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SUSTAINABILITY IN HUMANITARIAN SUPPLY CHAINS:

A PRELIMINARY SCOPING OF IMPROVEMENTS IN PACKAGING

Photo Credit: Joint Environmental Unit

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A note about the following report: while funded by USAID, it is fundamentally a collaborative effort and thus has the formatting associated with the United Nations and the Joint Environmental Unit. Environmental challenges are too great and global to address alone, and this report is meant to provide a starting point for all humanitarian organizations including donors, beneficiaries, implementing partners, academia, and the private sector.

Executive Summary

Increasing Humanitarian Need

The number of people in need of humanitarian assistance has tripled over the last decade[1], at the same time as the drivers of humanitarian assistance needs have shifted in the face of realities such as climate change, water scarcity, forced displacement, longer-lasting conflicts, pandemics and their side effects, and population growth that are pushing an increasing number of communities to the edge. According to the 2020 Global Humanitarian Outlook produced by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) approximately one in 45 people worldwide will be in need of humanitarian assistance in 2020, though this number may as much as double due to the COVID-19 pandemic. The unprecedented number of simultaneous emergencies is highlighting areas for improvement in the global humanitarian apparatus including in procurement systems and supply chains. The sector is aiming to reform the way assistance is delivered, strengthening the Humanitarian-Development Nexus and finding a "New Way of Working".[2] On this current global humanitarian assistance stage, in order to 'do no harm' and build back better, reducing the environmental impacts of humanitarian response has become a responsibility, not a choice.

Humanitarian assistance needs are rising in parallel to another global crisis: waste management, which is one of the most urgent and underfunded global development challenges that is only expected to grow. In development assistance, only 0.3% of total funding is directed towards waste management.[3] The waste management crisis is particularly acute for countries or communities receiving humanitarian assistance that often lack sufficient infrastructure or management systems to handle waste generated by the assistance. Waste can accumulate and remain in communities indefinitely or lead to improper disposal measures, causing adverse impacts to communities and the environment, and increased stress on already fragile municipal systems.

Solution Seeking

In the face of these global humanitarian and waste management challenges, humanitarian practitioners are already placing increased emphasis on evaluating their procurement and supply chain delivery processes to look for increased speed and reliability, reduced cost, and enhanced environmental sustainability. Addressing the issue of humanitarian packaging waste

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[1] The New Humanitarian. 2020. Available online at: https://www.thenewhumanitarian.org

[2] Joint Steering Committee to Advance Humanitarian and Development Collaboration. 2020.The New Way of Working. United Nations. 2020. Available online at: https://www.un.org/jsc/content/new-way-working

[3] International Solid Waste Association (ISWA). 2014. Globalisation and Waste Management: Final Report from the ISWA Task Force. ISWA. September 2014. Available online at: https://www.iswa.org/knowledgebase/tgffinal

is part of this larger effort. The packaging associated with relief items is an essential aspect of humanitarian assistance for commodity delivery and protection and can sometimes also be considered a relief item, but more often becomes an unintended waste stream in the most fragile and strained contexts. How can the humanitarian community both minimize the impact of packaging and turn it into opportunities for those we aim to serve, while not compromising life-saving assistance delivery?

Within the current global context, this scoping report provides a preliminary analysis of the environmental risks and challenges related to humanitarian assistance packaging and presents recommendations that will lead to further research, assessments, and follow-on initiatives. Although there are other areas of humanitarian action with higher environmental impacts, including some commodities themselves, packaging was identified as the focus for this study given that improving packaging is widely accepted across the humanitarian sector as impactful and both achievable and practical to address. There is additional motivation to minimize packaging waste and associated reputational risk due to the high visibility of packaging waste in humanitarian crises. There is both a strong business case and a strong sustainability case for improving humanitarian packaging and reducing the waste generated in humanitarian response.

A Collaborative Effort
Environmental issues are too great for any one organization to address alone. This preliminary scoping report, led by USAID in collaboration with a technical advisory group of humanitarian assistance stakeholders, is based on consultations with forty-seven organizations across the humanitarian, environmental, academic and private sectors. Using a circular economy framework, the report paints an overview of how humanitarian assistance stakeholders are addressing packaging-related concerns and impacts. The report finds that there is already great momentum in the sector and a wide range of initiatives looking at packaging waste management and reduction, particularly in a regulatory environment where many countries are imposing plastic import bans. There is, however, chronic underfunding in waste management, a lack of activity and impact data, and a lack of coordination on the topic both across the sector and within organizations. There is an identified need for collaboration and coordination, particularly in relation to specification setting and working with suppliers. Competing priorities mean that packaging waste is just one of many issues organisations are dealing with when trying to improve the sustainability of their supply chains and minimize environmental impact.

Building on these findings, the scoping presents recommendations for both improvements in humanitarian packaging waste management and areas for further research, under three main topics: 1) coordination, engagement, and shared baselining; 2) production, procurement, distribution, and usage; and 3) end of life management.

1. **Strengthen coordination across stakeholders and regions**
   a. Develop a collective road map to establish understanding, gaps in coordination between organizations, and how to address those gaps

b. Establish a new or expand upon existing coordination mechanisms and channels to connect stakeholders and foster collaboration across the humanitarian assistance sector

c. Increase awareness about and engagement in the Quality, Social and Environment sub-group of the Logistics Cluster among participating members and potential new members

2. **Increase private sector engagement in policy and standard setting**

   a. Expand and formalize engagement with the private sector in procurement and program countries to increase channels for communication and input into policies, standards, and end-of-life solutions (i.e. suppliers and recyclers)

   b. Engage with existing collaborative channels with broad membership bases to unlock varying levels of expertise, capabilities, resources, and technologies

   c. Conduct an assessment to further identify relevant private sector actors across the value chain, particularly at local or regional levels where humanitarian activities are prevalent, and examine market dynamics through one high traffic corridor like Jordan to Syria or Djibouti to Ethiopia and South Sudan

3. **Generate case studies, assessments, and guidance document**

   a. Collect and disseminate existing case studies, assessments, and guidance documents at the commodity, organization, event, or sector level

   b. Develop additional case studies, assessments, and guidance documents at the commodity, organization, event, or sector level starting with those determined most impactful (polywoven grain bags, tarpaulins, etc.)

4. **Map existing policies**

   a. Develop and maintain a publicly accessible database with information on international and national regulations relevant to humanitarian assistance packaging stakeholders, including plastics bans

5. **Harmonize procurement, distribution, and usage standards**

   a. Engage with U.S. Government and private sector partners to develop clear and consistent standards regarding packaging across primary stakeholders responsible for funding and administering humanitarian assistance and align procurement criteria accordingly

6. **Encourage product- and packaging-focused research and development**

   a. Coordinate with the academic and private sector to encourage the development of higher quality yet affordable commodities or packaging with greater durability or functionality and alternative packaging materials and distribution methods that minimize waste and reduce the overall life-cycle impact of humanitarian assistance

7. **Research sub-national, national, or regional waste management infrastructure and capacity**

   a. Develop case studies of existing waste management schemes and models in crisis hotspots and ongoing emergency contexts to inform comprehensive or individual guidelines for developing new schemes

   b. Identify and characterize regional waste production and management hubs, including location, infrastructure, and capacity

      c. Identify and map the existing industries able to recycle the most common polymers or to use them as fuel

8. **Develop a waste management planning framework**
   a. Support or design a framework for humanitarian assistance stakeholders to evaluate the impact of their packaging waste in crisis contexts and develop proactive packaging waste management plans including procurement and delivery interventions

The topic of packaging waste in the humanitarian assistance sector is full of dynamic discussion, ideas, and initiatives. There is openness to collaboration and to finding common solutions which will provide efficiencies in cost and sustainability. This preliminary scoping aims to help provide a way forward to collective, impactful solutions in the humanitarian packaging waste management landscape.

Table of Contents

Acronyms

BHA	Bureau for Humanitarian Assistance
DG ECHO	Directorate-General for European Civil Protection and Humanitarian Aid Operations
FFP	Food for Peace
HumLog	Humanitarian Logistics and Supply Chain Research Institute
ICRC	International Committee of the Red Cross
IDP	Internally Displaced Persons
IFRC	International Federation of the Red Cross
IOM	International Organization for Migration
JEU	Joint Environment Unit (UNEP/OCHA)
LOE	Level of Effort
NGO	Non-governmental Organization
OCHA	Office for the Coordination of Humanitarian Affairs
OECD	Organisation for Economic Co-operation and Development
OFDA	Office of Foreign Disaster Assistance
PET	Polyethylene terephthalate
PP	Polypropylene
QSE	Quality, Social, and Environment
UN	United Nations
UNEP	United Nations Environment Programme
UNHCR	United Nations High Commissioner for Refugees
UNHRD	United Nations Humanitarian Response Depot
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WASH	Water, Sanitation, and Hygiene
WFP	World Food Programme
WWF	World Wildlife Fund for Nature

Section 1: Introduction

1.1 Overview

Humanitarian assistance aims to save lives and alleviate suffering during and after disasters and crises, as well as to strengthen preparedness. A key function of humanitarian assistance is the delivery of life-saving commodities and supplies to those seeking to survive and recover in post-disaster and post-conflict emergency settings. According to the 2020 Global Humanitarian Outlook produced by the United Nations Office for the Coordination of Humanitarian Affairs (UN-OCHA), nearly 167.6 million people will be in need of humanitarian assistance in 2020, representing approximately one in 45 people worldwide. The UN and partner organizations aim to assist 109 million of these people in need, which will require funding of $28.8 billion.[4] The number of people in need of this assistance has tripled over the past decade. Further increases are expected due to the COVID-19 pandemic. Food insecurity could double at an additional cost of 6.7 billion USD.

At the same time, waste management is one of the most urgent global development challenges and is only expected to grow, particularly for countries receiving humanitarian assistance.[5] While humanitarian assistance provides essential aid to people affected by crisis and offers opportunities towards longer-term development gains, countries or communities receiving assistance often lack sufficient infrastructure or management systems to handle the waste associated with the assistance. Waste can accumulate and remain in communities indefinitely or lead to improper disposal measures. This causes considerable adverse impacts on the environment (e.g. flooding due to cluttered drainage and human health impacts (increase risks of disease, exposure to hazards), and drains on already strained, overloaded, and underfunded municipal systems.

Plastic Waste in Haiti.
Credit: UNEP/OCHA Joint Environment Unit.

The humanitarian assistance community is increasing response efforts in the face of prolonged and unprecedented numbers of new and simultaneous emergencies exacerbated by climate change, conflict, pandemics, and forced displacement, etc. UN-OCHA, in its leadership in

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[4] United Nations Office for the Coordination of Humanitarian Affairs (OCHA) (2019). Global Humanitarian Overview 2020. UN OCHA. Available online at: https://www.unocha.org/sites/unocha/files/GHO-2020_v9.1.pdf

[5] Kaza, S. et al. 2018. What a Waste 2.0 A Global Snapshot of Solid Waste Management to 2050. World Bank Group. 2018. Available online at: https://openknowledge.worldbank.org/bitstream/handle/10986/30317/211329ov.pdf

strengthening the Humanitarian-Development Nexus, advocates for "The New Way of Working"[6] focused on collaboration, comparative advantage, and multi-year interventions. In that spirit, humanitarian practitioners are placing increased emphasis on evaluating their supply chain processes to look for intersectoral and non-traditional partnerships, increased speed and reliability, reduced cost, and enhanced environmental sustainability.

