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GUIDANCE NOTE

MUNICIPAL SOLID WASTE MANAGEMENT IN CRISIS AND POST-CRISIS SETTINGS

BUREAU FOR POLICY AND PROGRAMME SUPPORT

United Nations Development Programme



GUIDANCE NOTE

MUNICIPAL SOLID WASTE MANAGEMENT IN CRISIS AND POST-CRISIS SETTINGS

This Guidance Note forms part of a series of UNDP's signature products which are aimed to respond to support Early Recovery in immediate crisis and post-crisis contexts. The main objective is to provide practical advice and guidance to UNDP Country Offices on how to plan, design and implement a project that offers immediate support for managing municipal solid waste.

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UNDP livelihoods recovery programme at work in Al Mintar, Syria. PHOTO: UNDP SYRIA/DIANE ARNOUK

OVERVIEW

This guidance note aims to support Government counterparts and strengthen UNDP Country Offices' and implementing partners' capacities to **plan, design and implement projects for municipal solid waste management (MSWM) in crisis or post-crisis settings**, as part of UNDP's early recovery response. The Guidance Note focusses in particular on livelihoods recovery and local government service delivery. It is assumed that readers do not have extensive experience in the area of MSWM. The guidance note is intended to inform UNDP COs and implementing partners on the type of programmes UNDP could support in the area of MSWM in an early recovery setting, and provide information on how to plan, design and implement such projects.

MSWM projects are intended to contribute to livelihoods stabilization through the creation of temporary employment opportunities as well as environmentally and economically sustainable livelihoods opportunities for crisis-affected men and women. This is not just a livelihood intervention; it also strengthens the service delivery of the local governments and works towards fostering the relationship between the State and society. This document complements the series of UNDP Guidance Notes on Livelihoods Recovery and Local Governance — i.e. 'Emergency Employment and Enterprise Recovery', 'Community Infrastructure Rehabilitation', 'Debris Management' (2013), 'Aid Management', 'National Recovery Planning and Coordination' and 'Restoration of Local Governance' (2014). This note has been developed following requests from COs for specific guidance on MSWM projects, as a specific sub-area under solid waste management,

alongside debris. This guidance note should therefore be considered as specific additional guidance to the existing UNDP 'Guidance Note on Debris Management'.¹

Outcome 6: *Early recovery and rapid return to sustainable development pathways are achieved in post-conflict and post-disaster settings*

Indicator 6.1.1: *Number of women and men benefiting from emergency jobs and other diversified livelihoods opportunities within 6 to 18 months after a crisis, disaggregated by vulnerability groups*

UNDP STRATEGIC PLAN (2014–2017)

incorporating productive capacities that create employment and livelihoods for the poor and excluded” and that “national and subnational institutions are able to lead and coordinate the early recovery”. In addition, important linkages are suggested for **Outcome 1**, supporting the transition towards growth and development and ensuring that it is inclusive and sustainable by developing productive capacities that create employment and livelihoods for poor and excluded people.

In urban areas, municipal solid waste (MSW) generally comprises materials discarded by households, commercial establishments, institutions and street cleaning/sweeping. This guidance note does not address the management of other types of (hazardous) wastes, such as hospital waste, asbestos and industrial hazardous wastes, but refers readers to specific guidance and support in those areas.

In most countries, local authorities are responsible by law for delivering public services related to solid waste collection and disposal to safeguard public health and ensure the protection of the environment. A crisis or disaster has a severe impact on these authorities, which are faced with significantly higher volumes of waste (for instance, as a result of displacement or disaster/conflict debris), often combined with an overall lack of capacity, both technically as well as in terms of resources, often due to a loss of staff and equipment, lack of financial resources etc. Also, the MSWM sector may have already been underfunded and under resourced prior to the crisis.

Because of weakened capacity of the local authorities, the accumulation of municipal waste in (post-)crisis contexts poses particular challenges, as national authorities and municipalities are often unable to provide adequate MSWM services, while a crisis or disaster can also have led to a substantial influx and/or movement of population groups (i.e. internally displaced persons (IDPs), refugees etc.), as well as foreign aid and relief into particular areas, leading to much higher waste generation rates (or accumulation in specific areas) and additional types of waste disposed.

The accumulation of municipal waste can hinder efforts towards fast recovery and development, and significantly increase public health risks in communities that are already particularly vulnerable. Solid waste thrown out by households, businesses and markets at random sites without regular collection and disposal can lead to outbreaks of water-borne diseases such as cholera, typhoid fever, diarrhea and malaria. Waste piles become breeding sites for insects and other harmful animals that can be vectors of diseases, increasing the likelihood of disease transmission.

1 UNDP, Guidance Note: Debris Management, UNDP, New York, 2013, available at <http://www.undp.org/content/dam/undp/library/crisis%20prevention/SignatureProductGuidanceNoteDebrisManagement11012013v1.pdf>.

2 UNDP, Strategic Plan 2014–2017, UNDP, New York, 2013, available at http://www.undp.org/content/dam/undp/library/corporate/UNDP_strategic-plan_14-17_v9_web.pdf.

This document, like other recovery guidance notes, is aligned with the UNDP 'Strategic Plan (2014–2017)';² in particular **Outcome 6**, which specifies UNDP's focus on livelihoods, economic revitalization and governance as part of its integrated early recovery response in crisis and post-crisis contexts. Specifically, UNDP will support early recovery to “ensure the achievement of rapid return to sustainable development pathways in post-conflict and post-disaster settings” by “ensuring that growth and development are inclusive and sustainable,

Solid waste that is inadequately disposed of can also block water and sewerage canals and drainage systems and cause flooding. Also, it may result in water and soil contamination, air pollution (if waste is burned) and the formation of greenhouse gases as a result of decomposing wastes.

Whereas uncontrolled accumulation of waste poses many health risks to communities, improving services related to the collection, recycling and disposal of MSW can present a multitude of livelihoods opportunities and local economic recovery and also provide avenues for social cohesion and reconciliation. As an MSWM system is generally a good and highly visible indication of the capacity of a municipality, (re-)establishing a MSWM system might also restore community confidence in public service provision by municipality and local government structures.

This guidance note is based on the experiences of UNDP and its implementing partners in post-crisis contexts, including Burundi, Indonesia, Nepal, occupied Palestinian territory (oPt), Philippines and Timor-Leste. It provides lessons learned and good practices, as well as **checklists, sample outputs and activity results as a menu of options for a Resources Results Framework (RRF), assessment questionnaires and other practical tools** that might be helpful for project design and implementation in this area.

The document does not provide detailed technical information on how to undertake MSWM activities themselves, which is extensively covered in comprehensive publications by partner agencies such as UN-Habitat, UNEP, World Bank, WHO, UNICEF etc. (please see the reference list in Annex 2).

Table 1 provides an overview of the content in this guidance note:

TABLE 1: CONTENT OVERVIEW	
CONCEPTUAL FRAMEWORK	Describes waste categories and proposed waste management approaches for various waste streams
PLANNING	This section presents the main considerations when planning an MSWM intervention, following a structure that closely resembles the standard UNDP project document template
IMPLEMENTATION	Presents the main issues and challenges that arise, as well as some of the approaches and techniques for implementation of an MSWM project. This section also provides suggested components for a Resources Results Framework, as a menu of options as a basis to adapt to each specific context
LESSONS LEARNED	Highlights the key lessons learned from recent UNDP engagement in MSWM programming
ANNEXES	List of acronyms and abbreviations; resources and further reading; glossary of key terms; and referral to guidelines for dealing with hazardous waste streams. Also included are a template for a Waste Needs Assessment and a checklist for the design and development of an MSWM project

1. THE CONCEPTUAL FRAMEWORK

1.1 WHAT CONSTITUTES MUNICIPAL SOLID WASTE?

Effective programming of an MSWM project requires a clear understanding of MSW. Although the definition and classification of various waste streams differs to a great degree among organizations and across countries, for the purpose of this UNDP guidance note, the following descriptions will be used:

MSW refers to “waste generated by households, non-hazardous solid waste from industrial, commercial and institutional establishments (including hospitals), market waste, yard waste, street sweepings and gully emptying wastes.”³

By material, MSW can be divided into organic waste, paper, glass, metal, plastic, household hazardous waste, textiles, Waste Electrical and Electronic Equipment (WEEE) and other. The composition of MSW varies widely within and across countries, but in most cases organic waste takes up a majority of waste streams.⁴

For the purposes of these guidelines, MSW does not include materials that are discarded in gaseous form to the atmosphere, to a pit latrine or via a pipe or channel. However, it might include gases and liquids in containers, as well as sometimes human excreta.

In a post-disaster/post-conflict setting, MSW is most often generated from different sources:

- **by non-affected people or people who temporarily left their homes** but returned to their dwelling soon after they were able to;
- **by refugees and IDPs** (e.g. IDP/refugee camps); and
- **by the relief efforts** (e.g. packaging of water, food and health care-related items as well as an influx of relief workers who also generate waste).

This guidance note only focuses on MSWM. However, there are many other types of waste streams that are related to MSWM activities in a post-crisis/post-disaster setting but which are not addressed in this document. Some of these are debris/disaster waste, infectious health care waste and hazardous waste. In Annex 6 a summary of such waste streams is provided, as well as reference to the appropriate guidelines on how to deal with them. For in-depth guidance on disaster waste management and its various waste streams, see the UNEP/OCHA ‘Disaster Waste Management Guidelines’ (2011)⁵ and e-learning module.⁶

A resident makes a payment to a waste collector in Managua, Nicaragua. PHOTO: NGO WASTE



Door-to-door collection in Nepal. PHOTO: UNDP NEPAL

3 Definition adapted from UNDP/UNCHS (Habitat)/World Bank/SDC, Conceptual Framework for Municipal Solid Waste Management in Low-Income Countries, UNDP/UNCHS (Habitat)/World Bank/SDC, Nairobi, 1996, available at: http://www.worldbank.org/urban/solid_wm/erm/CWG%20folder/conceptualframework.pdf.

4 Ibid.

5 OCHA/UNEP/MSB, Disaster Waste Management Guidelines, OCHA/UNEP/MSB, Geneva, January 2011, available at: https://www.msb.se/Upload/English/news/Disaster_Waste_Management.pdf.

6 <http://eecentre.org/DisasterWasteManagementGuidelines.aspx>.

1.2 UNDP SUPPORT IN MSWM

UNDP has extensive experience in supporting governments in MSWM programmes, both in non-conflict/non-disaster settings as well as in post-conflict/disaster settings.

UNDP support in the area of MSWM has included in the past:

- **emergency employment creation through cash-for-work (CfW) schemes** that provide temporary employment opportunities to people to collect and dispose of waste (including street sweeping);
- **development of small-scale business opportunities** (e.g. turning waste into assets, such as the production of compost, charcoal briquettes etc.) through training/capacity-building and by providing equipment;
- **(re-)establishing markets for recovered waste streams and waste-derived products** — for example, the collection and sale of scrap metal re-establishes itself generally quite quickly, but collectors of other waste streams, such as plastics and carton, might need more support to (re)gain access to buyers' markets either at national or international level;
- **technical capacity-building of local governance delivery and management structures** in (re-)establishing capacity for MSWM, sometimes through public-private partnerships (PPPs) or directly;
- **procurement of equipment/technologies for local government entities** (e.g. personal protection gear (PPG), waste collection trucks, waste-related technologies (sorting, shredding, compacting, turning waste into products etc.);
- **removal of illegal dumpsites** created as a result of discontinued services, **as well as rehabilitation of damaged/dilapidated dumpsites and landfills** (fencing, capping, lining etc.) and access roads;
- **construction of permanent but small-scale infrastructure that supports the overall MSWM process** (e.g. engineered landfills, waste transfer points, capture of methane gas from landfills);
- establishment of waste-separation and recycling plants (plastics, compost etc.);
- **support to the informal sector/waste pickers**, by improving their access to markets by providing transport/baling equipment and engaging them in CfW activities in waste collection or on dumpsites;
- developing/enhancing national policy and regulatory frameworks pertaining to MSWM; and
- **creating awareness on good MSWM practices and their health and environmental benefits**, through education, training and community outreach to incentivize people to dispose of waste legally and contribute financially.

Some examples of UNDP-supported MSWM-related programmes that have been implemented in a post-crisis/post-disaster setting are covered in the videos highlighted in Box 1,⁷ while other examples are highlighted in a number of case studies presented throughout this document.

UNDP support to MSWM activities in post-conflict/disaster contexts

Increasingly, UNDP is requested by governments to provide assistance in the area of MSWM in the immediate aftermath of a disaster or conflict. Frequently, communities identify solid waste collection and disposal as one of their main priorities during a post-crisis/post-disaster assessment. Local governments may be unable to resume public MSWM services following a crisis, posing human health risks and hampering recovery efforts.

7 Full URLs to the videos can be found in Annex 2.

In post-conflict/disaster contexts, UNDP-supported MSWM programmes can be part of a broader livelihoods and economic recovery programme, which aims to quickly create jobs and livelihood opportunities for crisis-affected men and women, as one of the ways to support economic revitalization.⁸ Such programmes can also play a significant role in building social cohesion and supporting the reintegration of displaced population groups, including returning refugees, IDPs and former combatants. It is also sometimes carried out as part of a local governance and service delivery project. The most successful programmes bring these two elements together under one socio-economic recovery programme which focuses on both livelihoods and municipal service delivery under a social cohesion framework.

CfW schemes can be used for part of MSWM projects, such as the collection of waste or, for instance, the construction or rehabilitation of composting and recycling facilities. However, different implementation modalities are applied for different type of MSWM activities, and this can vary by country (see also Section 2.5, Management arrangements).

BOX 1: UNDP MSWM PROJECT VIDEOS

[Burundi: Reintegration of female ex-combatants through Municipal Waste Management and composting](#)

[Nicaragua: Establishment of pro-poor PPPs for household solid waste collection in Managua](#)

[Philippines: Waste left by Yolanda as big as 10 football fields](#)

[Ethiopia: Addis Ababa Repi Landfill Gas Clean Development Mechanism \(CDM\) Project](#)

There are many external partners that can play a part in UNDP-supported waste management projects. Private-sector companies can be contracted to clear and close illegal dumping sites and to rehabilitate disposal sites and landfills. The private sector can be engaged to collect waste using garbage trucks, but rudimentary vehicles such as wheelbarrows and donkey carts have also been employed. Community-based organizations (CBOs) are engaged to help with collecting fees and to support monitoring of the quality of the waste services provided.

CfW programmes and UNDP’s livelihoods stabilization support have contributed to livelihoods and local economic recovery as well as social cohesion. It is critical, however, to also ensure that public MSWM services continue to function after CfW projects are finished and that a certain number of people remain employed in the sector. This is often the role of the municipality; therefore, involving it from the outset and strengthening its capacity— rather than setting up parallel systems — is key.

Projects should ensure that their sustainability is addressed from the start, including, for instance, private-sector involvement and assessments identifying broader market opportunities in the sector. This includes also, for example, strengthening the capacity of municipalities, training communities and waste collectors on the production and sale of waste-derived products, (re-)establishing a tariff and fee collection system, connecting collectors of recyclables to national or international waste buyers’ markets etc.

The continuity and sustainability of MSWM projects is also in line with the UN ‘Policy for Post-Conflict Employment Creation, Income Generation and Reintegration’ and as adopted in the UNDP ‘Guide on Livelihoods & Economic Recovery in Crisis Situations’,⁹ which provides the framework to design and implement employment and livelihoods programmes as critical peacebuilding and recovery tools. The approach defines three tracks, which should be pursued concurrently but with different intensities and should be initiated at an early stage:

- **Track A:** immediate livelihoods stabilization of the affected populations
- **Track B:** local economic recovery and community development
- **Track C:** sustainable employment creation and decent work.

Examples of MSWM-related activities and interventions that could be supported as part of these three different tracks are presented in Table 2.

8 UNDP, Strategic Plan 2014–2017, UNDP, New York, 2013: Outcome 6.

9 UNDP, Guide on Livelihoods & Economic Recovery in Crisis Situations, UNDP, New York, 2013, available at: <http://www.undp.org/content/undp/en/home/librarypage/crisis-prevention-and-recovery/guide--livelihoods---economic-recovery-in-crisis-situations/>.

TABLE 2: EXAMPLES OF MSWM ACTIVITIES RELATED TO TRACK A, B AND C

Track A Immediate livelihoods stabilization of the affected populations	Track B Local economic recovery and community development	Track C Sustainable employment creation and decent work
<p>Emergency employment creation</p> <p>CASH-FOR-WORK SCHEMES</p> <ul style="list-style-type: none"> • Rehabilitation of any damaged official landfills/dumpsites • Rehabilitation or construction of communal waste collection points • Granting access, ensuring waste is only dumped in containers, calling for waste pickup when containers are full etc. • Clearing waste from agricultural lands • Removal/collection and sorting of MSW • Illegal dump site cleaning • Street cleaning/sweeping • Shredding/compacting waste at the communal collection point • Production of locally produced waste bins/containers for household use¹¹ or communal use, preferably made of locally available materials and of the type used under normal circumstances (if applicable) • Construction of fenced waste transfer points (but only when they will be regularly serviced. If not, they will turn into open dumps); agree on the location of transfer points with the municipality • Construction of appropriately fenced refuse pits, bins, area pits at public places etc. as part of market infrastructure rehabilitation • Construction of composting sites • Ditch/drainage/gutter cleaning • Cleaning of parks, beaches, riverbeds etc. <p>TARGETED LIVELIHOODS AND SELF-EMPLOYMENT START-UP GRANTS</p> <p>Support for individuals, small enterprises, CBOs, community groups etc. in the area of developing waste-derived products and recycling activities, through training as well as start-up grants (in the form of tools or packages necessary to support such activities):</p> <ul style="list-style-type: none"> • Valourization of organic waste for animal feed or for composting • Fabrication of charcoal/eco briquettes from organic waste for fuel (e.g. from camp waste) • Making building blocks from plastic and styrofoam. • Supporting small-scale low-tech businesses in reuse and recycling • Business skills training as well as technical training in MSWM 	<p>Access to finance, business skills and technical training for the production of waste-derived products and recycling, such as:</p> <ul style="list-style-type: none"> • Waste collection, sorting, processing (and resale to larger local or city-based waste traders) • Provision of compacting, baling and shredding equipment to reduce transport costs to reach markets • Provision of transportation equipment (carts, bicycle carts etc.) to gain access to markets located elsewhere • Valourization of organic waste (i.e. from animal, agricultural and kitchen waste) for composting or production of animal feed (training is required to ensure compost is of high quality to ensure it will obtain a market) • Fabrication of charcoal/eco briquettes from organic waste for fuel (e.g. from camp waste) • Supporting small-scale low-tech businesses in reuse and recycling • Processing of coconut husks to provide baled coconut fibre for industrial use • Generation of biogas from animal waste • Production of handicrafts from waste materials • Production of detergent from rice straw • Manufacturing of oil lamps from metal cans • Mushroom farming using agricultural waste (rice straw) as a growing medium • Furniture making from tsunami waste wood • Production of products from waste tyres 	<ul style="list-style-type: none"> • Enhancing the skills and capacity of the city planning and management staff • Re-establishing responsibilities as well as a budget for solid waste within the municipality • Instituting a fee/tariff system/cost-recovery system to ensure long-term employment and job security (e.g. through direct waste bills or the utility company, sometimes complemented by revenues collected through property taxes, municipal incomes taxes or national transfers) • Developing/enhancing the policy and regulatory framework pertaining to MSWM • Creating transparency in knowing, controlling and reporting on all the costs related to MSWM • Developing a PPP regulatory framework supporting public service delivery in MSWM (which could also support other types of service than just MSWM) • Improving the working conditions of the informal recycling sector (for example, by financing equipment or paying for health insurance) • Reducing illegal child labour (but ensure to find ways for families to compensate for lost income as a result of children going to school instead) • Providing institutional support to informal, micro- and small entrepreneurs (e.g. permits to waste pickers or waste collectors, fee collectors etc.) • Establishment of incentive schemes targeted towards the private sector and NGOs that provide grant finance for projects/activities in MSWM (e.g. similar to the Malawi Innovation Challenge Fund) • Brokering collector and buyer linkages for recovered waste streams (e.g. recyclables such as plastics, paper, glass, compost etc.) and waste-derived products

10 For further information on developing inclusive markets and private-sector connections, please refer to the Inclusive Market Development books: UNDP, Inclusive Market Development Handbook, UNDP, New York, 2010, available at: http://www.undp.org/content/undp/en/home/librarypage/poverty-reduction/private_sector/imd-handbook/; UNDP, Guide to Partnership Building, UNDP, New York, 2010, available at: http://www.undp.org/content/undp/en/home/librarypage/poverty-reduction/private_sector/guide-to-partnership-building/; UNDP, Brokering Inclusive Business Models, UNDP, New York, 2010, available at: http://www.undp.org/content/undp/en/home/librarypage/poverty-reduction/private_sector/brokering-partnerships/; UNDP, Assessing Markets, UNDP, New York, 2010, available at: http://www.undp.org/content/undp/en/home/librarypage/poverty-reduction/private_sector/assessing-markets/.

