United Nations
Department of Peacekeeping Operations
Department of Field Support
Ref. 2018.30

Standard Operating Procedure

Development of Waste Management Plans for UN Field Missions

Approved by: USG DPKO and USG DFS
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Review date: 31 december 2021

STANDARD OPERATING PROCEDURE FOR
DEVELOPMENT OF WASTE MANAGEMENT PLANS FOR UN FIELD MISSIONS

ANNEXURES

Waste Management Plan Guidance Template for UN Field Missions

A. PURPOSE

1. This standard operating procedure (SOP) aims to formalize the approach/method for the development of waste management plans (WMP) for UN Field Missions. The SOP provides a comprehensive WMP template that can be adapted for use in Missions together with relevant guidance to assist development of a competent WMP for improved management of solid and hazardous waste streams.

B. SCOPE

2. The procedures and guidance contained in this SOP for the development of an WMP apply to all United Nations Field Missions administered and/or supported by DPKO and DFS. Compliance with this SOP is mandatory.

3. It should be noted that both wastewater and wastewater sludge are not covered under this SOP and that these elements are dealt with under the SOP for the development of wastewater management plan currently under development.

C. RATIONALE

4. This SOP responds to the requirements for a 'Mission Waste Management Plan' in the DPKO/DFS Waste Management Policy for UN Field Missions under section E4 paragraphs 56-63 and is also required to form part of the Environmental Management System as required under paragraph 1 of this Waste Management Policy.

5. A well-developed WMP should be considered as key strategic tool for planning and reporting that gathers together all elements of waste management into a single, comprehensive and concise document.

6. In summary the WMP should provide;

   6.1. The waste management context at the Mission and the host country,

   6.2. The scope of the WMP and the Mission waste strategy with clear objectives to address any issues, shortfalls or needed investments and ensure continued improvements in respect of performance and use of best practice (e.g. best available technology - BAT, best environmental technology – BET), and

   6.3. The overall waste management framework describing all aspects of end-to-end waste management at the Mission (e.g. procedures, infrastructure, responsibilities and any collaborative initiatives with other UN/aid agencies).

7. The WMP will help to identify a current condition (where we are now), define an overall goal (where we want to be in the future), determine the way we can reach our goal (how we are going to get there- strategy, objectives), the way to recognize progress and improvements (what indicators we measure to know that progress has been made) and finally how to feedback this information back into the WMP cycle.

8. The primary aim of a WMP should be to achieve effective and sustainable management of solid and hazardous waste management generated by the Mission. That is, a WMP should help the Mission achieve the objectives of the DFS Environment Strategy under the waste pillar, i.e. to improve waste management, and reduce the level of risk to personnel, local communities and ecosystems from waste. It would also support the Mission's performance report on the Results Based Budget (RBB), namely the score in the DFS Environmental Management Scorecard and the implementation of the Mission-wide Environmental Action Plan (MEAP), both of which are reported to Member States.

9. The Mission WMP may also act as a key review and reference document for any environmental or waste management audits that may be conducted over the lifecycle of the Mission, including the annual audits by the Board of Auditors (BOA) and the periodic audits by the Office of Internal Oversight Services (OIOS).

D. PROCEDURES

10. Each Mission shall develop a competent waste management plan (WMP) and strategy for improved management of their solid and hazardous waste streams using the WMP template and guidance provided in Annex 1.

11. The template which is provided as a MS Word document can be adapted for use at each Mission and is structured into chapters with relevant headings and sub-sections covering the following elements;

    11.1. Summary of the waste management approach, scope, strategy, objectives and targets of a WMP,

    11.2. Legislative and policy framework,

    11.3. Organizational responsibilities for waste management at the Mission,

    11.4. Classification and estimation of waste materials,

    11.5. Description of the waste management infrastructure currently utilized or required,

    11.6. Details of the waste management procedures currently established or required,

11.7. Waste reporting, monitoring and inspections,

11.8. Provision of training,

11.9. Awareness campaigns,

11.10. Financial budgeting requirements,

11.11. Annexes to be included.

12. Guidance therein, is provided for each chapter and sub-section with respect to the type of information and content that is generally required together with suggestions on format (e.g. tables, figures etc.). In most cases, hypothetical examples are provided for clarity and these formats may be copied for use in the Mission WMP and where relevant, links are included which refer to relevant information that may be useful when drafting the WMP.

13. Please note that some of the outlined elements may not be relevant for specific UN missions and could be excluded from the final WMP for your Mission. Conversely, some sections, in particular, those addressing legislative and policy elements, are written in a standard form that is generally applicable across Missions and thus can be directly copied from the guidance template and used in your Mission's WMP and the template is in MS Word Format for this purpose. Additionally, there may be other relevant text in the examples and considerations text boxes that can be directly copied for use in the Mission WMP. Of course, some specific changes such as name changes or updates may be required when the WMP is developed.

14. A Mission WMP should be developed during the 'start-up' phase of the Mission and further elaborated over the 'sustainment' phase and should ultimately include consideration of the final Mission 'liquidation' phase when significant amounts of waste materials will require treatment and final disposal.

15. For Missions already in the sustainment phase, the WMP should be developed and approved as a matter of priority.

16. The WMP represents a dynamic document that will require regular updates (e.g. at minimum annually) to conform with any changes in the waste management approach and to detail both performance improvements and any corrective actions that may result over the course of the Mission's lifecycle.

17. In summary, a Mission WMP should;

17.1. Ensure that all levels of the Mission are in concurrence with end-to-end waste management practices, clarify the roles and responsibilities and accountability and performance evaluation and the Mission strategies to ensure the proper handling, management, and disposal of waste materials.

17.2. Summarize available outlets and ultimate end-use or disposal locations of waste materials either managed by the mission, contractors or host country.

17.3. Set out the level of financial and human resources required for waste management within the Mission and detail how these resources and procedures will be managed and monitored (e.g. Mission sites and contractor sites, as well as internal Mission resources such as a Waste Management Officer). The WMP should provide details of any strategic investments or budgeted funding that may be needed in respect of infrastructure, equipment, personnel and training to meet the Mission's waste management objectives which can then be included in the Mission-wide Environmental Action Plan (MEAP) for budget planning.

17.4. Provide details of all relevant DFS/DPKO policies, national and international environmental and waste legislation and international standards and conventions that are relevant to the Mission's waste management and will outline how compliance with these policies, legislation will be achieved (e.g. compliance reporting and monitoring and evaluation),

17.5. Describe how generated waste, both solid and hazardous, are controlled at all stages of Mission operations and how the nature of segregation, collection and transportation, storage and treatment systems including recycling, other recovery and disposal methods, as well as waste exports and related procedures (e.g. Basel Convention[1]), match the type and quantity of the waste to be managed.

17.6. Through the provision of clear objectives and performance management the WMP should aim to achieve continual improvements in respect of waste minimization, raised awareness and best practices including effective waste segregation, reuse, recycling, recovery (including composting) and, where appropriate, the use of innovative solutions for this purpose. For Missions already in the 'sustainment phase' and with a well-established waste management system specific targets may be developed to ensure continual performance improvements.

17.7. If the options above are well planned, implemented and managed, significant cost savings as well as enhancements in environmental sustainability may be realized by the Mission over the longer term and, critically, would support the Mission in achieving its mandate by reducing any related risk to personnel, local communities, the environment and the reputation of the UN.

E. ROLES AND RESPONSIBILITIES

18. The WMP is a key planning and management document for the Mission under the overall responsibility of the DMS/CMS. The Chief Engineer is responsible for planning and providing mission facilities in accordance with the WMP, which should be developed by the Waste Management Officer (WMO) in close collaboration with all relevant department managers that are responsible for supporting specific elements of waste management at the Mission (e.g. Engineering, Facilities Camp Management, PDU, Medical Unit, Environmental Unit, Procurement etc.). If there is no Waste Management Officer at the mission, the DMS/CMS should assign a focal point with technical expertise that is responsible for leading the development of the WMP until such time the Waste Management Officer is recruited.

19. Further details of roles and responsibilities for waste management are provided in the guidance template and these aspects will be required to be fully elaborated in the Mission WMP.

20. The draft WMP will necessitate a formal review and amendment procedure by the above collaborators with formal approval and sign-off of the final agreed WMP required by the Head of Mission or DMS/CMS at the mission.

21. Technical assistance for this process may be provided by GSC/ETSU and/or REACT as required.

F. TERMS AND DEFINITIONS

[1] Details of the Basel Convention can be found at the following link;
http://www.basel.int/TheConvention/Overview/TextoftheConvention/tabid/1275/Default.aspx

22. For the purposes of this SOP, the following terms and definitions shall apply:

Abbreviations:

BOA	Board of auditors
CMS	Chief of Mission Support
DFS	Department for Field Support
DMS	Director of Mission Support
DPKO	Department for Peacekeeping Operations
EnvU	Environmental Unit
ETSU	Environmental Technical Support Unit
GSC	Global Service Center
MEAP	Mission Environmental Action Plan
OIOS	Office of Internal Oversight Services
RBB	Results Based Budget
REACT	Rapid Environmental and Climate Technical Assistance Facility for the Department of Field Support
WMO	Waste Management Officer
WMP	Waste Management Plan

Definitions:

Waste Management Plan:	The WMP is the overarching document describing all aspects of the waste management system, strategy and responsibilities at the Mission.
Waste Management Strategy:	The WM strategy provides the rationale and objectives for actions or investments to bring about improved waste management compliance and performance at the Mission.
Strategic Investments:	These are any financial investments developed using a 'business case' model to support the implementation of the strategy of the WMP.
Waste:	'Any substance, agent, effluent, object, material or equipment to be discarded, destroyed or disposed of, which has been generated through any UN field mission operation, activity or process. It does not include material or equipment being processed in accordance with the DFS Guidelines on Disposal of Property in United Nations Field Missions except where the outcome of that process is disposal' (Section F: Terms and definitions para 83 DPKO/DFS Waste Management Policy for Field Missions).
Best Available Technology	means the latest stage of development (state of art) of processes, of facilities, equipment or methods of operation which indicate the practical suitability of a particular measure for limiting discharges, emissions and waste.
Best Environmental Technology	means the use of green or clean technology and devices for application and monitoring to promote sustainable management of resources and curb the negative impacts of human involvement such as pollution or destruction of the environment.
Hazardous waste:	'Waste material that may cause damage to human health or the environment that requires precautions when storing, handling, transporting or disposing due to its toxicity, corrosiveness, ignitability or reactivity'. (Section F: Terms and

	definitions para 83 DPKO/DFS Waste Management Policy for Field Missions).
Waste Management Audits:	Can be both internal and external and will examine the compliance and performance of all aspects of solid and hazardous waste management conducted under the WMP and conformance with other relevant policy documents and international standards in respect of waste management.

G. REFERENCES

Normative or superior references

a) DPKO/DFS Environmental Policy for UN Field Missions (2009.6)
b) DPKO/DFS Waste Management Policy for UN Field Missions (2015.6)
c) DPKO/DFS Draft Environmental Guidelines

Related guidance

a) DFS Environment Strategy (Version 11 August 2017)

H. MONITORING AND COMPLIANCE

23. This SOP will be monitored for compliance, at least annually, jointly by the Director, Logistics Support Division (LSD) for the Department of the Field Support (DFS) and the Director, Global Service Centre (GSC).