Within the current global context, this scoping report provides a preliminary analysis of the primary environmental risks and challenges related to packaging waste associated with humanitarian assistance. Packaging is the specific focus of this scoping study because it is an essential aspect of humanitarian assistance for commodity protection and accountability, but is also an often unintended and unnecessary waste stream. For example, over 15 million polypropylene bags were procured by Food for Peace just in Fiscal Year 2019. Additionally, many humanitarian stakeholders consider packaging waste a high priority action item to minimize the environmental impact of assistance delivery. Although there are other areas of assistance with higher environmental impacts, packaging improvements are considered immediately feasible to address with significant potential impact.

Box 1. Packaging Definitions
In humanitarian assistance, packaging can be understood and defined at three distinct levels.

- *Primary packaging* is understood as the packaging components in direct contact with the products at the smallest unit of distribution (e.g. a single bag of grain).
- *Secondary packaging* contains multiple primary packaged products together (e.g. a crate of six bags of grain).
- *Tertiary packaging* is the freight and logistics packaging used to facilitate shipping and storage (e.g. a stretch-wrapped pallet of 16 crates of bags of grain).

This scoping report thus aims to understand how humanitarian assistance stakeholders are addressing their packaging-related concerns and impacts including priorities, challenges, and activities. The information gathered will enable the identification and prioritization of the most pressing concerns and interventions to inform a methodology for a follow-on assessment.

The remainder of this report is structured as follows. Sections 1.2 and 1.3 (Definitions and Methodology) provide an overview of humanitarian assistance sector definitions including the types of assistance delivered, and describe the methodology for this scoping effort, including stakeholder consultations and the creation of a Technical Advisory Group. Section 2 (Packaging Waste Management in Humanitarian Supply Chains) outlines current efforts stakeholders are undertaking to manage packaging waste within their supply chains and associated challenges at the procurement, distribution, usage, and end-of-life-management stages. Section 3 (Identified Priorities and Proposed Interventions) proposes interventions to improve packaging waste management including an evaluation of their perceived feasibility and prospective impact.

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[6] Joint Steering Committee to Advance Humanitarian and Development Collaboration. 2020.The New Way of Working. United Nations. 2020. Available online at: https://www.un.org/jsc/content/new-way-working

Section 4 (Conclusion and Next Steps) summarizes these proposed intervention areas and highlights the key next steps for the follow-on assessment.

1.2 Definitions in Humanitarian Assistance Sector

For the purposes of this scoping, humanitarian assistance commodity delivery refers to the delivery of both food and non-food assistance to crisis-affected populations.

Food assistance refers to both in-kind food commodities (i.e. food aid) as well as market-based activities, such as locally procured commodities or cash, that contribute to food security. Food assistance is mobilized in response to emergencies where there is an identified need and local authorities lack the capacity to respond. Food assistance is used in order to save lives, reduce suffering, and support the early recovery of people affected by conflict and natural disasters. Food materials include oil, flour, grains, cereals and pulses, canned food, therapeutic foods, fortified foods, or nutrient supplements that provide life-saving support.

Box 2. Food Assistance Donors

The United States is the largest donor of food aid around the world, accounting for approximately 50 percent of the global supply. The United Kingdom, the European Union, Canada, Japan, Saudi Arabia, Russia, China, South Korea, and Australia are also major donors.

In 2018, the USAID Office of Food for Peace (FFP) provided more than $1.7 billion USD in food assistance overseas. This assistance included a combination of approaches—U.S.-sourced commodities*; local and regional procurement of food; cash transfers for food; and food vouchers. Through these approaches, FFP procured more than 1.4 million metric tons of food for beneficiaries across 30 countries in 2018.

*The U.S. supply chain for U.S.-sourced commodities typically starts in the Midwest, moves through Houston, Texas, and is then shipped to Djibouti or Durban, South Africa where USAID has prepositioning warehouses. From there, it goes overland to communities and refugee camps. This type of delivery is used for slow-onset emergencies or when markets have collapsed and food is not available locally or regionally.

Source: Organisation for Economic Co-operation and Development (OECD) and USAID

Food assistance packaging must minimize losses and preserve food and nutrients; it is an essential component for consideration in the delivery of food assistance because it must be durable enough to ensure the necessary shelf life of the food and remain intact during transit. Shipping can take one to two months for locally or regionally purchased commodities, and four to six months for food commodities shipped internationally. Table 1 below outlines specific examples of food assistance packaging.

Food Waste in Afghanistan.
Credit: UNEP/OCHA Joint Environment Unit.

Table 1. Examples of Food Assistance Packaging by Commodity Type

Commodity Type	Packaging
Grains, pulses, cereals and oil seeds	Virgin woven polypropylene (PP) bags
Fortified flour, Corn-Soy Blend, Cornmeal	Hybrid paper bags and PP woven bag with PE (polyethylene) inner liner
Fortified Vegetable Oil	Steel cans, plastic bottles, cardboard cartons
Specialized Nutritious Food Products	Metallized flexible plastic sachets and pouches, plastic box liner, cardboard cartons

Non-food assistance refers to identified essential relief supplies that are needed immediately in the wake of a disaster. This includes vital non-food products across several sectors including health, shelter, food security and nutrition, and water, sanitation, and hygiene (WASH), such as emergency shelter materials, blankets, water treatment items, and health and hygiene kits. Table 2 below outlines specific examples of non-food assistance for each sector.

Packaging for non-food assistance must also minimize loss by ensuring the items arrive to aid recipients intact through the transportation and distribution chains. Some non-food items can be toxic, such as pesticides, meaning their packaging may require different management processes than typical solid waste.

On 9 July, Somali women and children stand outside temporary tents provided by the Office of the United Nations High Commissioner for Refugees (UNHCR) in the Dagahaley refugee camp in North Eastern Province, near the Kenya-Somalia border. Clothing and other items hang on small trees near several makeshift tents. The camp is among three that comprise the Dadaab camps, located near of the town of Dadaab in Garissa District.
Credit: UNICEF/Kate Holt

Box 3. Non-Food Assistance Donors
Globally, the United States, the United Kingdom, the European Union, Japan, and Canada, among others, are major donors of non-food aid humanitarian assistance. In the U.S., the USAID Office of Foreign Disaster Assistance (OFDA) leads the response and delivery of essential relief supplies such as emergency shelter materials (6,092 rolls of 60m x 4m plastic sheeting in FY19), kitchen sets (20,820), warm blankets (79,000), water containers (19,200), and hygiene kits (8,593). These critical commodities are either airlifted directly to disaster sites or are mobilized to disaster-affected areas from strategically located prepositioned warehouses in Miami, FL; Pisa, Italy; Dubai, UAE; and Subang, Malaysia. Source: OECD and USAID

Table 2. Examples of Non-Food Items by Sector

Sector	Typical Non-Food Items
Shelter	Tarpaulins, tents, shelter kits, construction materials/kits, bedding/blankets, clothes, sleeping mats, mosquito nets, solar lanterns, insulating floor mat, timber, cement
Nutrition	Stoves and heaters, nutrition specialized products, micronutrient tablets
Health	Medical supplies (e.g. drugs, syringes, sterile equipment, immunizations, first-aid kits, etc.), wheelchairs and crutches, refrigerators and freezers, ice packs, cold boxes, mosquito nets
WASH	Water pumps (e.g. hand pumps), jerry cans, hygiene products, vector control, water testing/ treatment chemicals and equipment, latrines/toilets and fittings, water tanks
Food Security	Seeds, fertilizers, pesticides*, agricultural tools, kitchen sets

*Any USAID procurement or use of pesticides triggers mandatory environmental review as established in Part 22 Code of Federal Regulations 216.3 "Pesticide Procedures." This applies even in post-emergency contexts when USAID is delivering life-saving humanitarian assistance.

Source: Consultations with International Committee of the Red Cross (ICRC)[7] and International Organization for Migration (IOM)

1.3 Methodology for Preliminary Scoping

The methodology for the preliminary scoping included two primary steps: conducting stakeholder consultations via one-on-one interviews and a stakeholder survey and creating a Technical Advisory Group.

1.3.1 Stakeholder Consultation and Survey

The core component of the research for this scoping statement was stakeholder consultations and disseminating a stakeholder survey. The majority of activities were constrained to desk-based consultations and survey collection.[8] Forty-seven stakeholder organizations were consulted,[9] representing international organizations, governments, non-governmental organizations (NGOs), academic institutions, independent consultants, and the private sector. All stakeholders were experts in a related sector such as humanitarian assistance, humanitarian logistics, supply chain management, packaging, and waste management. The majority of stakeholders' organizations were based internationally, with twelve based in the United States. The full list of stakeholders consulted can be found in Appendix 2.

Semi-structured interviews were conducted using a set of guiding questions to gather information on the individual or organization's role and expertise relating to humanitarian assistance packaging and/or solid waste management; the individual or organization's historic,

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[7] International Federation of Red Cross and Red Crescent Societies (IFRC). 2020. IFRC. Available online at: https://itemscatalogue.redcross.int/

[8] Additional limitations of the scoping study are discussed in Section 4.

[9] There was overlap between consultations and survey respondents, and there were instances of more than one individual from an organization participating in consultations or responding to the survey.

current, and projected practices regarding waste generation and management; activity data on packaging waste; and potential opportunities for further collaboration or engagement. The guiding questions are available in Appendix 4. Consultations were held in-person or via teleconference and lasted approximately one hour. There were 38 stakeholder organizations consulted during this phase.

In addition to individual consultations, an online survey was used to reach a broader range of stakeholders. A total of 24 individuals responded to the online survey, representing 15 different institutions and several individual consultants. The survey included questions allowing for diverse responses based on the experience and sector of the responding organization. The survey was designed to take between 15-20 minutes and was disseminated through a variety of channels, including via email, the Global Logistics Cluster newsletter and social media channels, and at events including the Global Shelter Cluster Week. The list of survey respondents is available in Appendix 3 and the survey questions in Appendix 5.

Table 3. Sectors Represented in Stakeholder Consultations and Survey Responses

Organization Type	Number of Organizations
Academic	4
Government/Donors	8
Independent	1
International Organization	16
NGO	8
Private	10
Total	**47**
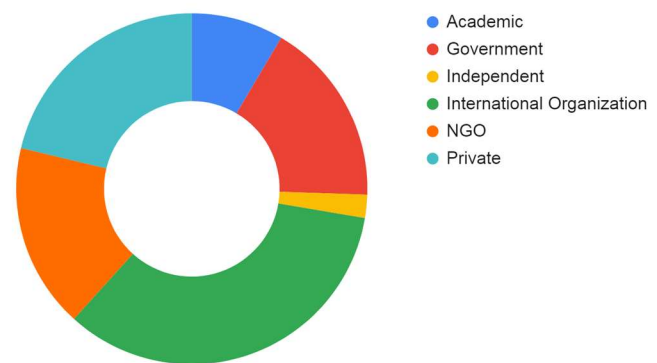
In addition to consultations, presentations were made at multiple fora including: the October 2019 Global Logistics Cluster meeting, November 2019 Global Shelter Cluster meeting, the December 2019 USAID Food Aid Consultative Group biannual meeting, the February 2020 Humanitarian Networks and Partnerships Week, and the Michigan State University Food Aid Packaging Solutions Workshop in March 2020. These events served as opportunities to raise awareness of the scoping study, garner greater survey responses, present initial findings, and outline next steps. These meetings also encouraged a greater range of stakeholders to engage with the consultation process.

