

**REPUBLIC OF LEBANON**  
**Ministry of Finance (MOF)**

**Lebanon Fiscal Management Project**  
**(P181155)**

**WASTE MANAGEMENT PLAN**  
**(WMP)**

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## Abbreviations and Acronyms

CDW	Construction and Demolition Waste
CERC	Contingent Emergency Response Component
COVID-19	Coronas Virus
E&S	Environmental and Social
ESF	Environmental and Social Framework
ESS	Environmental and Social Standard
GDP	Gross Domestic Product
ICT	Information and Communication Technologies
IMF	International Monetary Fund
ISWM	Integrated Solid Waste Management
LFF	Lebanon Financing Facility
MOE	Ministry of Environment
MOF	Ministry of Finance
MOI	Ministry of Industry
MSW	Municipal Solid Waste
PBC	Performance-Based Condition
PCU	Project Coordination Unit
PFM	Public Financial Management
PIA	Project Implementation Agency
POP	Persistent Organic Pollutants
PPE	Personal Protective Equipment
SOER	State of the Environment
UNIDO	United Nations Industrial Development Organization
WB	World Bank
WMP	Waste Management Plan

## 1. INTRODUCTION

For more than three years, Lebanon has been impacted by a devastating multi-pronged crisis. The unfolding economic and financial crisis that started in October 2019 has been further exacerbated by the dual economic impact of the COVID-19 outbreak, and the Port of Beirut explosion in August 2020. Lebanon crisis ranks among the worst crises globally since the mid-nineteenth century<sup>1</sup>. Real Gross Domestic Product (GDP) has contracted by close to 40 percent since 2018 while nominal GDP plummeted from close to US\$52 billion in 2019 to an estimated US\$21.5 billion in 2022; the crisis has wiped out more than 15 years of economic growth. The banking sector is largely insolvent, and financial losses are estimated at exceeding US\$72 billion, equivalent to more than three times GDP in 2021. The lack of an equitable banking resolution has compounded the economic costs of the crisis. Usable gross foreign exchange reserves are gradually being depleted, declining by more than US\$20 billion since the onset of the crisis.

The crisis has caused staff attrition and absenteeism in the public sector, severely impacting the government's ability to respond to the crisis, maintain core government operations and basic services for citizens, and to create the foundations for recovery. Currency devaluation has eroded public sector salaries, rendering them too low for civil service staff to afford fuel costs to commute and basic day-to-day necessities. As a result, a significant number of staff have left the public sector, either for the private sector where salaries have been partially adjusted or for opportunities abroad, leaving a critical skills gap in the public sector. For staff that remain, there are high absenteeism rates with a majority of staff only coming into the office one day of the week.

The utmost financial sector priority and a prerequisite for other financial sector development reforms is the rehabilitation of the banking sector. This includes a comprehensive restructuring of the banking sector, including resolution measures and development of a financial safety net, to build confidence, regain solvency and operationalize financial services. The first step to this end includes the completion of the special audit and valuation of all the banks.

The Lebanon Fiscal Management Project (P181155) aims to mobilize and allocate public resources in an accountable manner and initiate banking sector reforms to support the crisis response and recovery in Lebanon.

The Project is being prepared under the World Bank's Environment and Social Framework (ESF). While the project activities are mainly associated with minor civil works for the installation and upgrading of the Information and Communication Technology (ICT) hardware and technology under components 1 of the project, minor risks and limited impacts may be associated with the generation of limited volume of e-waste and use of hazardous materials from replacing old ICT hardware, and small volume of demolition and construction waste from equipping and upgrading existing ICT facilities. Per Environmental and Social Standard (ESS) 3 on Resource Efficiency and Pollution Prevention and Management, the present Waste Management Plan (WMP) was prepared. It includes mitigation measures and actions to manage the risks of generated construction and electronic waste. An inventory of the ICT equipment that will be discarded and demolition and construction wastes expected from the

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<sup>1</sup> World Bank Spring 2021 Lebanon Economic Monitor.

minor civil works will be established during the Project implementation and the WMP shall be updated accordingly.

Given the project scope this plan applies only to Component 1 due to planned financing of IT equipment. This WMP is a living document hence any updates can thereafter be reflected as needed and in agreement with the World Bank task team.

## 2. CURRENT WASTES DISPOSAL PRACTICES

The most common waste disposal method in Lebanon remains open dumps. A survey conducted in 2016 counted 941 dumpsites. Those are divided between Municipal Solid Waste (MSW) and Construction and Demolition Waste (CDW)<sup>2</sup>. Also, Lebanon does not have any permanent and dedicated hazardous waste storage or treatment facilities and hazardous wastes are disposed in an arbitrary manner without proper management and documentation<sup>3</sup>.