I. CONTACT

24. The Chief, Environmental Technical Support Unit, GSC contact is the primary contact for this SOP.

J. HISTORY

25. This is the first version of this SOP. No amendments or revisions have been made.

APPROVAL SIGNATURE:

DATE OF APPROVAL: 20.12.18

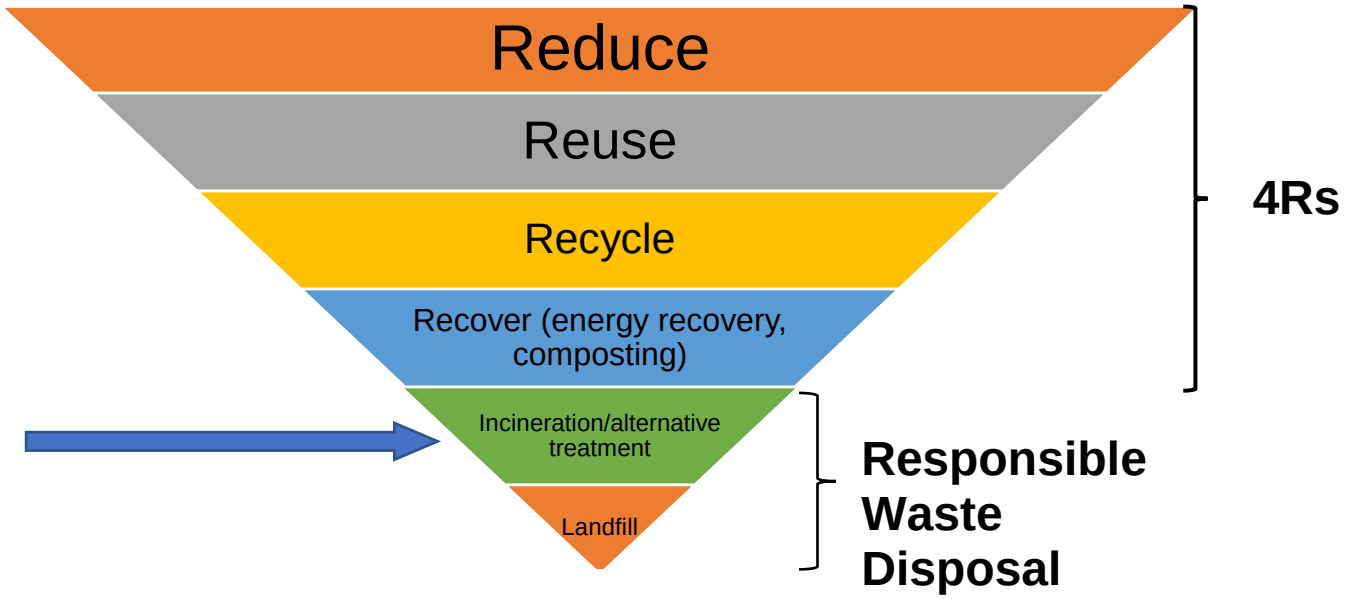
APPROVAL SIGNATURE:

DATE OF APPROVAL: 14/12/18

ANNEX 1

United Nations
Department of Peacekeeping Operations
Department of Field Support
Ref. 2018.30

Waste Management Plan Guidance Template for UN Field Missions



Contents

MISSION WASTE MANAGEMENT PLAN TEMPLATE AND GUIDANCE

Use of this template:

This template provides the **primary** format for the development of a Mission WMP together with useful **guidance** for its preparation.

Throughout the template there are many **text excerpts** covering regulatory requirements, policy, international standards, environmental principles and descriptions of responsibilities together with **examples, considerations and table formats** that may if relevant, be directly copied for use in the Mission WMP being developed and for this purpose the document is provided in MS Word Format.

The **aim** is to help the Mission to achieve the development of their WMP in both a **productive and facilitated manner** and to further ensure that the Mission WMPs, at least in **format**, are generally **standardized** across missions. It is however recognized that each mission will have a particular set of circumstances that will be unique to their mission.

The use of a standardized and known format will also make it easier for any UN personnel moving from one mission to another to be more easily and quickly updated on the waste management situation at that Mission using the WMP.

All WMPs should be developed using 10 Point Arial font as used for this template.

1 INTRODUCTION OF THE WMP

The first section and related sub-sections of the WMP essentially set the framework by providing a summary of the following:

- Introduction of the mission and its general mandate, the purpose of the document and the overall scope, aim and timeframe of the WMP and strategy
- A brief description of the waste management context,
- The general waste management approach and what the specific mission strategy will be to address any issues or shortfalls of waste management, including any potential collaboration and partnership, and
- Highlight any required investments, as well as to ensure continued improvements in respect of performance, capacity building, cost efficiencies and best practice/technologies for waste management at the mission.

1.1 Purpose of this document and the general mandate of the mission

This section provides a brief introduction of the mission and its general mandate, the purpose of the document and the overall scope and aim of the WMP and strategy together with the timeframe that the current WMP will cover. See Annex I, for examples taken from the MINUSCA strategy and UNSOS WMP and strategy.

Example and considerations:

This should include consideration of;

- ✓ *Briefly introduces the mission and its general mandate,*
- ✓ *Outlines the size of the mission (e.g. no of troops/police and UN personnel),*
- ✓ *Notes the geographical coverage of operations (e.g. AOR km2, number of sectors and sites)*
- ✓ *Notes what phase the mission has reached (i.e. start-up, sustainment or liquidation),*
- ✓ *Briefly states that the mission is committed to reducing its environmental footprint (as per A/RES/70/286) by operating at minimum risk and maximum efficiency, which entails proper environmental and waste management throughout the mission's lifecycle], and*
- ✓ *The overall aim of the WMP. – The aim of the WMP is to identify a relevant strategy for waste management at the mission and to describe the roles and responsibilities of personnel and all waste management procedures to minimize and mitigate risk and impact and will be updated either on a biannual basis or when a full revision is so required (e.g. the waste management approach changes).,*
- ✓ *The geographical coverage of the plan. - This WMP covers the overall Mission including the operations of the following facilities and mission locations,*
- ✓ *The waste streams that are covered by the plan. -. The WMP details procedures for dealing with the following solid and hazardous waste streams, noting that wastewater and waste water sludge is dealt with, in further detail, under the mission's Standard Operating Procedures (SOP) on Water and Sanitation,*
- ✓ *The waste procedures detailed in the WMP. –The WMP covers waste reduction, segregation, storage, handling, collection and transportation, recycling, including reuse or energy recovery, treatment and disposal, training, monitoring, reporting and data management.*
- ✓ *The resources required to implement the plan. - The WMP will detail all resources required for the implementation of effective waste management including annual estimated budgets for the current year as well as projected strategic investment (e.g. infrastructure, equipment, O&M and training) costs for continual improvement of waste management at the mission. Any potential cost savings that are realized as a result of these actions should also be provided. In order to prepare improved and more focused budgets and clear 'business case' proposals for strategic waste management investments missions should reach out to ETSU/REACT; for support and technical and financial guidance on costings and proposal preparations.*
- ✓ *Briefly explains the waste management structure (i.e. responsible sections/units, as well as senior leadership duties), making sure to clearly date the WMP with approval signatures.*

1.2 Waste management context of the mission country

This section should provide a brief description of the overall waste management context at the mission with reference to current national waste management practices and infrastructure, identified constraints or limitations therein, relevant contractors and enterprises, and status of availability of both commodity and recycling markets.

In order, to gain more precise information on the national context related to waste management, discussions could be held with either the UN country team and/or other UN agencies such as UNDP or UNIDO operating in-country.

Example and considerations:

- ✓ *Provide an overview of the general waste management practices in the mission country, the shortfalls and limitations in respect of infrastructure, equipment, supporting infrastructure (i.e, road, access, etc.), landfills, regulations, human resources, etc.,*
- ✓ *Is the government and/or the development actors intending to improve the waste management infrastructure?*
- ✓ *Is the host country remote and far from commodity or recycling markets?*
- ✓ *What are the local reuse, recycling solutions available in-country?*
- ✓ *What is the capacity of local/national contractors for waste management?*
- ✓ *Are there major contracts already in use by the UN or other international organizations?*

1.3 Waste management status and current approach at the mission

Provide a summary description of the waste management status and approach at the mission. This will require a reflective and honest look at the current situation of waste management and to clearly highlight any systematic issues and constraints that affect the implementation of waste management procedures at the mission.

Example and considerations:

- ✓ *Is the status of waste management at the mission adequate and coping with the challenges?*
- ✓ *Highlight any current issues,*
  - *Availability of infrastructure, equipment, storage, handling facilities, transportation and final disposal sites.*
  - *Improper disposal practices, inadequate storage facilities, poor incinerator capacity, heavy reliance on poorly operated landfills, a lack of organized approach etc.?*
- ✓ *What are the systemic issues and constraints?*
  - *Financial constraints due to budget reductions?*
  - *Human Resources constraints*
  - *Year by year cycle for mandates and budgets constraining long-term/multi-year investments?*
  - *Difficult logistics? Size of the country?*
  - *Security?*
  - *Limited national capacity and/or infrastructure and supporting infrastructure?*
- ✓ *Outline the basic collection, storage, transportation and disposal methods for solid waste (e.g. incineration, composting etc.) from UN facilities and military and police contingents, including the facilities' names and locations (including GPS coordinates where available),*
- ✓ *The basic procedures for dealing with hazardous wastes, including medical wastes, electronic waste, mercury waste, x-ray materials, POL and other chemicals (please see Annex D in the DPKO/DFS Waste Management Policy for full list of hazardous wastes),*
- ✓ *A summary of the main parties responsible for waste management (e.g. UN units, personnel, contingent focal points, external contractors),*
- ✓ *A summary of the required expertise and capacity building needs.*
- ✓ *A summary of how waste management is reported, monitored and evaluated.*

1.4 Mission waste management strategy and objectives

This section will concisely outline the waste strategy for the mission that is developed in response to the above identified issues and constraints and will express this through both a short narrative and a series of key objectives of the overall WMP. Moreover, in-line with the goal of continual performance improvement in waste management SMART[1] targets can be developed during the 'sustainment phase' once the waste management system is well-established. Such targets should provide a valid and achievable challenge to the Mission to indicate their commitment to performance improvements to be attained over the coming years/WMP period and they can be implemented on an incremental basis with each target achievement followed by a new target goal.

[1] SMART indicators are specific, measurable, attainable, realistic and timed.

Example and considerations:

A brief description of the strategy will include;

- *How will the strategy be implemented and managed?*
  - *For identified significant risks actions and investments should be designed and implemented on an immediate basis. This may in a 'worst case' scenario require a complete and drastic overhaul of the entire system,*
  - *For identified moderate to minimum risks actions and investments could be implemented incrementally over a longer time period with the overall goal to bring about performance improvements of waste management?*
  - *UN operated, local/international contractor or a combination of both?*
  - *Is there a need for interim solutions pending the completion of longer term solutions (e.g. up to 24 months)? Does your mission have an Interim Risk Mitigation Plan (IRMP) for waste that was triggered by the DFS Environmental Management Scorecard in the RBB Performance Report?*
  - *The degree of flexibility in the strategy to manage uncertainty in the national context and mission status? For example, if there are any delays in procuring equipment what could be done in the interim and also budgeting delays. Essentially identifying any contingency that may prevent the waste management system from failing in the event of conflict or logistical and procurement difficulties*
  - *What level of oversight and coordination – e.g. The mission should establish an environmental committee consisting of relevant departmental heads which could oversight implementation of the waste management strategy as well as other waste management and environmental matters at the mission. The committee should be led by the Environmental Officer reporting to the DMS/CMS, and through which the mandatory (for peacekeeping operations) performance reporting should be conducted through the RBB on the environmental scorecard and with the implementation of the MEAP.*
- *What are the financial implications?*
  - *What are the financial requirements – small or large investments?*
  - *How will it be financed – from the annual budget or through investment spread over multi-year budgets due to the need for the strategic project/actions to be implemented over multiple years. For the latter example a clear 'business case' proposal will need to be prepared including the rational and justification for project funding over multiple annual budgets.*
- *What will the financial requirements include?*
  - *Purchase of equipment (e.g. incinerators, waste hauling vehicles, compactors, shredders, etc.) or use of other assets such as land for landfill and land for composting?*
  - *Construction or remediation of infrastructure (e.g. new landfills)?*
  - *Operation and Maintenance budget including spare parts, etc*
  - *Human Resource / staff or workers during O&M*
  - *Specific training for personnel? Redeployment/reassignment/creation of Waste Management Officer?*

Overall objective of the strategy;

- ✓ *The overall objective of the strategy is to enable proper, end-to-end waste management that will minimize risk and impact by developing strong justifications in mission budget submissions requesting resources for multi-year, scaled investments that will address shortfalls through, inter alia, the procurement of waste collection and transportation equipment, waste compactors/shredders, waste incinerators, the installation (including provision of equipment needed for O&M) and use of engineered landfills, human resources and spare parts need during O&M, and the training of qualified operators and personnel capable of managing the facilities.*
- ✓ *To establish and achieve this overall objective, the mission will need to*
  - *Describe strategic management measures and initiatives to reduce risk and minimize waste related impacts associated with all activities, services and facilities across Mission sites as well as third party disposal facilities,*
  - *Assess the level of resources required for successful implementation of the strategy and WMP including any long-term investments such as the procurement of new equipment, development or rehabilitation of waste related infrastructure (e.g. landfills, composting sites) for continual improvement of environmental performance, human resources during O&M, procurement of spare parts etc, in respect of waste management and any potential cost savings that may be realized in the short or longer term.*

***Example and considerations continued*:**

Other objectives of the strategy and WMP

- ✓ *Assign responsibilities for implementing the Mission strategy and WMP and describe verification and monitoring measures, in line with the global DFS Environmental Performance and Risk Management Framework (i.e. environmental scorecard and MEAP),*
- ✓ *Use the waste management hierarchy and treat waste streams as close to the source of generation as possible, where practicable,*
- ✓ *Ensure compliance with the DPKO/DFS Environmental and Waste Management Policies, as well as national legislation and regulatory requirements,*
- ✓ *Apply international best practices and comply with International Conventions (e.g. Basel Convention) to which the host country is a signatory,*
- ✓ *Identify, classify and adequately estimate the volumes and/or weight as well as characterization in detail of domestic, non-hazardous and hazardous waste streams at the Mission, including civilians, military and police contingents, which will build the body of data needed for performance management and continuous improvement, including the environmental scorecards,*

Targets for waste management should be developed on an incremental basis such that when lower level targets are achieved new more challenging but realistic SMART targets are developed.