11 Traditional baskets, 200-litre drums cut in half, etc.

Understanding UNDP's role

There are many stakeholders that have an interest in, are involved in or support MSWM. These include municipalities and other local authorities as well as a range of partners (e.g. UNHCR, UNEP, OCHA, UNICEF and NGOs such as OXFAM, CARE, ACTED, DRC etc.), local CBOs and service providers (informal waste collectors and waste pickers, private-sector companies that might be engaged through PPPs, waste recycling companies), as well as the beneficiaries of MSWM services (e.g. households, CBOs, community leaders etc.). UNDP's comparative advantage is building the capacity of local governments and municipalities on MSWM and its support to basic service delivery. This includes MSWM projects that immediately stabilize livelihoods and simultaneously build sustainable employment opportunities (see Table 2) by, for instance, supporting the overall MSW value chain. UNDP's value added in post-crisis contexts is to ensure that early recovery is included as part of the overall humanitarian response, bringing development principles into the relief stage and seizing opportunities to go beyond saving lives and start restoring national capacity, livelihoods and peaceful conditions for sustainable human development. Through a resilience-based development approach, UNDP takes a longer-term perspective from the outset, focusing on strengthening the capacity of communities and local governments to better cope with the crisis.

In situations of displacement, UNDP plays an important role in supporting MSWM activities in host communities, where waste volumes can significantly increase because of the presence of nearby IDP camps or displaced groups residing outside camps in local communities. UNDP played a critical role, for instance, in waste management in host communities in response to the Syrian crisis in Jordan, Iraq and Lebanon. Often, local municipality and local dump sites are not used to dealing with the increased volumes or types of wastes and might need tailored support to increase their



Unofficial garbage collectors, locally known as 'Zabalin', collect trash in Cairo and bring it to the suburbs where they live — in this case, al-Muqattem — to sort through for recycling to sell back to factories. PHOTO: IRIN/EMMANUEL DUNSEATH

capacity in this area. UNDP thereby often complements specialized agencies such as UNEP, which may support broader policy development for waste management, or UNHCR, which may, for instance, be involved in the waste collection inside refugee camps. UNDP is normally not engaged in MSWM inside IDP/refugee camps; this role is taken on by agencies that support the management of such camps such as IOM, UNHCR or UNICEF, among others.

Generally, UNDP starts its engagement in MSWM interventions following requests from national and local governments. In the immediate aftermath of a disaster or crisis, the **early recovery cluster** (also 'gap' cluster) is the most relevant entry point for UNDP's engagement in MSWM. An early recovery cluster is commonly led by UNDP and addresses critical aspects not covered by other humanitarian clusters. It often takes the name of the issues covered — for instance, 'Community Security and Livelihoods Recovery', as activated in the Central African Republic in 2013, or 'Sustainable Livelihoods and Social Cohesion', as established in Iraq in 2014.¹²

Based on experiences from other UNDP programmes, most often UNDP is involved in **post-crisis/post-disaster contexts** in the following six areas:

- emergency employment creation through, for instance, CfW schemes;
- development of small-scale business opportunities in the collection, recycling and valorization of waste;
- (re)construction of markets for recovered waste streams and waste-derived products;
- technical capacity-building and training of local government entities, service providers, NGOs, CBOs and waste handlers in all aspects of MSWM;
- removal of illegal accumulated dumpsites as well as rehabilitation of damaged/dilapidated dumpsites and landfills; and
- construction of permanent MSWM-related infrastructure with local government entities (e.g. landfills, transfer stations, waste recovery plants etc.).



The municipal company has not been able to collect trash from this western Karachi neighbourhood for some time. PHOTO: IRIN/ASHRAF KHAN

1.3 MSWM GUIDING PRINCIPLES

The most effective and sustainable projects exhibit a strong adherence to the following key concepts, which are referred to in more detail throughout the guidance note:

Solid waste management is the responsibility of the local government: In most countries, local authorities are responsible by law for delivering public services related to solid waste collection and disposal to safeguard public health and ensure the protection of the environment. A UNDP-supported MSWM programme should work with the municipality, involving local authorities at all stages of the project's design and implementation, and ensure that the MSWM capacity of the local governance structure is improved as part of the programme so that it can continue providing services after the programme comes to an end.

12 More information is available in: Inter-Agency Standing Committee (IASC) Implementing Early Recovery, Global Cluster on Early Recovery, <http://www.earlyrecovery.info/>.

Build on existing strengths — do not fix what is not broken: There is only one sure winning strategy for MSWM, and that is to understand and build on existing strengths — to identify, capitalize on, nurture and improve the indigenous processes that are already working well. Waste management solutions do not always have to involve cutting-edge modern technologies. In the early stages of improving MSWM systems, it is important to identify simple, appropriate and affordable solutions that can be implemented progressively, giving constituents the best system they can afford (UN-Habitat, 2010).

Community involvement: Any MSWM system needs to be aligned with community expectations and needs. Consult users such as community leaders, households, small businesses etc., as ultimately these are the people who would have to start paying for collection services to make them sustainable in the long run. Community associations and civil society should be encouraged to participate in planning and decision-making processes through local committees or regular consultations, but also should have opportunities to learn the benefits of a good MSWM system through education and awareness-related activities.

Partnering with the formal and informal sectors: Waste collection service providers can be public or private, informal or formal, large or small, local or international. In certain countries, the informal sector is responsible for 50 to 100 percent of all ongoing waste activities. Promoting partnerships with the informal sector in waste collection and recycling can lower the spending of the municipality on waste management significantly, but establishing collaboration with the informal sector in MSWM is quite difficult for governments (and UNDP). However, excluding the informal sector will result in people losing their livelihoods and increasing the costs of MSWM for a city.

Understanding attitudes of the target groups towards waste: An MSWM programme, despite its good intention of stabilizing the livelihoods of vulnerable groups and local economic recovery, may not translate into a successful



Women and children search waste for sellable items in Dili, Timor-Leste. PHOTO: UN PHOTO/MARTINE PERRET

outcome if it neglects local practices and norms regarding waste collection and fails to fully grasp the attitude of clients and service providers towards waste. Box 2 provides some examples of where UNDP programmes faced challenges in this respect, in particular when CfW programmes anticipated engaging certain population groups that did not want to be affiliated with waste.

Empowerment of women and promotion of gender equality: This can be achieved by increasing the participation of women through consultation, prioritization and in the training, employment and planning aspects of MSWM: However, project planners should consider whether the project could increase particular risks for women and ensure to mitigate those early on (see also Section 3.5, Women’s participation and empowerment).

Municipal Waste Cost Recovery checklist

- ✓ Introduce concept to key decision makers like sub-district and village heads
- ✓ Select target villages
- ✓ Conduct public awareness sessions to introduce the scheme and provide space for feedback and suggestions
- ✓ Establish the fee and ensure legalization is in place or in development (*qanuns*)
- ✓ Provide equipment like bins and collection points, select fee collection systems like receipts and monitoring, and enlist collection teams
- ✓ Begin implementation
- ✓ Monitor and analyse implementation
- ✓ Ensure community is happy with the service level and ensure service level is maintained

Ensuring financial sustainability: Often livelihoods and recovery programmes, in particular if they are executed using CfW modalities, face challenges in ensuring that livelihoods and jobs are maintained beyond the duration of the programme. It is, therefore, important to start introducing sustainable solutions for cost recovery during the early stages of MSWM interventions (e.g. by (re-)introducing a fee/tariff structure for the collection of municipal waste or (re-)establishing/brokering markets for recyclables and waste-derived products). Such cost recovery systems should be developed based on an analysis of users’ ability to pay and willingness to pay, to decide on the preferred tariff and payment mode and, vicariously, the most likely to be actually collected. This is an important step in making the MSWM system sustainable and allowing the municipality to continue providing MSWM services when the programme comes to an end.

Recycling: Recycling mostly happens for two economic reasons: the value of the material becomes attractive enough or it is a policy-driven activity to reduce the cost of waste disposal. In many cities (in particular, in developing countries) people earn their livelihoods in waste recovery, valorization and recycling. Often, more people are employed in these sectors than through public waste collection systems. When developing MSWM programmes,

understanding revenues and the values of different types of materials to be recycled is important. Also, MSWM programmes should integrate waste recyclers to avoid preventing them from accessing waste streams.

Disposal: Every effort should be made to identify official, controlled solid waste disposal sites and transfer locations. Coordination with the local authorities and other aid agencies will be essential to ensure that such facilities/locations are accessible and appropriately managed. If an existing disposal site is available, it should be rapidly assessed for environmental compliance before use. The site may have been used before the emergency by the local authority, and assistance may be required to get the system operational again. Where no existing disposal site is available, a temporary disposal site or engineered dumpsite should be identified and established. But waste dumping in any location should only take place when an (written) agreement is reached with the municipality/local government.

“The recycled products found to provide the highest return to the operators are PET plastics, cardboard and ferrous and non-ferrous metals.”

BOX 2: UNDERSTANDING SOCIAL NORMS RELATED TO WASTE MANAGEMENT

An MSWM programme, despite its good intentions of stabilizing the livelihoods of vulnerable groups and local economic recovery, could fail to meet its intended outcome if it neglects local practices and norms regarding waste collection and does not fully grasp the attitude of clients and service providers towards waste.

During an initial assessment it is, therefore, important to ask questions such as:

- Who is socially accepted to handle waste?
- Who would never handle waste?
- Who normally handles waste in the household?

Many MSWM-related programmes face challenges down the line if they neglect to consider such aspects. This happens when programmes anticipate engaging a certain group, and later on it turns out this particular group does not want to engage in any waste-related activities.

Two UNDP Disarmament, Demobilization and Reintegration (DDR) programmes, which engaged former combatants as waste collectors and waste pickers, experienced such challenges. As waste collection was a job formerly done by street children, ex-combatants felt stigmatized or that they were targeted for this work specifically due to their demobilized status.

Another UNDP programme initially aimed to engage communities hosting IDPs through a MSWM programme. However, it turned out they were unwilling to be involved in such activities, but immigrants gladly accepted such job opportunities.

Although MSWM programmes can play a role in widening acceptance that waste management could also be assumed by other social groups, attention has to be paid to not taking away job opportunities from a certain population group, and to be aware of the resistance to waste handling in other groups.

Therefore, when developing waste management and sanitation programmes, it is important to undertake an assessment of skills and, in particular, willingness to work in the sector, as well as ensuring that project beneficiaries represent a population mix so that no particular group feels singled out.

MSWM programmes should also keep an open mind and be able to change initially intended beneficiary target groups if it turns out that that particular group is not interested, and shift focus to equally deserving but willing beneficiaries. When CfW and livelihood creation programmes in the MSWM sector are successful and demonstrate potential for making a living, groups that were previously not interested might quickly start to show an interest.

It is important to consider sensitization campaigns and communication on the benefits of waste management from economic, environmental and health perspectives.



Residents of the densely populated Pétionville Club, the Port-au-Prince former golf resort where 50,000 displaced Haitians had set up camp after the 2010 earthquake, organize themselves to collect the camp's trash. PHOTO: UN PHOTO/PASQUAL GORRIZ

BOX 3: WASTE GENERATED BY HUMANITARIAN ACTIVITIES



Internally displaced persons camp in post-earthquake Haiti, 2010.

PHOTO: UNEP DISASTERS AND CONFLICT

Poor MSWM is often a problem that worsens in post-disaster/post-crisis situations as more resources and people are made available during relief and recovery efforts. This results in an increase in the amount of waste from heavily packaged goods and an increase in waste streams such as plastics and metals.

In particular, plastic wastes can be challenging to deal with, as they have a low density and a high volume, and thus take up a lot of space in communal waste containers, so these fill up faster and tend to quickly overflow. Because plastic waste is light, it can be easily picked up by wind if it is not well contained or inadequately disposed of, it can cause flooding and block sewerage and latrine systems.

Often communities receiving relief goods have not dealt with these types of plastics on this scale, so no reuse or recycling practices are in place to deal with these waste streams. It is, therefore, important that when relief organizations are purchasing relief goods, they consider products with minimal packaging or reusable packaging (e.g. re-sealable cans).

Finally, UN agencies and relief organizations should also ensure that the waste generated by their own activities is disposed of properly and that waste disposal is monitored to avoid such waste ending up in waterways or at illegal dumpsites.

BOX 4: BURUNDI: WASTE MANAGEMENT AS PART OF REINTEGRATION AND COMMUNITY RECOVERY (2012–2013)

Since 2006, Burundi has been experiencing a massive repatriation of refugee groups who were living in Tanzania and Democratic Republic of Congo as a result of decades of cyclical insecurity and conflict. Many returnees such as IDPs and refugees find themselves as if in a foreign land without land or social status. UNDP supports conflict-affected communities and displaced population groups in a number of ways, including livelihoods recovery and economic revitalization. This support includes provision of employment opportunities through waste collection, transportation to official dumpsites and composting.

In 2012, to support the implementation of the National Strategy for Reintegration, four women's associations were selected to clean up the urban centres of Cibitoke and Bubanza provinces, using a PPP approach. The project (overseen by the Association for the Integrated Development of Burundi (ADIB) at a cost of US\$83,000) aimed to empower women, identified as an economically vulnerable group, and to reintegrate them into socio-economic activities to promote social cohesion.

In consultation with municipal authorities, 60 beneficiaries were selected (including ex-combatants and returnees), 80 percent of whom were women, half of whom were widows.

The project beneficiaries collected waste from households and public spaces, which was sorted by hand at the disposal site. Organic material was separated from plastics and scrap and then turned into compost.

The project had two main sources of income: the monthly payments of 50 cents made by the households from which waste was collected, and the sale of compost. The project beneficiaries received US\$2 per day, of which \$0.50 was saved and \$0.20 set aside for social contributions; this allowed them to farm, trade and support their families.

To watch a video on the reintegration of female ex-combatants through MSWM and composting in **Burundi**, click [here](#).



Women in Cibitoke, Burundi, recycle waste as part of a programme to reintegrate returnees and ex-combatants into society. PHOTO: UNDP BURUNDI

BOX 5: INDONESIA: TSUNAMI RECOVERY WASTE MANAGEMENT PROGRAMME (TRWMP) (2005–2012)



Above: UNDP tsunami recovery waste management programme cleans up Pocut Baren (before and after). PHOTOS: UNDP INDONESIA/FAISAL RIDWAN

Left: Recycled Tsunami Wood Furniture Project, Bandah Aceh. PHOTO: UNDP INDONESIA



Early Recovery Results 2005–2007

Tsunami waste cleared	1,318,809 m ³
Number of interim landfills	15
Constructed	5
Rehabilitated/upgraded	10
Number of cash for work participants Women 32% Men 68%	1,451/ day
Roads rehabilitated with recycled material	100 km
Buildings demolished	550
Tsunami timber recovered and reused	17,442 m ³
Furniture constructed from tsunami timber	3,990 units

The TRWMP was the first major infrastructure project undertaken by UNDP in Indonesia. It was the largest and most extensive solid waste infrastructure project that has ever been directly managed and implemented by a UN body. It is an excellent example of a programme that started as a disaster waste management project using CFW modalities and finished with the establishment of sustainable MSWM systems, infrastructure and small and medium-sized enterprises (SMEs) and long-term job and livelihood creation.

The TRWMP was launched in March 2005. Funded almost entirely by the Multi-Donor Fund for Aceh and Nias (MDF) with US\$41 million, it allocated approximately US\$8 million to debris clearance and management, while US\$33 million was allocated to MSWM interventions. The project was carried out by a specialist project team based in Banda Aceh, with field offices elsewhere to assist up to 13 tsunami-affected districts.

The project had three phases during its seven-year lifetime:

- **Phase I: Recovery (2005–2007):** Providing a coordinated, pragmatic response to the public sanitation and

environmental concerns associated with clearing tsunami/earthquake debris and MSWM. NGO support was mobilized to stimulate the creation of livelihoods from the recovery of materials from municipal waste.

- **Phase II: Rehabilitation (2007–2009):** Transitional project activities focused on enhancing the local government capacity to coordinate the reconstruction process. Further support was provided to promote sustainable livelihoods through waste management.
- **Phase III: Reconstruction (2009–2012):** Project activities shifted from a focus on disaster recovery to improving and strengthening essential services for the longer-term development of the waste management infrastructure and operations; capacity-building of local government sanitation departments; creation of sustainable livelihoods in MSWM; and safeguarding the environment.