1.3.2 Technical Advisory Group

The scoping effort was guided by a Technical Advisory Group, which comprises humanitarian and environmental stakeholders with extensive experience in humanitarian assistance commodity delivery and associated considerations pertaining to packaging. During the scoping effort, the Technical Advisory Group fostered collaboration across a range of stakeholders in the

humanitarian assistance sector to ensure that the scoping reflected the full range of packaging issues, in support of the ultimate objective of improving packaging waste management and engaging in strategic review of the ongoing scoping effort and its outputs. The Technical Advisory Group will continue to offer strategic guidance and oversight to subsequent assessment, by reviewing and making recommendations on the work plan for follow-on initiatives, and any resultant outputs. The Technical Advisory Group is considered a critical body to effectively pave the way for a collaborative and coordinated approach to addressing packaging waste management across the humanitarian assistance sector.

Technical Advisory Group members include the USAID, World Food Program (WFP), United Nations Refugee Agency (UNHCR), Global Logistics Cluster, United Nations Environment Programme (UNEP) / Office for the Coordination of Humanitarian Affairs (OCHA) Joint Environment Unit (JEU), International Committee of the Red Cross (ICRC), International Federation of the Red Cross (IFRC), International Organization for Migration (IOM), World Wildlife Fund (WWF), and the Global Shelter Cluster Environment Community of Practice. The full Terms of Reference for the Technical Advisory Group is included in Appendix 6.

Section 2: Packaging Waste Management in Humanitarian Supply Chains

This section describes the context of packaging waste management in humanitarian assistance supply chains, including current efforts to improve packaging waste management and associated challenges. Understanding this context is crucial in order to identify the most prominent and urgent challenges and propose methods for intervention, further explored in Section 3.

The following discussion is divided into five subsections. The first subsection covers overarching factors that affect packaging waste management in humanitarian assistance supply chains, such as competing priorities and the type of disaster. The following four subsections use a circular economy framework to explore current efforts at all stages within the humanitarian assistance supply chain and identify associated successes and challenges.

The circular economy framework emphasizes the elimination of waste by extending or expanding the usability of resources for income generation, improved social cohesion, and future-focused activities. Figure 1[10] shows how the sustainable management of materials throughout the product lifecycle can build towards a circular economy. The first step, including design, production, and procurement, focuses on both manufacturing and the series of processes humanitarian assistance stakeholders undertake to acquire products from suppliers for ultimate distribution and use. Design, production and procurement is followed by distribution, which involves the processes by which humanitarian assistance stakeholders transport and disseminate food and non-food assistance to beneficiaries across the world. Usage is defined as the ability of beneficiaries and/or their communities to reuse or repurpose packaging waste for secondary applications. The final stage of the supply chain is end-of-life management, which refers to when assistance products, supplies, and packaging are no longer usable and require waste management efforts. This all aligns with SDG 12 of Sustainable Production and Consumption.

Figure 1: Circular Economy

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[10] U.S.Environmental Protection Agency (EPA). 2019. Sustainable Materials Management Basics. EPA. May 23 2019. Available online at: https://www.epa.gov/smm/sustainable-materials-management-basics#needsRCRApermit

2.1 Overarching Impact Factors

There are several overarching factors that influence the delivery of humanitarian assistance, and in turn the resultant packaging waste. Such factors include competing priorities, the type of emergency, and local vs. international assistance delivery.

Humanitarian assistance stakeholders prioritize effective response operations to urgently and efficiently deliver life-saving commodities and support. Commodities are chosen based on programmatic need, cost, quality, prior experience, and in some cases, legal requirements for sourcing and transportation. Any cost savings likely go to more or higher quality commodities or faster delivery. This prioritization often relegates environmental sustainability, and specifically packaging requirements in procurement and packaging waste management in programming, as secondary to the effectiveness of assistance delivery. While some humanitarian assistance stakeholders noted the importance and potential positive impact of increasing the environmental performance of their supply chain, packaging waste management is only one dimension organizations must consider. At the organizational level, if environmental sustainability is raised as an issue to address, packaging waste management is weighed against – or in combination with – a broad range of other considerations, such as reducing greenhouse gas emissions, improving water resource management, or supporting conservation of biodiversity. Additionally, many of the partners that humanitarian assistance stakeholders work with do not have waste management plans, despite acknowledging the challenges associated with waste management (particularly plastic waste). As a result, packaging waste is not consistently addressed across the humanitarian assistance sector and there are few third-party monitoring regulations in place to ensure that implementing partners are held responsible for packaging waste management.

Humanitarian assistance delivery varies significantly by the type of emergency situation (i.e., sudden onset versus protracted) and thus responses need to be crisis-flexible. The response to a sudden onset disaster such as a tsunami or earthquake is considerably different than the response to a protracted emergency such as a long-term drought or conflict. Sudden onset situations may immediately prioritize non-food aid (e.g. shelter), whereas protracted emergencies may prioritize food aid. Each situation would initiate a different supply chain and sequence of operations as well as differences in the packaging used and waste accrued. For example, emergencies that require mostly ready-to-use food may contain multi-layered plastic packaging products that are difficult to manage at their end-of-life because of metalized or multi-materials components. Emergencies requiring higher levels of non-food aid may present a different array of challenges because of the diversity of commodities and resulting range of packaging. In a large pest response, such as locusts, pesticide packaging requires special handling. These differences in the packaging used and the methods of packaging waste management are important to consider when designing packaging waste management interventions for crises with the largest waste issues.

Engaging local[11] (national or regional, as opposed to international) stakeholders throughout the humanitarian supply chain may significantly impact packaging waste management. The distance or time commodities require for transport may directly affect the type, quantity, and specifications of packaging required. In addition, engaging local stakeholders, through either direct or cash-based assistance[12], supports local markets and businesses, which can be an important source of economic recovery or growth following the destabilizing or destructive events that are the immediate cause for humanitarian assistance. Overall, the use of local resources have been found to have positive effects on programs' overall supply chain performance.[13] However, oversight of quality and sourcing of goods and services can be more challenging with local stakeholders; for instance, there may be less control over the quality, environmental impact during production, and end-of-life and waste management of the goods and services. There may also be less access to goods locally following an emergency. In addition, internationally sourced goods and services may be more cost-effective than locally sourced goods and services, depending on where they are sourced.

Mechanisms to address these challenges, including raising awareness and capacity of local stakeholders to understand and pursue opportunities to engage throughout the supply chain, must be established during the preparedness phase to ensure they are in place after a crisis event. This can present a challenge in contexts where humanitarian assistance stakeholders do not have an in-country presence before an emergency.

Internally Displaced Person (IDP) Camp in Kenya.
Credit: Rachel Bibui/IRIN

2.2 Production and Procurement

In the context of this report, the production and procurement phase of the supply chain refers to the manufacture of products and the processes in which stakeholders (e.g. humanitarian assistance organizations) acquire the necessary goods and services to provide food and non-food assistance. The production and procurement processes both offer myriad opportunities to reduce humanitarian assistance packaging waste by directly impacting the composition and volume of packaging materials entering the supply chain. This section discusses the efforts underway and associated challenges of several existing production and procurement level actions including international, national, and organizational-level procurement policies and

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[11] Localization is a concept committed to as part of the Grand Bargain that aims to improve humanitarian response by "making principled humanitarian action as local as possible and as international as necessary"

[12] The use of cash as an assistance modality brings both opportunities and new complexities in the interaction between humanitarian relief and environmental impacts. Negative impacts may emerge when markets and local supply chains are unregulated and unsustainable or when the type of goods and services procured inadvertently increase risk. For more more information on the environmental implications of cash-based assistance, see https://ehaconnect.org/themes/cash/

[13] Matopoulos, A. et al. 2014. Local Resources and Procurement Practices in Humanitarian Supply Chains: An Empirical Examination of Large-Scale House Reconstruction Projects. Decision Sciences. August 25 2014. Available online at: https://onlinelibrary.wiley.com/doi/abs/10.1111/deci.12086

standards, as well as organizational efforts to both produce alternative materials and modify existing materials to facilitate a circular economy approach to waste management.

International policies and standards address the management of plastic packaging in humanitarian assistance through supranational regulations focused on the movement of plastics across borders. For example, the **Basel Convention**, enacted in 1992, is a legally binding framework that aims to reduce hazardous waste generation and the transboundary movement of this waste. It was amended in May 2019 to classify plastic waste as hazardous waste in order to increase transparency and better regulate the global trade in plastic waste. In addition, the "Ban Amendment" ratified in September 2019 prohibits the transboundary movement of hazardous wastes destined for final disposal operations from OECD to non-OECD States.[14] The Partnership on Plastic Waste was created in conjunction with this amendment to mobilize state and local governments, businesses, academic institutions, and other relevant stakeholders to help facilitate and provide support to adapt to the new measures regulating plastics.[15]

National policies and standards influence the amount of plastic packaging throughout the humanitarian supply chain. New standards have already led to changes in humanitarian assistance stakeholders' operations and activities. Regulations that ban single use plastic or specific plastic items may cause stakeholders to rethink their procurement strategies in terms of where they source items and which items to procure and distribute. For example, **plastic-related restrictions or bans in Kenya, Rwanda, and Tanzania** that limit or eliminate the use, manufacture, and import of plastic films of a certain thickness (though more regulations may be forthcoming) have directly affected humanitarian assistance operations. Imports or deliveries that fail to meet stated requirements are rejected, and in some cases, organizations can no longer import products containing plastics (e.g., tarpaulins, jerry cans, and refugee housing units). A UNHCR emergency stockpile in Tanzania maintained for rapid response in the region was closed in part due to the new plastic-related import restrictions and forced UNHCR to rethink their relief distribution strategy.

Plastic Bottles, IDP Camp in Haiti.
Credit: UNEP/OCHA Joint Environment Unit

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[14]Basel Convention. 2011.The Basel Convention Ban Amendment. UNEP. 2011. Available online at: http://www.basel.int/Implementation/LegalMatters/BanAmendment/Overview/tabid/1484/Default.aspx
[15]Basel Convention. 2011.The Basel Convention: Overview. UNEP. 2011. Available online at: http://www.basel.int/Implementation/Plasticwastes/Overview/tabid/6068/Default.aspx

The Basel Convention amendments and other similar international and national policies present both an opportunity and challenge to stakeholders forced to adjust their supply chains to reduce plastic waste and remain compliant. These policies can force important action within the humanitarian assistance supply chain, but outright bans can be polarizing, lead to unintended diversion of the waste stream, and ultimately impact humanitarian assistance delivery. As such policies become more common, stakeholders cited efforts to work with local governments to achieve stronger enforcement of national policies, including by developing steering committees to assess the impacts and provide recommendations on how best to tackle the primary sources of plastic waste. The Global Shelter Cluster Environment Community of Practice is also researching the implications and possible alternatives for the Shelter sector in response to this changing regulatory context. There is a need to find a balance between meeting the increasing international and national requirements and adjusting aid delivery to both comply with requirements while achieving the lifesaving imperative of humanitarian response.