Example and considerations:

Early targets may include;

- ✓ *Setting the baseline for waste management and completion of the risk management system for waste management*
- ✓ *Raise awareness of civilian and uniformed personnel for improved segregation of wastes validated by a* 20% improvement in waste segregation

Later targets could include;

- ✓ *To reduce general waste generation by 20% over the next 3 years*
- ✓ *If recycling is possible for some waste streams a 10% recycling target could be set over the next 3 years*
- ✓ *To implement organic waste recovery and achieve a target of 90% of organic wastes that are composted*

1.5 Waste Hierarchy and the 4R's

A summary description of the UN Mission waste hierarchy (Figure 1.) and the 4R's approach (e.g. reduce, reuse, recycle and recover) as outlined in the DFS Environmental Strategy[2] and DPKO/DFS Waste Management Policy should be provided.

Example and considerations:

All waste arising from Mission operations and activities will be managed to minimize the risk and impact on the environment and human health. Waste management activities will be performed in accordance with the following waste hierarchy principles;

- ✓ ***Reduce*** *the quantity of waste through improved supply chain management and improved process and design initiatives,*
- ✓ ***Re-use*** *materials where possible in engineering structures or alternative use, and/or through take back schemes to suppliers where surplus to requirements,*
- ✓ ***Recycle*** *material streams where possible to reduce the quantity of waste (e.g. metals, wood, POL, paper, plastics, other) that has to be disposed of,*
- ✓ ***Recover*** *as much as possible through actions such as composting and energy recovery.*

After following the 4Rs above, for whatever waste is remaining, the Mission will conduct responsible disposal either through internal or contractor-managed incineration, alternative treatments or landfill in order to reduce hazards, risks and long-term impact on the environment.
Waste minimization and the application of the above principles shall also be addressed in contracts and procurement strategies, in accordance with existing rules and regulations, and taken into consideration as much as possible in the supply chain, e.g. when reviewing shipping, storage and disposal options throughout the Mission lifecycle.

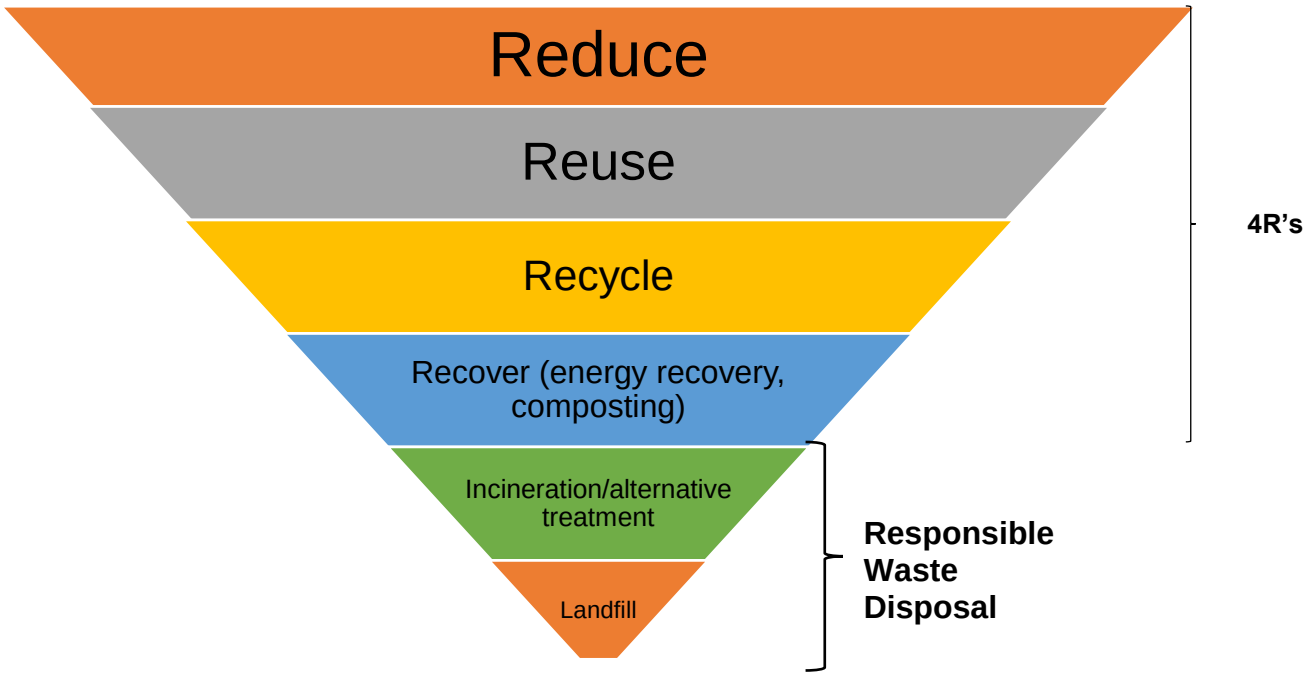


Figure 1: Waste Hierarchy for UN Field Missions

[2] The DPKO/DFS Environmental Policy for UN Field Missions can be found at the following link;

1.6 Mission waste strategy requirements

What will the Mission waste strategy require for successful implementation?

Example and considerations:

The Mission's waste strategy will require the following;

- ✓ *The commitment of the Mission and UNHQ to fully support the implementation of the mission waste strategy and all investments therein once finalized, agreed too and signed off,*
- ✓ *The development of a forward looking WMP ensuring that all mission facilities and personnel, including military and police contingents, operate under the principles of waste prevention, reduction, reuse, recycling and recovery, as well as risk management,*
- ✓ *That waste management performance will be regularly assessed against Key Performance Indicators (KPIs) in the DFS Environmental Performance and Risk Management Framework, which includes the environmental scorecard reported in the RBB,*
- ✓ *The Mission will maintain an inventory of waste streams for each site by type, volume or weight, and for the final waste treatment, such as reuse, recycling and recovery options that are implemented at the mission to enable comparison across sites,*
- ✓ *The Mission will endeavor to procure equipment and services that help reduce the overall footprint of each peacekeeping mission, in full compliance with the relevant rules and regulations, as mandated by the General Assembly (A/RES/70/286, para 31)*
- ✓ *The Mission will conduct internal audits, monitoring and random inspections at all sites and facilities, whether managed by UN, contingents or contactors in order to evaluate procedures, working practices and compliance with the WMP as well annual duty of care and performance audits for waste contractors under contract to the Mission*

2 LEGISLATIVE AND POLICY FRAMEWORK

2.1 National statutory regulations

Outline the national environmental and waste management regulations that are relevant to the mission, noting this is one of the process indicators under the EMS pillar.

It is an obligation of the mission to ensure that any laws listed for waste management are understood and complied with.

Example and considerations:

Waste management at MINUSMA

General

- ✓ *Law Bi. 01-020/AN/RM of 30 May 2001 on pollution and nuisances (basic principles of pollution and nuisance control),*
- ✓ *Decree No. 08-346/P-RM of 26 June 2008, as amended by Decree No. 09-318/P-RM of 26 June 2009, on environmental and social impact assessment (ESIA rules and procedures),*
- ✓ *Decree No. 01-397/p-RM of 6 September 2001 (conditions for managing air pollutants),*

Specific

- ✓ *Decree No. 01-395/P-RM of 6 September 2001 (conditions for managing waste water and human wastes),*
- ✓ *Decree No. 01-394/p-RM of 6 September 2001 (conditions for managing solid waste),*

2.2 Waste Related International Conventions

Outline any international legislation, conventions (e.g. Basel, Bamako, etc.) to which the host country is a party and that are therefore relevant for waste management at the mission.

Example and considerations:

Basel Convention

- ✓ *The Basel Convention aims to protect human health and the environment against adverse effects resulting from the generation, management, transboundary movements and disposal of hazardous and other wastes,*
- ✓ *Transboundary movements of hazardous and other waste are regulated through the* ***Prior Informed Consent Procedure (PIC).*** *Shipments made without this consent are illegal unless a special agreement exists. This will apply to Missions who need to export hazardous wastes for treatment (e.g. e.waste). If the host nation is a signatory there would usually be a designated person with which to coordinate any use of the PIC procedure. If not, then all instructions can be found in the link below.*
- ✓ *The Convention further obliges its parties to ensure that hazardous and other wastes (listed in annexes) are disposed through a system of environmentally sound management (ESM). Parties are expected to minimize quantities they move across borders by treating and disposing of wastes as close as possible to their place of generation. Strong controls have to be in place from the moment of generation of a hazardous waste to its storage, transport, treatment, re-use, recycling, recovery and final disposal.* http://www.basel.int/TheConvention/Overview/TextoftheConvention/tabid/1275/Default.aspx

Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes Within Africa

- ✓ *The Bamako Convention, currently ratified by 25 African States, is based on the Basel Convention but is more restrictive in prohibiting all imports of hazardous waste. The Convention was concluded in the aftermath of several scandals involving the export of toxic waste to Africa by developed nations. This procedure would also have to be followed for any movement of hazardous wastes from the mission across borders.*

Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

- ✓ *The Rotterdam Convention aims to protect human health and the environment from specified hazardous chemicals by promoting shared responsibility among parties in international trade. Currently, 24 chemicals used as pesticides, six severely hazardous pesticide formulations and 11 industrial chemicals are subject to the Rotterdam Convention.*

Stockholm Convention on Persistent Organic Pollutants (POPs)

- ✓ *The Stockholm Convention aims to protect human health and the environment from persistent organic pollutants (POPs) that remain intact in the environment for extended periods. They can bioaccumulate in fatty tissue of humans and wildlife and thus have harmful impacts on human health or the environment. Key elements include the requirement that developed countries take measures to eliminate production and use of intentionally produced POPs, eliminate unintentionally produced POPs where feasible, and manage and dispose of POP wastes in an environmentally safe manner.*

Example and considerations continued:

The Montreal Protocol

- ✓ *The Montreal Protocol is an international treaty designed to protect the ozone layer by phasing out the production of numerous substances that are responsible for ozone depletion. The protocol is relevant for Missions in respect of refrigerants containing ozone depleting substances (ODS),*
- ✓ *The Montreal Protocol and subsequent amendments have demanded that existing ODS should be recovered, recycled and re-used where possible and that best industrial practice is maintained during the disposal or re-use of ODS. This will likely involve shipping to an appropriate facility for recycling, conversion or destruction.*

Minamata Convention on Mercury

- ✓ *The Minamata Convention on Mercury aims to protect human health and the environment from the adverse effects of mercury. As of August 8, 2017, the treaty has been ratified by 73 of the 128 signatories and came into force and became legally binding for all parties on August 16, 2017,*
- ✓ *The Convention is relevant to Missions in respect of any medical equipment and fluorescent and metal halide light bulbs that may contain mercury and are used at the mission.*
- ✓ *A "Practical Sourcebook on Mercury Waste Storage and Disposal" has been produced by the United Nations Environment Programme in 2016 to assist governments, the industry and the general public. http://www.unep.org/chemicalsandwaste/global-mercury-partnership/mercury-waste-management/activities-and-projects/practical-sourcebook.*

2.3 DFS Environmental Strategy

In 2015 the DFS was requested by the OUSG to develop and implement a vision and Environmental Strategy for Field Missions focused on improving environmental performance and risk management and an overall reduction in the environmental footprint of field missions. A six-year strategy was developed in 2016, in consultation with field missions, with the vision to;

> '*deploy responsible missions that achieve maximum efficiency in their use of natural resources and operate at minimum risk to people, societies and ecosystems; contributing to a positive impact on these where possible.*

The strategy which began implementation in January 2017, focuses on five key pillars, namely energy, water and wastewater, solid waste, wider impact and an environmental management system. The first phase of the strategy extends from 2017 to 2020 and includes the implementation of a global environmental management system across missions, the review and update of key environmental management and guidance documentation and the establishment and deployment of technical assistance through the Global Service Center/Environmental Technical Support Unit (ETSU) in Brindisi, which is temporarily supplemented in capacity through the DFS-UNEP partnership's Rapid Environment and Climate Technical Assistance Facility (REACT). Technical assistance can be requested using the SOP Re. No. GSC/SOP/165.00 (2017).