Throughout its seven-year project life cycle, four constituent ‘components’ ran as common themes during each phase. Each component was designed to provide communities, individuals and district administrations with financial

and technical support to achieve demonstrable changes to the pre-tsunami situation:

- **Component 1:** Resumption of MSW collection, disposal and clearance, including recycling tsunami-derived waste by implementing tsunami waste recovery facilities (land clearance, building removal, drainage clearance, MSW

collection services, skills training in carpentry and furniture making)

- **Component 2:** The rehabilitation of existing district dumpsites, including the provision of new interim and engineered landfills for enhanced, safer waste disposal
- **Component 3:** Interim livelihood restoration and longer-term waste management livelihood

creation by establishing waste recycling projects and businesses

- **Component 4:** Effective and efficient management, monitoring and oversight of the project and its activities on behalf of the MDF donor partners.

For more information on this project, see the results listed in the reference list.



Output One Results	
Municipal waste collected/ disposed	1,310,096m ³
Volume of waste recycled over volume of waste disposed or in landfills	22%
Government officials trained	1,673 (of which 9,5% women)
Increase in government sanitation budgets between 2004-2012	678%
Percentage of households paying for waste collection	33%
Students trained in 3Rs (reduce, reuse, recycle)	36,629 (of which 56% girls)
Community members trained in good waste practices	4,387 (of which 53% women)
Agricultural land cleared	1,254 hectares
Households benefiting from clearance	1,946



Output Two Results	
Sanitary landfills constructed	3
Detailed engineering designs drafted and handed over to Government	10
Environmental assessments conducted	9
Topographic mapping conducted	14
Landfill operations and maintenance plans drafted and handed over to district Government	16
Students trained in 3Rs (reduce, reuse, recycle)	36,629 (of which 56% girls)

Above left: TRWMP helped restore solid waste systems in Banda Aceh and build systems in 12 other districts.

Centre: KM23 Landfill under construction in Pidie.

Right: Shredded plastic dries in Lhokseumawe.

PHOTOS: UNDP INDONESIA



Output Three Results	
SMEs supported	164
NGOs supported	12
CSOs supported	10
Individuals collectors supported	36
School garbage banks established	8
Cooperatives supported	3
Percentage of SMEs operating after three years	73%
Metric tonnes recycled	72,121
Metric tonnes of recycled material sold in the open market	67,048
Approximated gross turn over (4yrs)	23 million USD
Average number of direct beneficiaries	2,400
Percentage of women employed	30-35%

BOX 6: TIMOR-LESTE: ONE BOTTLE AT A TIME (2013–2014)

Timor-Leste has a considerable municipal waste problem. It has no formal waste removal system or environmental legislation, as its state institutions were established only 10 years ago following the restoration of independence in 2002. As the water is not potable, plastic water bottles can be found everywhere.

The Timor-Leste Hopeseller Leadership Center (HTLSF), a youth-created and -managed NGO, developed a business proposal for a recycling activity that would enable it to buy PET plastic bottles from the public, clean and cut them and sell shredded plastics to recyclers. Any profits would be reinvested in the business to be able to expand activities beyond the capital, Dili, and its environs.

The goals of the project are to clean the environment and promote inclusive growth and profitable businesses with participation from youth and the public, while changing people's behaviour through education and by raising awareness on the importance of the country's environment. As youth unemployment remains a potential driver for conflicts in communities across the country, the focus on youth as beneficiaries of the project is an important consideration.

Funding of US\$96,000 from the South Korean government was granted to the NGO as part of UNDP's Social Business Project to help get the project off the ground, build awareness, purchase equipment and enter into partnerships with potential recyclers.

Every Saturday the Hopeseller team buys plastic bottles from the public. Youth are employed to clean and cut the bottles, after which the plastic is sold to recyclers. Although initially the project's target was to collect 100,000 plastic bottles within six months of its start, in March 2014 a record number of 300,000 bottles were collected in one week. To date the project has collected over 3 million bottles, and it is expected that over the project's duration between 4 and 6 million bottles will be collected. The revenue from plastic bottle sales will enable the team to sustain its collection activities and develop a complete business cycle to continue delivery of its mission to clean up the city.

On average the project has employed 127 youth on a monthly basis, earning an average income of US\$14.68/week. A total of 987 people have benefited from the project by selling empty bottles to the Hopeseller team.



Plastic and metal trash is routinely disposed of in the streets of Dili, Timor-Leste. PHOTO: UN PHOTO/MARTINE PERRET

BOX 7: GAZA: IMPROVEMENT OF SOLID WASTE SERVICES IN THE GAZA STRIP (2010–2014)



Waste segregation plant in Rafah. PHOTO: UNDP PAPP

Palestinian people's livelihoods in the Gaza Strip and their access to essential services were severely impacted as a result of the Israeli bombardment and military operations during December 2008 and January 2009. A total of 600,000 tons of rubble were generated, and more than 250,000 tons of MSW accumulated at random dumpsites close to residential areas, posing serious threats to the public health.

In response to these challenges, UNDP launched an emergency MSWM project as part of its early recovery programme. The project aimed to improve solid waste services, reduce health impacts and create employment by increasing solid waste collection rates and extending the capacity of the Gaza City landfill. Project activities included:

- clearing 12 informal dumping site;
- employing CfW to support primary collection of MSW (over 400,000 working days generated for the residents of the affected areas);
- providing solid waste trucks to enhance the municipality's secondary collection fleet;

- improving landfill operations that extended the lifetime and capacity of official dumping sites to accommodate the massive amounts of waste accumulated because of the crisis;
- carrying out a feasibility study for the improvement of the MSWM system;
- preparing an investment plan for short-and long-term investment; and
- constructing a pilot project for solid waste recycling and composting.

UNDP partnered with NGOs for the construction of composting facilities and or managing the CfW programmes. Private-sector companies were contracted under UNDP's direct implementation modality to clear 12 illegal dumpsites and to extend the capacities of the Gaza City landfill. International consultants were recruited to formulate long-term investment plans.

In the south of the Gaza Strip (Rafah), with the support of the Government of Japan (US\$1 million), a waste sorting plant was built. Municipal vehicles and donkey carts collect waste from houses and transfer them to the sorting plant's collection station. Waste first undergoes automatic sorting to separate out materials such as metal, aluminum, glass etc., which is followed by manual sorting. Organic waste is segregated and sent for composting; while other wastes such as cardboard are also recovered.

Although the project has been successful, it has also encountered many challenges, some of which are due to the blockade on the Gaza Strip, which complicated and delayed importation of equipment (municipal waste collection vehicles and sorting equipment) and which prohibits the exportation of recovered recyclables (glass, cardboard and plastic) for which no markets exist in the Gaza Strip.

Another major challenge has been the collection of fees, even though these are minimal. Because of the high unemployment rates, fee collection rates have dropped significantly from almost 90 percent in 2000 to only 20–30 percent.

Bombardment and military operations generated 600,000 tons of rubble and more than 250,000 tons of municipal solid waste that accumulated at random dumpsites close to residential areas, posing serious threats to the public health.

BOX 8: NEPAL: PUBLIC-PRIVATE PARTNERSHIPS FOR URBAN ENVIRONMENT — MUNICIPAL WASTE MANAGEMENT AND COMPOSTING (2009-2012)



Compost production from biodegradable waste in Nepal. PHOTO: UNDP NEPAL

Ten years of political unrest led to high unemployment rates, as most private industries ended up closing down and the private sector became reluctant to make long-term investments because of political uncertainty. At the same time, municipalities, severely impacted by the crisis, lacked sufficient human and financial resources to provide public services, in particular to poorer households.

To increase access to basic public services, boost private-sector growth and create employment, UNDP launched the Public-Private Partnerships for Urban Environment (PPPUE) project by promoting partnerships between the public and private sectors for the sustainable provision of basic urban

services. The project supported the establishment of 90 PPP projects, of which 22 were addressed MSWM.

MSWM activities included a combination of public services (provision of waste bins to households, waste collection and disposal, fee collection etc.) in combination with two types of waste valorization: first, the recovery of organic waste, its composting and commercialization, and, second, the recovery, transport and marketing of valuable recyclables.

The project provided capacity development and institutional strengthening for municipalities to manage PPPs, but also supported community-level discussions and conducted training on community-based waste management systems. Scrap dealer committees were formed, discussions for the establishment of a central recycling yard were started, and pilot recycling activities were launched.

The implementation of the 90 PPP projects led to the employment of 1099 people. Of these, 294 were employed as part of MSWM projects. Ninety percent of waste collectors were from socially excluded groups, a mandatory consideration and condition of the PPP contracts. The project also collaborated with 65 Tole Lane Organizations (TLO), a type of neighbourhood organization. TLOs monitored the quality of the services provided by the private sector and, for a commission, also engaged in fee collection on behalf of the service providers. TLO members were all youth, and 75 percent were female.

BOX 9: PHILIPPINES: MOVING FROM DEBRIS CLEARANCE (EARLY RECOVERY) TO MSWM PROGRAMMES (2013-PRESENT)

Typhoon Haiyan flattened villages, town and cities. Over 1 million houses, government administrative and social service facilities were totally or partially destroyed, creating massive amounts of debris, with over 1 million m³ in one of the largest cities, Tacloban, alone. That sheer volume of debris has had a major impact on social service delivery and on the economy of the region. A lack of human resources, lost/damaged equipment and destroyed infrastructure (dumpsites, sludge treatment facilities, workshops, vehicles etc.) created a significant demand in terms of the large volumes of typhoon waste that needed to be cleared and disposed of.

During the early recovery phase UNDP worked with the government, army and private contractors on the clearance of debris using heavy equipment while making use of CfW modalities totaling approximately US\$2.5 million in the first three months. This was primarily done with the municipalities strengthening their capacity to address this crisis and improve their waste collection systems in the future. To date, this UNDP waste management component of the Typhoon Recovery and Resilience in the Visayas (TTRV) project has already supported the clearance of over 500,000 m³ of debris.

Growing piles of MSW became a public health threat. Since residents had no options for disposing of MSW, as municipal

waste collection services were unable to resume their work, much of the household waste was piling up in the streets. Therefore, one month after the disaster, at the request of Tacloban City Hall, UNDP began assisting in the coordination of waste collection, managing the Tacloban municipal dumpsite, as well as assisting the city in the collection of MSW and health care waste.

The short-term aim of clearing bulk debris was largely met after three months. Priorities then shifted to supporting local government units (LGUs) in waste management initiatives to help them transition from early recovery to recovery. With funding provided by UNICEF (US\$3 million), UNDP began addressing public health concerns and environmental impacts associated with the recovery/disposal of typhoon and other wastes during the early recovery phase through:

- debris clearance and disposal through CfW programmes and heavy equipment;
- strengthening the capacity of LGUs in waste management;
- interim/emergency rehabilitation of critical waste management infrastructure; and
- supporting local enterprises in the creation of livelihood opportunities by recovering/recycling waste.

2. THE PLANNING PHASE: DEVELOPING THE PROJECT DOCUMENT

This section focuses on a number of key issues to consider when developing a project document for MSWM. The related stages of the UNDP project management cycle, as detailed in the UNDP 'Programme and Operations Policies and Procedures' (POPP) are 'Justifying a project' and 'Defining a project'. The main subsections fall under the familiar titles of: 1) Situation Analysis (including Needs Assessment); 2) Programme Strategy; 3) Results Framework; 4) Risk Assessment; 5) Management Arrangements; 6) Operational Support; 7) Partnerships; 8) Monitoring and Evaluation; 9) Resource Mobilization; and 10) Communications Strategy. A quick checklist for the planning phase concludes the section.

Table 3 provides a synopsis of the various steps in designing an MSWM project in a post-crisis/post-disaster setting and developing the project document. In Annex 5 these steps are worked out in more detail and constitute an easy-to-use checklist, which could be a useful tool for developing an MSWM programme.

It should be noted that limited time should be spent on developing an MSWM programme or related documentation, as MSWM experts are needed in the field. In the case of the Indonesia TRWMP and Philippines TRRV, for example, project documents were not prepared at all, as time was of the essence.

TABLE 3: STEPS IN DEVELOPING A MSWM PROGRAMME	
1	CONDUCT AN EARLY RECOVERY NEEDS ASSESSMENT¹³ (focusing on livelihoods and local government service delivery)
1.1	Understand the context of the crisis
1.2	Assess the early recovery livelihoods and local government service delivery needs of the affected communities including IDPs and their host communities
1.3	Conduct a rapid assessment of infrastructure damage
1.4	Consult affected communities on issues relating to all services but specifically public health, waste, livelihoods and the environment
2	INITIATE DIALOGUE AND ANALYSE STAKEHOLDERS AND THEIR CAPACITIES
2.1	Initiate dialogue with the municipality/local governance structure and assess its capacity for participatory process (prior and after)
2.2	Find out who does what in the MSWM sectors
2.3	Institute dialogue with all stakeholders — create a MSWM platform or working group
2.4	Conduct a quick capacity assessment of potential partners
2.5	Undertake a market survey to determine local suppliers, local service providers and local contractors of MSWM-related equipment, services etc.
3	CONDUCT A WASTE MANAGEMENT ASSESSMENT
3.1	Review any waste needs assessments that might already have been conducted by UNDP or partners

Continued on page 20

13 This should be the same step for all early recovery (livelihood and local governance) programmes. When a need and opportunity related to MSWM are identified, proceed to Step 2. Please also see UNDP, Guide on Livelihoods & Economic Recovery in Crisis Situations, UNDP, New York, 2013, available at: <http://www.undp.org/content/undp/en/home/librarypage/crisis-prevention-and-recovery/guide--livelihoods---economic-recovery-in-crisis-situations/>, as well as the guidance on how to conduct a Post-Disaster Needs Assessment and Post-Conflict Needs Assessment

Box 5: Indonesia: Tsunami Recovery Waste Management Programme (TRWMP) (2005–2012), continued from page 19

3.2	Conduct a waste assessment (using Annex 4) and take pictures/videos
3.3	Identify potential hazards/risks related to MSWM
3.4	Consult the informal sector (e.g. collectors, waste pickers, recyclers etc.)
3.5	Consult user/client groups that are likely not to have been part of more official/higher-level consultations
3.6	Understand the attitude of clients and service providers towards waste
3.7	Screen existing policies in one of the steps, to identify critical gaps to address at policy level for programmes
4	PROJECT DESIGN: IMPLEMENTATION MODALITIES AND DESIGN INTERVENTIONS
4.1	Reach agreement on the role of municipal, local and national governments (this intervention can be done as part of a wider programme that includes other livelihood and service delivery initiatives)
4.2	Reach agreement on an implementation and payment modalities (CfW, PPP, private-sector partnerships (PSPs), informal service providers, NGO/UN execution etc.) with the municipality/local governance (this can be multiple modalities)
4.3	Determine the areas/zones/wards of intervention
4.4	Agree on the type of interventions/activities (see Tables 2 and 4)
4.5	Work with the municipality and/or local authorities on identifying and assessing locations for waste collection points, waste transfer locations, disposal sites and waste separation and recycling sites
4.6	Identify procurement needs
4.7	Ensure alignment with the country’s standards and legal requirements governing waste management
4.8	Decide on the introduction of fees/tariffs (when and how much?)
4.9	Write the project document, obtain donor/trust fund funding and get the document signed to be able to start implementation
4.10	Develop a good resources results framework, in line with the UNDP ‘Strategic Plan 2014–2017’ (see Table 4 for sample indicators)
5	PROJECT IMPLEMENTATION
5.1	Establish a steering committee for the project
5.2	Continue to organize coordination meetings with partners/stakeholders involved in MSWM, building on the MSWM platform created as part of 2.3
5.3	Launch required procurement procedures
5.4	Undertake training/capacity-building activities
5.5	Start implementation of the activities and interventions as agreed/designed under step 4
5.6	Undertake awareness-raising and sensitization campaigns on the benefits of proper waste management, including economic, environmental, social and health perspectives
5.7	Develop a user feedback system (this can be part of a wider social accountability framework on all services and local economic development)
5.8	Develop and/or enhance the policy and regulatory framework pertaining to MSWM
5.9	Monitoring and evaluation
6	EXIT STRATEGY
6.1	Develop a project closure plan, including a phased rundown of activities based on a list of actions and their timing. The project closure plan should also contain a description of project completion requirements and assigned responsibilities, and include a description of the project’s transition to government in place. This is made easier if the government is an essential part of the planning and implementation stage
6.2	Develop a plan for the recording and dissemination of institutional knowledge products as well as awareness-raising materials and lessons learned so that these remain available and can be applied to future projects

2.1. SITUATION ANALYSIS (INCLUDING NEEDS ASSESSMENT)

The first step in formulating an MSWM project is to undertake a situation analysis. The situation analysis scopes out the general political, institutional, economic and social context within the post-crisis/post-disaster context. It is very important to map the activities and ongoing work by other partners in this area and analyse opportunities for partnerships. The situation analysis identifies the most urgent recovery needs, which the project will seek to address.

The rationale for UNDP assistance in the area of MSWM is set out alongside its comparative advantages and fits within a more comprehensive early recovery and development framework. One section should be dedicated to the strategic business case for engagement of UNDP under the United Nations Development Assistance Framework, as a member of the UNCT and/or as coordinator of the Cluster Working Group for Early Recovery at the country level. The situation analysis may be informed by a review of primary and secondary data, reports of trusted third-party organizations, government statistics or other relevant local survey information.

Undertaking the needs and waste assessments

More often than not, full information on the MSWM situation past and present may not be available. One of the key challenges is to involve communities and enable them to add their own perspectives, insights and local wisdom. This key principle of participatory and inclusive local-level planning is further explained in the 'Guidance Note on Local Governance in Post-Disaster Situations', which is part of this series.

To determine the appropriate implementation strategy for MSWM, a rapid assessment should take place, which considers a range of core issues. Annex 4 contains a sample waste needs assessment, which could be adapted and used during an early recovery phase.¹⁴

Based on the assessment results, the appropriate scope and components of the MSWM strategy can be determined. UNDP should work closely with the national government and local authorities to compare and discuss priorities for MSWM and cultivate buy-in and leadership at an early stage. Consultations and engagement of the affected communities can take time but are crucial, as they are the key to explaining their needs, and, as they are the ultimate beneficiaries as well as clients of a functioning MSWM system, their involvement is crucial.



January 2014: Garbage piles up above the Acra 2 camp in Port-au-Prince's hilly Pétion-Ville commune. PHOTO: IRIN/NICK LOOMIS

14 Waste Needs Assessment Annex adapted from OCHA/UNEP/MSB, Disaster Waste Management Guidelines, January 2011, available at: http://www.preventionweb.net/files/18062_disasterwastemanagementguidelinesfi.pdf.

