assessed as part of this scoping effort.

The environmental challenges with humanitarian logistics operations are expected, based on limited assessments and experiences from other disasters, to include the following:[4]

- Excessive packaging of air or sea-delivered items, leading to excessive waste and increased transport costs.
- Poor or incorrect packaging, leading to damaged items and waste.
- Improper waste disposal.
- Excessive use of vehicles for relief item and personal transport, e.g., items transport in less than full loads or a single individual transported in a vehicle.
- Poor vehicle fuel economy – excessive CO_2 emissions.
- Poor use of point-to-point reserved vehicles (e.g., Uber, trip-specific vehicle hirer) for the movement of personnel.
- Poor warehouse storage practices.
- Limited or no capacity to recover damaged or no-longer need plastics-based assistance (e.g., damaged buckets, water bottles, tarps, etc.).
- Weak or non-existent reuse, recycling or repurposing packaging and damaged items.
- Limited or no attention to a circular economy approach to humanitarian logistics.
- Relief items which are not appropriate for the assessed needs of the hurricane-affected populations.
- Use of single-use plastic in shipments and deliveries.[5]

Mitigation Measures[6]

1. Plan transport to reduce air shipments (which are responsible for higher emissions than sea shipments and land transport).
2. For projects with a logistics component, measure the movements, costs and maintenance of vehicles and means of transport to gather data about their use. Include maintenance of the vehicles in the project plan.
3. Ensure the most sustainable and environmentally friendly performance of vehicles for the given context.
4. Reduce and optimise secondary and tertiary packaging of food and NFIs.
5. Reduce or eliminate single-use plastic bulk packaging, and no single-use plastic wrapping around individual NFIs (blankets, etc.), unless it is essential to the quality/sterility of the item. This can be achieved through ongoing

[4] Not listed in order of impact of importance.
[5] Single use plastics are generally banned in Jamaica - https://www.nepa.gov.jm/sites/default/files/2024-10/Plastic_Pkging_Mtrls_Prohibition_Order_2024_0.pdf
[6] Numbers 1 to 15 are ECHO requirements.

collaboration with suppliers and updated product specifications.
6. Encourage biodegradable packaging, if the integrity of the packaged item can be ensured.
7. Avoid procuring single-use disposable items as much as possible, and favour products with greater durability and high recycled content.
8. Ensure right-sized procurement. Accurately calculate and plan the number of items needed, size and frequency of procurement and distribution in order to prevent unnecessary waste and environmental impacts from over-production and over-procurement.
9. Take advantage of the virtual and/or white stocks agreements with suppliers, to minimise deterioration or related waste if not fully utilised in due time.
10. In case of over-procurement, consider also reverse logistics.
11. Consider if joint procurement approaches with other humanitarian actors may help avoid over-procurement.
12. Only if their supply, durability, adequacy and environmental sustainability can be ensured, favour procurement of locally produced items. Local procurement of medicines and medical supplies can occur only on condition that local markets have been assessed and stringent quality assurance is in place to avoid procurement of sub-standard or counterfeit products, in line with the do no harm principle (to be read in combination with the Provisions on medical and food supplies applicable to actions funded under the EU Humanitarian Partnership Certificate 2021-2027).
13. Consider opportunities to build the capacity of local communities and markets to support professionalization of local market actors and develop opportunities for local procurement, while considering the need to procure environmentally friendly humanitarian items.
14. Consider the environmental impact of products throughout their full life cycle when similar products from different origins are compared, where such life cycle assessments are available.
15. Where possible, plan for recovering packaging materials, recycling them locally or even returning them to the vendor for re-use.
16. Explore pooling opportunities and consider joint procurement of goods and services in a team-effort with peer organisations on local, regional and global level. In a combined effort, partners can exert leverage on producers and suppliers to use more environmentally friendly approaches to production and transport of humanitarian items. Pooled efforts can also help optimise transport use and support right-size procurement.
17. Include environmental requirements in suppliers'/vendors'/contractors' Expressions of Interest (EOIs),
18. Statements of Work (SOWs), tender documents, and contracts. Create and apply selection criteria that match the environmental requirements.
19. Enhance the sustainability of facilities and warehouses. Invest in solar or wind power sources and reduce energy consumption.
20. Do not burn **any** trash or waste.
21. Assure warehouses and related facilities are not in flood zones, will not be affected by landslides (including the yard outside the warehouse) and meet seismic code requirements.
22. Assure shelves are securely attached to ground and walls (where appropriate) and install barriers to limit items falling out of 2nd or higher tier storage in the case of an earthquake.
23. Establish a reuse, repurpose, recycle system for managing packaging and damaged or unusable relief items.
24. Compost organic materials.

25. Establish a circular economy mechanism for distributing and retrieving relief items which may degrade or break during the course of humanitarian operations, generally 180 days, but up to 2 years depending on the duration of operations.
26. Consider the use of commercial delivery services and direct-to-individual delivery of relief supplies.

Additional information on reducing the environmental impact of logistics operations is available from the Logistics Cluster and the WREC Project (see https://www.logcluster.org/en/wrec/green-logistics). Information on vehicle management can be found at the Fleet Forum.