Various international **networks and coordination groups** focus on packaging across the supply chain as part of their remit. The **Logistics Cluster** has a large global membership and keen interest in this topic from a wide range of partners. The **Quality, Social and Environment (QSE) sub-group of the Logistics Cluster**, in particular, focuses on improving specifications, including from an environmental perspective (see Box 4). Unfortunately, there are members who do not know the value and actions of the group. In addition, **the United Nations has a Procurement Network** with a working group on Sustainable Procurement.[16] Various logistics membership associations also exist that look at packaging at different levels, for example the **Humanitarian Logistics Association**, currently part of a Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO) funded initiative led by the Inspire Consortium, is working on developing standards for humanitarian supply chains and logistics[17] that will include packaging. The **Réseau Logistique Humanitaire** is a consortium that was created in 2014 to optimise humanitarian logistics and improve operational efficiency by developing a common strategy of resource sharing, advocacy, and information sharing. There are also private sector-led groups such as the Sustainable Packaging Coalition and the Alliance to End Plastics Waste that set goals and provide guidance.

Box 4. The QSE Sub-Group
The QSE Sub-group is a cohort of organizations that was established based upon overlapping humanitarian goals of the participating organizations and the similar (or identical) technical specifications used for certain relief items. The group's primary objective is to expand cooperation on quality management, product development issues, social compliance, and environmental awareness regarding production lines and supply chains. They provide technical recommendations and harmonize technical specifications of major relief items.

In addition to international and national policies and standards, **organizations** (e.g., government agencies, donors, suppliers, etc.) **may implement their own policies and**

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[16] Working Group on Sustainable Procurement. 2016. United Nations System Chief Executive Board for Coordination. 2016. Available online at: https://www.unsystem.org/content/working-group-sustainable-procurement

[17] Inspire Consortium. 2017. Development of Best Practice and Universal Standards for Humanitarian Transport and Logistics. European Civil Protection and Humanitarian Aid Operations (DG ECHO). 2017. Available online at: http://ul-standards.org/

standards to dictate the materials and products that can be mobilized for humanitarian assistance.

- In the United States, the **U.S. Department of Agriculture (USDA) mandates specifications for commodity suppliers** which influence the products that government entities like FFP can purchase and provide for beneficiaries in their humanitarian assistance operations. In addition, **OFDA has established framework agreements with suppliers to stipulate specific requirements for procurement**. However, FFP and OFDA currently do not require their partners to incorporate environmental considerations in their own supply chains/procurement contracts except to generally recommend environmentally friendly practices.
- **DG ECHO is currently drafting a humanitarian logistics policy** that will include a sustainability lens on the supply chain.
- Other organizations are building sustainable procurement into their organizational manuals and are designing tenders that ask suppliers to provide sustainable solutions to replenish global stocks. **ICRC and IFRC, for example, are working in collaboration to improve a common approach for standards of procurement**. IFRC is also developing a "greening the supply chain" project which will consider how the organization can downsize packaging, use "greener" materials, cooperate with vendors to standardize packaging, encourage and adopt returnable packaging methods, and promote recycling and reuse. The ICRC has had a QSE policy for ten years that guides their logistics and procurement work, in particular for the technical specifications of relief items. UNEP supports member states in the development and implementation of sustainable public procurement policies.[18]

Organization-level efforts to both develop alternative materials and modify existing materials are also underway. Developing alternative materials may consist of research and development into bio-plastics or other plastic alternatives. Modification may involve improving the strength and durability of materials to enable reuse (see Section 2.4) or removing non-essential plastic components. For instance, the United Nations Humanitarian Response Depot (UNHRD) Lab is investigating plastic alternatives following a study that demonstrated the immense levels of plastic waste generated over the course of their humanitarian response activities. Meanwhile, USAID, USDA, WFP, Massachusetts Institute of Technology (MIT), and Michigan State University are collaborating to improve the material for 25-kilogram bags of milled goods to increase durability and decrease breakage in transport. However, an important consideration in implementing alternatives and modifications is ensuring that the quality of assistance – durability,

Food Packaging, Sudan.
Credit: UNEP

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[18]United Nations Environment Programme (UNEP). Sustainable Public Procurement. UNEP. Available online at: https://www.unenvironment.org/explore-topics/resource-efficiency/what-we-do/sustainable-public-procurement

effectiveness, timeliness – is not compromised. For instance, while biodegradable materials avoid the persistence risk presented by plastics, the industry for effectively handling and composting these materials is not universally available and may not be cost effective. In addition, biodegradable materials may not meet the durability standards required for certain types of assistance. WFP, for example, noted they require a two-year shelf life for some packaging food aid, a period longer than current biodegradable packaging alternatives can last. Similarly, IFRC shared an example of biodegradable bags used to transport mosquito nets disintegrating in a warehouse. WFP has conducted an analysis of the potential benefits and drawbacks of bio-plastics, which are bio-based and/or biodegradable. It concluded that although bio-plastics may at times allow WFP to reduce plastic use, it is not the universal solution and priority should be given to waste reduction and a circular economy approach. These will benefit both the environment and foster livelihoods opportunities.[19] Additional examples of ongoing activities to reduce packaging waste can be found in Table 4.

Table 4. Activities to Reduce Packaging Waste[20]

Packaging Item	Current Activities	Implementing Organization(s)
Food - laminated flexible plastic packaging (sachets)	Developing alternative packaging	WFP, USAID
	Decreased number of laminated layers	WFP
PP bags	Implementing recycling scheme	WFP
Blankets	Removed PE liners Developed blanket with 80% recycled plastic	ICRC, UNHCR (planned)
Kitchen sets	Used alternative materials (e.g. cardboard, paper)	ICRC, UNHCR (planned)
School kit bags	Developing biodegradable packaging	UNICEF, ICRC, IFRC
Cardboard	Stopped bleaching cardboard packaging Optimize carton's sizes	WFP ICRC
Jerry cans (plastic)	Improving strength of oil containers	WFP
Stretch Wrap	Using alternative materials (e.g., plastic straps)	Save the Children, UNHCR (planned)
PP bags	Developing alternative materials	ICRC/RISE

*Note: Text indicates food aid. Text indicates non-food aid. Text indicates both food and non-food aid.

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[19] World Food Programme Environmental Sustainability Unit, The Potentials and Pitfalls of Bioplastics, 2020

[20] This list is not exhaustive, but reflects some examples highlighted in stakeholder consultations.

A significant challenge with organizational-level policy standards and requirements is a lack of sufficient coordination among humanitarian organizations. This complicates multi-stakeholder and international efforts to implement more unilateral global standards or international policies that seek to address the environmental impacts of packaging in a more harmonized manner.

2.3 Distribution

Distribution refers to the manner in which food and non-food assistance is shared among beneficiaries. There are a range of distribution channels and methods within the humanitarian assistance sector. These channels offer numerous entry points for reducing the amount of packaging used in delivering assistance and/or facilitating functional reuse of packaging materials for beneficiaries.

The ways in which different types of assistance materials are packaged, transported, and stored significantly impacts the quantity and type of packaging needed. Consolidating and streamlining distribution can reduce transportation needs, improve warehousing efficiency, and ultimately reduce the quantity of packaging used. During consultations, stakeholders discussed opportunities for minimizing waste through the use of kits – which involve packaging various components of a set as one unit versus individual units – including shelter, kitchen, and hygiene kits. For instance, in 2012, ICRC removed the plastic bags that wrapped each individual item in kitchen sets and any plastic products, reducing the amount of plastic packaging kit. This saves about 53 metric tonnes per year. OFDA has implemented a similar practice. Shipping items in bulk is another opportunity to reduce waste. For some commodities, WFP ships supplies (e.g., cereals) in bulk and then packages at the port of discharge for distribution, with the objectives of reducing surplus packaging and ensuring recipients receive the appropriate amount of a given commodity. Additional examples can be found in Table 5.

Credit: UNEP/OCHA Joint Environment Unit

Table 5. Activities to Reduce Packaging Waste[21]

Packaging Item	Current Activities	Implementing Organization(s)
Food packaged in polypropylene bags	Shipping in bulk and packaging at source	WFP, USAID
Blankets	Optimized compression by 60 percent	ICRC
Blankets	Increased blankets per bale to 15-20 pieces	UNHCR (planned)
Kitchen sets	Removed wrappers from individual components in the kit	ICRC, OFDA, UNHCR (planned)

*Note: Text indicates food aid. Text indicates non-food aid.

Food Distribution in the Philippines.
Credit: Jason Gutierrez/IRIN

The practice of surplus packaging presents a significant challenge to reduce packaging during the distribution stage. When deploying humanitarian assistance, organizations procure and distribute surplus goods to ensure that there is enough assistance to satisfy demand, even if confronted with logistical or operational challenges. Surplus is often sent to account for items damaged in transit. For instance, when shipping hygiene parcels, ICRC sends a three percent surplus of goods to protect against damage during transport. Similarly, WFP sends a surplus of cartons of two percent for commodities such as oil, biscuits, LNS and PP bags. This surplus is often not used, leading to waste of commodities and packaging. For example, WFP is recycling unused, surplus PP bags in their Nairobi warehouse as the volume is large enough to warrant a partnership with a local recycling company.

2.4 Usage

This report defines "usage" as the ability of beneficiaries and/or their communities to reuse or repurpose packaging waste for secondary applications. For example, used grain bags, jerry cans, or plastic containers could be used to hold water or food. Consultations revealed a number of important examples of reuse observed and supported by stakeholders. The UNHRD Lab is working on an initiative called "give packaging a second chance," which seeks to find ways to repurpose items that are shipped in their operations. To date, the initiative includes investigating how to turn PP bags into backpacks and reusing packaging from family tents and kitchen sets to create cradles for children and solar cookers. Multiple FFP employees cited

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[21] This list is not exhaustive, but reflects some examples highlighted in stakeholder consultations.

examples from refugee camps in which polywoven bags were repurposed to grow plants. Additionally, a study by the Humanitarian Logistics and Supply Chain Research Institute (HumLog) on the reuse of materials from refugee sites found some NGOs converting used lifejackets into tarps. Importantly, reuse and repurpose can both reduce waste and create real value for beneficiaries of humanitarian assistance. The opportunity to realize such benefits increases when the durability of packaging is improved (see Section 2.2), as beneficiaries can better repurpose packaging waste into a source of income (e.g. a bag to sell or a backpack) or a product to reuse. This adds an additional layer of assistance to communities recovering from a crisis and should be considered when adjusting packaging strategies.

Credit: OCHA

A noteworthy limitation to the viability of the reuse and repurpose of packaging materials is branding and logos. For donors and organizations providing and distributing assistance, branding and logos on packaging is an important facet of their programming, for marketing, access, and to simplify logistics. For example, assistance marked with branding is able to move through security and customs and across conflict zones more expediently. However, such markings can also prevent packaging items from being reused; for example, WFP noted that because of the logos on PP bags, the bags must be recycled rather than reused which can lead to reputational risk if the branded bags are re-used and sold, or even sold with substandard food products.

2.5 End-of-Life Management

End-of-life management refers to the management of food and non-food aid goods and packaging that are no longer usable. Stakeholders consistently indicated that very little management of packaging materials occurs once delivered to beneficiaries and that, generally speaking, no systematic waste management processes exist within the broader humanitarian assistance sector. Further, the vast majority of program locations do not have adequate municipal waste management systems on which humanitarian assistance stakeholders can rely. Notably, the informal waste management sector is a significant source of income for the most vulnerable in many communities. In addition, there are several methods some stakeholders are employing to manage packaging waste, including recycling, energy recovery, and reverse logistics and take-back schemes.