2.2. PROGRAMME STRATEGY

The programme strategy should outline briefly the main objectives of the MSWM project, including its purpose within the early recovery framework. It should attempt to summarize the project's overarching outcomes and effects and how each of its outputs will contribute to the outcomes. For example, it should be clear how the project will work with and help build sustainable national and local capacities and how the project will be integrated in national development plans and priorities. It should refer to other UN and UNDP projects: how it seeks to complement them and incorporate cross-cutting issues.



Funds collected by the community can pay for vehicle maintenance and operational costs. This will increase customer satisfaction with municipal waste collection.
PHOTO: UNDP INDONESIA

MSWM projects also link directly to UNDP's portfolios for strengthened governance capacity, environmental sustainability and poverty reduction outcomes. Thus it is critical that all UNDP CO programme units are engaged in the development of the project and how it contributes to the work of the early recovery sector/cluster. The empowerment of women, community participation and a focus on poor people are core features of the UNDP approach and need to be prominently reflected throughout the planning phase.

Both programmatically and operationally, UNDP's support to MSWM and recycling is usually part of a wider recovery framework that most likely goes well beyond MSWM and recycling.

The approach should favour a labour-intensive and community-driven MSWM process that provides short- and long-term employment to the local crisis-affected population — in particular, to the poorest households.

Sample resources results framework

Table 4 proposes a menu of options and sample indicators that could form the basis for an MSWM project. Local circumstances should determine whether these outcomes, outputs or activities are appropriate or whether alternatives need to be developed to better suit the situation and context. Indicators are ideally formulated in line with the UNDP 'Strategic Plan 2014–2017', in particular Outcome 6 and, where relevant, Outcome 1.



UNDP Syria facilitates procurement of garbage bins. PHOTO: UNDP SYRIA/ALI KAYALI

TABLE 4: EXAMPLE MSWM PROJECT OUTPUTS, INDICATORS AND ACTIVITY RESULTS¹⁵

Project objectives: Emergency employment and sustainable livelihoods opportunities created in the MSWM sector; improvement of MSWM service provision by local government partners; and increased recycling rates and creation of markets for recyclables and waste-derived products to support diversified livelihoods opportunities

Outcome 1: Sustainable MSWM plan has been developed and adopted by local partners based on assessments

<p>Outputs</p> <ul style="list-style-type: none"> • Agreement is reached with national and local government partners as well as MSWM key stakeholders on the recovery and development of the MSWM sector <p>Indicators</p> <ul style="list-style-type: none"> • <i>Number of MSWM plans developed based on participatory methodology and local development plans¹⁶</i> 	<p>Activity results</p> <ul style="list-style-type: none"> • Project team has been set up • Quick capacity assessment of the current and past MSWM situation carried out • MSWM partners and potential partnerships identified and partners engaged (e.g. municipality/local government, NGOs, private sector, international and bilateral aid and donor entities, among others) • Potential hazards/risks related to MSWM identified • Monitoring mechanisms, including emergency employment database (if applicable) and a user feedback system set up • MSWM platform for national-level coordination and communication created if not yet existent • Agreement found on the type of interventions/activities • Areas/zones/wards of intervention identified with local government • Market survey undertaken to determine local suppliers, local service providers and local contractors of MSWM-related equipment/services • Locations identified for waste collection points, waste transfer locations, disposal sites and waste separation and recycling sites • Required procurement procedures (including preparation of Requests for Proposals) undertaken • Guidelines developed for waste collection, sorting, recycling and disposal (including health and safety standards for workers) • Value chain assessments started on market opportunities for waste-derived products
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15 Note: This table summarizes various potential project outcomes, outputs and activities and only serves as an example. It goes without saying that each project needs to identify which aspects are important for a particular setting, and in doing so can draw from the various examples included in the table.

16 A participatory planning process usually includes: i) working with selected district councils and sub-district stakeholders to carry out participatory and prioritized basic service needs assessments in priority (host) communities, ensuring participation of women, youth, IDPs and minorities); ii) assisting the governorate to deliver basic services, which includes infrastructure and MSWM; iii) and working with the sub-district and district levels of the local governorates to develop their capacity in governance systems (grievance, e-governance etc.). Participatory assessment tools and methodologies are important to ensure that communities themselves are able to highlight the main threats to their safety and barriers to development and help shape the responses required. The intention is that the plans will be implemented primarily using government resources in the long term. This underlines the importance of ensuring that the project is effectively integrated with formal planning processes.

Table 4: Example MSWM project outputs, indicators and activity results, continued from page 23

Outcome 2: Increased public awareness on the benefits of waste collection at domestic and community levels	
<p>Outputs</p> <ul style="list-style-type: none"> • Communities are willing to pay service delivery fees • Communities understand the importance of disposing of their waste in designated waste containers/areas and keeping waste out of water sources <p>Indicators</p> <ul style="list-style-type: none"> • <i>Percentage of community members that recognize the importance of a functioning MSWM system</i> • <i>Percentage increase in knowledge/awareness on MSWM and recycling</i> 	<p>Activity results</p> <ul style="list-style-type: none"> • Communications strategy launched to inform the public about waste collection schedules and waste practices • Training/capacity-building activities undertaken • Awareness-raising and sensitization campaigns carried out about the economic, environmental, social and health benefits of proper waste management • Media campaigns started (involving community leaders and CBOs) on the introduction of a fee system, collection days and frequency as well as good household MSWM practices • Willingness to pay and ability to pay levels for service delivery fees and for payment options identified through participatory techniques, focus groups and/or workshops
Outcome 3: Emergency employment and diversified livelihoods opportunities are created in the MSWM sector	
<p>Outputs</p> <ul style="list-style-type: none"> • Jobs and livelihoods have been created in waste collection, disposal and recovery of valuable waste streams (recyclables), the production of waste-derived products and the construction of permanent MSWM infrastructure <p>Indicators</p> <ul style="list-style-type: none"> • <i>Number of CfW workdays created (data segregated by men and women)¹⁷</i> • <i>Number of men and women who benefit from MSWM-related CfW projects (data segregated by men and women)</i> • <i>Number of men and women (or households) who indirectly benefit from the MSWM employment schemes (i.e. through improved access to services, cleaner communities etc.)</i> • <i>Monetary value of in-kind benefits provided to men and women under the programme¹⁸ (i.e. provision of tools, training, start-up packages for small businesses)</i> • <i>Number of men and women who benefit from self- or wage employment as a result of the MSWM project</i> • <i>Number of men and women trained in waste management, enterprise management and waste valorization</i> • <i>Number of new micro- and small enterprises created in the removal, recycling and valorization of municipal waste</i> 	<p>Activity results</p> <ul style="list-style-type: none"> • Emergency employment schemes are initiated • Project beneficiaries received life skills, business skills and technical training on waste collection, recycling, resale and production of waste-derived products • Project beneficiaries have been provided with start-up grants or tools (e.g. transportation, shredders etc.) for the production of waste-derived products or recycling activities • Incentive schemes, which provide grant financing for projects/activities in MSWM to promote job creation (e.g. similar to the Malawi Innovation Challenge Fund), targeting the private sector and NGOs, have been established • Collector and buyer linkages for recovered waste streams and waste-derived products have been established • Informal sector, waste recyclers etc. are connected to potential markets • Door-to-door fee collection system launched by CBOs or municipality staff • Private-sector enterprises, NGOs and CBOs trained to submit for PPP bids • Training provided to individuals, NGOs, CBOs and private-sector enterprises on aspects of MSWM (waste and fee collection, transport, segregation, valorization, disposal etc.). • Value chains for recyclables and waste-derived products developed • Partnerships/contracts are explored and supported between waste pickers, collectors and recyclers (at national or international level) • Support has been provided to informal, micro- and small entrepreneurs (e.g. permits to waste pickers or waste collectors, fee collectors etc.)

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17 See also SP Output indicator 6.1.1.

18 See also SCRES 1325 indicator 18 and SP Outcome indicator 6.4.

Table 4: Example MSWM project outputs, indicators and activity results, continued from page 24

Outcome 4: Capacity-building for local government structures/municipalities on managing sound MSWM systems	
<p>Outputs</p> <ul style="list-style-type: none"> Public services related to waste collection have improved for the general public Effective, efficient and well-regulated collection and transportation system for solid waste established Local government entities have the capacity to manage and monitor PPPs in MSWM Local government entities have the capacity to budget and plan for MSWM and dispose of an independent MSWM budget <p>Indicators</p> <ul style="list-style-type: none"> Number of tariff systems for MSW introduced Number of communities covered by MSWM services Percentage increase in MSWM fee collection Number of MSWM committees established Number of local government personnel trained on MSWM Percentage increase in local budgets for MSWM Number of MSWM PPPs established 	<p>Activity results</p> <ul style="list-style-type: none"> Training provided to government entities on developing MSWM plans/strategies/budgets and monitoring systems Training provided to government entities on the development, contracting and monitoring of MSWM PPPs Heavy equipment/waste carts (hand-pulled/-pushed, bicycle carts etc.) procured for waste haulage Community and household bins distributed Fee/tariff system has been established Support provided on the re-establishment of responsibilities as well as a budget for MSWM within the municipality Support national government and local government agencies in advocating for a separate and clearly defined MSWM budget and build capacity for managing this budget (in terms of resource management, cost recovery, planning etc.)
Outcome 5: MSWM regulatory and policy framework strengthened	
<p>Outputs</p> <ul style="list-style-type: none"> Local legislation on MSWM developed, adopted and implemented (e.g. tariff structure, fee collection) with the municipality or LGU; Regulatory framework for PPPs drafted, reviewed and adopted <p>Indicators</p> <ul style="list-style-type: none"> Number of MSWM guidelines, regulations and policies developed Number of PPP regulatory frameworks available 	<p>Activity results</p> <ul style="list-style-type: none"> Policy and regulatory framework pertaining to MSWM reviewed and intervention for improvement proposed Local degrees/by-laws etc. drafted Development and/or enhancement of the policy and regulatory framework pertaining to MSWM supported PPP regulatory framework developed supporting public service delivery in MSWM (which could also support other types of service than just MSWM)



Workers sort trash as part of the UNDP tsunami recovery waste management programme in Indonesia. PHOTOS: UNDP INDONESIA/FAISAL RIDWAN

2.3 IDENTIFYING AND MITIGATING RISKS

Risk, as defined in UNDP policy, is the possibility that an event might occur and affect the achievement of outputs. As such, it can represent a threat or a missed opportunity. Risk is a major factor to be considered in designing any project: detailed guidance is available in the 'Enterprise Risk Management' section of the UNDP 'Programme and Operations Policies and Procedures' (POPP), which should be reviewed thoroughly.



Trash picker looks for salvageable items in the Philippines. PHOTO: GEF SECRETARIAT/ANIL SOOKDEO

The CO should work systematically through the risks — and strategies to mitigate against them — before embarking on a project. This can be achieved by triangulating identified risks with the stakeholder analysis, and assessing the latter's relevance to the project and ability to influence it, including mitigating or aggravating threats throughout the project cycle.

Table 4 in the UNDP 'Guidance Note on Debris Management'¹⁹ outlines some of the common risks that might be expected in the course of a waste management project as well as some measures aimed at their mitigation.

2.4 MANAGEMENT ARRANGEMENTS AND REQUIRED EXPERTISE

The oversight of MSWM projects requires skills that are not always available within a UNDP CO unless there is already a project in operation directly supporting public works and institutional capacity-building of national and municipal authorities. Short-term capacity support to bolster expertise in the area of MSWM can be provided through the UNDP Crisis Response Unit and the UNDP Bureau for Policy and Programme Support, which are designed to provide an injection of temporary but experienced capacity to start the process.

If short-term support is mobilized through the SURGE mechanism, the CO would need to simultaneously make strenuous recruitment efforts to ensure that the temporary SURGE Advisor will be succeeded by a permanent Project Manager, if the removal, recycling and management of waste is likely to be a prolonged undertaking.

The World Bank offers very useful web page²⁰ with over 20 types of terms of reference related to waste management for planning, siting, design, impact assessment, capacity development and private-sector participation, among others.

19 UNDP, Guidance Note: Debris Management, UNDP, New York, 2013, available at: <http://www.undp.org/content/undp/en/home/librarypage/crisis-prevention-and-recovery/signature-product--guidance-note-on-debris-management/>.

20 World Bank, Urban Solid Waste Management, Terms of Reference, available at: <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTURBANDEVELOPMENT/EXTUSWM/0,,contentMDK:21686126%7EmenuPK:4799451%7EpagePK:210058%7EpiPK:210062%7EtheSitePK:463841,00.html>.

2.5 OPERATIONAL SUPPORT

Operational support encompasses finance, human resources, procurement, security, IT/database and administrative aspects. In a post-disaster/post-crisis setting, the most commonly reported operational challenges relate to issues of physical access, procurement and transport. Dedicated fast-track procedures can be sought in a post-crisis environment. These serve to increase the operational and financial agility of Cos and enable rapid staffing and procurement of essential goods and services. To access information on the UNDP fast-track procedures,²¹ click [here](#).

In addition to organizational measures to accelerate and simplify administrative processes, UNDP COs will need to prime local committees for the review and approval of bidding documents, as there will be considerable pressure placed on the procurement and contracting teams.

Fast-track procedures do not erase responsibilities and accountabilities for proper utilization, oversight, monitoring and reporting. The CO will need to ensure sufficient procurement, human resources and administrative capacity to cope in the crisis, as it may also be affected by the crisis.

2.6 PARTNERSHIPS

The following agencies are among UNDP’s potential partners in MSWM projects:



UNDP Indonesia produced an awareness-raising poster to promote segregating waste and composting.

TABLE 5. KEY MSWM PARTNERS

PROSPECTIVE PARTNER AGENCY	AREA OF PARTNERSHIP	COUNTRY WHERE PARTNERSHIP WAS UTILIZED
UNEP	Expertise in disposal of environmentally hazardous disaster waste such as health care waste or asbestos.	Pakistan
WASH	The WASH Cluster is traditionally in charge of SWM activities within IDP/refugee camps; similarly, local WASH committees/cells at camp level are often in charge of waste management activities (awareness, training, collection etc.)	
Camp Management	Camp Management and Coordination Cluster can be in charge of SWM activities in IDP/refugee camps ⁷	
WHO	Health care waste management, corpses, latrines	

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21 UNDP, Guidance Note on Emergency Employment and Enterprise Recovery, UNDP, New York, 2013, available at: <http://www.undp.org/content/undp/en/home/librarypage/crisis-prevention-and-recovery/signature-product--guidance-note-on-emergency-employment-/>.

Table 5: Key MSWM partners, continued from page 27

UNICEF	Grey water, sludge latrines, medical waste	Philippines
UN-Habitat	Land issues, participatory enumeration and urban community planning, with links to shelter provision	Indonesia, Haiti
ILO	Expertise in labour market analysis, skills development training and enterprise development. In Haiti, for instance, ILO has been a key partner in debris recycling and setting up the value chain for waste recycling	Haiti
IOM		Haiti
UNOPS	May be able to provide additional services to large-scale operations. In Argentina UNOPS has been engaged by UNDP to facilitate the construction of landfills and purchasing in the rehabilitation of community infrastructure projects	Haiti, Pakistan, Argentina
UN Mine Action Service (UNMAS)	In (post-)conflict areas it is not uncommon for unexploded ordnance (UXO) to be present among debris or located close to municipal waste piles or landfill/dumpsite access roads. The involvement of UNMAS to identify risks and help with clearance when necessary is, therefore, important	oPt
World Food Programme (WFP)	May be engaged in areas where emergency employment schemes are linked to cash/food for work in the immediate aftermath of a crisis	Haiti
Food and Agriculture Organization (FAO)	Involvement in waste management in agricultural land and related economic recovery opportunities in the immediate aftermath of a crisis	Haiti, oPt
Office of the UN High Commissioner for Refugees (UNHCR)	UNHCR has worked with UNDP on protection issues during and after rubble and waste removal	Pakistan, Haiti (IOM assumed this role in Haiti because of the internal aspect of the crisis)
Peacekeeping missions	For some countries, peacekeeping forces will have technical expertise for evaluations and engineering services for construction management	oPt
US Army Corps of Engineers (USACE)	For some countries, USACE is present with extensive experience in waste assessment and management.	Haiti, Pakistan
MSB	The Swedish Civil Contingency Agency can be a good partner with a proven track record in waste management	Haiti, Pakistan, oPt, Philippines
IFIs	World Bank, EBRD, Asian Development Bank etc. are often involved in feasibility studies and the provision of substantial loans and grants for large MSWM projects (e.g. landfills, composting plants, landfill gas capture, heavy equipment etc.)	
Private Sector	Private-sector companies can be contracted to clear and close illegal dumping sites, rehabilitate disposal sites and landfills, provide transportation vehicles or be engaged in the collection of waste (either directly or through PPPs). Companies, large or small, also play an important role in waste separation, recycling, value addition/production of waste-derived products and resale	
Other NGOs	A number of international NGOs with which UNDP has worked closely in the implementation of MSWM-related programmes in post-conflict/disaster settings include Netherlands-based OXFAM, CARE International, NGO WASTE (Netherlands) and UK-based NGO Disaster Waste Recovery	Haiti, oPt

2.7 MONITORING AND EVALUATION

A monitoring and evaluation (M&E) framework and system must be established during the design of any project and be in operation from the time that implementation begins, to provide a basis for effective management and reporting of progress against planned results. Guidance is available in Section 2.9 of the 'Project Design – Defining a Project' section of the UNDP POPP²² and the UNDP 'Handbook on Planning, Monitoring and Evaluating for Development Results'.²³ The project budget should include provision for adequate human and financial resources for M&E.

UNDP will need to monitor the effects of each project with particular vigilance, paying special attention to its impact on getting the community back to work, skills training and employing and paying local people in waste removal, collection, disposal, recycling, reconstruction or repair activities. Formal structures and processes will need to be in place for the systematic monitoring of the performance of implementing partners. The rush to contract and visibly implement the project can create conditions for fraud, cronyism and corruption.

Monitoring that focuses on critical points in the procurement, implementation and payment processes can help to minimize this risk. Establishing a hotline for complaints through SMS or email is also advisable. Monitoring can be bolstered by recruiting independent agencies. Specialized NGOs, private-sector companies or academic institutions can also be used. The distinction between implementers and monitors is important to maintain integrity, combat corruption and avoid low-quality reconstruction. Community oversight also has a key role to play.

It is essential that an accurate baseline is established to provide a proper understanding of M&E data. UNDP MSWM M&E systems have included narrative monthly reports, weekly work plans, weekly quantitative reports and monthly trackers (demolition tracker, workdays tracker and rubble removal tracker). The success of M&E rests on partnership among UNDP, the communities and the implementing partner(s). For some specific monitoring tools, please refer to the UNDP 'Guidance Note on Debris Management'.