For the Solid Waste Pillar, the strategy indicates a clear need for improvement of waste management to be achieved through the development of rolling 3-year Mission level waste plans and a series of enabling activities at the headquarters level that will include;

- Launching a range of strategic sourcing solutions such as new systems contracts for better provision of equipment and goods,
- Assessments and actions to improve 4R solutions through better supply chain management, vendor contracting, and improved material use,
- Provision of technical assistance to missions as required,
- Upgraded waste management guidelines, policy and procedures,
- More focused capacity building and training of personnel,
- Waste management investments based on proven solutions.

The DFS Environmental Strategy can be found at;

https://extranet.cosmos.dfs.un.org/ENV/_layouts/WordViewer.aspx?id=/ENV/Shared%20Documents/1.%20Environmental%20Management%20System/DFS%20Environment%20Strategy/170814%20Environment%20Strategy.

docx&Source=https%3A%2F%2Fextranet%2Ecosmos%2Edfs%2Eun%2Eorg%2FENV%2FSitePages%2FHome%2Easpx&DefaultItemOpen=1

2.4 DPKO/DFS Environmental Policy (2009.6)

The DPKO/DFS Environmental Policy for UN Field Missions (2009) provides the main policy framework for environmental matters and their implementation in field missions. The policy was developed to fulfil a need to set basic principles for missions on environmental issues and to take actions to integrate environmental measures into their planning and operations to avoid and minimize environmental impacts from those activities.
A Mission WMP is required to form part of the Mission's Environmental Management System as required under paragraph 1 of the DPKO/DFS Waste Management Policy for UN Field Missions. Specific measures for solid and hazardous wastes are further provided in paragraphs 35 and 36 of the Environmental Policy and for hazardous substances in paragraph 40. The policy may be found at;

https://extranet.cosmos.dfs.un.org/ENV/Shared%20Documents/1.%20Environmental%20Management%20System/Policy,%20Guidance,%20Training/Policies/Environmental%20Policy%20for%20UN%20Field%20Missions%20(Ref.%202009.06).pdf

2.5 DPKO/DFS Waste Management Policy (2015.6)

The DPKO/DFS Waste Management Policy for UN Field Missions (2015) falls under the umbrella framework of the Environmental Policy but provides the a more detailed policy framework for waste management at field missions, outlining minimum requirements for the establishment of waste processes and procedures and responsibilities of Headquarters, Mission Units and personnel for management of the waste system. The policy requires that each mission issues a Waste Management Directive and establish a WMP as part of the Mission's overall Environmental Management System in line with the DFS Environment Strategy. The policy may be found at;

https://extranet.cosmos.dfs.un.org/ENV/Shared%20Documents/4.%20Waste/2015.06%20Waste%20Management%20Policy%20for%20UN%20Field%20Missions.pdf

2.6 Guiding environmental principles

Provide details of any relevant environmental principles.

Example and considerations:

Four environmental principles are widely recognized as core for effective and controlled management of wastes;

- ✓ *The "**polluter pays principle**" implies that all producers of waste are legally and financially responsible for the environmentally safe disposal of the waste they produce. This principle also attempts to assign liability to the party that causes the damage. This principle will be especially important between the UN and its contractors, as well as managing the land provided/leased to the UN by the host government or private landowner,*
- ✓ *According to the "**precautionary principle",** where there are threats of serious or irreversible damage to the environment, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation,*
- ✓ *The **"duty of care principle**" stipulates that any person handling or managing hazardous substances, or wastes or related equipment is ethically responsible for using the utmost care,*
- ✓ *The **"proximity principle**" recommends that treatment and disposal of hazardous waste take place at the closest possible appropriate location to its source to minimize the risks involved in its transport. Similarly, every community should be encouraged to recycle or dispose of the wastes it produces, inside its own territorial limits, unless it is unsafe to do so.*

3 RESPONSIBILITIES FOR WASTE MANAGEMENT AT THE MISSION

This section will specify the precise responsibilities for waste management at the Mission. This will include Mission's sections and staff, military and police contingents, as well as contractors and municipal government officials for the case where a third-party landfill may be used for disposal. An organizational chart showing the hierarchy of responsibilities for waste management and lines of communication should be provided.

Most of the descriptions of responsibilities outlined below are adapted from the DPKO/DFS Waste Management Policy.

3.1 Mission's sections and staff

Briefly describe the roles and responsibilities of Missions sections and staff in respect of waste management at the Mission

3.1.1 Director Mission Support/Chief Mission Support (DMS/CMS)

What responsibilities does this position have in respect of Waste Management at the Mission?

Example and considerations:

- ✓ *The DMS/CMS is responsible under the direction of the Head of Mission and in accordance with the Waste Management Policy for implementing the Mission's Waste Management Directive and issuing mission Standard Operating Procedures for waste management including procedures for waste related emergencies,*
- ✓ *Responsible for the issuance of a well informed and technically robust Mission WMP and all instructions and measures to ensure the Mission complies with the WMP to properly manage waste and to include all training and briefing of mission personnel,*
- ✓ *Noting capital works, specialist equipment and other budget requirements of the WMP and to ensure appropriate funding is budgeted and allocated and procurement initiated at an early stage to enable full implementation of the plan at an early stage,*
  Ensure the implementation of an annual waste audit to review the status and effectiveness of the WMP and waste management at the Mission and to include this audit in the Head of Missions report,
- ✓ *Other?*

REPORTING TO THE DIRECTOR/CHIEF OF MISSION SUPPORT

3.1.2 Environmental Unit

3.1.2.1 Mission Environmental Officer (EO)

What responsibilities does this position have in respect of Waste Management and Environmental performance at the Mission?

Example and considerations:

- ✓ *The mission Environmental Officer (EO) is responsible for evaluating and confirming that the mission's WMP and its activities align with the mission's Environmental Management System (in line with the global DFS Environmental Strategy) and its Mission-wide Environmental Action Plan (MEAP) and that such actions comply with the mission's environmental objectives,*
- ✓ *The mission EO is responsible for evaluating and confirming other environment activities during emergency measures or contingency during crisis or unexpected changes in the mission's activities*
- ✓ *The mission EO may also undertake WMP compliance assessments in coordination with the mission Waste Management Officer,*

3.1.3 Occupational health and safety (OHS) unit

What positions and responsibilities under this unit?

Example and considerations:

- ✓ *To ensure the supply of appropriate PPE for occupational health and safety at the Mission relevant to waste management*
- ✓ *To oversight the design of an appropriate storage floor plan for hazardous materials at PDU yards to ensure incompatible hazards are stored separately to prevent fire, explosion of other hazardous reactions between these materials*

SERVICE DELIVERY MANAGEMENT PILLAR (SDMP)

3.1.4 Chief Service Delivery Management (CSD)

What responsibilities does this position have in respect of Waste Management and Environmental performance at the Mission?

Example and considerations*:*

- ✓ *Ensure all sections under SDM contribute and conduct their responsibilities in respect of waste management in an efficient and timely manner*
- ✓ *Ensure effective oversight and support of the waste management system and progress therein in line with the Mission WMP.*
- ✓ *Engage with Pillar Chiefs and sections to ensure effective collaboration and agreement as required for the implementation of solid, biomedical and hazardous waste management at the Mission*

3.1.5 Engineering and Facility Management Section (EFMS)

3.1.5.1 Mission Chief Engineer

What responsibilities does this position have in respect of Waste Management at the Mission?

Example and considerations:

- ✓ *The mission Chief Engineer is responsible for planning and providing mission facilities to support the mission's waste management objectives and plan and is responsible for properly operating and maintaining such facilities as required by the DPKO/DFS Waste Management Policy for Field Missions,*
- ✓ *Recruitment of a Waste Management Officer*
- ✓ *Other?*

3.1.5.2 Head of Facilities Maintenance Unit

What responsibilities does this position have in respect of Waste Management at the Mission?

Example and considerations:

- ✓ *The Head of Facilities Maintenance Unit is responsible for the development of relevant SOW/SOR related to waste collection, segregation, storage and handling, transportation and disposal,*
- ✓ *The monitoring and oversight of waste management procurements and contracts,*
- ✓ *Other*

3.1.5.3 Mission Waste management officer

It is important to ensure that a Waste Management Officer (WMO) is included in the staffing table of the Engineering section of the mission. What are the responsibilities of this post;

Example and considerations:

The mission Waste Management Officer, under Engineering and Facility Maintenance Section (EFMS) as per DFS USG Fax UNHQ-DFS-OUSG-Fax-1-2017-11612 dated 7 Sept 2017 on Mission support structures, is responsible for supervising the implementation and operation of the mission's Waste Management Plan, for assessing compliance with its requirements, and is also responsible for:

- ✓ *Supporting the Director of Mission Support / Chief of Mission Support in the drafting and/or review of the mission's Waste Management Directive and WMP and any associated Standard Operating Procedures;*
- ✓ *Assisting with the procurement of third party waste collection, segregation, storage and handling, transportation, treatment and disposal contractors including the development of SOWs, TORs, and related bid tendering documentation;*
- ✓ *Assisting with the O&M of final disposal (landfill) managed by the mission. In addition; if needed, assisting the O&M of final disposal (landfill) managed by Government of the host country.*
- ✓ *Identifying, researching and reviewing the relevant Waste management laws and regulations, UN treaties and conventions, and those the host country is signatory to when considering mission waste management actions;*
- ✓ *Recording and monitoring waste management data and issues, conducting assessments and providing quarterly reports on the implementation of the WMP;*
- ✓ *Developing and undertaking mission training on waste management including induction training and periodic awareness training and notifications for civilians, military and police units;*
- ✓ *Confirming that waste management requirements under the responsibility of other areas (such as Property disposal, POL, medical or CITS), of the mission are included by that area in their budget submission;*
- ✓ *Working with other sections and stakeholders and reviewing waste disposal plans (including contingency plan) and proposed waste actions and activities made by other areas of the mission to ensure they conform with the Waste Management Policy for UN Field Missions and the mission's WMP, which should align with the MEAP;*
- ✓ *Undertaking regular inspections and evaluations of waste management practices (from source until final disposal) in all mission locations and all waste storage and disposal sites (domestic, hazardous and non-hazardous) used by the mission;*
- ✓ *Monitoring and Evaluating specific waste disposal actions when required;*
- ✓ *Liaising and coordinating with GSC and DFS/Logistics Support Division/Engineering Section;*
- ✓ *Ensuring waste considerations (including waste minimization and take-back schemes) are included in the specifications of other contracts (including supply) established and managed by the mission;*
- ✓ *Undertaking regular announced and unannounced inspections of any contractor's waste disposal, incinerator facilities, and/or reuse processes and practices in coordination with contract managers and the mission Environmental Officer, and ensuring those processes are undertaken in accordance with the relevant contract;*
- ✓ *Working closely with the mission Environmental Officer/Unit on all waste related issues including mission Environmental Baseline Studies and ensuring the mission's WMP is coordinated with the mission-wide Environmental Action Plan (MEAP) within a comprehensive Environmental Management System, as well as liaising with the military/police focal points on environment on waste management issues; and*
- ✓ *Preparing the Head of Mission's annual progress, status report, newsletter as well as inventory, on mission waste management issues for submission to Headquarters;*
- ✓ *Others*

3.1.6 Medical Services Section

What positions and responsibilities under this unit with respect to management of biomedical wastes and expired pharmaceuticals and links with military hospitals.

3.1.6.1 Chief Medical Officer (CMO)

Example and considerations:

- ✓ *The Chief Medical Officer (CMO) is responsible in close cooperation with the WMO for the development of Standard Operating Procedures for management of biomedical wastes and expired pharmaceuticals,*
- ✓ *To ensure all UN and contingent medical clinics and hospitals comply with the above SOP,*
- ✓ *Work closely with the WMO and the PDU in respect of storage and disposal of hazardous waste management materials, wastes and expired pharmaceuticals,*
- ✓ *Work closely with the WMO and EO and the COE verification inspection team to ensure that all contingent or UNOE medical waste incinerators are 'fit for purpose' and well maintained,*
- ✓ *In close cooperation with COE, FMO; CMO is responsible to ensure the final disposal of biomedical waste through incinerators and encapsulation of biomedical ashes and are comply with standard procedures and treatment and disposal of biomedical waste.*

3.1.7 Fuel unit

What positions and responsibilities under this unit?