Recycling can be an attractive option for stakeholders, particularly when waste reduction and reuse/repurpose are not viable or cannot be further employed. Some stakeholders partner with local companies to implement recycling schemes such as:
- A Kenyan company that buys surplus (unused) PP woven bags and recycles them into other bags that are not food grade;
- An Ethiopian company that collects plastic pallets and recycles them into drink crates;

- A partnership between the Kenya Red Cross and ICRC which runs a plastic recycling scheme that doubles as a livelihoods activity for refugees living in the Dadaab Settlement; and,
- A private company working to develop recycling markets for flexible plastics and other low-value materials not commonly recycled into bricks or desks.

End-of-life management practices might be most easily applied in contexts where private sector and humanitarian stakeholders have a proximate or overlapping presence. For example, in South East Asia, many companies have undertaken significant plastics recycling efforts, and there are substantial ongoing humanitarian nutritional support and disaster risk reduction activities. However, numerous small-scale recycling schemes outside of the humanitarian community are also taking place in many assistance- receiving countries in response to the broader waste crisis. Such smaller schemes include recycling plastic bags and other plastic items into, for example, bricks for construction and hose pipes for irrigation. One company consulted introduced briquettes made of compressed cardboard and shredded PP bags to alleviate issues of fuel scarcity and waste in refugee camp settings. In some instances,

Recycling Waste in Nepal.
Credit: UNEP/OCHA Joint Environment Unit

humanitarian stakeholders are partnering with local entrepreneurs. For example, in Uganda and Colombia, UNHCR, in coordination with local entrepreneurs, is looking into small-scale refugee housing and WASH solutions with recycled materials.

Reverse logistics and take-back schemes involve collecting assistance materials following their use and transporting them to other areas for recycling, reprocessing, or disposal. These schemes offer another opportunity to respond to and reduce the amount of waste resulting from humanitarian assistance packaging when reduction and reuse/repurpose are not viable.

Consultations suggested that existing reverse logistics and take-back schemes have had mixed results. For example, WFP described some of the challenges involved in an effort to implement such schemes in several refugee camps; the scheme attempted to take back food sachets by requiring recipients to bring back their empty sachets in order to receive more food. WFP observed that this created confusion for the recipients as well as challenges in how to manage the sachets once they were collected. The USAID FFP Nutrition Security team shared an example of a similar scheme that worked well and has become the norm; returned sachets are typically burned in a pit or sometimes incinerated at a clinic unnecessarily using significant energy resources. These examples highlight that a sound design in one location may not function elsewhere. Actors must thus determine how they can avoid challenges in

communicating and managing reverse logistics as well as ensure they are adapting their schemes to local contexts, as there is no "one size fits all" solution.

While recycling and reverse logistics schemes present opportunities for stakeholders to manage packaging waste responsibly, there are significant challenges that hinder successful deployment of these schemes. These include:

Burning Waste in DRC.
Credit: UNEP

- **Lack of funding for waste management**: Lack of funding limits a country or implementing partner's ability to develop, implement, and enforce adequate waste management systems. Additionally, gaps in funding and uncertainty or disagreement about the organizations or sectors responsible for waste management mean that the issue can often slip between the cracks.
- **Level of waste management infrastructure and capacity:** The level of infrastructure and capacity available in the receiving country to manage waste significantly impacts the viability of a recycling scheme, particularly in countries where the pre-disaster context already lacked the necessary capacity to implement a recycling program. As there is a general lack of waste management facilities in many of the countries receiving assistance, there are often large amounts of plastic packaging left in the field with no clear means of management beyond the informal sector.
- **Lack of accessible information on existing waste management resources**: A lack of resources to help humanitarian responders locate viable waste management facilities in or near the countries in which they deliver assistance.
- **Volatility of recycling schemes**: Partnership agreements on recycling programs may be volatile as they may rely on market price, with price fluctuations for recycled commodities such as flaked polyethylene terephthalate (PET) and PP making it difficult for companies to remain solvent.
- **Fluctuating regulatory context:** Reverse logistics and take-back schemes must operate with appropriate cognizance of and planning around the evolving international and national-level regulatory contexts. Both international policies (e.g. Basel Convention Amendments) and national-level bans or restrictions on plastics have the potential to pose barriers to recycling and reverse logistics or take-back schemes that involve transboundary movement of plastic waste.

This section outlined the context of packaging waste management in humanitarian supply chains, including current efforts to improve packaging waste management and associated challenges. Understanding the context of packaging waste within the humanitarian assistance sector and applying a circular economy framework helped identify the most prominent and

urgent challenges and explore potential methods of intervention. These methods of intervention are explained in detail in the following section.

Section 3: Identified Priorities and Proposed Interventions

This section identifies and prioritizes potential interventions to improve packaging waste management and increase sustainability throughout the humanitarian assistance sector. This section builds on the stakeholder consultations and survey and subsequent findings discussed in Section 2 and will inform the follow-on assessment.

This section is divided into three subsections. The first subsection discusses overarching interventions including improving coordination, engagement with stakeholders, and understanding of the context of packaging waste management in humanitarian supply chains. These interventions address the Overarching Impacting Factors discussed in Section 2.1, as well as challenges identified throughout Sections 2.2, 2.3, and 2.4. The following subsections propose additional interventions related to the specific components of the supply chain discussed in Section 2.

Each subsection describes the objectives of identified priorities and presents the feasibility, anticipated level of effort (LOE), and impact of addressing priorities in a table format. Feasibility is determined based on three key factors: the ease of implementation, the extent of ownership of the response, and the availability of political will and resources. For example, an action with high feasibility would have a high ease of implementation, high extent of ownership, and high availability of political will and resources. Based on a low, medium, high score for each of these factors - feasibility, anticipated LOE, and impact - an average score for prioritization was allocated. These components are defined in Table 6 below.

Table 6. Definitions

Feasibility	Ease of Implementation	The capacity/ability to mobilize the inputs necessary to initiate and implement the intervention, and sustaining engagement/coordination throughout implementation. - Low: Implementation difficult - inputs will require considerable effort to attain and sustain, potentially through significant coordination. - Medium: Inputs will require a medium level of effort to obtain and sustain, potentially through coordination across stakeholders. - High: Implementation readily doable - inputs are readily available and required actions can be readily sustained.
	Ownership	"Owners" or accountable actors for the interventions in terms of required actions entailed and outcomes are clearly defined. - Low: There are no currently defined owners. - Medium: There are potential owners. - High: There are clearly defined owners.

	Political Will and Resources	There is explicitly stated or demonstrated institutional or governmental interest (political will) and financial and in-kind resources (resources) available to implement the interventions. ● Low: There is insufficient political will and resources. ● Medium: There is some political will and resources. ● High: There is sufficient political will and resources.
Anticipated LOE		The effort anticipated to initiate and complete the proposed intervention.
Impact		The value of the intervention's objectives and outputs in minimizing packaging waste throughout the supply chain.
Prioritization		Based on the feasibility, anticipated LOE, and impact, the level of priority given to the intervention for the follow-on work.

These characterizations are based on the consultations with stakeholders and survey respondents but are ultimately subjective determinations.

3.1 Overarching Coordination, Engagement, and Understanding

Current efforts to coordinate packaging across humanitarian stakeholders are relatively nascent; this lack of existing, effective coordination within and across the humanitarian assistance sector poses significant challenges in implementing packaging waste management solutions. Humanitarian assistance stakeholders are relatively unaware of other organizations' ongoing activities related to packaging waste management and increasing sustainability of the supply chain, leading to siloed actions that restrict opportunities for cross-collaboration and broader change. Increased coordination could help stakeholders, including donors, implementing organizations, and private sector entities, achieve significant objectives across the humanitarian assistance sector and throughout stages of the supply chain.

3.1.1 Strengthen Coordination across Stakeholders and Regions

As discussed in Section 2, there is a need to expand the coordination capacity and communication channels between humanitarian packaging waste stakeholders including donors, implementing partners, and the private sector. Any interventions should both strengthen and expand existing coordination mechanisms and cultivate new coordination channels where appropriate. Opportunities to do so include:
● Developing a collective road map to establish understanding and preliminary coordination between organizations.
● Establishing new or expanding upon existing coordination mechanisms (e.g. UN, US Government, or QSE) and channels to connect stakeholders and foster collaboration across the sector.
● Increasing awareness of and engagement in the QSE group among participating QSE members and potential new members.

Table 7. Strengthen Coordination across Stakeholders and Regions

Proposed Intervention	Feasibility			Anticipated LOE	Impact	Prioritization
	Complexity	Ownership	Political will / resources			
Collective road mapping	Medium	High	High	Low	Medium	High
Establish/ expand existing coordination mechanisms	Low	Medium	Medium	High	High	Medium
Increase QSE awareness and engagement	Medium	High	High	Low	Medium	High

Road-mapping is recommended as a first action. A road-mapping exercise, done in partnership with a range of humanitarian assistance stakeholders, could maximize coordination and alignment, harmonize expectations, define timelines for action, and formalize a mechanism or mechanisms through which actions could be completed in a manner that maximizes impact. The road-mapping could help define the sequencing of the remaining actions and efforts by the institutional stakeholders responsible for fulfilling them.

Establishing new or expanding upon existing coordination mechanisms is an essential priority to strengthening coordination across humanitarian assistance stakeholders. There are several ongoing efforts to increase coordination at both the domestic and multilateral levels that present opportunities for expansion. In the United States, the US Government is establishing the USAID Bureau for Humanitarian Assistance (BHA), which may help garner opportunities for better coordination and procurement between the currently separate FFP and OFDA. At a multilateral level, there are several existing mechanisms that could be appropriated and expanded to foster coordination among humanitarian assistance stakeholders including the Cluster system, the UN Procurement Network, or the QSE Sub-Group.

Increasing the awareness and usability of the QSE Sub-Group is a key facet to addressing improved coordination across the humanitarian assistance sector as it is distinctly well positioned to act as a central coordination mechanism to facilitate, spear-head, and coordinate multi-institutional efforts. The QSE's position is particularly relevant for optimizing and greening packaging specifications. The advantage of this group is that members have a defined interest and willingness to seek packaging improvements and are already active in this space. The QSE Sub-Group members represent numerous humanitarian assistance stakeholders, however, consultations revealed that various members lacked awareness about the mechanism and its current activities. Still, there exists a significant opportunity to capitalize on the QSE's existing structure to function as a coordination mechanism to work collectively across the humanitarian assistance sector on stated objectives. One opportunity afforded by

QSE Sub-Group includes the prospect of updating supplier long-term agreements with specific stipulations on packaging, such as requiring suppliers to stop including plastic packaging in their production. This could cause suppliers to modify production patterns and consume less plastic in order to remain compliant and retain these organizations' business. This could benefit not only efforts to minimize the impact of packaging waste but provide a platform for coordination on humanitarian assistance logistics issues more broadly.