2.8 COMMUNICATIONS STRATEGY

A communications strategy for an MSWM project is a vital part of the project and should specifically target the following audiences:

- **beneficiaries/participants**, to inform them of short-term employment and training opportunities, waste collection schedules (why, when etc. service fees are to be paid/will be collected etc., how the fee system will be rolled out and why fee collection is so important), to explain the importance of waste management for health and environmental considerations, what households can do themselves (e.g. composting for homestead gardening), and how to deal with hazardous wastes that cannot be disposed of along with household waste. This should be done with the service provider, usually the LGU;
- **government and local authorities**, which need to be kept abreast of progress to promote their leadership and engagement in the formulation and coordination of the implementation of the MSWM project; and
- **media, donors, and the general public**, which need to be kept informed of progress. Organizing site visits with relevant stakeholders can also help gather and disseminate accurate information.

The communications strategy should include a strong public information component that clearly articulates the areas of responsibilities between UNDP, the government and other stakeholders. This serves the dual purpose of mitigating the risks to the organization, and instilling a sense of ownership of the programme. The strategy should be backed

22 Available at: <https://info.undp.org/global/popp/Pages/default.aspx>.

23 UNDP, Handbook on Planning, Monitoring and Evaluating for Results, UNDP, New York, 2011, available at: <http://web.undp.org/evaluation/guidance.shtml#handbook>.

up by a dedicated project budget line that can be used to finance a range of key tools and activities (e.g. videos, radio messages, flyers, website etc.).

For further guidance on communications, COs and UNDP staff can refer to the UNDP Communications Toolkit²⁴ ‘Communicating for Results’, which provides guidance and resources regarding communications inside and outside UNDP and during crisis situations.

2.9 RESOURCE MOBILIZATION

The UNDP Crisis Response website provides guidance to COs on accessing common internal and external sources of funding in crisis and post-crisis settings, including emergency grants, seed funding for UNDP Early Recovery interventions, and non-UNDP administered funding options. Table 6 provides some guidance on entry points for resource mobilization.

TABLE 6. RESOURCE MOBILIZATION OPPORTUNITIES	
ENTRY POINT	DESCRIPTION
Portfolio restructuring	When starting an MSWM project, UNDP COs should look at the possibility of restructuring their programme portfolio based on the needs of crisis-affected communities. UNDP can involve donors in the portfolio review and request a reallocation of funds for recovery programmes. TRAC resources could be used flexibly to respond quickly to the emergency.
Consolidated appeal process (CAP)	Strategic response plans (SRPs) are required for any humanitarian crisis requiring the support of more than one agency, and are prepared by humanitarian country teams (HCTs) based on a <u>humanitarian needs overview</u> . In addition, however, they can be used to communicate the scope of the response to an emergency to donors and the public, and thus serve a secondary purpose for <u>resource mobilization</u> . SRPs build on humanitarian needs overviews, which provide the evidence base and analysis of the magnitude of the crisis and identify the most pressing humanitarian needs to inform the strategic objectives in the SRP. The various cluster plans follow from these strategic objectives, including, for instance, the set-up of an early recovery cluster under UNDP’s lead, covering areas not addressed in other clusters often focusing on sustainable livelihoods, social cohesion or local service delivery. This may include MSWM.
Emergency Response Fund (ERF)	An un-earmarked pooled funding mechanism which funds priority needs and is managed by OCHA on behalf of the Humanitarian Coordinator, an ERF is an in-country funding mechanism which is accessible by NGOs and UN agencies. An ERF finances projects addressing immediate needs with positive spin-offs for the wider community. In the past, emergency employment projects linked to debris and MSW removal have been funded through ERFs. More information about ERFs can be found on the <u>Humanitarian Financing page</u> of the UN OCHA website.
Central Emergency Response Fund (CERF)	The CERF has funded priority debris management projects in the past. The fund is managed by the Emergency Relief Coordinator/OCHA and provides rapid initial funding for life-saving assistance at the onset of humanitarian crises, and critical support for poorly funded, essential humanitarian response operations. The CERF grant component has two windows: one for rapid response and one for underfunded emergencies. More information is available on the OCHA <u>CERF website</u> .
Peacebuilding Fund (PBF)	The immediate response facility and the peacebuilding recovery facility — the two windows of the PBF — both offer funding opportunities for MSWM projects in crisis situations. All proposals for funding from the PBF must be submitted through the office of the Senior UN Representative in country. All PBF funding is disbursed to recipient UN organizations.
UNDP BPPS Thematic Trust Fund	A fast and flexible corporate funding mechanism that can be made available for amongst other crisis response and early recovery in line with UNDP Strategic Plan priorities under Outcome 6, including MSWM. The TTF can be used as a fast way of channelling resources to COs. A signed project document is necessary at the stage of disbursement. Guidance will be made available on the <u>UNDP POPP</u> .
Donors	Financing for UNDP MSWM projects has come from a diverse range of donors.

24 Available at: <https://intranet.undp.org/unit/pb/communicate/communicationstoolkit/Pages/default.aspx>.

3. PROJECT IMPLEMENTATION

This section looks at the implementation challenges that will need to be addressed if UNDP is to turn the objectives outlined in the previous two sections into practical actions as quickly as possible.

3.1 WAYS TO ACCELERATE PROJECT IMPLEMENTATION

To operate effectively in the immediate aftermath of a crisis, it is important to engage quickly. Table 7 outlines a series of actions that can help accelerate project implementation.



Plastic waste recycling in Syria. PHOTO: UNDP SYRIA

TABLE 7. TOOLS AND APPROACHES FOR ENGAGING QUICKLY IN CRISIS AND POST-CRISIS SETTINGS	
ENTRY POINT	DESCRIPTION
Pre-position potential partners	The fastest way to commence a project is through contracting or agreement with responsible parties. The CO can prepare draft standard agreements with government counterparts, UN agencies and CBO partners based on their roles, responsibilities and comparative advantages. In high-risk countries such contingency planning is definitely prudent and recommended.
Provide guidance and support to potential project partners	Support local NGOs or CBOs that are potential partners. This is important when working with community groups and when there is a capacity-building component to the project. Develop a simple manual of how the project will work, including a format for subproject submissions, registration and criteria for the selection of subprojects, beneficiaries and including monitoring and reporting arrangements. An example can be accessed on the UNDP Signature Products space on the corporate intranet. UNDP should also keep an updated list of private-sector companies that can be contracted in the implementation of early recovery projects.
One funding mechanism	Channel resources through one fund, where possible. UNDP CPR TTF has country windows and very simple donor contribution formats. Involving UNDP headquarters in all administrative steps of signing donor agreements, with harmonized reporting cycles, can save the CO a lot of time in the midst of a crisis.
Capacity injection	Request a temporary boost of capacity support through the UNDP SURGE or ExpRes (consultants) deployment mechanisms. The SURGE and ExpRes rosters contain experienced staff and consultants with a range of profiles who are available for instant deployment to UNDP COs.
UNDP Fast Track procedures	Submit a request for application of UNDP Fast Track Policies and Procedures. For more information, see: https://info.undp.org/global/popp/ft/Pages/Fast-Track.aspx .
Standard templates	Templates and examples on the UNDP intranet/SharePoint site for Signature Products can save precious time in project design. Speed up the recruitment by using the pre-classified project job descriptions etc.
Coordination	As early as possible, establish an effective coordination structure with other organizations operating in the same area — for example, within or as a subcomponent of the Early Recovery Cluster and/or within government — to ensure leadership and coherence of interventions.
Procurement and financial transfers	Prepare a procurement plan. The selection of a financial intermediary for cash payments or via the ‘better than cash alliance’ has to happen at the design stage of the project.
Cash-flow planning	In parallel, a quick cash-flow plan is needed to determine when payments are to be made and how much is available during the implementation stage.



Community outreach in Mafraq, Jordan. PHOTO: UNDP JORDAN

3.2 ENSURE COMMUNITY-DRIVEN AND GUIDED IMPLEMENTATION

It is essential to ensure that within the initial assessment phase and throughout implementation of the MSWM project its direction is guided by the participation and insights of project beneficiaries and communities themselves. The training and employment benefits and the social cohesion and community solidarity that full participation generates are important intangible benefits arising from the project. Community empowerment is an incremental, evolving and perpetual process, but a critical window of opportunity is provided through the planning processes to build community capacity and ownership of the MSWM project. The implementation of a community approach, although more complex and time-consuming, greatly enriches the process and contributes to the wider aims of the project. Such endeavours are very worthwhile to ensure that communities remain at the heart of MSWM, and lead into longer-term economic and social recovery activities.

3.3 COORDINATION, INFORMATION MANAGEMENT AND EFFECTIVE COMMUNICATIONS

Coordination, information management and communications are relevant in any project setting, but their importance for successful implementation of the project is heightened in a disaster response situation. Because communities themselves often lack coordination and communications capacity, the onus is placed on the assessment and implementation teams to initiate and sustain regular coordination meetings as well as clear and systematic communication activities. It is vitally important to ensure that sufficient professional and financial resources are assigned to these functions. A well-coordinated and communicated project ensures that the project is viewed in a good light and well represented. On the other hand, a project that fails to coordinate or communicate its activities can often struggle to recover once it acquires a tainted image. A measured communications campaign can help disseminate important information at the various stages of the project, help secure a favourable local appeal and acknowledge key milestones in the project's progress.

3.4 MAINTAINING QUALITY RELATIONSHIPS WITH NATIONAL AND LOCAL COUNTERPARTS

Maintaining high-quality relationships for the duration of the project with national and local government counterparts remains a vital function of the UNDP CO leadership as well as of the MSWM Project Manager and team. Periodical bilateral meetings should be scheduled, possibly before quarterly Board meetings to provide briefings at the Minister/Deputy Minister level. This will help ensure ownership, leadership and an open channel for strategic consultation between UNDP and the host government. Ideally, national and local focal points will be appointed to support day-to-day operations and information exchange and ensure that projects are implemented both through and with the full endorsement of the host authorities and that capacity-building and institutional strengthening is systematically pursued and reviewed at key stages.

In addition, the focal point is also required to ensure that the waste management project is fully integrated with the national policy and strategy context. For example, there should be a good fit between the waste management project and the government's National MSWM Strategy. While the selection of the national focal point might be outside the scope of UNDP's role and reside with the government, considerable efforts will need to be made to ensure an open and professional relationship at all times. The periodical hosting of strategic consultations with national partners and the principal donors, alongside Board meetings, to ensure the smooth running of the project should be a feature of the project implementation plan.

3.5 PARTNERSHIPS WITH THE PRIVATE SECTOR

For private-sector partnerships (see also Section 2.6) it is important to note that each company with which UNDP collaborates needs to go through the UNDP due diligence process. For further information please refer to the [UNDP POPP](#) and UNDP's Teamworks space on [UNDP's due diligence and risk assessment process for private-sector partners](#).²⁵

3.6 WOMEN'S PARTICIPATION AND EMPOWERMENT

Requirements in relation to MSWM will be different for men, women, young people, children and those with special needs and disabilities. When consulting with the community (essentially the programme's clients), it is important to consult both men and women and identify their needs and requirements. For example, women are often largely responsible for managing the household and family waste, as well as children, while men may be involved (paid or unpaid) as waste loaders or in waste collection roles.



Public MSWM awareness creation in Gaza. PHOTO: UNDP PAPP

UNDP-supported livelihoods and economic recovery programmes and local governance programmes aim to increase the involvement of women and promote their economic empowerment and active participation in setting priorities in their local areas. In **Nepal**, for example, PPP contracts related to service delivery in MSWM stipulated the minimum number of women that needed to be engaged by the contract holder. But, of course, much more can be done to ensure that women are able to participate in MSWM activities. In **Haiti** daycare centres were established to allow mothers to go

25 Available at: <https://undp.unteamworks.org/node/442750>.

to work; targeting women’s groups for waste sorting/recycling or the production of waste-derived products (fuel briquettes, compost) might be another.

Like any other recovery and development initiatives, MSWM programmes should ensure that no particular group is singled out in the participation and benefits received. However, project planners should consider if the project would increase particular risks for women. Waste collection can expose women to additional security threats (i.e. risks of sexual or gender-based violence or harassment), as it may involve working in unsafe areas (e.g. non-residential areas, small alleyways or late at night should be avoided).

Getting involved in MSWM might also result in cultural stigma or physical constraints for women. The weight and height of waste containers, for example, needs to be considered, and appropriate clothing and equipment need to be made available for women who are actively involved in the implementation and delivery of waste management services. That said, certain MSWM programmes have resulted in women and men becoming involved in activities they had never done before (e.g. women pushing waste handcarts and loading trucks, and men doing road sweeping).



Women recycle packaging waste into new marketable products in Meulaboh, Indonesia. PHOTO: UNDP INDONESIA

3.7 HEALTH AND SAFETY FOR WORKERS

The project should ensure that it does not increase the participants' health risks when handling waste. During the assessment phase before implementing an MSWM scheme, risks of disease or accidents should be reviewed. Based on findings, the project should plan for adequate training and provide the participants with appropriate protective equipment for waste collection and disposal:

To minimize health and safety risks, MSWM projects/programmes should:

- follow local health and safety regulations; if non-existent, the health and safety guidelines of the International Finance Cooperation (IFC) can be used as a reference;
- provide protective clothing, including at minimum gloves but ideally overalls, high-visibility jackets, boots (reinforced toes), hard hats (depending on the type of waste) and protective masks (when there is dust, e.g. street sweeping);
- when vaccines are available, vaccinate workers against tetanus and Hepatitis B; if stray dogs or other scavengers are common, rabies vaccination could be recommended too;
- make first aid kits available on site, ensure that workers/employees are trained in their use and that a sufficient number of workers have received first aid training; consider including an HIV post-exposure prophylaxis (PEP) kit if health care waste handling is routine or there is a high risk of health care waste contamination of MSW, or of sexual and gender-based violence.
- make water and soap available for workers to wash their hands and face with; people working with waste should have access to proper and clean changing and washing facilities for use during and after waste handling and processing;
- provide group health insurance;
- ensure that women are safe from security risks (e.g. risks of sexual or gender-based violence or harassment), by involving them in MSWM-related activities that are not taking place in secluded areas; and
- provide Operational Health and Safety (OH&S) training which includes (but is not limited to): first aid; lifting; use of PPE; sexual and gender-based violence; and hazardous waste identification and disposal procedures.

Note: Although MSWM programmes focus primarily on municipal/household waste management, it is not uncommon that waste collectors/handlers, will come into contact with wastes that are too dangerous to handle and require particular procedures and different disposal practices (e.g. asbestos, infectious health care wastes etc.). Therefore, it is important to ensure that they are trained in personal protection and safety and are informed on what to do and who to contact when coming into contact with hazardous/infectious waste.

Partnerships with specialized agencies, experts and private-sector companies are essential for handling hazardous materials. For example, UNEP has experts in dealing with hazardous materials such as asbestos; the Mines Advisory Group and other NGOs have specialized knowledge in UXO removal; and WHO and UNICEF have specialized knowledge on handling health care waste, corpses and grey water (e.g. waste from latrines). See also Annex 6 and Section 2.7.



Street sweeper in Biratnagar, Nepal.
PHOTO: UNDP NEPAL

4. KEY LESSONS LEARNED

Based on UNDP's experience in a large number of post-conflict/disaster recovery situations, the following key lessons should be considered before engaging in any MSWM project.

- 1. Continuity beyond CfW programmes:** In post-conflict/disaster contexts, UNDP-supported MSWM programmes often start off as livelihoods and economic recovery programmes and aim for the rapid creation of jobs and livelihood opportunities for crisis-affected communities, frequently in the form of CfW schemes.²⁶ Although CfW programmes and UNDP's quick response on the ground support the immediate creation of workdays, it is also important to ensure that when the CfW programme is financially exhausted, public MSWM services continue to function and a certain number of people remain employed in the sector. UNDP programmes, therefore, have to build in continuity from the project's start — for example, by improving the capacity of municipalities, training communities and waste collectors on the production and sale of waste-derived products, (re-)establishing a tariff and fee collection system, connecting collectors of recyclables to national or international waste buyers' markets etc. Good examples of such programmes are the Indonesia TRWMP and the Philippines TRRV.
- 2. Finding markets for recyclables and waste-derived products:** Reiterated by many UNDP COs with experience in MSWM, but also by UNDP's partners, is the role which UNDP and its COs can play in helping to (re-)establish buyers' markets for recyclables and waste-derived products. Without an existing market or buyers for compost, recovered PET plastic and charcoal briquettes, for example, it will be very challenging to make recycling efforts economically sustainable. Although the municipality will save financial resources and landfill space because of reduced haulage, it is important to find markets for recyclables, which especially in a post-crisis setting is not always easy, as these markets are much more vulnerable than, for example, scrap metal. To determine whether waste-derived products are viable or a potential market exist, it is worthwhile entering into agreements with NGOs that develop business cases for each potential business opportunity, and based on its outcomes, determine which ones can receive start-up funds.



Women clean Al Naora Park as part of the UNDP Syria livelihoods recovery programme. PHOTO: UNDP SYRIA



UNDP Syria livelihoods recovery programme workers sort and analyse waste. PHOTO: UNDP SYRIA/HAKAM KAJOUJ

26 It should be mentioned that in certain settings Output-Based Labour Payments (OBLP) or Cash for Production (CfP) seemed to work better (e.g. in Haiti and Banda Aceh). Lessons learned from Haiti debris removal projects can be found in UNDP, The Haitian Experience 2010–2012: Technical Guide for Debris Management, UNDP, New York, 2013, available at: <http://www.undp.org/content/undp/en/home/librarypage/crisis-prevention-and-recovery/haiti-technical-guide-for-debris-management/>.