Example and considerations:

- ✓ *To ensure the inclusion of 'POL' takeback as part of the fuel supply contract*
- ✓ *To ensure the storage, handling, transportation and final disposal or treatment of the POL are aligning with the standard procedures*

SUPPLY CHAIN MANAGEMENT PILLAR

3.1.8 Property Disposal Unit (PDU)

What positions and responsibilities under this unit? Re-hazardous waste management and development of SOW/SOR, keep an updated inventory of stockpiles, collection point for expired UNOE, COE and other assets?

3.1.5.1 Chief of Property Disposal Unit

Example and considerations:

- ✓ *The Chief of the PDU is responsible in close cooperation with the WMO for the development of SOW/SOR for hazardous waste management at the Mission,*
- ✓ *Is responsible in close cooperation with the WMO and EO for the development of a SOP for the storage and disposal of hazardous materials and waste as well as non-hazardous waste that are not classified as domestic waste at the Mission at PDU yards,*
- ✓ *To ensure updated inventory of hazardous waste stockpiles,*
- ✓ *To ensure PDU represents the collection point for expired UNOE and COE assets and hazardous wastes using a clear notice and registration procedure,*
- ✓ *If Medical Waste falls under PDU responsibility, in close coordination with CMO, handling, storage and treatment or final disposal of biomedical waste and expired medicines (through incinerator and encapsulation) are in compliance with standard and procedures*

3.1.9 Procurement Section

What positions and responsibilities under this unit?

Example and considerations:

- ✓ *Procurement section is responsible for supporting the procurement of equipment and materials to enable effective waste management at the mission,*
- ✓ *To ensure appropriate supply chain management protocols that consider the rate of usage of materials in relation to expiry dates, improvements in packaging materials and other relevant measures to prevent stockpiles of expired materials and to enable waste reduction at the mission,*

3.1.10 Acquisition Management Section

What positions and responsibilities under this section?

Example and considerations:

- ✓ *To work closely with all sections to ensure SOR/SOWs for waste management contracts comply with contracting regulations and protocols,*
- ✓ *To support contract monitoring of waste management contractors particularly dealing with any contracting issues and continued non-compliance,*
- ✓ *To receive and archive monthly contractor reports,*
- ✓ *Other?*

OPERATIONS AND RESOURCE MANAGEMENT PILLAR

3.1.11 Field Technology Section

What positions and responsibilities under this Section? Re e-waste

Example and considerations:

- ✓ *To ensure all electronic equipment is registered at the mission*
- ✓ *All end of life computers, screens and ITS equipment are verified and registered as e-waste and stored accordingly*
- ✓ *To develop innovative initiatives for e-waste minimization*

3.1.12 Finance Resourcing and Performance Section (FRPS)

What positions and responsibilities under this unit?

Example and considerations:

- ✓ *To ensure the needs of waste management under the WMP are adequately reflected in the annual budget proposals,*
- ✓ *To guide Mission personnel on how to better present 'business case' justifications to back up requested budgetary supports for waste management,*

3.2 Military and Police contingents

Briefly describe the roles and responsibilities of Military and Police contingents in respect of waste management at the Mission

3.2.1 Head of Military Component

Example and considerations:

The Head of the Military Component of the mission is responsible for instituting instructions, after consultation and in coordination with the Director of Mission Support/ Chief of Mission Support, to ensure that the military component will comply with the DPKO/DFS Waste Management Policy for Field Missions, this WMP, and the Standard Operating Procedures of the mission.

The Head of the Military Component shall:

- ✓ *Ensure that each formed military contingent's personnel and all other military personnel are aware of the DPKO/DFS Waste Management Policy and the mission's WMP;*
- ✓ *Ensure that all mission military personnel receive, as part of the environmental briefing during mission induction training, appropriate levels of awareness training on the Waste Management Policy and waste management procedures in the mission;*
- ✓ *Ensure that each contingent comply with the provision of infrastructure, equipment and other supporting tools/kits to support waste management activities during their deployment.*
- ✓ *Ensure that procedures are established for military personnel to report incidents contrary to the mission's waste management objectives through appropriate channels;*
- ✓ *Ensure that military contingents and personnel implement waste management actions and comply with this WMP in all locations in the mission including remote areas;*
- ✓ *Ensure that the military component, taking account of operational exigencies and contingent capabilities, contributes planning, operations, personnel and equipment as part of the mission's waste incident emergency response actions including taking part in mission training and rehearsals for waste incidents; and*
- ✓ *Direct that each military headquarters and each formed contingent designate a Focal Point for Waste Management in line with fax 2018.UNHQ.FGS.FAX.38977.3 dated 27 March 2018 from OMA on the designation of Military environmental focal points.*
- ✓ *Other?*

3.2.2 Military Environmental Focal Point

Example and considerations:

- ✓ *The Military Environmental Focal Points are to support the mission's WMP and are to work with the mission's Waste Management Officer on the management of waste actions and other waste management issues in the military component. At the camp level, focal points should keep an inventory of hazardous substances (including hazardous waste) present at the camp and send a quarterly inventory report to the relevant person indicated in the mission SOP*
- ✓ *For efficiency and effectiveness, and in line with 2018.UNHQ.FGS.FAX.38977.3 from OMA on the designation of Military environmental focal points it is preferable that the designated Waste Management Focal Points also be the appointed Environmental Focal Points as required under the DPKO/DFS Environmental Policy for UN Field Missions.*
- ✓ *The Military Environmental Focal Points are responsible to monitor and maintain facilities including the supporting equipment and infrastructures supporting waste management activities.*
- ✓ *Monitoring and Reporting of waste management activities within the contingent camp and report on the monthly basis to the WMO*

3.2.3 Head of Police Component

Same as for Head of Military Component except for word changes to match this position (except for the reference of the fax)

3.2.4 Police Environmental Focal Point

Same as for Military Environmental Focal Point except for word changes to match this position (except for the reference of the fax)

3.3 Mission-level Waste Management Contractors

All waste management contractors both local and international should be listed here either as a list or in tabular form like the following example;

Example and considerations:

Detailed responsibilities for contractors can be found in the contractors submitted workplans as part of the contractor agreement.

Table ?: List of contractors for specific waste streams, summary personnel details and general contract responsibilities

Contractor name	Waste stream/s under contract	Total no. of personnel	Contractor Supervisory positions	Lead section managing the contract	General contract responsibilities
Contractor 1	Solid and Medical Waste	44	Waste Manager, Waste Supervisor Waste management collection supervisor Maintenance	FMU	Collection and transportation, storage, incineration, recycling of plastics and aluminum cans, and landfill
Contractor 2	Used petroleum, oil and diesel products	3	Waste coordinator	PDU	Collection, transportation of POL for reprocessing
Contractor 3	Scrap metals	3	Waste coordinator		
Contractor 4	Vehicle batteries and used tires	4	Waste manager		
Contractor 5	Plastics	4	Recycling manager		
Contractor 6	Glass	3	Recycling manager		
Contractor 7	E.waste	10	Facility Manager, Dismantling Supervisor Dismantlers		

3.4 Waste Equipment sourcing/procurement support

Provide details of the waste management equipment sourcing/procurement support such as use of global or local systems contracts, supply from GSC strategic deployment stocks (SDS) or the use of local procurement acquisition (LPA).

Example and considerations:

Waste management at the Mission is supported by the following equipment sourcing/procurement options including supply of waste management equipment from global or local systems contracts, supply from GSC SDS or through local procurement acquisition (LPA)

List table of equipment supply options for each type of equipment for waste management

E.g. Table ?: List of equipment supply support options for waste management equipment

Sourcing option name/number	Item description	No. of units	Inclusions (e.g. spares, training)	Date of order	Date of Arrival
LSD GLOBAL System contract (LX 2345)	Incinerator type 1	8	Spares (2 years) Installation, commissioning, Vendor training on operational and maintenance		
LOCAL System contract (LX1234)	Incinerator type 2	20			
GSC SDS (MX1234)	Shredder	8			
LPA (LP1234)	Bulb crushers	4			

4 WASTE MANAGEMENT INFRASTRUCTURE

4.1 Property Disposal Unit (PDU) and Receipt of Hazardous Wastes at the PDU Yards

A description of the role the PDU plays in hazardous waste management should be provided.

Example and considerations:

The Property Disposal Unit is responsible for receiving all hazardous wastes from UN facilities, and military and police contingents. The PDU receives and stores hazardous waste at the following PDU yards;

- ✓ *The central PDU yard based in Bamako that receives hazardous waste from the Southern and Western sectors,*
- ✓ *The PDU yard based in Gao receiving hazardous waste from the Eastern sector,*
- ✓ *The PDU yard based in Timbuktu receiving hazardous waste from the Northern sector.*

A typical area layout for a PDU yard showing facilities, hazardous waste storage areas and waste management equipment is provided in Appendix??

Describe in brief what functions the PDU unit undertakes in respect of hazardous wastes including;

- ✓ *Receipt of hazardous wastes,*
- ✓ *Appropriate segregation and storage of wastes,*
- ✓ *Any disposal treatments for hazardous wastes (e.g. incineration, shredding, bulb crushing, encapsulation etc),*
- ✓ *Any arrangements made from the PDU for collection of hazardous wastes by contractors for recycling or disposal.*

4.2 UN Owned Equipment (UNOE) for waste management

Outline all UNOE equipment that is used for waste management on a sector and site by site basis. This information will form the basis for assessing whether any investment is required for UNOE equipment for budgeting purposes and should consider the replacement cycle for each type of equipment.

A table format is provided on the following page however if the Mission has many sectors and sites it may be best to develop this as an Excel file in a similar format to the MEAP tables and include this file as an annex. The table below could then be used to summarize the type and number of each type of equipment either by sector or a single total for the Mission.

4.2.1 UNOE equipment observations

Specific observations or issues of UNOE equipment should be elaborated here;

Example and considerations:

- ✓ *Log base facility does not have any emissions monitoring system for their incinerators*
- ✓ *PDU facility are using incinerators that do not reach acceptable operating temperatures*
- ✓ *All incinerators have been inspected and comply with performance specifications*
- ✓ *Contingent equipment was found to not conform with performance specifications and has been condemned as out of service*
- ✓ *Shredders have been procured but have not been used due to a lack of operator training*
- ✓ *Other?*

Example and considerations:

Put in a table the details of all UNOE related to waste management. If the mission has many sectors and sites this may be better developed as an Excel format and placed as an Annex in the WMP. In that case this table could provide the total summary for each sector and the total no of units for the mission

Table ?: List of all UNOE equipment for waste management by site (apart from drum incinerators all others units should be pyrolytic twin chamber units).

	SECTOR 1					SECTOR 2				SECTOR 3						
Equipment item (product code)	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	PDU Yard 1	PDU Yard 2	PDU Yard 3	Total no. of units
Incinerator type 1 LARGE (LX 45050) (mean operating temperatures = 850-1100ºC)	1	2														
Incinerator type 2 MEDIUM (LX 41234)	1	1														
Incinerator type 3 SMALL (LX 41567) – MEDICAL UNIT	1	1														
Incinerator type 4 BARREL (LX 41234)	1	1														
Shredder LARGE (LX ??????)	1	1														
Shredder LARGE (LX ??????)																
Compactor (LX ??????)																
Bulb crusher (LX ??????)																
Encapsulation moulds (LX ??????)																
Chemical treatment tank (LX ??????)																
Waste bins (volume?)																
Waste bins (volume?)																

4.3 COE equipment for waste management

Outline all COE equipment that is used for waste management on a sector x contingent x site basis. This information will form the basis for assessment of used COE equipment at the mission ensuring that it is 'fit for purpose' for the activity it is used for and this should consider the replacement cycle for each type of equipment. The Mission should consider that centralized heavy-duty incinerators operated by missions can reduce the need for small scale incinerators at TCC/PCC level.

A table format is provided on the following page however if the Mission has many sectors, contingents and sites then it may be best to develop this as an Excel file in a similar format to the MEAP tables and include this file as an annex. The table below could then be used to summarize the type and number of each type of equipment either by sector or a single total for the Mission.