3.1.2 Increase Private Sector Engagement in Policy and Standard Setting

The expansion and formalization of engagement with the private sector can help foster broader change to manage humanitarian assistance packaging waste. Private sector input can help humanitarian assistance stakeholders understand opportunities for improving production and procurement processes as well as market dynamics and how these realities impact the achievement of environmental objectives. Opportunities to increase private sector engagement include:

- Expanding and formalizing engagement with the private sector through existing channels (e.g., alliance, coalitions, and partnerships) thus increasing private sector opportunities for participation, collaboration, and input into policies, standards, procurement, and end-of-life solutions.
- Conducting an assessment to further identify relevant private sector actors across the supply chain, operating in certain regions or concerning certain commodities. This is particularly important at local or regional levels where humanitarian assistance activities are prevalent, and examine market dynamics.

Table 8. Increase Private Sector Engagement in Policy and Standard Setting

Proposed Intervention	Feasibility			Anticipated LOE	Impact	Prioritization
	Complexity	Ownership	Political will /resources			
Expand and formalize engagement with the private sector	Medium	Medium	Medium	High	High	Medium
Conduct a private sector assessment	Medium	Low	High	Medium	High	Medium

A diverse and often interconnected private sector presents opportunities for deeper engagement and collaboration across the supply chain. Humanitarian assistance stakeholders can **tap into existing collaborative channels** to harness technical expertise, understand emerging or

successful market-based solutions, and strategize where to direct resources. Private sector actors are part of different alliances, coalitions, and partnerships with broad membership bases focused on packaging and environmental sustainability. As steps towards plastic waste reduction and improved packaging producer responsibility have grown significantly in the last couple of years, research and private investments have similarly expanded. Engaging with a range of private sector actors, from multinational corporations to small local businesses, can unlock different expertise, capabilities, resources, and technologies.It is important that humanitarian assistance align its packaging with what is used by the private sector to ensure worldwide availability and cost optimization.

Beyond identifying areas for collaboration between private sector and humanitarian assistance stakeholders at a functional level (e.g., packaging design), additional engagement is needed to find alignment opportunities at local and regional levels. A **private sector assessment** in a particular region could help identify other relevant actors, explore opportunities for collaboration, and determine if any existing market-based approaches could be leveraged for humanitarian assistance initiatives. The global reach of the private sector presents an opportunity to leverage their local lens to consider constraints (i.e. deficient infrastructure or poor business growth environments) and identify promising areas to advance plastic waste management objectives. Assessment efforts are particularly needed in regions where large-scale humanitarian assistance activities are prevalent.

3.1.3 Case Studies, Assessments, and Guidance Documents

Humanitarian assistance stakeholders seeking to integrate more sustainable practices in their supply chain expressed interest in resources that distill lessons learned and recommendations from existing efforts, as well as outline best practices and guidelines for the development of future efforts. Ultimately, humanitarian assistance stakeholders want guidance on how to do the most good with limited resources. Case studies, assessments, and other documents that showcase successes, illustrate failures, and provide lessons learned and recommendations would be a critical input to such guidance. Opportunities to provide this guidance include:

- Collecting and disseminating existing case studies, assessments, and guidance documents at the commodity, organizational, event, or sector level.
- Developing additional case studies, assessments, and guidance documents at the commodity, organizational, event, or sector level.
- Developing guidance and/or recommendations for implementing crisis-flexible planning.

Table 9. Case Studies, Assessments, and Guidance Documents

Proposed Intervention	Feasibility			Anticipated LOE	Impact	Prioritization
	Complexity	Ownership	Political will /resources			
Collection and dissemination of existing resources	Medium	High	High	Low	Low	High
Development of additional resources	Medium	Medium	High	High	High	Medium
Development of guidance for crisis-flexible planning	High	Medium	High	Medium	High	Medium

The scoping process identified a range of case studies and examples of best practice across the sector. Some have already been showcased at the organizational level, and others have not yet been documented or shared. See Box 5 for examples. Compiling these and other case studies into a **compendium of best practice and learning points** shared across the humanitarian assistance sector could be a valuable tool for humanitarian assistance stakeholders to inform their activities going forward.[22]

In addition to collecting and disseminating existing resources, humanitarian assistance stakeholders highlighted the need for **additional assessments.** Types of assessments might include:

- **Commodity Assessments**: Commodity or materials assessments would evaluate the most commonly distributed individual assistance items per country, including the quantities of waste generated as a consequence of distributions, and identify opportunities across the supply chain to reduce packaging waste. These could be less robust, faster to conduct, and less expensive than full life cycle assessment.
- **Organizational Assessments**: Organizational assessments would focus on all of an organization's commodities. For instance, IOM emphasized the need to closely evaluate each item in their kits to identify opportunities for packaging reduction; ICRC is interested in identifying their most polluting items and seeking opportunities to reduce their packaging waste; and UNHRD is interested in determining whether addressing product packaging itself or transport of the packaging would result in greater waste reduction.

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[22] See the Global Shelter Cluster "Shelter Projects" website for an example of a compendium of thematic case studies: http://shelterprojects.org/

- **Event Assessments:** Reviewing and analyzing the entire humanitarian assistance response and supply chain operations for a single disaster event could also provide a useful case study. For instance, following the responses of multiple stakeholders to a single event or a series of like events and measuring their corresponding environmental impact related to packaging waste. This would provide insight into the supply chain and delivery points where the most waste is generated and where it can be reduced most effectively. This would also offer a more accurate depiction of real waste accumulated following a disaster by incorporating the full breadth of stakeholders involved in humanitarian assistance for a single or series of similar events. Analyzing these events would also offer an opportunity to ensure that proposed packaging waste management methods are not interfering in the effective delivery of aid.
- **Sector Assessments:** A comprehensive sector-wide assessment that analyzes humanitarian assistance supply chains and packaging waste at a multi-institutional level would offer information on an international scale. This assessment would extend beyond a single stakeholder or disaster type and offer a comprehensive picture of packaging waste across the sector. Results might suggest global or sector level trends and indicate to multi-institutional bodies like the QSE group where the most salient issues are or what processes could be standardized, modified, or improved to address concerns within the supply chain. This analysis could promote greater consistency in standards and requirements for procurement internationally which could have substantial long-term positive impacts. It could also facilitate greater information sharing and opportunities for collaboration between agencies/organizations within the humanitarian assistance sector.

> **Box 5. Example Assessments**
> WFP conducted a study to quantify the volume of food aid in 2018 that found approximately 40,000 tons of packaging material was generated, over 40 per cent of which was plastic. Using this information, WFP identified the products constituting the majority of packaging needs, and then prioritized next steps for modifying the existing materials, developing alternative materials, and packaging materials in bulk.
>
> USAID investigated concerns around losses related to packaging under the Food Aid Quality Review project that focused on three priority food aid items — Fortified Vegetable Oil, Corn Soy Blend Plus, and Super Cereal Plus — and their corresponding packaging. Preliminary conclusions indicated that packaging harmonization, size optimization, improved strength/durability and better barrier properties were all key factors to address in food aid packaging.

An important consideration in any effort to assess and develop guidance around the dissemination of humanitarian assistance is **tailoring goods and services for a given emergency context.** While such tailoring is inevitably challenging given the nature of humanitarian assistance, consultations underscored packaging waste can be reduced by better selecting commodities best-suited for the near- and medium-term reality of a given emergency event. This may require commitment from donors to invest more upfront on more durable items, as well as more flexible funding streams. It also requires working with suppliers on the quality of products to extend their lifespan rather than having to redistribute. Guidance and/or recommendations specifically focused on implementing crisis-flexible planning would help stakeholders determine how best to take emergency contexts into consideration.

3.2 Production, Procurement, Distribution, and Usage

In addition to the overarching priorities, humanitarian assistance stakeholders identified and prioritized interventions focused on specific components of the supply chain. The interventions are cross-cutting throughout the supply chain, and as such, this section draws upon the discussions in Sections 2.2, 2.3, and 2.4 to address issues pertinent to the production, procurement, distribution, and usage components of the humanitarian assistance supply chain.

3.2.1 Mapping Existing Policies

Delivery of humanitarian assistance will increasingly need to navigate an evolving landscape of international and national regulations (see Section 2.2). A means to facilitate this is by:

- Developing and maintaining a database with information on international and national regulations relating to plastics bans and any other regulations relevant to humanitarian assistance packaging stakeholders.

Table 10. Mapping Existing Policies

Proposed Intervention	Feasibility			Anticipated LOE	Impact	Prioritization
	Complexity	Ownership	Political will /resources			
Development of database on relevant regulations	High	High	High	Low	Medium	High

Developing and maintaining a global map of requirements and restrictions — including documenting permissible and non-permissible materials — could enhance the ability of humanitarian assistance stakeholders to prepare and deliver emergency response in affected countries most effectively and efficiently. A dashboard with relevant information could be housed on the publicly available Environment in Humanitarian Action or the Environmental Emergencies Center websites.

3.2.2 Harmonizing Procurement, Distribution, and Usage Standards

There is a prevailing desire among humanitarian assistance stakeholders to establish "smart procurement" practices informed by data and longer term costs. These "smart procurement" practices could streamline standards to drive changes amongst suppliers and offer humanitarian assistance stakeholders the option to prioritize sustainability throughout their supply chain. This will require development of clear and consistent standards regarding packaging across primary stakeholders responsible for funding and administering humanitarian assistance.

Table 11. Harmonizing Procurement, Distribution, and Usage Standards

Proposed Intervention	Feasibility			Anticipated LOE	Impact	Prioritization
	Complexity	Ownership	Political Will / Resources			
Development of harmonized standards across stakeholders	Low	Low	Medium	High	High	Medium

The harmonization process would need to involve representatives of the humanitarian assistance stakeholders responsible for procurement and distribution including the legal entity, as well as commercial companies (considering the private sector may ultimately be responsible for meeting the specifications set). While standards could mostly be established by the broader donor community, engaging private sector suppliers in developing standards would be important for their firsthand insights into product production and development. For example, packaging suppliers could share the state of packaging developments including biodegradability, recycled content, and recycling processes, and why they would or would not be appropriate for humanitarian operations. Private sector feedback could also help ensure that technical specifications for more environmentally responsible products would still result in production that meets functionality and durability requirements at a reasonable cost. Private sector actors that have already incorporated such standards could help the humanitarian response community move forward on new standards for their suppliers more effectively.

In addition, standard setting could involve coordination across donors, academia, and the private sector to optimize common aid items. For instance, assistance kits are vital to the humanitarian assistance sector, so a methodology could be determined for one type of kit, such as an IFRC shelter kit, and then scaled up and applied to other kits. Optimizing kits could include redesigning the kit to reduce packaging as well as the sustainability of the commodities, or identifying higher quality replacement materials that meet specifications for the humidity and temperature conditions expected (also considering shelf life adequacy). Further, lessons could be learned from other sectors that have succeeded such as sustainable humanitarian lighting.

3.2.3 Product and Packaging Focused Research and Development

While there are advances in product and packaging design underway as described in Sections 2.2, 2.3, and 2.4, there is significant opportunity for increased investment in research and development to continue enhancing product quality and improve the efficiency and effectiveness of product packaging and design. A means to do so is by:

- Coordinating with the academic and/or private sectors to encourage the integration of existing solutions or development of higher quality commodities with greater durability or

functionality and alternative packaging materials and distribution methods that minimize plastic waste.