- 3. Widespread outbreaks of disease can be averted because of early intervention and attention placed on MSWM:** The role of MSWM in preventing disease is mostly linked to preventing breeding sites for vectors (e.g. mosquitoes, rats) and segregating hazardous waste. While reducing the risk of disease is often not the main objective of UNDP MSWM programmes, sanitary removal of waste, whether generated by households, local businesses or institutions such as hospitals and clinics, limits the likelihood of diseases spreading. Large waste recovery programmes, in particular those implemented after a disaster, often include the removal of medical waste (e.g. Indonesia and the Philippines). When MSWM programmes support the clean-up, rehabilitation or (re)construction of landfills, areas surrounding those sites are also protected against disease and illness because of environmental safeguards put in place. Effective landfill operations and adequate facilities built under UNDP MSWM programme or planned for by the project will have a future impact of preventing disease and illness due to environmental contamination.
- 4. Ensuring cost recovery and financial sustainability:** It is important to start introducing sustainable solutions for cost recovery during the early stages of MSWM interventions (e.g. by (re-)introducing a fee/tariff structure for the collection of municipal waste, or (re-)establishing/brokering markets for recyclables and waste-derived products). This is an important step in making an MSWM system sustainable, allowing the municipality to continue providing such services in the future and sustaining newly created livelihood opportunities. There are a number of very relevant cost-recovery lessons learned that emerged from the Indonesia TRWMP:
- 5. Support from local government translates into strong scheme implementation:** There should be a strong will and involvement from high levels of local government (mayors and Members of Parliament) in making MSWM policy and legalizing by-laws that set the fees.
- 6. Collecting money must be a smooth and seamless process that gives the consumer confidence in the system:** All parties must agree on a mechanism to collect the funds, but the most effective option has been for sanitation department staff to visit communities and go door to door. A fee collection team also becomes the community-level face of the MSWM programme and can mitigate any problems on the spot. The teams can gain the trust of clients by personally handing them a receipt for the funds collected.
- 7. Getting the public on board is vital to the success of the cost-recovery scheme:** Public awareness campaigns are vital to the success of an effective cost-recovery system. Communities need to understand what is being asked of them and what they receive in return. The role of village and community leaders is critical, as they can suggest the best ways in which a cost-recovery scheme can be implemented well.
- 8. The services must be worth the price:** If the services are good, the community is more willing to pay for waste collection. When services slip, the community begins to pull out of the agreement. Sanitation departments need to maintain a high level of services to the best of their ability.
- 9. Recovered funds need to be fed back into the MSWM system:** If the funds are provided by the community for a certain level of service, the government must ensure those funds are fed back into the system, either by district funding mechanisms or ensuring that funds are earmarked for sanitation services. Instituting a separate budget for MSWM at municipality/local government level will be equally important to allow agencies to track expenditures and cost-recovery mechanisms, management resources and ensure adequate planning, etc.
- 10. Collaboration outside the project should be encouraged to maximize efforts and reduce unnecessary expenditures:** Collaboration with UN agencies, International Finance Institutions (IFIs), bilateral, NGO and private-sector partners should be encouraged, particularly in situations where there are many actors and agencies working in a small target area. In a post-disaster setting it is not uncommon for projects to overlap, with some communities receiving an abundance of support, while other areas receive nothing or very little.



Improperly discarded medical waste at in Kandahar, Afghanistan. Potentially infectious medical waste poses a high and direct risk to human health and the environment, contaminating soil, air and water supply. PHOTO: PHOTO: UNEP DISASTERS AND CONFLICT

- 11. Partnerships to deal with hazardous materials:** When implementing MSWM programmes, it is very likely that the project will come across waste components that cannot be handled by the workers (without proper training and specialist equipment). Therefore, partnerships with specialized agencies and experts are essential for handling hazardous materials. For example, UNEP has experts in dealing with hazardous materials such as asbestos; the Mines Advisory Group and other NGOs have specialized knowledge in UXO removal; and WHO and UNICEF have specialized knowledge on handling health care and human waste, corpses and grey water (e.g. waste from latrines). See also Annex 6 and Section 2.7.
- 12. Implementation modalities:** Implementation modalities should be tailored and designed based on the specific needs on the ground and the type of MSWM activities the programme aims to undertake. For example, UNDP partners with NGOs specialized in managing CfW programmes and the construction of composting and recycling facilities. Private-sector companies are contracted to clear up illegal dumping sites and to rehabilitate disposal sites and landfills. Private-sector companies owning trucks can be engaged to collect waste, but it also happens that projects pay owners of wheelbarrows and donkey-carts for the amount of waste they collect. CBOs can be engaged to help with awareness-raising and fee collection as well as to monitor the quality of the waste services provided etc. When a UNDP project supports the establishment of PPPs, it is the municipality that enters into agreements with waste collectors, which can be private, NGOs or CBOs, or through PPPs for CfW components.

13. Waste created by the relief and recovery efforts: Poor MSWM is often a problem that worsens in post-disaster/post-crisis situations, as more resources and people are made available during relief and recovery efforts. This results in an increase in the amounts of heavily packaged goods and waste streams such as plastics and metals. Often communities receiving relief goods have not dealt with these types of plastics on this scale, so no reuse or recycling practices are in place to deal with them. UN agencies and relief organizations should make efforts to procure relief goods that are biodegradable, use smarter packaging and can be reused or recycled easily. Agencies should also ensure that the waste generated by their own activities is disposed of properly and that waste disposal is monitored to avoid such wastes ending up in waterways or being burned in the open or at illegal dumpsites.

14. Waste management is a highly specialized field and requires technical expertise: This is particularly true for large MSWM programmes in post-disaster settings. Waste management is a complicated process that requires highly professional and experienced staff. Hiring professional experts may seem costly at first but is a worthwhile investment, especially since poor planning and implementation of waste management has long-term environmental and socio-economic consequences. Experts must be brought on site during the early recovery process to capture the momentum.

In particular after a disaster, staff mobilization is a rushed process and staffing roles are broadly defined. Technical advisers are not only tasked with assessments, planning and collaboration but also have to act as communications focal points. While activities such as site visits, media tours and coordination with other actors are vital for early programming, key focal points other than technical advisers need to be brought on board to ease the burden during this time. Roles need to be defined and filled by appropriate staff as early as possible. UNDP procurement staff would be better positioned on site rather than far from the impact zone. Often project delays result from slow procurement in the project's late phases. This is due in part to a lack of clear understanding of the project's needs. Procurement staff should be on hand to mitigate any delays or confusion that comes with distance.

15. Knowledge management, M&E and communications are vital areas that need to begin as soon as possible in the project: Analysis of performance, availability of information and human-interest stories, and potential knowledge products are important to final documentation. There is often a 'rush to the finish line' when projects face closure deadlines, and it is at this time that the information gaps become pronounced. It is recommended to place a strong emphasis on the human side of story-telling that further demonstrates project achievements. It can be beneficial to have a monitoring and reporting person within the project team to ensure regular reporting and supply of data to the donors. This also requires sound data that are monitored and evaluated by senior staff at all times throughout the project's lifespan.

16. Local leadership and wisdom must be harnessed and integrated into project activities: Successful MSWM programmes encounter many champions and leaders that can guide project implementation. Natural leaders will rise to the challenges presented and can be instrumental in improving sanitation practices and livelihoods.

17. Gender mainstreaming must be a priority in waste management projects: Often MSWM programmes include fair recruitment practices between male and female candidates and encourage women to identify and join project activities that are appropriate to them. However, the sanitation sector is often a male-dominated sector, particularly within government entities. On the other hand, livelihoods projects and public awareness activities can have a more balanced gender equation. It is recommended that a rigorous gender mainstreaming strategy is in place before project implementation, to encourage more participation by women and help communities understand the role women play in waste disposal. It is critical that such a strategy is based on women's interests.

ANNEX 1. ACRONYMS AND ABBREVIATIONS

BPPS	Bureau for Policy and Programme Support (UNDP)
CBO	Community-based organization
CfW	Cash-for-work
CO	Country Office
CSO	Civil society organization
HTLSF	Timor-Leste Hopeseller Leadership Center
IDP	Internally displaced person
ILO	International Labour Organization
LGU	Local Government Unit
M&E	Monitoring and evaluation
MSB	Swedish Civil Contingency Agency
MSE	Micro- and small enterprise
MSW	Municipal solid waste
MSWM	Municipal solid waste management
OCHA	Office for the Coordination of Humanitarian Affairs
oPt	Occupied Palestinian territory
PAPP	Programme of Assistance to the Palestinian People
POPP	Programme and Operations Policies and Procedures
PPG	Personal protection gear
PPP	Public–private partnership
PPPUE	Public–private partnerships for the urban environment
PSP	Private-sector partnership
SME	Small and medium-sized enterprise
TLO	Tole Lane Organization
TRWMP	Tsunami Recovery Waste Management Project
TRRV	Typhoon Recovery and Resilience in the Visayas
UN	United Nations
UNCT	United Nations Country Team
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UN-Habitat	United Nations Human Settlement Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations International Children’s Fund
UNMAS	United Nations Mine Action Service
UNOPS	United Nations Office for Project Services
UXO	Unexploded ordnance
USACE	US Army Corps of Engineers
WHO	World Health Organization

ANNEX 2. RESOURCES AND FURTHER READING

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ANNEX 3. GLOSSARY²⁷

Term	Other terms or abbreviations used, or other things this term can refer to	Working definition
Biogas	Methane	Typically refers to a gas produced by the biological breakdown or digestion of organic matter in the absence of oxygen. Biogas originates from biogenic material and is a type of biofuel
Clean development	Kyoto project financing	An international institutional mechanism that allows industrialized countries that have targets under the Kyoto Protocol Mechanism (CDM) to invest in emission reductions in non-Kyoto countries and count those reductions towards their own legal commitments. A CDM project is issued with certified emission reductions, which may then be traded
Community	District, neighbourhood, ward	A physical or social subdivision of or within a city, it may be as small as a group of neighbours or as large as a formal sub-municipal division that may or may not have its own governance functions
Composition	Characterization, make-up of waste, physical or chemical nature	Quantitative description of the materials that are found within a particular waste stream in the form of a list of materials and their absolute quantities per day or per year or as a percentage of total materials
Composting	Organic waste management, aerobic decomposition	The decomposition of materials from living organisms under controlled conditions and in the presence of oxygen
Controlled waste disposal site	Controlled dumpsite, upgraded dumpsite	An engineered method of disposing of solid wastes on land, in which, at a minimum, there is perimeter fencing, disposal site gate control and the waste is covered every day. Some form of reporting is usual, often in the form of a weighbridge (scale house), and some form of tipping fee is usually charged. A controlled waste disposal site differs from a sanitary landfill in that it is not sealed from below and does not have a leachate collection system
Coverage	Percentage service availability	The percentage of the total (household and commercial) waste-generating points (households or businesses) that have regular waste collection or removal
Disaster waste*		Waste that is generated by the impact of a disaster, both as a direct effect of the disaster as well as in the post-disaster phase as a result of poor waste management
Disposal – illegal	Dumping, wild dumping, littering	Disposal of waste at a site different from one officially designated by the municipal authorities, especially where it is specifically prohibited; may also refer to disposal at the wrong time or in the wrong quantities, even if all other aspects are correct
Disposal – legal		Disposal of waste at a site designated by the municipal authorities

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²⁷ Unless noted, glossary terms have been taken from the UN Habitat, Solid Waste Management in the World's Cities, Water and Sanitation in the World's Cities, UN Habitat, Nairobi, 2010, available at: <http://www.unhabitat.org/pmss/listItemDetails.aspx?publicationID=2918>. Terms identified with an asterisk (*) have been taken from the UNEP/OCHA Disaster Waste Management Guidelines, available at: <http://ecentre.org/DisasterWasteManagementGuidelines.aspx>. Additional standalone sources are presented alongside definitions.

Disposal site*		See dumpsite, engineered dumpsite, landfill and temporary disposal site
Dumpsite*	Dump, open dump, uncontrolled waste disposal site	Uncontrolled disposal site for waste, where gas emissions, liquid leakage and solids contamination of the surrounding environment is not controlled or managed. See also engineered dumpsite
Engineered dumpsite*		Dumpsite where there is a degree of technical control such as fencing of the site with a gate to control what wastes are disposed of, one or several bulldozers or tractors are employed to move and compact the waste, ditches for leachate collection have been dug and where special arrangements are in place for the disposal of infectious and/or hazardous waste. See also landfill
Formal sector	Official, government, municipal	Encompasses all activities whose income is reported to the government and that are included within a country's gross national product; such activities are normally taxed and follow requisite rules and regulations with regards to monitoring and reporting ^a
Formal waste sector	Solid waste system, solid waste authorities, government, materials recovery facility	Solid waste management activities planned, sponsored, financed, carried out or regulated and/or recognized by the formal local authorities or their agents, usually through contracts, licences or concessions
Hazardous waste*	Toxic waste	Waste that has physical, chemical or biological characteristics such that it requires special handling and disposal procedures to avoid risk to health, adverse environmental effects or both. 'Hazardous' relates to the situation and circumstances as well as the properties of waste materials. Typical characteristics include: oxidizing, explosive, flammable, irritant, corrosive, toxic, ecotoxic, carcinogenic, infectious, toxic for reproduction and/or mutagenic. It is noted that toxic wastes may produce toxic gases when in contact with water, air or acid, which can subsequently produce hazardous substances after disposal
Health care waste*	Clinical waste	Term often used for clinical waste or hospital waste. The WHO uses 10 categories of health care waste, presented in Appendix C. The risky part of health care waste is normally a minor part of this waste stream. The other parts of health care waste (e.g. food waste and packaging waste from wards and staff, ashes and rubble etc.) can, if properly segregated, be managed similar to ordinary household waste
Household waste	Municipal solid waste, domestic waste, MSW, non-dangerous waste	Discarded materials from households that are generated in the normal process of living and dying
Incineration	Burning, combustion	Controlled process by which solid, liquid or gaseous combustible wastes are burned and changed into gases ^b
Informal sector	Waste pickers, rag pickers, recyclers, junk shops, street vendors, bicycle taxis etc.	Individuals or businesses whose economic activities are not accounted in a country's gross national product; such activities are not taxed; exchange of goods or services is on a cash basis; the activities are not monitored by the government; and often the activities operate in violation of, or in competition with, formal authorities ^{c, d}
Informal waste sector	Waste pickers, recyclers, junk shops	Individuals or enterprises involved in waste activities but not sponsored, financed, recognized or allowed by the formal solid waste authorities, or who operate in violation of, or in competition with, formal authorities

Sources: a. Adapted from the International Labour Organization definition, adopted by the 15th International Conference of Labour Statisticians, January 1993; b. Adapted from Tchobanoglous et al., 1993; c. Hart, 1973; d. Adapted from the International Labour Organization definition, adopted by the 15th International Conference of Labour Statisticians, January 1993.

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Integrated sustainable waste management		A systems approach to waste management that recognizes three important dimensions of waste management: (1) stakeholders; (2) waste system elements; and (3) sustainability aspects
Landfill	Engineered landfill, engineered waste disposal facility, controlled disposal facility	"An engineered method of disposing of solid wastes on land, in which, at a minimum, there is perimeter fencing, gate control and the waste is covered every day. Some form of reporting is usual, often in the form of a weighbridge (scale house), and some form of tipping fee is usually charged. A landfill differs from a sanitary landfill in that it is not necessarily sealed from below and does not necessarily have a leachate collection system." ^e
Micro- and small enterprise	Micro-enterprise, junk shop, small recycler	The smallest businesses, smaller than SMEs, usually with less than 10 workers ^f
Municipal solid waste (MSW)	Household waste, domestic waste	Wastes generated by households, and wastes of a similar nature generated by commercial and industrial premises, by institutions such as schools, hospitals, care homes and prisons, and from public spaces such as streets, bus stops, parks and gardens
Organic waste	Bio-waste, green waste, wet waste, organics, food waste, putrescibles, compostables	The decomposable fraction of domestic and commercial wastes, including kitchen and garden wastes and, sometimes, animal products
Processing	Beneficiation, upgrading	Manual or mechanical operations to preserve or reintroduce value added into materials; usually involves densification, size reduction, sorting and packaging or transport
Recovery rate	Rate of recycling, percentage recycled, diversion rate	The percentage of the total amount of recoverable materials generated that reaches recycling, composting or energy recovery
Recyclables	Recoverables, materials to be valourized	Materials contained in municipal solid waste which have an intrinsic value to the industrial value chain as represented by a price
Recycler	Waste picker, MRF, junk shop	Entrepreneur involved in recycling
Recycling	Valourization, materials recovery	Extraction, processing and transformation of waste materials and their transfer to the industrial value chain, where they are used for new manufacturing; in some definitions, recycling is only considered to have occurred when materials have been sold ^g
Reuse	Second-hand use	Use of waste materials or discarded products in the same form without significant transformation; may include a system developed to repair/refurbish items ^h
Sanitary landfill	Landfill, state-of-the-art landfill	An engineered method of disposing of solid wastes on land in a manner that protects human health and the environment. The waste is compacted and covered every day. The landfill is sealed from below, leachate and gas are collected, and there is a gate control and a weighbridge
Solid waste	Garbage, trash, waste, rubbish	Materials that are discarded or rejected when their owner considers them to be spent, useless, worthless or in excess ⁱ
Street cleaner	Street sweeper	Formal or semi-formal worker assigned by the city authority to remove litter from streets that cannot be attributed to any specific waste generator

Sources: e. Hart, 1973; f. Adapted from Arroyo et al., 1998; g. Adapted from Tchobanoglous et al., 1993; h. Adapted from Koeberlin, 2003; i. Adapted from Tchobanoglous et al., 1993.

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Annex 3: Glossary, continued from page 46

Treatment	Decontamination, processing, incineration, anaerobic digestion, biogas production, pyrolysis, composting	Labour-based or mechanical methods to reduce the risk of exposure or to reduce the impacts on the environment of toxic or hazardous materials associated with the waste stream; in some cases, can concurrently capture and increase the economic value of specific waste stream components' value added
Temporary disposal site*		Place where disaster waste is safely placed, stored and processed for a pre-defined period after a disaster. The site would be selected following a rapid environmental assessment, and the emissions should be minimized in relation to appropriate and available technology
Valourization	Recycling, recovery, conserving economic value	The entire process of extracting, storing, collecting or processing materials from the waste stream to extract and divert value and direct the material to a value-added stream
Waste generator	Households, institutional, commercial wastes	The agent or point via which a purchased, collected or grown product is discarded ^l
Waste picker	Recycler	Woman, man, child or family who extracts recyclable materials from disposal sites ^k
Waste stream		Total flow of waste material from generation (either domestic, industrial, construction etc.) through to treatment and/or final disposal ^l

Sources: j. Adapted from Franklin Associates, 1992; k. Adapted from Koeberlin, 2003; l. Adapted from the Business Dictionary and Environ-News.com.

ANNEX 4: WASTE NEEDS ASSESSMENT – EARLY RECOVERY PHASE²⁸

SUGGESTIONS

Ensure you review any waste assessment that has already been undertaken. There are many agencies and partners (e.g. UNEP, OCHA, UNICEF, OXFAM, JICA, World Bank etc.) that are generally active in MSWM. It will save a lot of time and provide you with valuable insights. If they exist, try to also review post-crisis/post-disaster environmental assessments conducted by UNEP, as they might contain information related to waste.

Fill out the table below to the extent possible.

Take photos of:

- IDP camps and waste collection systems
- Regular waste collection systems (i.e. waste collectors, the type of waste they collect and the vehicles used)
- Temporary and permanent dumpsites (both informal and formal)
- Access roads to dump sites
- Health care waste management, if available
- Hazardous waste management, if available
- Damage of infrastructure

In your photos, remember to include a person, a car or something well known to give perspective of size. Mark all photos with GPS coordinates and photographer/agency name.

Take GPS coordinates of (at least) waste management sites and damaged infrastructure or industrial facilities.