4.3.1 COE equipment observations

Specific observations or issues of COE equipment should be elaborated here;

Example and considerations:

- ✓ *??? contingents do not have any emissions monitoring system for their incinerators?*
- ✓ *??? contingents are using brick-built incinerators*
- ✓ *??? contingents are using incinerators that do not reach acceptable operating temperatures*
- ✓ *All incinerators have been inspected and comply with performance specifications*
- ✓ *??? equipment was found to not conform with performance specifications and has been condemned as out of service*
- ✓ *??? contingents are using analog X ray equipment despite the instructions from HQ to change to non-polluting digital X ray systems,*
- ✓ *Other?*

Example and considerations:

Table ?: List of all COE equipment for waste management by site/contingent name*. If the mission has many sectors, contingents and sites this may be better developed as an Excel format and placed as an Annex in the WMP. In that case this table could provide the total summary for each sector, contingents or the total no of units for the mission.*

Equipment item	Contingent/Site 1	Con/Site 2	Con/Site 3	Con/Site 4	Con/Site 5	Con/Site 6	Con/Site 7	Con/Site 8	Con/Site 9	Total no. of units
Waste bins (volume?)	10	15								
Waste bins (volume?)	5	8								
MEDICAL Incinerator type 1	1	1								
Incinerator type 2 (med unit)	1	1								
Shredder	1	1								
Compactor										
Bulb crusher										

4.4 Contractor waste management yards and equipment

Describe the number of contractor waste management yards and include a typical yard layout including the siting of all contractor equipment/facilities at that location.

Example and considerations:

A typical area layout indicating facilities and equipment for a contractor waste management yard is provided in Appendix ? If the mission has many sectors, contingents and sites this may be better developed as an Excel format and placed as an Annex in the WMP. In that case this table could provide the total summary for each sector, and contractors.

Indicate the arrangements for the contractor equipment - is it UNOE owned, contractor owned or leased by the contractor.

Table ?: List of all contractor equipment for waste management by site/contingent name.

Equipment item	Site 1	Site 2	Site 3	Site 4	Site 5	Site 7	Site 8	Site 9	Site 10	Total no. of units
Waste bins (volume?)	10	15								
Waste bins (volume?)	5	8								
Incinerator type 1	1	1								
Incinerator type 2 (med unit)	1	1								
Shredder	1	1								
Compactor	1	1								
Bulb crusher	1	1								
Etc.										

4.5 Landfill sites

Indicate all authorized landfill sites used by the mission including UN, government, and contractor sites.

4.5.1 5.5.1 Landfill Observations

Specific observations or issues of landfills used by the mission should be elaborated here;
Example and considerations:

- ✓ *UN Landfill 1 is nearly full and will be compacted and covered next month with a replacement landfill to be dug,*
- ✓ *Contractor landfill has leachate escaping from the site, fences are inappropriate*
- ✓ *All municipal landfills are not fenced and are heavily scavenged,*
- ✓ *Contractor ash landfills are used for medical waste ash only,*
- ✓ *Other?*

Example and considerations:

Briefly describe the level of control at each site and whether they are secured locations. Mention whether scavenging occurs or not.

Table ?: UN, Municipal and contractor landfill sites and levels of control

Landfill name	Site location	Lined	Actively covered	Leachate collection	Leachate treatment	Methane controls	Secured (e.g. fenced)	Scavenged	Inspected/ Monitored
UN LF1	UN Gao Supercamp	Y	Y	Y	N	N	Y	N	Y
UN LF 2	Timbuctuu Supercamp	Y	Y	Y	N	N	Y	N	Y
UN LF 3	Bamako	Y	Y	Y	N	N	Y	N	Y
Municipal LF 1	Bamako	N	Y	N	N	Y	Y	Y	
Municipal LF 2	Gao	Y	Y	N	N	N	Y	Y	
Contractor LF1	Bamako								
Contractor LF2	Gao								
Contractor Ash LF 1	Bamako								
Contractor Ash LF2	Gao								

4.6 Recycling facilities

Indicate any recycling facilities that are used by the mission and/or contractors and what waste products are recycled at these locations. Indicate whether these sites have been inspected within the past x months and note the date.

Example and considerations:

Table ?: Recycling facilities used by the mission for specific waste streams

Name of facility	Facility location	Waste stream recycled	Inspected/Monitored
R. Bloggs recycling	Goma	Glass, PET bottles	Y
Alu-recycle	???, Rwanda	Scrap metals, Aluminium cans	N
Plastico	Goma	All plastics containers, plastic sheeting	Y

5 WASTE MANAGEMENT PROCEDURES

This section will detail all waste management procedures implemented at the Mission so that a clear picture of the waste management system is conveyed.

5.1 Waste Management Standard Operating Procedures (SOPs)

List all standard operating procedures (SOPs) that are relevant for waste management under the WMP. Typically, there would be an SOP for solid waste management, one for hazardous waste management and one for medical waste management although all three could be combined into one SOP. This however would require collaborative inputs from the relevant units for each waste type (e.g. Eng, PDU, Medical). Other relevant SOPs would include cleaning operations and supply chain management (e.g. expired goods).

For those missions where no SOPs have been developed a SOP template is provided in Annex ??

Example *and considerations:*

The following Standard Operating Procedures relating to waste management have been approved for the Mission (name of mission) and can be found in Annexes ?-?

1. *SOP- Solid Waste Segregation, collection, transportation, treatment and disposal*
2. *SOP- Property Disposal Unit -For the Collection and Storage of Hazardous Waste and Other Materials for Disposal,*
3. *SOP- Medical Unit - Medical waste,*
4. *SOP- Engineering Unit – Facilities and Camp Management Services,*
5. *SOP- Supply Chain Management,*
6. *Other?*

5.2 Classification and Estimation of Waste Materials

5.2.1 Waste definition

For this Mission WMP waste is defined as;

'Any substance, agent, effluent, object, material or equipment to be discarded, destroyed or disposed of, which has been generated through any UN field mission operation, activity or process. It does not include material or equipment being processed in accordance with the DFS Guidelines on Disposal of Property in United Nations Field Missions except where the outcome of that process is disposal' (Section F: Terms and definitions para 83 DPKO/DFS Waste Management Policy for Field Missions)

5.2.1.1 Hazardous waste

For this Mission WMP hazardous waste is defined as;

'Waste material that may cause damage to human health or the environment that requires precautions when storing, handling, transporting or disposing due to its toxicity, corrosiveness, ignitability or reactivity'. (Section F: Terms and definitions para 83 DPKO/DFS Waste Management Policy for Field Missions)

5.2.2 Waste stream characterization and generation assessment

Briefly describe the waste stream characterization and generation assessment method used for the various wastes streams found at the mission and provide the results either in table form or as a chart (e.g. pie chart) for solid and hazardous waste. Ideally, draw on the data collected for the MEAP under the waste pillar, making use of the excel template provided which supports estimation methods.

Example and considerations 1 – non-hazardous waste streams, i.e. general solid waste:

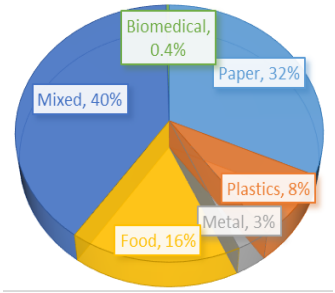
The following non- hazardous waste stream examples are generated by the Mission

- ✓ *Food waste,*
- ✓ *Aluminum cans,*
- ✓ *Glass,*
- ✓ *Plastics,*
- ✓ *Metal,*
- ✓ *Paper/cardboard,*
- ✓ *Mixed,*
- ✓ *Used mattresses*
- ✓ *Outdated/expired riot protection shields and ballistic body armor*
- ✓ *Expired and/or spoiled ration packs*
- ✓ *Wooden scrap/furniture*
- ✓ *Etc.*

Volume (m3) and/or weight (kg) estimates for generated non- hazardous waste streams are calculated using the following approach;

- ✓ *A six-day exercise was conducted at nine selected waste collection points three times through the year in January, May and October. For each day all waste streams were segregated by type and placed into separate containers. Each waste type was then weighed minus the weight of the container and recorded. This was repeated for each day with the average weight calculated for each waste stream on a daily and seasonal basis*

Solid waste generation estimates by weight, volume and percentage for the mission were obtained with the proportional relevance provided in the following table/chart



Waste generation estimation for solid waste is required to conform with the requirements outlined in the Instruction Manual 2.0: Environmental performance and risk assessment data gathering guidance document

Example and considerations 2 – hazardous waste streams:

The following hazardous waste stream examples are generated by the Mission;

- ✓ *Vehicle batteries, other batteries,*
- ✓ *E-waste,*
- ✓ *Waste petroleum, oil and lubricants (POL),*
- ✓ *Used oil filters,*
- ✓ *Fluorescent light bulbs,*
- ✓ *Used tires,*
- ✓ *Scrap metal,*
- ✓ *Biomedical wastes, including infectious and contaminated materials, sharps and expired liquid and solid drugs,*
- ✓ *Obsolete chemicals,*
- ✓ *Soil contamination,*
- ✓ *Radioactive materials,*
- ✓ *Laboratory reagents*
- ✓ *Mercury and mercury containing equipment*
- ✓ *X-ray solutions and films,*
- ✓ *Incineration ash*
- ✓ *Etc.*

Volume (m3), weight (kg) or number estimates for each type of hazardous waste streams are calculated
Waste generation estimation for hazardous waste is required to conform with the requirements outlined in the Instruction Manual 2.0: Environmental performance and risk assessment data gathering guidance document

The following pie chart provides the proportional contribution of each hazardous waste type;

Please add a pie chart as in the previous example;

5.3 Waste reduction and supply chain management

The overall reduction of waste is a primary objective across UN facilities and missions and therefore is of paramount importance to provide clear actions on how waste reduction will be achieved at your mission.

Indicate the efforts made by the mission to minimize waste generation and what actions are being taken in respect of procurement and supply chain management, in full compliance with existing rules and regulations, so that oversupply of specific products is prevented, especially for those materials that have short cycles for expiry.

Example and considerations:

- ✓ *Procurement of materials for the mission is as much as possible based on a strict 'rate of use formula' to reduce oversupply and accumulation of stockpiles as a result of product expiration,*
- ✓ *Preference is given to vendors who operate 'take back schemes',*
- ✓ *A register is kept for the procurement of all hazardous materials with alternative less hazardous materials continually sought as viable replacements where possible, and in accordance with existing rules and regulations*
- ✓ *What actions are implemented to reduce printing, water use to prevent waste plastic containers, vendor packaging*
- ✓ *Other?*

5.4 Non-hazardous solid waste segregation, containment and collection

Describe the procedure and requirements for non-hazardous solid waste segregation, the various waste containment systems at the mission and the process of collection and transportation for these wastes. – Internal, Contractor, Contingents, etc

Mention any awareness campaigns that have been conducted but refer for details in the relevant later section.

Example and considerations: Segregation and containment

Waste segregation is encouraged using colour coded containment bins placed at UN facilities, contingent camps and contractor waste management yards.
Bin types are comprised of four sizes;

- ✓ *25L internal bins (offices, facilities),*
- ✓ *60L wheelie bins with hinged lids in group clusters throughout UN facilities and contingent camps to facilitate segregation and pre-collections of wastes inside camps,*
- ✓ *240L and 360L wheelie waste bins with hinged lids placed in group clusters at specifically designated and constructed waste collection points.*

The colour coding system for waste segregation is as follows (all bags as much as possible should be biodegradable);

- ✓ *Yellow – Glass, metals and aluminum – yellow bags,*
- ✓ *Black – Food and organic wastes – black bags,*
- ✓ *Blue – Paper and Cardboard – blue bags,*
- ✓ *Green - Pet bottles, plastics, plastic packaging – green bags,*
- ✓ *Red – Biohazard – medical wastes - red bags, (these wastes are covered in the next section)*
- ✓ *Pink – mixed waste- clear bags.*

Labels identifying the waste type are placed on three sides of the assigned coloured bins. Label designs are provided below;

Figure ?: Design of labels for colour coded bins

(PLACE IN THE DESIGN)

A specific awareness campaign (see section ???) to encourage effective waste segregation will be implemented through;

- ✓ *Environmental inductions for new UN or contractor personnel and rotation of military and police contingents,*
- ✓ *Use of posters placed around all mission facilities and contingent camps,*
- ✓ *Other awareness initiatives (e.g. telephone screen campaign and waste focus days.)*

Example and considerations: collection and transportation

- ✓ *Solid wastes are collected from each camp at designated waste collection points consisting of a 4m x 3m roofed metallic containment cage installed to house ten 240L/360L wheelie bins depending on the volume of the waste streams at the location and which is lockable to prevent people and animals from gaining access,*
- ✓ *Collection is conducted by a contractor/UNOE? roofed/compactor/closed/tarpaulin covered vehicles with volumes ranging between 10-20m^2, The number of collection vehicles within each sector is provided in Table ?,*
- ✓ *All vehicles have regular maintenance checks and servicing, fully documented and logged.*

Table ?: Solid waste collection vehicles per sector

Sector	Bangui	North	East	West
No. of trucks (Volume 10-20m^3)	3	5	3	6

- ✓ *To aid in waste volume reduction hand bottle and can crushers are placed at each waste collection point and all cardboard materials (e.g. boxes) are to be flat packed prior to their collection. Non-flat packed carboard materials will not be accepted for collection,*
- ✓ *All wastes are removed from the bins using the bag coding system as outlined in the previous section,*
- ✓ *Waste volumes are signed off using the designated waste collection transfer note or manifest (WTN's) by ? at UN facilities and by the environmental focal point at contingent camps. WTNs are fundamental to ensuring wastes are transferred from the producer through the transportation chain to the disposer and provided a record of due diligence and duty of care. An example waste collection transfer note is provided in Appendix ?? or is using a scale at each exit?*
- ✓ *All personnel loading and operating collection vehicles will wear appropriate PPE including*
  - *Overalls, high visibility vests, steel toe capped boots and gloves,*
  - *When loading or transferring liquid wastes safety glasses or a visor will be worn,*
- ✓ *Other?*

5.5 Hazardous waste segregation, containment, collection and storage

Outline the procedures and requirements for hazardous waste segregation, containment, collection, and the appropriate storage of hazardous materials and wastes to avoid potential incompatible interaction. This should include off the ground storage ideally in a roofed and appropriately bunded storage area so as to avoid soil contamination. Each type of hazardous material/waste should be clearly labelled and with the relevant Material Safety Data Sheet, which outlines all specifications and emergency procedures also placed in front of the material/waste. Emergency spill kits and appropriate fire prevention should be available at the storage location and all workers must use the appropriate PPE in line with the type of material being addressed.