Table 12. Product and Packaging Focused Research and Development

Proposed Intervention	Feasibility			Anticipated LOE	Impact	Prioritization
	Complexity	Ownership	Political will/ resources			
Encourage advancements in product and packaging design	Low	Medium	Medium	High	High	Medium

Opportunities to further research and develop solutions may include specific calls for entrepreneurship and innovation along the humanitarian assistance supply chain through research grants, innovation challenges, broad agency announcements, co-development, and other drivers of action that could leverage private sector and academic efforts.

3.3 End-of-Life Management

3.3.1 Research on Sub-National, National, and Regional Waste Management Infrastructure and Capacity

Similar to section 3.2.1 on mapping existing policies, delivery of humanitarian assistance will increasingly need to navigate an evolving landscape of available waste management infrastructure. Means to facilitate this include:

- Developing case studies of existing waste management schemes in crisis hotspots and ongoing emergency contexts in order to inform comprehensive or individual guidelines for developing new schemes.
- Identifying and characterizing regional waste management hubs, including location, infrastructure, and capacity.
- Identifying and characterizing regional industrial hubs able to use or recycle waste to produce or as a source of energy

Table 13. Research on Sub-National, National, and Regional Waste Management Infrastructure and Capacity

Proposed Intervention	Feasibility			Anticipated LOE	Impact	Prioritization
	Complexity	Ownership	Political will /resources			
Case studies of waste management in developing countries/disaster contexts	Medium	Medium	High	Medium	Medium	Medium
Map and characterize regional waste management hubs	Medium	High	High	Medium	Medium	Medium

Research on national and regional waste management infrastructure and capacity may help humanitarian assistance stakeholders identify concrete actions to improve packaging waste management through the various waste management schemes, including recycling and reverse logistics/take-back. This intervention would include compiling best practices and guidelines for the various waste management strategies to illustrate how these approaches have been implemented previously and reveal best practices and recommendations for developing and implementing them in varying contexts moving forward. Countries and regions that are highly disaster prone could be prioritized, as an emergency response preparedness measure. It may be possible to work in partnership with preparedness Clusters such as the Shelter Cluster, where they exist.[23] Any approach will include integration with any existing informal waste management system.

A mapping exercise of regional waste management hubs would help humanitarian assistance organizations identify effective waste management facilities, infrastructure, and industry. The mapping exercise would include regional recycling centers, waste sorting/re-purposing centers, or other waste management facilities with the capacity to accept and process humanitarian assistance packaging waste generated from regionally proximate emergency response activities. Informal waste management capacity would be included as well to avoid disrupting the business of already marginalized communities. The identification of these resources would help humanitarian assistance stakeholders and institutions integrate disposal, recycling or take-back/reverse logistics schemes into their overarching operational approaches. The UN REACT project may provide instructive experiences for environmental performance.

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[23] For example, the Pacific and Bangladesh Shelter Clusters do not only activate after an emergency, but are constantly active as a preparedness measure given that these are some of the most disaster prone regions.

3.3.2 Developing a Waste Management Planning Framework

Throughout consultations, humanitarian assistance stakeholders noted they frequently lack packaging waste management plans prior to the delivery and disbursement of assistance. To address this issue, the assessment could:

● Support or design a framework for humanitarian assistance stakeholders to evaluate the impact of their packaging waste in a crisis context and develop proactive packaging waste management plans

Table 14. Developing a Waste Management Planning Framework

Proposed Intervention	Feasibility			Anticipated LOE	Impact	Prioritization
	Complexity	Ownership	Political will /resources			
Framework for evaluation of packaging waste	Medium	Medium	High	Medium	High	Medium

The assessment could work with stakeholders to **assess the packaging waste generated by a single event or commodity and, using the research on national or regional waste management infrastructure and capacity, assist in the development of a waste management planning framework for future events.** The framework could help humanitarian assistance stakeholders in planning the preparedness phase of their operations depending on the type and scale of emergency. It could include guidance on how to assess existing supply chain and packaging waste streams, and how to use that information to develop a comprehensive, actionable plan to implement the most effective and efficient waste reduction and management systems. Monitoring and evaluation guidance could also be included to ensure continuous learning and improvement.

Section 4: Conclusions and Next Steps

Stakeholders across the humanitarian assistance sector are demonstrating increased awareness of, interest in, and commitment to reducing packaging waste and improving packaging waste management across their operations and supply chains. There are considerable challenges to successful implementation of packaging waste management measures, including the imperative to prioritize the life-saving imperative of humanitarian assistance and ensure the quality of commodities delivered. Additionally, organizations that are addressing environmental sustainability within their operations are faced with competing priorities and difficult decisions on which issues to address (e.g., packaging waste versus emissions reductions).

This scoping effort and report have explored and described the current humanitarian assistance sector using a circular economy framework—outlining many of the relevant stakeholders, current efforts to reduce packaging waste, and associated challenges to effective packaging waste management across the supply chain (see Section 2). These challenges have been explicitly identified and coupled with proposed intervention methods (see Section 3).

Of these interventions, the following are recognized as minimal effort and high impact (i.e. "easy wins"):

- Developing a collective road map to establish deeper understanding of packaging waste management goals and preliminary coordination between organizations
- Increasing awareness about and engagement in the QSE group among participating QSE members and potential new members
- Collecting and disseminating existing case studies, assessments, and guidance documents at the commodity, organizational, event, or sector level
- Developing and maintaining a database with information on international and national regulations relating to plastics restrictions relevant to humanitarian assistance stakeholders

Other valuable areas of intervention that are considered higher levels of effort were also identified. Across the supply chain, strengthening coordination, engagement and understanding, increasing private sector involvement, and increasing crisis-flexible planning and implementation have been identified as issues and recommended points of intervention to improve packaging waste reduction efforts more broadly. These and other expanded coordination mechanisms could allow stakeholders to more effectively align their efforts and harmonize standards. Pertaining to procurement, distribution, and usage, increasing the understanding of policies in place, improving and harmonizing standards across stakeholders, and increasing research and development for products and packaging were identified as key intervention areas to reduce packaging. End-of-life management interventions largely addressed increasing the knowledge of waste management markets, capacities, and

infrastructure in receiving communities to better plan for and accommodate those constraints to humanitarian assistance delivery and resultant packaging.

Beyond direct follow-on to this scoping study, other parallel efforts could contribute significantly to the larger effort of improving packaging waste management. For instance, a federally-funded research and development center in the U.S. may begin working at a very highly technical level to identify ways to track and trace packaging waste in complex environments. USAID may also undertake a private sector assessment in program countries to identify recycling or packaging repurpose industries, especially in sudden onset disaster contexts. Further academic studies may also be undertaken to better quantify the packaging waste, life-cycle impacts, and alternatives to the current commodity packaging.

Overall, across stakeholders and throughout stages of the supply chain, there are clear challenges for humanitarian assistance stakeholders to manage packaging waste without jeopardizing the effectiveness and efficiency of assistance delivery. However, there are also clear areas ripe for intervention and measures that can be taken to improve packaging waste reduction efforts. This scoping report and its findings will be used to inform and develop the next phase of this activity.

Limitations of Scoping Study

The scoping study was constrained by a variety of factors including budget limitations, consultation limitations, and topic confinements. Notably, the restrictions to the budget of this scoping exercise limited the breadth and depth of the resulting report. Budget constraints limited the number of team members and their available level of effort. In addition, the team was required to prioritize the stakeholders and organizations deemed most relevant to consult. This led to a limitation in consultations conducted including the ability for constructive follow-up conversations, the capacity for research on less prominent humanitarian assistance stakeholders to consult, and the possibility of a more comprehensive literature review.

The breadth of stakeholders consulted was somewhat limited and did not represent the full humanitarian sector; in particular, current field staff, assistance recipients, and local or national governments are not robustly represented. These stakeholders would have provided nuanced insight into context-dependent methods to improve humanitarian assistance delivery and the most effective ways to reduce packaging waste (e.g., what is actually being used or what can be most easily repurposed or reused etc. in specific contexts). In addition, stakeholders from outside of the U.S. and Europe were lacking, causing an imbalance in the geographical spread and perspectives of the report.

The topic of study itself also carried various inherent limitations; managing packaging waste is only one of a range of environmental sustainability issues facing humanitarian organizations and assistance commodities themselves, for example plastic sheeting for shelter, may have a greater environmental impact than packaging. In addition, waste from humanitarian assistance is only a small part of the global waste management problem.

Appendices

Appendix 1. Regulatory Context

This scoping study draws upon internationally recognized best practices for environmental and social impact assessment. However, this scoping study does not intend to fulfill the 22 CFR 216.3(a)(4) defined criteria for Scoping of Environmental Assessment or Impact Statement based on a variety of factors. The evaluation will ultimately seek to resolve the challenge in providing necessary prior environmental review to guide international development aid and humanitarian programming.

The scoping study was completed under the Environmental Compliance Support Contract (ECOS) which supports USAID in its efforts to advance developing countries' journey to self-reliance and safeguard people and resources by systematically addressing environmental risk. ECOS provides USAID with technical, educational, and knowledge management assistance to facilitate compliance with 22 CFR 216, Foreign Assistance Act (FAA) Sections 117/118/119, regulatory requirements, and executive order and policy objectives. The project team includes staff from ICF, the Cadmus Group, and USAID.

Appendix 2. Participating Organizations: Stakeholders Consultations

Organization Type	Stakeholders
Academic	- HumLog Institute - Khune Logistics University - Michigan State University (MSU) - Technical University of Madrid
Government	- Department for International Development (DFID) - Philippines Office of Civil Defense - USAID Bureau for Economic Growth, Education, and Environment (E3) - USAID Bureau for Global Health - USAID Global Development Lab - USAID Office of Food for Peace (FFP) - USAID Office of U.S. Foreign Disaster Assistance (OFDA) - US Department of Agriculture (USDA)
Independent	
International Organization	- BRS Secretariat - Food and Agriculture Organization (FAO) - Global Logistics Cluster - Humanitarian Logistics Association (HLA) - International Committee of the Red Cross (ICRC) - International Federation of Red Cross and Red Crescent Societies (IFRC) Logistics - International Federation of Red Cross and Red Crescent Societies (IFRC) Shelter - International Organization for Migration (IOM) - International Union for Conservation of Nature (IUCN) - Shelter Cluster - United Nations Environment Programme (UNEP) - United Nations High Commissioner for Refugees (UNHCR) - United Nations Humanitarian Response Depot (UNHRD) - World Food Programme (WFP) - World Wildlife Fund (WWF)
Non-Governmental Organization (NGO)	- Catholic Relief Services (CRS) - Save the Children
Private	- Alliance to End Plastic Waste - Ameripen - Amcor - Dow - Edesia - General Mills - Mars Corporation - Sustainable Packaging Coalition - SkyLife

Appendix 3. Participating Organizations: Survey Respondents

Organization Type	Stakeholders
Academic	
Government	● Philippines Office of Civil Defense
Independent	● Independent Shelter Consultant
International Organization	● German Red Cross ● International Federation of Red Cross and Red Crescent Societies (IFRC) ● International Organization for Migration (IOM) ● United Nations High Commissioner for Refugees (UNHCR) ● World Food Programme (WFP)
Non-Governmental Organization (NGO)	● Bioforce Institute ● Danish Refugee Council ● IDA Foundation ● Save the Children ● ShelterBox ● Spiritus Vitae ● UAP Emergency Architects
Private	● EastWest Bank

Appendix 4: Guiding Questions for Consultations

General Questions

- What is your role/expertise relating to humanitarian packaging and/or solid waste management?
- What is your/your organization's specific interest in this topic?
- What do you think is the most pressing issue related to packaging waste management in the humanitarian sector?
- What parts of your organisation would be the most interested in this work?
- What parts of your organization would be most open to making changes relating to this topic and where can you/we have the most leverage or impact? I.e. What are the easy wins?
- Have you looked at a life cycle analysis/assessment of your logistics work or for particular items? Establishing baselines, developing activity data? Can you share?
- Are there other frameworks that you have used to establish/analyse parameters? (e.g., IFRC/UN GHG work for access to Green Climate Funds).
- Are there any ongoing assessments focused on solid waste or humanitarian packaging related issues?
    - If yes: If so, what products/supply chains are being assessed?
    - Who conducted the assessment?
    - Is it possible to share?
- Are there any other publications or literature we should review as we begin this work?
    - If yes, please share
- Are there any key events or fora we should be linking to, presenting at, consulting at?
    - If yes, please provide more info and thoughts on entry points.
- Who should be informed of this work in your organization?
- Who else in your organisation/in the sector/related fields should we reach out to?
- How many countries do you have operations in?