Preliminary Baseline Assessment of E-Wastes conducted by the United Nations Industrial Development Organization (UNIDO) and Ministry of Industry (MOI) revealed haphazard e-waste disposal practices, mainly consisting of: (i) giving or selling to scrap dealers (22% in households, 33% in businesses); (ii) storage (15% in households and 12% in businesses); and (iii) disposal with regular wastes - particularly for batteries and lighting equipment. Only 5% of e-waste was given to specialized e-waste actors in households compared to 19% in institutions and enterprises<sup>4</sup>

Specialized e-waste actors such as Beeatouna, Verdetech, and Ecoserv are small firms for the management and collection of e-waste that have been newly established. The latter two have been the busiest since 2018, and their combined data on collection demonstrate a general upward tendency in the formal e-waste collection trend. When looking at their most recent data, the total waste collected (125 t/yr) is less than 0.3% of the entire e-waste created. Currently, recyclable materials, primarily plastic, are only partially broken down and sold in local markets as secondary raw materials. The remainder is held and sent later to foreign e-waste processing facilities (UNIDO, 2019; Verde tech data; Ecoserv data)<sup>5</sup>.

## 3. NATIONAL INSTITUTIONAL AND REGULATORY FRAMEWORK

The main institutions that have responsibilities relevant to solid waste management, including CDW and e-wastes are:

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<sup>2</sup> UNDP (2017), Updated masterplan for the closure and rehabilitation of uncontrolled dumpsites throughout the Country of Lebanon Volume A accessed on 20/06/2023 through [https://www.undp.org/sites/g/files/zskgke326/files/migration/lb/Updated-Master-Plan-Volume-A\\_Final-ilovepdf-compressed.pdf](https://www.undp.org/sites/g/files/zskgke326/files/migration/lb/Updated-Master-Plan-Volume-A_Final-ilovepdf-compressed.pdf)

<sup>3</sup> World Bank. 2022. Implementing the Environmental and Social Framework in Lebanon. Analysis of Environmental Risks, Capacities and Challenges. World Bank."

<sup>4</sup> World Bank. 2022. Implementing the Environmental and Social Framework in Lebanon. Analysis of Environmental Risks, Capacities and Challenges. World Bank.

<sup>5</sup> "World Bank. 2022. Implementing the Environmental and Social Framework in Lebanon. Analysis of Environmental Risks, Capacities and Challenges. World Bank."

- **The Ministry of Environment (MOE).** The overall management of the environment is the responsibility of the MOE. The MOE is responsible for the implementation of the Law on Environmental Protection and for drafting waste regulations, standards and guidelines; develop national strategies and plans, proposing economic instruments; approving, inspecting and monitoring local plans, treatment technologies, and import/export of waste and monitoring the implementation of legislations and strategies.
- **The Ministry of Finance (MOF)** as the Project Implementation Agency (PIA) of the Project. MOF has the overall responsibility of the Project and shall ensure that the Project activities do not impact the environment negatively and wastes are disposed properly.
- **Local Authorities (mainly municipalities)** are in charge of planning, implementing, and monitoring local waste management services (including collection in addition to treatment and disposal services, if environmentally and economically feasible); as well as raising awareness.
- **Consultant/contractor** responsible for the upgrade of the ICT equipment and the related necessary minor civil works, which shall dispose the CDW and e-waste resulting from the upgrade in an environmentally sound manner.
- **Private Service Providers and recycling companies** such as Beeatouna, Verdeteck, and Ecoserv are in charge of recycling and disposing wastes in an environmentally sound manner.

The Policies, Laws and Regulations in Lebanon Related to environmental and waste management are listed in the Table below<sup>6</sup> (Source: SOER 2020)

*Table 1: Policies, Laws and Regulations in Lebanon Related to environmental and waste management (adapted from SOER 2020)*

Regulations	No.	Date	Title/Objectives
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<sup>6</sup> MOE, UNDP, UNICEF, UNHCR (2020), SOER Report State of the Environment and Future Outlook: turning the crisis into opportunities accessed on June 22, 2023 through [https://www.unicef.org/lebanon/media/7161/file/SOER\\_Report\\_EN.pdf](https://www.unicef.org/lebanon/media/7161/file/SOER_Report_EN.pdf)

Regulations	No.	Date	Title/Objectives
Law	80	10 October 2018	Integrated solid waste management law. This framework law covers both hazardous and nonhazardous solid wastes. It sets several principles such as reduction, reuse and recycling of solid waste, the sustainable principle to avoid harm to surrounding communities and the environment, the prevention of uncontrolled dumping sites, and the “polluter pays” principle. It reiterates the principle of decentralization of waste management by devolving to the municipalities some responsibilities based on a prior assessment of their capacities. Under Law 80, the MOE is required to implement and maintain a database for the management of information on solid waste. The law also forbids mixing hazardous with non-hazardous wastes. It details the responsibilities of private actors, local administrations, and the National Solid Waste Management Authority.
Law	29	24 November 2015	Ratification of the Basel convention amendment to control trans boundary movements of hazardous wastes and their disposal
Law	738	15 May 2006	Kyoto protocol to the United Nations framework convention on climate change aiming to fight global warming
Law	432	8 August 2002	Stockholm convention on persistent organic pollutants
Law	387	21 December 1994	Basel convention on the control of trans-boundary movements of hazardous wastes and their disposal.
Law	253	21 March 1993	Montreal protocol on substances that deplete the ozone layer
Law	64	12 August 1988	Protection of the environment from hazardous wastes and hazardous materials
Law	126	30 June 1977	Barcelona convention for the protection of the Mediterranean Sea against pollution
Law	444	29 July 2002	Protection of the environment
Decree	5606	11 September 2019	Management procedures of hazardous waste
Decree	5605	11 September 2019	Household solid waste sorting from the source
CoM Decision	46/2018	11 January 2018	Policy Summary on integrated solid waste management (ISWM)
MoE Decision	1/16	10 February 2022	Updated Environmental Limit Values for air pollutants
MoE Decision	1/59	21 January 2020	Principles and procedures for storage of hazardous waste
MoE Decision	1/108	5 March 2019	Appointing the ISWM coordination committee