Mention any awareness campaigns that have been conducted but refer for details in the relevant later section.

Example and considerations:

The procedures for the segregation and collection of Hazardous wastes and their appropriate storage are indicated in Table?;

Table ?: Hazardous waste collection and storage

Hazardous waste type	Collection method	Storage location	Final fate
Vehicle batteries	Delivered by contingents/facilities to PDU	PDU	Contractor recycling
Petroleum, oils and lubricants (pol)	Collected directly by contractor from contingents/facilities	Contingent camps/PDU	Contractor recycling
Chemicals	Delivered by contingents/facilities to PDU	Appropriately segregated at PDU	Chemical treatment
Printer cartridges	Collected as part of solid waste cycle	PDU	Take back scheme by supplier
Expired pharmaceuticals	Collected as part of solid waste cycle	PDU	Incineration/encapsulation
Etc.			
Used tires			
E.waste			

- ✓ *A hazardous waste inventory will be kept for all hazardous wastes at each site before being handed over to the yard and then to contractors,*
- ✓ *Transportation of hazardous wastes will require a specific Task Order that outlines the waste to be transported and information on any risks and measures taken to mitigate the risk,*
- ✓ *Biomedical wastes, including expired medical products, pharmaceuticals, medicines, sharp products and infected wastes will be segregated in specific red Biohazard containers or sharps containers and transported in red waste bags or their specific containers,*
- ✓ *Biomedical wastes are collected. from all civilian and military medical clinics and hospitals and taken by the contractor waste management yard/medical unit/PDU for incineration*
- ✓ *All hazardous wastes will be segregated according to their type and compatibility (e.g. corrosives, oxidizers, acids, akalines, toxic and flammable materials etc.) off the floor on pallets in a bunded area,*
- ✓ *Hazardous wastes will be appropriately labelled and stored with a relevant Materials Data Safety Sheet (MSDS),*
- ✓ *Any unidentified waste will be quarantined at the hazardous waste storage site and undergo sampling and testing to confirm presence or otherwise of hazardous components,*
- ✓ *When loading or transferring hazardous liquids in addition to standard PPE a chemical splash suit will be worn by personnel, check with Occupational Health and Safety unit for PPE availability*
- ✓ *An emergency response plan will be prepared and all authorized personnel will be aware of and trained in the emergency procedures in the event of an accident or spill,*
- ✓ *Emergency response equipment and materials are available in both the transporting vehicle and at the hazardous waste storage site.*

5.6 Reuse, recycling and recovery of wastes

5.6.1 Reuse of waste

Describe the procedure and requirements for any reuse of waste that is conducted at the mission;

Example and considerations:

- ✓ *Some waste timber is sent to? sorted and reused as.? [eg in Gao mali, the Dutch contingent gave to local villages with support of Env unit, but that was only there and them]*
- ✓ *A proportion of waste tires are shredded and reused for flooring of children's playgrounds,*
- ✓ *Some PET bottles have been used to construct…,*
- ✓ *Some paper has been reused for briquettes*
- ✓ *Other?*

5.6.2 Take back schemes

Describe the procedures and requirements for any take back schemes operated by suppliers;

Example and considerations:

- ✓ *Printer cartridges are collected by the IT supplier and reconditioned and reused,*
- ✓ *POL is collected by the fuel supplier to be reprocessed and used for incinerator fuel,*
- ✓ *All mission computers are taken back by vendor?*
- ✓ *Other?*

5.6.3 Recycling

Describe the procedures and requirements for any existing recycling of waste streams;

Example and considerations:

- ✓ *In Bamako all plastic containers and PET bottles are sent to Sotroplast Ltd by the waste contractor Ecolog, for shredding, washing and extrusion heat reformulation into plastic water pipe and electrical conduit. The plastic materials are delivered by the Solid waste contractor on a monthly basis – show photos of the process and indicate the volume of materials that are dealt with using this process,*
- ✓ *Recycling of aluminum beverage cans is conducted by Alumetals Ltd to produce aluminum ingots for resale.etc…*
- ✓ *Waste petroleum, oils and lubricants are sent for refining to be used either as a fuel source or ?????,*
- ✓ *Vehicle lead acid batteries are drained of their acid into appropriate storage containers and thereafter are sold to a local contractor where they are manually stripped to enable the segregation of plastic and lead,*
- ✓ *Other recycling?*

5.6.4 Export of waste to specialist facilities

Describe the procedure and requirements for the export of wastes to external specialist facilities and where and how the export/authorizing documents are archived;

Example and considerations:

- ✓ *E.waste is accumulated into 20' containers at the central PDU yard and when full is exported to 'WasteSort Inc.' in Entebbe for dismantling, separation and recycling. All shipments are exported as re-usable electronic items avoiding the need for the prior informed consent procedure/ or - as electronic waste and dealt with in accordance with the Basel Convention through the Prior Informed Consent Procedure (PIC)…,*
- ✓ *Other wastes exported….?*

5.6.5 Recovery of wastes

5.6.5.1 Composting

Describe the procedure and requirements for composting at the mission and how this is implemented and monitored. This can include pilot or full-scale studies either centralized or conducted at UN facilities and/or contingent camps;

Example and considerations:

- ✓ *All organics and a proportion of waste paper/cardboard is sent for composting at the UN composting site/contractor waste yard/ using a simple windrow/aerated windrow/automated auger/rotating composting. A total of four sites in sectors,*
- ✓ *Upon arrival organic materials are pre-sorted to remove any contaminating materials such as metals, plastics and glass and thereafter are mixed with other bulking materials to conform with pre-determined feedstock recipe meeting optimum Carbon to Nitrogen ratios (25:1- 30:1),*
- ✓ *Cardboard and paper is shredded prior to being stored for feedstock mixing,*
- ✓ *The feedstock mix is then placed into the windrow system and in line the Standard Operating Procedure for composting is regularly turned, measured (e.g. temperature, moisture content), treated and monitored through the composting process,*
- ✓ *Composting cycles extend between 21-45 days and when threshold of reduced biological activity is reached indicating maturity the material is moved to the final curing area for approximately 2 weeks,*
- ✓ *Once cured the final compost is placed into 20kg bags and stored until required for distribution within UN or contingent camp facilities or provided to local communities as an agricultural fertilizing resource,*
- ✓ *Full records are kept on the quantities of organics arriving at the composting area and quantity of compost produced.*

5.6.5.2 Energy recovery

Describe the procedure and requirements for any energy recovery from wastes (e.g. combustion to energy, bio-gasification or pyrolization) conducted at the mission and how this is implemented and monitored, including looking at possible safety issues;

Example and considerations:

- ✓ *All organics are placed into an anaerobic digester and the bio-gas produced from this process is used to fuel the electrical Gensets in the waste management contractors yard,*
- ✓ *Biogas digester is placed at XX meters from any accommodation/office*
- ✓ *Other?*

5.7 Incineration and ash disposal for non-hazardous solid wastes

Describe the general incineration procedure and requirements for non-hazardous solid wastes at the mission in particular, the functioning temperature (theory and monitored) to ensure non-harmful emissions, as well as the filters, and regular monitoring process of emissions (including regular reporting and ad hoc inspections/measurements) and how the derived ash wastes are dealt with;

Example and considerations:

- ✓ *All non-recoverable solid wastes not sent for reuse, recycling or composting are incinerated at the main sector UN waste yards/PDU yards/contractor waste yards,*
- ✓ *All wastes to be incinerated must be stored to keep the wastes dry,*
- ✓ *The size of incinerator used at each waste management yard is based on the average total quantity of solid waste collected from the locations covered by that site/sector and range from 175kg/day to 2000kg/day through the mission (see table in section ??),*
- ✓ *All incinerators use a two-chamber design reaching a maximum temperature of 1100^{o}C with a 2 second retention time, utilize additional diesel fuel supplementation connected directly to diesel tanks or other highly flammable waste materials to support optimum operation of the equipment with both operations and emissions conforming to stringent international health and operating standards*
- ✓ *All incinerators will have extended chimney stacks at least 5m above any roof lines,*
- ✓ *All incinerators have regular monitoring of their emissions, eg. NO^{X} level etc.,*
- ✓ *All wastes to be incinerated are prior sorted and mixed to conform with a pre-determined feedstock mix to ensure incineration efficiency,*
- ✓ *Solid waste ash is collected and sent to the municipal landfill/UNOE landfill/contractor landfill.*

5.8 Incineration and ash disposal of medical wastes

Describe the general incineration procedure and requirements for medical wastes at the mission in particular, the functioning temperature (theory and monitored) to ensure non-harmful emissions, as well as the filters, and regular monitoring process of emissions (including regular reporting and ad hoc inspections/measurements) and how the derived ash wastes are dealt with;

Example and considerations:

- ✓ *Biomedical wastes from the following contingent medical clinics and hospitals are incinerated using on site COE incineration equipment signed off by the Waste Management Officer as conforming to ????. the minimum specifications for this type of incineration;*
  - *Indian level III hospital – sector east,*
  - *Argentinian level III – sector west,*
  - *Chinese level I medical clinic – sector north,*
- ✓ *Etc. Biomedical ash waste from the above sites is placed into specially constructed and lined medical waste ash mono-fill pits at each contingent camp/ or collected by the solid waste contractor and taken to?*
- ✓ *Biomedical wastes from all other mission and contingent medical clinics and hospitals are collected by the ??? contractor and transported to the contractor waste management yard for incineration,*
- ✓ *Biomedical ash waste is placed into specially constructed and lined medical waste ash mono-fill pits at these yards or alternatively encapsulated in a cement/sand/gravel mix and sent to external landfill,*
- ✓ *Each ash mono-fill pit is designed to last for a minimum period of three years and when full are closed with a concrete cap and covered with a layer of soil. Full design specifications are provided in Appendix ??*
- ✓ *If the incinerators at medical clinics and hospitals do not conform with the minimum specifications the medical waste should be sent to the UNOE solid waste incinerators and burnt separately with the ash dealt with in the above listed manner*

5.9 Incineration and ash disposal of other hazardous wastes

Describe the general incineration procedures and requirements for hazardous wastes at the mission, in particular the functioning temperature (theory and monitored) to ensure non-harmful emissions, as well as the filters, and regular monitoring process of emissions (including regular reporting and ad hoc inspections/measurements) and how the derived ash wastes are dealt with.