Specific Questions about Solid Waste Generation and Management (to be tailored depending on stakeholders)

- Waste Management
    - What are the current disposal practices for packaging waste in humanitarian contexts?
        - Any best/worst practices to highlight?
    - Do you have any requirements on the disposal/reuse/repurposing of packaging waste?
    - Is waste being shipped elsewhere for disposal? If so, where?
    - Are there practices particular to a type of humanitarian packaging waste (e.g., plastic, paper, wood) or a specific product (e.g., wood pallets, plastic containers or wrap, food wrappers)?
    - Examples of biodegradable packaging? Pros and Cons?
    - Examples of reusing packaging waste or reverse logistics?
    - Examples of minimising packaging waste?
    - Do you send out an automatic surplus of items (like WFP does with food aid) to take into account spoilage/item damage etc?
    - Who is in the waste management space in developing countries with ongoing humanitarian emergencies?

- ▪ What practices do they use to reduce uncontrolled disposal (i.e., litter) of humanitarian aid waste?
  - o Are there any NGOs or organizations we should know about working in this space?
  - o Are any governments driving activities, if so, which countries and which government departments? For example, Uganda/Kenya
  - o Do you recycle or compost any of your packaging waste? Examples?
  - o What recycling or composting waste management technologies are available and where? If so, who manages them (e.g., government or private sector)?
    - ▪ Any best/worst practices to highlight?

- ● Waste Generation
  - o What are the general locations from which packaging products are being sourced (e.g., US, Europe, etc.)?
  - o Questions for product suppliers:
    - ▪ What are the largest sources of waste throughout the production, transportation, and distribution of common humanitarian aid products?
    - ▪ How is waste typically handled throughout the supply chain? How does this vary by location?
    - ▪ Is it possible to access data on flows of waste associated with this product supply and use?

- ● Activity data
  - o Do you have any activity specific data? E.g.
    - ▪ Number of items shipped
    - ▪ Amount of waste generated
    - ▪ Tons of plastic/cardboard/other waste/packaging waste collected
  - o Do you characterize waste differently (e.g., numbers of containers)?

Additional Topics for Consideration:

- ● What do you think are the three largest non-packaging environmental impact issues related to your organisations' work?
  - o E.g.: Commodities, transport, palm oil, soilage waste/oversupply
  - o E.g. Palm Oil
  - o "WWF believes companies can be drivers of change and are better placed to help develop solutions for sustainably sourced palm oil from within the value chain, rather than forfeiting leverage and allowing demand to simply shift to other products and markets."
- ● Are there any other windows of opportunity that we could look at in the future, under the auspices of the broader JI? Other gaps in research? (keep a note of them for the future)
- ● What tools do you need to help you better do this work? Would digital data collection tools help?

Appendix 5. Survey Questions

#	Question
1	What is your background/role relating to humanitarian packaging and/or solid waste management?
2	In your opinion, what are the most pressing issues related to packaging waste management?
3	In your opinion, what are the easy wins in your organization relating to minimizing environmental impacts of packaging waste?
4	What are the most common packaged products distributed by your organization (for humanitarian aid if applicable to your organization)? Please provide data on quantity and volume as available.
5	Where, in general, are the most common packaged products distributed by your organization (for humanitarian aid if applicable) being sourced? Please list the products sourced from each region below, as well as the source country.
6	What are the largest sources of packaging waste for your organization throughout the supply chain (e.g., production, transportation, or distribution) for the most common products distributed by your organization (for humanitarian aid if applicable)?
7	How does your organization typically handle packaging waste throughout the supply chain? Please explain and note if this varies by location.
8	Do you have any packaging waste activity data that you can share (e.g. number of items shipped, amount of waste generated, tons of plastic/cardboard/other packaging waste collected)?
9	Please provide information on the activity data (as applicable). Information could include a list of information available, a link to a published report, or contact information for someone we could reach out to for the data. If the data is not published but you are willing and able to share it, please send it to Mandy George at george14@un.org.
10	What are your organization's current disposal practices for packaging waste? Please explain.
11	Does your organization have any requirements on the disposal of packaging waste? Please explain.
12	Is packaging waste being shipped elsewhere for disposal? If so, where?
13	What are your organization's current reuse/recycling standard practices for packaging waste? Please explain, including any examples of reuse/recycling of packaging waste.
14	Does your organization have any requirements on the reuse/recycling of packaging waste? Please explain.
15	What does the process or program for reuse/recycling entail? Please explain.
16	Does your organization use biodegradable packaging? If yes, please provide pros and cons.

#	Question
17	Does your organization employ sustainable procurement or other means to minimize packaging waste? Please explain.
18	Has your organization ever conducted a product life cycle assessment (e.g. establishing baselines or developing activity data) related to plastics, packaging, or humanitarian aid? If yes, please provide the publication/assessment if possible (as a link in the comment box below or in an email to george14@un.org). If not, please indicate if an assessment has ever been considered or would be of interest.
19	Are there any other ongoing assessments that you are aware of, either within or outside your organization, focused on solid waste or humanitarian packaging related issues? If yes, please provide the publication/assessment if possible (as a link in the comment box below or in an email to george14@un.org). If no, please indicate if an assessment has ever been considered or would be of interest.
20	Please provide names and contact information (emails or phone numbers) for anyone else in your organization or field that we should reach out to regarding this work.
21	Please list any publications or literature relevant to this work and/or provide the publication/assessment if possible (as a link in the comment box below or in an email to george14@un.org).
22	Please list any upcoming or annual events, conferences, or fora relevant to this work.

Appendix 6. Advisory Group Terms of Reference

Background

Waste management is rapidly emerging as an urgent global development challenge. Countries receiving humanitarian assistance often have insufficient local waste management systems to handle plastics and packaging waste associated with the aid they receive. While humanitarian packaging is only one of the many contributing factors, the humanitarian assistance community is increasingly taking note—and action.

Taking advantage of this fertile ground for action and working directly with key stakeholders such as the Global Cluster system, USAID is facilitating a multi-institutional and multi-disciplinary scoping effort to inform a programmatic assessment of humanitarian packaging waste management. This assessment's objectives are to: 1) Evaluate existing humanitarian aid delivery systems and processes; and 2) Identify pragmatic, cost-effective approaches to reducing packaging waste without compromising humanitarian aid delivery.

These efforts conducted under the *Joint Initiative*[24], capitalize on established processes, partners, and momentum. The initial scoping phase, which will define the parameters for the full assessment, is expected to run from June 2019 to February 2020. Drawing upon subject matter expertise, scientific literature, and extensive stakeholder engagement the scoping effort will seek to refine and define the technical scope, and key issues of concern, to be further evaluated in the full scale "programmatic assessment".

USAID facilitation of the scoping effort is being supported by USAID's Office of Food for Peace (FFP) and Office of U.S. Foreign Disaster Assistance (OFDA). FFP is the leading provider of U.S. food assistance and the world's leading provider of emergency food assistance. OFDA leads and coordinates the U.S. Government's humanitarian assistance in response to disasters overseas.

Core Project Team

The Project Team is comprised of USAID staff and contractor support via the USAID Environmental Compliance Support (ECOS) Project. The primary USAID point of contact is Dr. Erika Clesceri (eclesceri@usaid.gov), Bureau Environmental Officer for the Bureau for Democracy, Conflict, and Humanitarian Assistance (DCHA). Additional USAID points of contact are Greg Olson (Golson@usaid.gov), FFP's Program Operations Division Director and Bob Demeranville (Rdemeranville@ofda.gov), OFDA's Logistics Team Leader. ECOS team members include: Mark Wagner (Mark.Wagner@icf.com), Mandy George (george14@un.org), and Michael Minkoff (Michael.Minkoff@cadmusgroup.com).

Membership

The Advisory Group consists of a core group of representative stakeholders who will provide strategic oversight to the Scoping effort. The Advisory Group will provide strategic guidance to the Project Team. The vision for this core group is to have representatives of both the humanitarian and environmental actors in the field, but also a technical and geographical spread, with regional and global organizations. Advisory Group members can recommend additional organizations for inclusion in the Advisory Group to the Project Team, such as governments, agencies, regional organizations, NGOs, and the private sector entities.

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[24] The Joint Initiative is a collaborative effort co-led by USAID, UN Environment/OCHA Joint Environment Unit, and UNHCR, bringing environmental and humanitarian stakeholders together to positively impact the quality and accountability of humanitarian assistance. http://www.eecentre.org/assessments/

Responsibilities

The Advisory Group is expected to provide strategic guidance to the Project Team in the implementation of the scoping statement, ensuring effective oversight by reviewing and providing recommendations on the work plan and by reviewing outputs. Specific functions of the Advisory Group will include:

- Review key outputs and reports and advise the Project Team accordingly
- Support the implementation of the work plan by making expertise and relevant documentation available, engaging networks and establishing partnerships
- Assist in identifying and allocating support within their own organization for activities consistent with the objectives of the Scoping effort
- Facilitate and promote coordination between the Scoping effort and other relevant initiatives
- Act as political champions for the Scoping effort at international humanitarian and environmental fora, e.g. Environment in Humanitarian Action (EHA) Network events
- Share and disseminate results and experiences generated
- Where possible, provide financial and in-kind support

The Advisory Group will not be responsible for:
- Managing day-to-day administration of the Scoping effort. This will be handled by the Project Team.
- Spending time drafting documents

Frequency and Conduct of Meetings

The Advisory Group will be expected to meet formally (remotely) at least once every four-five months with timings to be based on deliverables tied to the work plan. The members of the Advisory Group will be expected to be available for communication with the Project Team via email and telephone conference on urgent matters as needed, as well as for regular updates between formal meetings. The Project Team will be responsible for setting up those meetings and ensuring close liaison within the Advisory Group. Formal meetings will be scheduled and arranged by the Project Team in consultation with, and at the request of, the other Advisory Group members. The Project Team is expected to participate in all Advisory Group meetings, in person and on the phone, and to be included in all email communication.

Cost of Participation

Advisory Group members are expected to contribute their time and inputs to the project. While there is no participation fee, Advisory Group members are also expected to explore their organization's ability to provide financial contributions in support of the Scoping effort or follow-on Assessment.