SECTION 1: GENERAL

Which area is being assessed?		<i>Please describe:</i>
What is the total number of people in the affected area?		<i>Please describe:</i>

SECTION 2: CITY/VILLAGE MUNICIPAL WASTE MANAGEMENT

If there are any IDP camps located in your waste assessment area, fill out Section 3 separately for the camps.

Is the municipal solid waste management (MSWM) system functioning? For example, is waste being picked up?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If not, how are people disposing of their waste? If yes, how is the MSWM system functioning? <i>Please describe:</i>
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Continued on page 49

²⁸ Waste Needs Assessment Annex adapted from OCHA/UNEP/MSB, Disaster Waste Management Guidelines, OCHA/UNEP/MSB, Geneva, January 2011, available at: https://www.msb.se/Upload/English/news/Disaster_Waste_Management.pdf.

<p>How is waste being collected?</p>		<p><input type="checkbox"/> Using bins <input type="checkbox"/> Using large metal containers <input type="checkbox"/> Collected in waste piles <input type="checkbox"/> Other. <i>Please describe:</i></p> <p>Note: please take photos</p>
<p>How is the waste being picked up?</p>		<p>Check all that apply: <input type="checkbox"/> Handcarts <input type="checkbox"/> Ox-carts <input type="checkbox"/> Open trucks <input type="checkbox"/> Compactors <input type="checkbox"/> Other. <i>Please describe:</i></p> <p>Note: please take photos</p>
<p>Who is operating these carts/trucks?</p>		<p>Check all that apply: <input type="checkbox"/> Informal waste collectors <input type="checkbox"/> Private waste collectors <input type="checkbox"/> Municipality <input type="checkbox"/> Other. <i>Please describe:</i></p>
<p>Is there a public–private partnership (PPP) operating in the city?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p><i>Please describe:</i></p>
<p>Are waste management vehicles intact/available?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p><i>Please describe:</i></p>
<p>Is there fuel available for waste management vehicles?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p><i>Please describe:</i></p>
<p>Estimate the amount of waste being generated per day</p>	<p>_____</p> <p>Tons/day</p> <p>or</p> <p>_____</p> <p>m³/day</p>	<p><i>Comments:</i></p>
<p>How much of the total waste generated is being collected?</p>	<p>_____</p> <p>%</p>	<p><i>Comments:</i></p>

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Annex 4: Waste needs assessment — early recovery phase, continued from page 49

Estimate the composition of the waste (in percentages)		Biodegradables _____% Plastic _____% Metal _____% Glass _____% Paper _____% Inert _____% Comments:
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Recycling

Is any of the waste being recycled?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If so, please fill out the rows below Note: please take photos
Metal		<i>Describe the company that buys the metal waste, and describe who does the collection, trade and processing:</i>
Plastics		<i>Describe the company that buys the plastic waste, and describe who does the collection, trade and processing:</i>
Glass		<i>Describe the company that buys the glass waste, and describe who does the collection, trade and processing:</i>
Paper		<i>Describe the company that buys the paper waste, and describe who does the collection, trade and processing:</i>
Biodegradables		<i>Describe the company that buys the biodegradable waste, and describe who does the collection, trade and processing:</i>

Waste disposal

How is waste being treated?		<input type="checkbox"/> Burned in the open <input type="checkbox"/> Burned in an incinerator <input type="checkbox"/> Taken to a waste dump <input type="checkbox"/> Other. <i>Please describe:</i> Note: please take photos
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<p>If it is taken to a waste dump, what type of waste dump?</p>		<p>Check all that apply:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Engineered landfill (landfill is fenced and lined, and leachate is treated) <input type="checkbox"/> Controlled landfill (landfill is fenced, waste is covered with dirt every day, but landfill is not lined and leachate not treated) <input type="checkbox"/> Dumpsite (no controls) <input type="checkbox"/> Temporary dumpsite <input type="checkbox"/> Illegal dumpsite <p><i>Please describe what these landfills/dumps look like:</i></p> <p>Note: please take photos and note GPS coordinates</p>
<p>Is (are) the dumpsite(s) intact?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Has the crisis/disaster impacted existing dumpsite(s)? Do they need to be rehabilitated? <i>Please describe:</i></p> <p>Note: please take photos</p>
<p>Is the access road to the dumpsite(s) intact?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Can large/heavy trucks reach the dumpsite, or does the access road first need to be rehabilitated? <i>Please describe:</i></p> <p>Note: please take photos</p>
<p>Are there any temporary dumpsites?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>If so, where are they located?</p> <p>Note: please take photos and take down GPS coordinates</p>
<p>If waste is taken to an established dumpsite/landfill, how much is disposed of there per day?</p>	<p>_____ Tons/day</p>	<p>Since when?</p>
<p>If waste is taken to a temporary dumpsite/landfill, how much is disposed of there per day?</p>	<p>_____ Tons/day</p>	<p>Since when?</p>
<p>If waste is taken to an unauthorized dumpsite/landfill, how much is disposed of there per day?</p>	<p>_____ Tons/day</p>	<p>Since when?</p>
<p>Is there any composting/biogas production established?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>If so, how many m³ are being treated per day?</p> <p>Note: please take photos and take down GPS coordinates</p>
<p>Are there facilities for hazardous waste disposal?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p><i>Describe if the hazardous waste is being collected separately, and if it is being treated:</i></p> <p>Note: please take photos and take down GPS coordinates</p> <p><i>Describe what type of hazardous wastes are being collected (e.g. health care waste, asbestos etc.):</i></p>
<p>Are there any other waste treatment plants in the area?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>If yes, what type of treatment/recycling plants are these?</p>

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SECTION 3: IDP CAMPS		
<p>The NGOs and organizations undertaking water, sanitation and hygiene promotion in camps (e.g. Oxfam, UNHCR, UNICEF, UNFPA, missions, IOM etc.) will often be tasked with managing solid waste. Only occasionally is UNDP involved in MSWM practices in IDP camps. Before undertaking an MSWM assessment in an IDP camp, consider the roles of other organizations and that of UNDP.</p>		
Are there any IDP camps?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If so, how many? If no, skip this section.
Estimate the number of people staying in the camps	_____ %	
Is the MSWM system functioning? For example, is waste being picked up?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If not, how are people disposing of their waste? If yes, how is the MSWM system functioning? <i>Please describe:</i>
How is waste being collected?		<input type="checkbox"/> Using bins <input type="checkbox"/> Using large metal containers <input type="checkbox"/> Collected in waste piles <input type="checkbox"/> Other. <i>Please describe:</i> Note: please take photos
How is the waste being picked up?		Check all that apply: <input type="checkbox"/> Handcarts <input type="checkbox"/> Ox-carts <input type="checkbox"/> Open trucks <input type="checkbox"/> Compactors <input type="checkbox"/> Other. <i>Please describe:</i> Note: please take photos
Who is operating these carts/trucks		Check all that apply: <input type="checkbox"/> Informal waste collectors <input type="checkbox"/> Private waste collectors <input type="checkbox"/> Municipality Other. <i>Please describe:</i>
Is there a PPP operating in the city?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>Please describe:</i>
Are waste management vehicles intact/available?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>Please describe:</i>

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Annex 4: Waste needs assessment — early recovery phase, continued from page 52

<p>Is there fuel available for waste management vehicles?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p><i>Please describe:</i></p>
<p>Estimate the amount of waste being generated per day</p>	<p>_____ Tons/day or _____ m³/day</p>	<p><i>Comments:</i></p>
<p>How much of the total waste generated is being collected?</p>	<p>%</p>	<p><i>Comments:</i></p>
<p>Estimate the composition of the waste (in percentages)</p>		<p>Biodegradables _____ % Plastic _____ % Metal _____ % Glass _____ % Paper _____ % Inert _____ % <i>Comments:</i></p>
<p>Recycling</p>		
<p>Is any of the waste being recycled?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>If so, please fill out the rows below Note: please take photos</p>
<p>Metal</p>		<p><i>Describe the company that buys the metal waste, and describe who does the collection, trade and processing:</i></p>
<p>Plastics</p>		<p><i>Describe the company that buys the plastics waste, and describe who does the collection, trade and processing:</i></p>
<p>Glass</p>		<p><i>Describe the company that buys the glass waste, and describe who does the collection, trade and processing:</i></p>
<p>Paper</p>		<p><i>Describe the company that buys the paper waste, and describe who does the collection, trade and processing:</i></p>
<p>Biodegradables</p>		<p><i>Describe the company that buys the biodegradable waste, and describe who does the collection, trade and processing:</i></p>

Continued on page 54

Waste disposal		
How is waste being treated?		<input type="checkbox"/> Burned in the open <input type="checkbox"/> Burned in an incinerator <input type="checkbox"/> Taken to a waste dump <input type="checkbox"/> Other. <i>Please describe:</i> Note: please take photos
If it is taken to a waste dump, what type of waste dump?		Check all that apply: <input type="checkbox"/> Engineered landfill (landfill is fenced and lined, and leachate is treated) <input type="checkbox"/> Controlled landfill (landfill is fenced, waste is covered with dirt every day, but landfill is not lined and leachate not treated) <input type="checkbox"/> Dumpsite (no controls) <input type="checkbox"/> Temporary dumpsite <input type="checkbox"/> Illegal dumpsite <i>Please describe what these landfills/dumps look like:</i> Note: please take photos and take down GPS coordinates
Is (are) the dumpsite(s) intact?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Has the crisis/disaster impacted existing dumpsite(s)? Do they need to be rehabilitated? <i>Please describe:</i> Note: please take photos
Is the access road to the dumpsite(s) intact?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Can large/heavy trucks reach the dumpsite, or does the access road first need to be rehabilitated? <i>Please describe:</i> Note: please take photos
Are there any temporary dumpsites?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If so, where are they located? Note: please take photos and take down GPS coordinates
If waste is taken to an established dumpsite/landfill, how much is disposed of there per day?	_____ Tons/day	Since when?
If waste is taken to a temporary dumpsite/landfill, how much is disposed of there per day?	_____ Tons/day	Since when?
If waste is taken to an unauthorized dumpsite/landfill, how much is disposed of there per day?	_____ Tons/day	Since when?

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<p>Is there any composting/biogas production established?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>If so, how many m³ are being treated per day?</p> <p>Note: please take photos and take down GPS coordinates</p>
<p>Are there facilities for hazardous waste disposal?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p><i>Describe if the hazardous waste is being collected separately, and if it is being treated:</i></p> <p><i>Describe what type of hazardous wastes are being collected (e.g. health care waste, asbestos etc.):</i></p> <p>Note: please take photos and take down GPS coordinates</p>
<p>Are there any other waste treatment plants in the area?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>If yes, what type of treatment/recycling plants are these?</p>

ANNEX 5. PLANNING, DESIGNING AND IMPLEMENTING A LIVELIHOODS AND RECOVERY MSWM PROJECT

1 CONDUCT A GENERAL EARLY RECOVERY NEEDS ASSESSMENT

Note: This should be the same step for all livelihoods and recovery programmes. When you identify a need and opportunity related to solid waste management, proceed to step 2.

- 1.1 Understand the context of the crisis
- 1.2 Assess the livelihoods and early recovery needs of the affected communities, including IDPs and their host communities
- 1.3 Conduct a rapid assessment of infrastructure damage
- 1.4 Consult affected communities on issues relating to public health, waste, livelihoods and the environment

When considering MSWM activities, it is important to verify local MSW practices with households. Though it is often practice that assessments interact with the heads of households, it is often other family members (e.g. women or children) who handle and dispose of the waste on a daily basis and can thus more clearly formulate and identify their needs.

2 INITIATE DIALOGUE AND ANALYSE STAKEHOLDERS AND THEIR CAPACITY

MSWM IS THE RESPONSIBILITY OF THE CITY!

In most countries, local authorities are responsible by law for the 'public good' of safeguarding public health and the protection of the environment related to solid waste. They are the main duty-bearers for delivering public goods and services, and special care should be taken not to undermine their role. Keeping in mind sustainability, they should be involved at all stages of the project's assessment, design and implementation, as after the livelihoods programme intervention they have to continue providing services on their own.

- 2.1 Initiate dialogue with the municipality/local governance structure and assess its capacity (before and after)

Crises/disasters have an impact on the authorities that would normally be responsible for the collection and disposal of solid waste. This may include loss of staff, being overstretched etc. Prior to the crisis/disaster they were already likely to be underfunded and under resourced.
- 2.2 Find out who does what in MSWM (local, national government, international donors, NGOs, CBOs, relief organizations, informal sector, private sector etc.)

What are their roles and responsibilities? Have these changed as a result of the emergency situation?
- 2.3 Institute dialogue with all stakeholders, and create an MSWM platform

Creating a platform for dialogue increases ownership and is a way to anchor institutional memory in MSWM. It is important to use a waste platform and attend regular meetings to exchange ideas, experiences, lessons learned, data, information etc. Liaising with other stakeholders that are also involved in MSWM will avoid duplication and allow programmes to complement each other. If no such dialogue platform exists, support the establishment of one.
- 2.4 Conduct a quick capacity assessment of potential partners

There are many stakeholders that have an interest in or are involved in MSWM. It is important to assess their capacity, as they might be involved in the implementation of an MSWM programme later on, either as an implementing agency (NGO, UN agency), an executing agency (municipality, local government), a service provider (informal waste collectors and waste pickers, private-sector companies that might be engaged through PPPs, waste recycling companies) or as a client (e.g. households, CBOs, community leaders etc.).

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3 CONDUCT A WASTE MANAGEMENT ASSESSMENT

ASSESS EXISTING SYSTEMS BEFORE MAKING PLANS!

It is critical to include a baseline that looks at the behaviour and relationships of providers and users, at strengths and weaknesses of what is already occurring, and at opportunities for improvement that build on strengths and fix weaknesses.

3.1 Review any waste needs assessment that might already have been conducted □

There are many organizations (e.g. UNEP, OCHA, UNICEF, OXFAM, JICA, World Bank etc.) active in MSWM. Ensure you review any MSWM assessment they have already conducted. It will save a lot of time and provide valuable insights. If they exist, also review environmental assessments conducted by UNEP, as they might contain information related to waste.

3.2 Conduct a waste assessment (using Annex 4) □

The waste assessment will (in short) review the following:

- **Was there a solid waste management system in place prior to the crisis/disaster? How has it been affected?**
- **What are the current solutions in place?** Are there any good practices that could be scaled up?
- **Identify and map organizations of waste pickers and supportive NGOs and individuals.**
- **Determine the geographic presence of the waste and ease of access to waste** through governmental sources, Geographical Information System, aerophotogrammetry and satellite pictures, news, and information gathered from local agencies. Where are the waste piles, concentrations of people in the target area (assess the density of population and their level of poverty, which influences waste volumes), increases in numbers of IDPs in certain parts of the target area (meaning more waste, presence of community/shelters in the area etc.)?
- **Identify areas that are prone to uncontrolled and indiscriminate dumping** of solid waste (take photos).
- **Map waste.** Use the above data to prepare a **waste map** of the affected area. The map will be a valuable tool throughout the process and can be updated as information becomes available.
- **What kind of waste is generated, and how much?** Quantify the composition and quality of waste streams and waste disposed of at dumps/landfills through site visits and waste sampling/analysis. Take into account that waste generation may vary according to seasons and diets.
- **Are there landfills/disposal sites?** What is their condition after the conflict/disaster? Do they need remediation? Can they be accessed? (take photos)
- **Health and waste:** The extent to which solid waste has an impact on people's health should be assessed. Is there evidence of increased morbidity linked to poor waste management practices? Often MSWM programme should target the highest-risk areas as a priority.
- **What is the degree of waste extraction/separation** (e.g. paper, plastic, metal, organics etc.)?
- **Storage/processing of recyclables:** Are there particular areas/locations where recyclables are being stored? Are they being processed?

3.3 Identify potential hazards/risk related to MSWM □

- Find out about the level of conflict in the target area to identify risk of explosive remnants of war (e.g. in Palestine waste/debris was mixed with unexploded ordinance).
- Is there a likelihood that infectious health care waste is mixed with municipal waste? What are the potential hazardous waste fractions (e.g. asbestos) that could be present?

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3.4 Consult the informal sector (e.g. collectors, waste pickers, recyclers etc.)

In cities such as Moshi, Quezon City, Delhi and Bengaluru, the informal sector is responsible for 50 to 100 percent of all ongoing waste activities.

Models for sustainable, affordable waste management and recycling outside the developed world work best when they are built around the integration of waste pickers and other informal recyclers and service providers into modernizing MSWM systems. When this happens, the resulting systems are robust, socially responsible and economically productive.

Establishing collaboration with the informal sector is quite difficult for governments (and UNDP), but excluding them will result in people losing their livelihoods.

3.5 Consults user/client groups that are likely not to have been part of more 'official/high-level' consultations²¹

A good service is one that people will use and be willing to pay for — something that is more likely if they have been involved in its design and have had something to say about the planning.

- **Consult both men and women:** The MSWM requirements of men, women, young people, children, and those with special needs and disabilities will be different. When consulting with the community it is important to consult both men and women and to identify their needs and requirements. For example, women will largely be responsible for household and family waste management, while men may be involved (paid or unpaid) as waste loaders or in waste collection roles.
- **Consult users such as community leaders, households, small businesses** etc. to ensure alignment with community expectations and needs. Ultimately these are the people who would have to start paying for collection services to make it sustainable in the long run.
- **Encourage community associations and civil societies to participate in planning and decision-making processes** through local committees or regular consultations.

3.6 Understand the attitudes of clients and service providers towards waste

Note: In some countries stigma is attached to waste handling, and it is expected that only certain groups, such as sweepers, will handle the waste (e.g. Pakistan earthquake, Sudan collection of PET bottles by former military personnel). The population groups that would be willing to be involved in MSWM will influence the targets groups that the livelihoods programme focuses on (e.g. in Syria only immigrants were willing to work in MSWM, which is why the initial target group (host communities) could not be involved in such activities).

4 PROJECT DESIGN: IMPLEMENTATION MODALITIES AND DESIGN INTERVENTIONS**4.1 Agree on the role of municipal, local and national governments**

- Agree on the roles and responsibilities of the municipality/local government during the planning phase, and discuss the role and responsibilities after the programme comes to an end.
- Confirm the equipment, facilities and human and financial resources that can be provided by the municipality.

4.2 Agree on an implementation and payment modality (CfW, PPP, PSP, informal service providers, NGO/UN execution etc.) with the municipality/local governance

Ensuring that a PPP approach never causes loss of livelihoods when applied to urban service delivery systems!

Ensure that the livelihoods programme creates and maintains equity of access to livelihoods and economic niches. People and enterprises that were or are already working in MSWM cannot suddenly be excluded or denied access to certain wastes.

In many cities, at least as many — if not considerably more — people earn their livelihoods in recovery, valorization and recycling as are employed in the public services of waste collection and street sweeping.