Example and considerations:

A range of hazardous wastes are incinerated along with non-hazardous wastes according to the incinerators operational procedures. Hazardous wastes that can be incinerated include;

- ✓ *Contaminated PPE and oily rags,*
- ✓ *Small quantities of oily sludge,*
- ✓ *Oil filters/ process filters,*
- ✓ *Paints (see below) that have been allowed to dry out through the removal of their lids. Metal tins can be recovered from the bottom ash and recycled if all paint residues have been destroyed,*
- ✓ *Hazardous wastes containing heavy metals should **NEVER** be incinerated.*
- ✓ *All ash derived from the incineration of hazardous waste should be placed in the ash mono-fill pits used for medical waste ash*

5.10 Landfill

Describe the procedure for landfilling at the mission considering including the minimum requirements of impermeable layer, fencing etc. as outlined in the MEAP guidance manual;

Example and considerations:

- ✓ *In line with the waste management hierarchy and Mission strategy less than 3% of the total solid waste produced at the mission is sent to landfill,*
- ✓ *Wastes include solid waste incineration ash, ???,*
- ✓ *Waste is landfilled at the following sites ……UN, Municipal, contractor,*
- ✓ *Wherever a nationally approved and/or suitable site is permanently **not** available MINUSCA will dispose of its waste by trench burial (absolute last resort and a short-term measure).*

5.11 Hazardous waste chemical treatment

Describe the procedures for any chemical treatment such as neutralization of any hazardous chemicals or the remediation of contaminated soils at the mission;

Example and considerations:

- ✓ *Depending on the type of hazardous chemical or type of soil contamination a range of chemical treatments can be conducted to enable safe disposal and include;*
  - *__Dilution and neutralization__ whereby acids or alkaline products both powder and liquid form are diluted with water ranging from 10-50:1 ratios and then either acid such as citric or hydrochloric acid or caustic soda (sodium hydroxide) added to bring the product to a pH level between 7-8. Thereafter the product may be released either into a sewerage system or onto a tarmac road surface for evaporation. This process is conducted for the acid removed from vehicle batteries prior to their sale,*
  - *__Alkaline hydrolysis__ whereby the chemical is first diluted with water ranging from 10-50:1 ratios and then caustic soda added to reach a high pH (10-14) and the product left for several days for the active ingredients to be denatured/decomposed. After this period acid products are added to bring the solution to a pH of between 7-8 and thereafter the product is released onto a tarmac road surface for evaporation.*
  - *Soil bioremediation whereby the soils are treated with black soap, chicken manure and ……*

5.12 Other alternative treatment methods e.g. encapsulation

Describe any alternative treatment or disposal methods used for waste materials at the mission giving the steps and in what situations they are used;

Example and considerations:

- ✓ *In particular circumstances, the following wastes may undergo encapsulation prior to dumping in landfill;*
  - *Expired pharmaceutical products that cannot be incinerated,*
  - *Biomedical waste ash,*
  - *Bituminous materials,*
  - *Some hazardous chemicals after sand soaking to convert from liquid to sand sludge*
- ✓ *Encapsulation involves the mixing of the above products into a cement/sand/gravel mix to bind the materials together into a hardened mix. This is achieved either using a specially constructed mold or through the use of surplus concrete culverts with the waste materials placed inside and the two ends capped using rebar and concrete. Encapsulation of these materials prevents the possibility of scavenging and reuse of expired pharmaceuticals and medical waste ash and sharps to prevent safety or injury issues,*
- ✓ *For fluorescent tubes and bulbs a specially designed bulb crusher including a vacuum system, carbon and HEPA filters will be utilized to ensure mercury vapor is absorbed and held leaving a remaining glass powder mix that can be encapsulated for disposal at landfill.*

5.13 Destruction of contaminated metal and plastic containers

Describe the procedure for cleaning and disposing of contaminated containers to ensure that they cannot be reused;

Example and considerations:

- ✓ *All contaminated containers will undergo de-pollution through triple rinsing followed by destruction to prevent their reuse,*
- ✓ *Rinsing of the containers will need to be done in areas which collect wastewater to go to WWTP*
- ✓ *All wash waters will be processed via the waste water treatment system,*
- ✓ *Metal drums will be kept for later encapsulation treatments while plastic containers will be shredded using a mechanical shredder, crushed, cut, or drilled to prevent reuse*
- ✓ *The resulting plastics are then stored with other hard plastics destined for recycling.*

6 WASTE REPORTING, INSPECTIONS AND MONITORING

6.1 Waste reporting

Provide a summary overview of the waste reporting system and documentation that is conducted at the mission. Refer to the environmental score card, waste pillar data collection re-indicators + annual UN system-wide inventory;

Example and considerations:

The following reporting and documentation for waste management is conducted;

- ✓ *Monthly solid waste contractor report,*
- ✓ *Monthly medical waste register report,*
- ✓ *Monthly PDU hazardous waste register report,*
- ✓ *Monthly hazardous waste contractors tracking reports,*
- ✓ *Monthly waste verification report using waste transfer notes,*
- ✓ *Annual waste management report.*
- ✓ *Annual waste inventory*
- ✓ *Environmental performance and risk management system on waste*

The purpose of the above reports is*;*

- ✓ *To confirm the accuracy of reporting,*
- ✓ *To ensure the WMP is being implemented correctly and that standards are being met,*
- ✓ *To monitor waste generation and specific streams to identify trends and priority areas for improvement,*
- ✓ *To produce key statistics for annual reporting,*
- ✓ *To report findings to Mission and HQ management.*

6.1.1 Solid waste contractor report

Describe the procedure for the solid waste contractor reporting in line with the requirements of the SOW/SOR and final contract obligations;

Example and considerations:

The Solid waste contractor provides a monthly report to the Head of the Facilities Management Unit, the Waste Management Officer (also available tothe Environmental Unit) which includes the following items;

- ✓ *The volume of waste collected for that month?*
- ✓ *Type or characteristic of wastes per site?*
- ✓ *Percentage by type of waste treatment (e.g. incineration, alternative treatment, landfill,)?*
- ✓ *Volume for reuse and recycling and recovery?*
- ✓ *Volume of decomposable materials for composting and volume of cured compost?*
- ✓ *Incineration records and emission testing sheet?s*
- ✓ *Equipment maintenance records?*
- ✓ *Issues or requirements?*

The monthly report is submitted together with the monthly invoices and all supporting documentation. The precise contractor report format is provided in Appendix ?

6.1.2 Monthly medical waste register report

A monthly report should be provided detailing the status and volumes of medical waste generated by medical clinics and hospitals;

Example and considerations:

The monthly medical waste register report provides a list of all medical wastes generated by medical clinics and hospitals during the month.

- ✓ *Volume of generated medical waste materials by type and from which clinic/hospital?*
- ✓ *Volume of expired pharmaceuticals and medical equipment by type and from which clinic/hospital?*
- ✓ *Issues or requirements?*

6.1.3 Monthly PDU hazardous waste register report

A monthly report should be provided detailing the status and volumes of hazardous materials and waste management at PDU yards;

Example and considerations:

The PDU monthly hazardous waste register report provides a list of all incoming and outgoing hazardous materials from the PDU yard during the month.

- ✓ *Volume of incoming hazardous waste materials by type and from which site/contingent?*
- ✓ *Volume of outgoing hazardous waste materials by type and to where/which contractor?*
- ✓ *Volume and type of hazardous waste treated for disposal (e.g. chemical treatment, encapsulation)?*
- ✓ *Any other requirements in relation to international treaties on hazardous waste disposal*
- ✓ *Issues or requirements?*

6.1.4 Monthly hazardous waste contractors tracking reports

Describe the procedure for hazardous waste contractor reporting in line with the requirements of the SOW/SOR and final contract obligations;

Example and considerations:

Each hazardous waste contractor provides a monthly tracking report to the Head of the Property Disposal unit, the Facilities Management Unit, the Waste Management Officer (also available to the Environmental Unit0 which includes the following items;

- ✓ *Volume and type of hazardous waste, scrap materials or non-hazardous waste classified as non-domestic waste received by contractor?*
- ✓ *Payment for waste materials received?*
- ✓ *Tracking of storage, transportation and final disposal method of received hazardous waste, scrap materials or non-hazardous waste classified as non-domestic waste*
- ✓ *Issues or requirements?*

6.1.5 Monthly waste verification report using waste transfer notes

Describe the system for cross checking waste transfer notes from the contractor against those of the FMU and PDU and the final verification procedure for sign off to enable contractor payments;

Example and considerations:

- ✓ *All waste transfer notes received from the Solid waste and hazardous waste contractors are cross checked with records held by the FMU and the PDU for verification against invoices or payment receipts and final sign off,*

6.2 Mission environmental performance and compliance inspections.

Describe environmental performance and compliance inspections that are relevant for the Mission waste management system and how the results of the inspections will be communicated and considered;

Example and considerations:

- ✓ *Environmental inspections are conducted on a regular basis to ensure adequate environmental performance and compliance at all UN and contractor facilities, military and police contingents and by their personnel, as per the DPKO/DFS environmental policy*
- ✓ *Any non-compliance or environmental impacts resulting from poor performance is dealt with by the issuance of corrective actions and proper and timely verification that issues have been satisfactorily addressed*
- ✓ *If corrective actions are identified for the contractor, the section managing the contract as well as the contract management unit should be involved for formal follow up*

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6.3 Waste contractor performance and compliance inspections

Describe the procedure of inspections to evaluate waste contractor performance and compliance with the WMP and the specific contract that the contractor is responsible for. This will include review of their specific KPI's;

Example and considerations:

- ✓ *All waste management contractors and their facilities are inspected on a regular basis to ensure adequate performance and compliance in line with their specific key performance indicators and the general terms and targets of their contracts,*
- ✓ *Any non-compliance or poor waste management performance can be dealt with either by corrective actions and proper and timely verification that issues have been satisfactorily addressed or through the right to impose liquidated damages for unsatisfactory performance,*
- ✓ *If corrective actions are identified for the contractor, the section managing the contract as well as the contract management unit should be involved for formal follow up*
- ✓ *The terms for liquidated damages are outlined in the contract agreement and any claim will be provided in writing to the contractor outlining the justification for the claim,*
- ✓ *The contractor will have XX days from receipt of the claim to give reasons/justification as to why such claim cannot be applied.*

6.4 Waste Management Plan Review

Describe how the waste management is reviewed and which units/personnel are responsible to undertake this review. The review should be conducted at least annually or when a major change in the waste management approach is implemented. The review should be based on the Plan, Do, Check, Act cycle which should ensure feedback to the system to ensure a continuous cycle of improvement of both operations and performance;

Example and considerations:

The Mission waste management system needs to adapt to relevant changes such as in the event of;

- ✓ *changes to National laws and regulations,*
- ✓ *changes in UN policies and reporting procedures,*
- ✓ *changes in the Missions operations or activities,*
- ✓ *changes in the Missions waste management approach due to identified deficiencies or improvement opportunities,*
- ✓ *infrastructure developments either internally or externally (e.g. new recycling facilities).*

The review of this WMP should be taken at least annually by the Mission's Waste Management Team

7 PROVISION OF TRAINING

List the types of training that have or will be conducted for waste management and the persons who will be trained;

Example and considerations:

The following key training is conducted for waste management;

- ✓ *Waste management subject matter training, including risk assessments for Waste Management Officer, FMU, PDU, Environmental Officer and other UN personnel involved with waste management,*
- ✓ *Vendor provided incinerator training for contractors, Waste Management Officer,*
- ✓ *Training on composting methods for contractors, FMU and Waste Management Officer*
- ✓ *Training for military and police contingent Environmental Focal Points,*
- ✓ *General Environmental inductions for military and police contingent rotations.*
- ✓ *Other specific trainings on pollution reduction methods,*

Training materials includes;

- ✓ *Waste management awareness videos,*
- ✓ *Posters in different languages, with pictures*
- ✓ *Waste awareness PowerPoint training package,*
- ✓ *Specific guidance documents,*
- ✓ *Online e.courses,*
- ✓ *Webex courses.*

8 AWARENESS CAMPAIGNS

Describe any awareness campaigns that have been conducted at the mission for improved waste segregation and management;

Example and considerations:

The following awareness campaigns have been conducted;

- ✓ *Waste segregation, and the 4Rs (reduce, reuse, recycle, recover)*
- ✓ *What happens to your waste?*
- ✓ *Value of composting,*
- ✓ *X-ray chemical handling?*
- ✓ *Posters exist in all locations*

9 MASTERPLAN BUDGET AND SUMMARY SCHEDULE

A masterplan budget and summary schedule can be developed to inform on potential strategic investment costs for the waste management system such as equipment or the construction or remediation of landfills. However, this will be a budget only for guidance and the formal budgeting will be conducted through both the MEAP and annual budgeting cycles.

Example and considerations:

- ✓ *The Master plan budget is found in ANNEX. The cost of waste management is provided for the 2018/19 budget cycle.*
- ✓ *Estimated budgets are provided for the 2019-2022 budget cycles with investment costs for ?? equipment spread across a total of five years*

Annexes