Note: Keep in mind that after the livelihoods programmes comes to an end the municipality will have to take full responsibility for running a waste collection service. The implementation modality must, therefore, be aligned with what the local governance structure could handle, in terms of capacity wise as well as financially.

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4.3 Determine the areas/zones of intervention □

ENSURE ALIGNMENT WITH COMMUNITY EXPECTATIONS AND NEEDS!

Note: Different approaches can be developed/developed for different zones/neighbourhoods. Waste collection in camps and informal settlements requires very different interventions from administrative and business districts or middle-income neighbourhoods.

4.4 Agree on the type of interventions □

BUILD ON WHAT IS ALREADY FUNCTIONING OR WAS FUNCTIONING PRIOR TO THE CRISIS/DISASTER!

In many cities, at least as many — if not considerably more — people earn their livelihoods in recovery, valorization and recycling as are employed in the public services of waste collection and street sweeping!

Reach agreement with stakeholders on the type of activities to be supported through the livelihoods and economic recovery programme — for example:

Track A: Emergency employment creation through CfW schemes

- Engage community members through neighbourhood waste assessments (e.g. identify where camp waste is piling up, the sources and reasons why waste is being disposed of there)
- Engage community members through CfW in managing communal waste collection points; granting access, ensuring waste is dumped in containers — not next to them, calling the waste pick-up when containers are overflowing etc.); could also include shredding/compacting waste at the communal collection points
- Rehabilitation of the official landfill/dumpsite, which might have been damaged as a result of the crisis/disaster
- Construction of fenced waste transfer points (but only when they will be regularly serviced; if not they will turn into open dumps)
- Construction of appropriately fenced refuse pits, bins, area pits at public places etc. as part of market infrastructure rehabilitation
- Construction of composting sites
- Removal/collection of MSW
- Street cleaning/sweeping
- Illegal dump cleaning
- Ditch/drainage/gutter cleaning
- Clean parks and beaches, riverbeds etc.
- Production of locally produced waste bins/containers for household use (traditional baskets, 200-litre drums cut in half etc.) or communal use preferably made of locally available materials and of the type used under normal circumstances (if applicable)
- Clearing of agricultural lands (necessary after a flood)
- Instituting system of 3x6 for CfW programme

Track A: Targeted livelihoods and self-employment start-up grants

- Support for individuals, small enterprises, CBOs, community groups etc. in the area of developing waste-derived products and recycling activities, through training as well as start-up grants (in the form of cash or tools necessary to support such activities):
- Valorization of organic waste for animal feed
- Valorization of organic waste for composting
- Fabrication of charcoal/eco briquettes from organic waste for fuel (e.g. from camp waste)
- Making building blocks from plastic and styrofoam
- Supporting small-scale low-tech businesses in reuse and recycling

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Track B: Local economic recovery and community development

- Providing access to microfinance and tools for the production of waste-derived products and recycling, in the following sectors (among else):
- Valourization of organic waste for animal feed.
- Valourization of organic waste for composting
- Fabrication of charcoal/eco briquettes from organic waste for fuel (e.g. from camp waste)
- Making building blocks from plastic and styrofoam
- Supporting small-scale low-tech businesses in reuse and recycling

Track C: Sustainable employment creation and decent work

- Enhancing the skills of the city planning and management staff
- Re-establishing responsibilities as well as a budget for MSWM within the municipality
- Instituting a fee/tariff/cost-recovery system to ensure long-term employment and job security (e.g. through direct waste bills or the utility company, sometimes complemented with revenues collected through property taxes, municipal incomes taxes or national transfers)
- Developing/enhancing the policy and regulatory framework pertaining to MSWM (**see also 5.9**)
- Creating transparency in knowing, controlling and reporting on all the costs related to MSWM
- Developing a regulatory framework for PPPs supporting public service delivery in MSWM (which could also support other types of service than just MSWM) (**see also 5.9**)
- Improving the working conditions of the informal recycling sector (e.g. by financing equipment or paying for health insurance)
- Reducing illegal child labour (but ensuring that families find ways to compensate for lost income as a result of children going to school instead)
- Providing institutional support to informal, micro- and small entrepreneurs (e.g. permits to waste pickers or waste collectors, fee collectors etc.)

4.5 Work with the municipality and/or local authorities on identifying and assessing locations for waste collection points, waste transfer locations, disposal sites and waste separation and recycling sites □

Every effort should be made to identify official, controlled solid waste disposal sites, as well as transfer locations!

Coordination with the local authorities and other aid agencies will be essential in ensuring that such facilities/locations are accessible and appropriately managed. If an existing disposal site is available, it should be rapidly assessed for environmental compliance before use. The site may have been used before the emergency by the local authority, and assistance may be required to get the system operational again.

Where no existing disposal site is available, a temporary disposal site or engineered dumpsite should be identified and established.

Do not dump any waste anywhere if no written agreement is reached with the municipality/local government.

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4.6 Identify procurement needs

- **Identify procurement needs that can be met by hiring local services or private-sector partnerships** (hiring local flatbed trucks, animal carts, tractors with trailers etc.), rather than procuring these through the project. First, maintenance and operating costs might prove to be a burden for the municipality in the future; and, second, especially the procurement might delay the start of the project and require capital investment on behalf of the project that could be used for paying salaries etc.
- **Equipment needed for collection and transport** (e.g. brooms, push barrels, bins, wheelbarrows, waste containers, trucks etc.)
- **Equipment needed for personal protection and staff welfare:** All involved in the collection, transport, disposal and recycling of solid waste should be provided with:
 - Protective clothing, including — at minimum — gloves but ideally overalls, high-visibility jackets, boots (reinforced toes), hard hats* (depending on the type of waste) *and protective masks* (when there is dust, e.g. street sweeping)
 - When possible, vaccinate workers against tetanus and hepatitis B
 - Water and soap should be available for washing hands and faces with. People working with waste should have access to proper and clean changing and washing facilities for use during and after handling and processing waste (otherwise, they go home dirty to their families and expose them to whatever they have been in contact with themselves)
 - Health insurance?
- **Construction supplies and works needed for MSWM-related works** — for example, fencing and/or construction of transfer stations/disposal sites, construction works for the preparation of waste recycling/recipient sites, rehabilitation of the landfill/disposal site etc.

4.7 Ensure alignment with the country's standards and legal requirements governing waste management

It is important to consult with the local authorities to ensure these standards and legal requirements are respected. If these do not yet exist, it will be important to develop guidelines, policies and national and local action plans to ensure sustainability (see project implementation).

4.8 Undertake a market survey to determine local suppliers, local service providers and local contractors of MSWM-related equipment, services etc. **4.9 Decide on the introduction of fees/tariffs (when and how much?)**

Decide on the introduction of a fee structure for the collection of municipal waste, or start planning the re-establishment of the fee collection system that was in place prior to the disaster/crisis.

This is an important step in making the MSWM system sustainable and allowing the municipality to continue providing such services when the livelihoods programme comes to an end. For example, in Afghanistan municipality taxes were slowly increased throughout the duration of the MSWM programme (initially only including waste collection charges, but later on also property taxes etc.), providing the municipality with a budget to continue providing public services.

If no fees have ever been charged, the project could support (during its design phase or during its implementation) an assessment on willingness to pay for MSWM, considering cross-subsidization schemes (e.g. where the businesses pay more and households pay less, or according to income level).

Getting people to pay for primary collection, where they can see the benefit of keeping their neighbourhood clean, may be a realistic first step. Expecting them to be equally willing to pay for secondary collection (collection from the transfer points and transport to the landfill) and environmentally sound disposal (developing engineered landfills) is optimistic, because they do not immediately experience the impacts of problems with the status quo.

4.10 Write the project document (as a standalone project or as an integral component of a larger livelihoods and economic recovery programme), obtain donor funding and get the document signed to be able to start implementation.

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5 PROJECT IMPLEMENTATION	
5.1	<p>Establish a steering committee for the project □</p> <p>A steering committee should comprise UNDP, municipality, relevant ministry (e.g. Ministry of Local Governance) technical experts, concerned stakeholders, implementing partners and local authorities.</p> <p>Agree on terms of reference for the steering committee, defining roles and responsibilities, setting up follow-up and monitoring mechanisms.</p>
5.2	<p>Organize coordination meetings with partners/stakeholders involved in MSWM, building on the MSWM platform created as part of 2.3 □</p>
5.3	<p>Launch necessary procurement □</p> <p>Whether procurement for goods or services, follow UNDP rules and regulations.</p>
5.4	<p>Undertake training activities □</p> <p>Training of waste collection/street sweeping groups/individuals (e.g. personal protection and safety, what to do when coming into contact with hazardous/infectious waste etc.)</p> <p>Training of service providers (firms, MSEs, CBOs, informal family enterprises) so that they can meet all or most of the requirements</p> <p>Training of professional municipality staff on MSWM (depending on their capacity, needs etc., training interventions will focus on basic MSWM approaches and practices, but also on PPP, PSPs, contracting, fee collection, accounting, management etc.)</p>
5.5	<p>Institute a permit system □</p> <p>Providing waste pickers and collectors with an identify card will allow them to access the landfill/disposal/transfer sites for waste-picking activities but can also facilitate their acceptance by the community and ensure less harassment from police/security guards.</p> <p>In certain countries, making informal waste picking and collection a ‘legal’ profession can lead to a reduction in child labour in this area, which is an indirect positive impact of such interventions. However families rely on these children collecting and recycling waste, and they need to be compensated somehow. For example, instead children need to go to school, but who covers the loss in income?</p>
5.6	<p>Start implementation of the activities and interventions as agreed/designed under 4 □</p>
5.7	<p>Undertake awareness-raising campaigns □</p> <p>Information campaigns could inform the population about when waste is being picked up and when particular wards/neighbourhoods are being serviced (which days/times). Such campaigns can also inform households about putting their waste in containers for regular collection.</p> <p>Information campaigns can also be used to inform users about why, when etc. service fees are to be paid/will be collected etc., how the fee system will be rolled out and why fee collection is so important.</p> <p>Awareness-raising campaigns can also be used to explain the importance of waste management for health and environmental considerations, what households can do themselves (e.g. composting for homestead gardening), and how to deal with hazardous wastes that cannot be disposed of along with household waste.</p>

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5.8 Develop a user feedback system

Create a feedback system and provide accurate and timely follow-up to the user. This can be done, for example, by creating communal/stakeholder platforms which can provide feedback on the service provided, how these meet the needs of the community, the tariffs and fees being charged etc.

Note: Most feedback that will be received will be related to waste not having been picked up at all, or at the time expected, or overflowing waste bins and containers. It is important to ensure that if a feedback system is being used, feedback provided by users is responded to quickly.

5.9 Track C: Develop and/or enhance the policy and regulatory framework pertaining to MSWM

- Develop PPP regulatory frameworks supporting public service delivery in MSWM (which could also support other types of service than just MSWM):
 - Develop transparent and competitive bidding procedures
 - Prepare standard contracts and clear guidelines
 - Develop guidelines/procedures for effectively monitoring and supervising private service providers
 - Develop sound contracting practices which define performance standards and specifications, and how to communicate these to potential service providers
- Support the development of a national strategy on the management of solid waste
- Develop municipal laws and decrees — for example, refuse collection and disposal law as well as regulations that prevent waste collection services from only taking care of the neighbourhoods and wastes that are more profitable (only taking plastics, paper etc.), which will result in the public sector having to cover the low-income areas, residual waste and city borders, where cost recovery is much more of a challenge)
- Support the development of a strategic MSWM plan and corresponding budget
- Prepare urban development plans (e.g. reserving space for land/space to manage solid waste, such as landfills, composting plants or transfers stations)
- Assess potential market interventions, such as subsidies and financial incentives

5.10 Monitoring and evaluation

Apply standard UNDP M&E rules for project implementation; however, also effectively monitor and supervise private service providers:

- Ensure that employed contractors are not illegally dumping the waste, which may be an easier and cheaper option for them
- Verify the service provided — for example, what is the quality of the service provided, and does it match what is set out in the contracts? Solicit user feedback through the established user feedback system but also through household/business visits
- Identify whether and how the project can be improved for better performance
- Collect and publish lessons learned

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6 EXIT PLAN

Often livelihoods and recovery programmes, in particular if they are executed using CfW modalities, face challenges in ensuring that livelihoods and jobs are maintained beyond the duration of the programme. □

Not only might people lose their jobs and incomes when such a programme comes to an end, but also the greater public which is now relying on the public services provided under this programme suddenly finds that these services deteriorate or disappear altogether, with disastrous consequences for human health and the environment, but also for the reputation of the municipality and UNDP.

For financial sustainability and continuation of the MSWM system, the most important is that, by the end of the project, the local government/municipality should have the CAPACITY, AUTHORITY and the necessary RESOURCES to carry out MSWM.

Anyone designing MSWM programmes should ensure that all three are being built up by selecting the right interventions (a combination of Tracks A, B and C).

It is very likely that, even if fees/taxes are collected, additional resources would have to be allocated from a local governance or a national budget (it is feasible to use collected fees to cover costs for waste collection from households/neighbourhoods; however, it is more challenging to also cover the costs of waste removal and disposal).

UNDP can play a critical role in ensuring that resources are available to continue the MSWM services, and advocating for national budget allocation for MSWM.

In many cities, at least as many — if not considerably more — people earn their livelihoods in recovery, valorization and recycling as are employed in the public services of waste collection and street sweeping. So even if the number of people employed in waste collection and disposal itself is not significant, a functioning MSWM system can support many livelihoods and also keep costs for MSWM at a minimum (the more that is recycled/reused, the less the city and its citizens have to spend on collection, transportation and disposal).

ANNEX 6. REFERENCE GUIDELINES FOR NON-MSW STREAMS

DEBRIS

Debris refers to a mixture of building waste and rubble typically arising from damaged buildings and their demolition.²⁹ Disaster waste refers to the waste generated by disasters and later during the response and recovery phases.³⁰ Disaster waste includes waste from damaged buildings and infrastructures including concrete, wood and steel, natural debris such as clay, mud, trees, unexploded ordnance, industrial waste, waste from relief operations etc. Debris or disaster waste often contains hazardous materials such as asbestos from collapsed structures, which increases health risks associated with inhalation.

UNDP has extensive experience in post-conflict/disaster debris and disaster management. It has supported such programmes in oPt, Lebanon, Haiti, Pakistan, Philippines etc.

Further guidance

The UNDP Guidance Note on Debris Management³¹

OCHA/UNEP Disaster Waste Management Guidelines (Sections 3 and 4)



By early 2011, the UNDP Leogane debris management project had temporarily employed more than 1,600 workers to clear rubble and post-disaster demolition project sites. PHOTO: UNDP/MARIANA NISSEN

HEALTH CARE WASTE

The term 'health care waste' includes all the waste generated within health care facilities, research centres and laboratories related to medical procedures. In addition, it includes the same types of waste originating from minor and scattered sources, including waste produced in the course of health care undertaken in the home (e.g. home dialysis, self-administration of insulin, recuperative care).

Between 75 percent and 90 percent of the waste produced by health care providers is comparable to domestic waste and usually called 'non-hazardous' or 'general health care waste'. It comes mostly from the administrative, kitchen and housekeeping functions at health care facilities and may also include packaging waste and waste generated during maintenance of health care buildings.

The remaining 10–25 percent of health care waste is regarded as 'hazardous' and may pose a variety of environmental and health risks. Such waste includes sharps waste (needles, scalpels etc.), infectious waste, pathological waste, pharmaceutical waste, cytotoxic waste, chemical waste and radioactive waste.

UNDP has implemented health care waste management (HCWM) programmes in partnership with WHO (www.gefmedwaste.org) in non-crisis/disaster settings but did incorporate HCWM activities after Typhoon Haiyan in the Philippines, where local communities participating in CfW programmes started clearing rubble as well as medical waste.

29 OCHA/UNEP/MSB, Disaster Waste Management Guidelines, OCHA/UNEP/MSB, Geneva, January 2011, available at: https://www.msb.se/Upload/English/news/Disaster_Waste_Management.pdf.

30 Ibid.

31 UNDP, Guidance Note: Debris Management, UNDP, New York, 2013, available at: <http://www.undp.org/content/undp/en/home/librarypage/crisis-prevention-and-recovery/signature-product--guidance-note-on-debris-management/>.

HCWM approaches in a post-crisis/post-disaster situation are different from HCWM approaches in a non-crisis/disaster setting. When hazardous health care waste is mixed with regular municipal waste, in particular infected sharps, this poses a significant danger to waste handlers and the community at large.

Please refer to the following guidance for appropriate HCWM procedures:

- [WHO, Safe management of wastes from health-care activities, WHO, Geneva, 2013: Chapter 14](#)
- [Online Edition of the OCHA/UNEP Disaster Waste Management Guidelines: Chapter 8 — HCW Resources](#)
- [India: YouTube video: Healthcare Waste Management in India³²](#)



Mixed health care waste, including red bags indicating infectious waste, disposed of openly in post-hurricane Turks and Caicos Island, 2008. PHOTO: MSB AND ANTILATOR

HAZARDOUS WASTE

Hazardous waste includes any waste that requires special handling or treatment during or before disposal, because of its reactive, toxic, corrosive, inflammable or explosive nature. Some items that may be found in household wastes are hazardous, but the larger sources are industries and health care facilities.

In post-conflict/disaster settings hazardous wastes that are frequently encountered during UNDP debris and MSWM activities include UXOs, asbestos (as part of building rubble), infectious health care waste (covered in the previous section) and other hazardous wastes such as expired and obsolete hazardous pesticides, equipment containing polychlorinated biphenyls (PCBs) and oils (e.g. electrical transformers) and other types of hazardous wastes.

UNDP has quite some experience in the removal of UXOs and hazardous materials (asbestos) as part of debris and solid waste clearance activities (e.g. in PAPP in 2011, when asbestos materials were transported to the crushing site and subsequently treated and stored to prevent any further hazards, and in Pakistan where, in partnership with UNIDO in 2005, asbestos-contaminated rubble was removed). Hazardous waste removal in such cases follows guidelines set by UN-MAS and UNEP. Technical teams from UNMAT and the Mines Advisory Group can conduct site visits to crisis-affected sites during the project.

Please refer to the following guidance for appropriate procedures on hazardous waste management:

- [Online Edition of the OCHA/UNEP Disaster Waste Management Guidelines: Chapter 8 — Hazardous Waste](#)
- [UNEP/OCHA, Emergency Waste Management Guidelines, UNEP/OCHA, Geneva, \[http://postconflict.unep.ch/humanitarianaction/documents/02_03-04_03-10.pdf\]\(http://postconflict.unep.ch/humanitarianaction/documents/02_03-04_03-10.pdf\)](#)

32 Available at: https://www.youtube.com/watch?v=_srhFLz17SU.

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