Regulations	No.	Date	Title/Objectives
MoE Decision	1/71	19 May 1997	Regulates the import of waste and amends Decision No. 1/22 dated 1996/12/17
MoE Decision	1/161	31 October 1997	Amends Decision 1997 – 1/71
MoE Decision	1/52	29 July 1996	Specifying the national standards for environmental quality and the environmental limit values for air, water, and noise.
MoE Circular	1/7	16 November 2017	Amends Circular No. 1/8 dated 2015/11/16 related to some instructions related to IWSM management for Municipalities, Union of Municipalities, Qa'imakams and Governors

#### 4. CHARACTERIZATION OF PROJECT WASTES

The Project will generate CDW waste due to minor civil works and e-waste such as screens, monitors, air conditioners, IT and telecommunication equipment, etc., due to the upgrading of the ICT equipment. The Project is also expected to generate e-waste from the proposed PV system which is planned to be established to generate electricity. At present, the quantities of wastes that will be generated are unknown. An inventory of the PV panels and ICT equipment that will be discarded and demolition and construction wastes expected from the minor civil works will be established during the Project implementation and the WMP shall be updated accordingly. (Refer to [Annex 1](#) for E-waste Record Template and [Annex 2](#) for CDW Record Template)

#### 5. POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

Solid waste has been regulated in Lebanon but practices have not been enforced. As mentioned in section 2, most solid waste is discharged in open dumps. However, dumpsites in Lebanon do not comply with national and/or international minimum solid waste management infrastructure and operating standards; they are lacking lined engineered cells, leachate collection, drainage, and leachate treatment;<sup>7</sup> consequently, many potential risks from their disposal are to be considered.

The potential environmental risks that are associated with the improper management of e-waste and CDW are:

- Generation of leachate and the release of pollutants and heavy metals to the environment due to unsafe and improper disposal of generated waste, posing health and safety risks to the public.
- Contamination and acidification of soil, affecting soil fertility and agricultural yield.

<sup>7</sup> MOE (2022) ESMF for Reduction of UPOPs Through Waste Management in a Circular Economy (P172770) accessed on June 21, 2023 through <https://www.moe.gov.lb/getattachment/1cb3431b-ab57-45d1-9361-5af0eb05e736/Reduction-of-UPOPs-Through-Waste-Management-in-a-Circular-Economy.aspx>



- Environmental impacts to surface and ground water quality through uncontrolled, untreated leachate discharge and contamination with heavy metals, and other persistent organic pollutants (POPs).
- Open burning in dumpsites is a prevalent practice in Lebanon significantly contributing to generation of UPOPs, fires are also common through lack of proper landfill/dumpsites management; this again impacts air quality;
- Nuisance to communities due to aesthetical and visual pollution
- Poor operation of the dumpsites and poor waste placement result in dangerous conditions on-site where unstable waste masses are prone to collapse, posing risks to sanitation workers, waste-pickers, and surrounding communities.
- Lack of training, awareness, and provision of Personal Protective Equipment (PPE) put both sanitation staff and waste-pickers at risk.

## 6. MITIGATION MEASURES AND E-WASTE MANAGEMENT

The following section advises on the applicable mitigation measures that will be implemented for the generated waste in accordance with the local legislation ([Section 3](#)), [ESS3](#), the World Bank [EHS Guidelines](#).

### 6.1. E-Waste

The following are the general requirements for E-waste management.

#### 6.1.1 *E-waste Minimization and Prevention*

The following set of measures aims to prevent and/or minimize the quantities of e-waste generated and the hazards associated with e-waste:

- Under the Project, procure new electronic devices from credible manufactures to avoid purchasing second hand, refurbished, or obsolete devices with a short shelf life or already categorized as e-Waste
- Procure electronic devices with their maintenance manual detailing the presence of hazardous material and waste management labels, and Extended Producer Responsibility (EPR) terms connected to e-waste management.
- Instituting good housekeeping and operating practices, including inventory control to reduce the amount of e-waste resulting from materials that are out-of-date, off specification, contaminated, damaged, or excess to operational needs

#### 6.1.2 *E-waste Separation and Quantification*

- Minimizing hazardous e-waste generation by implementing stringent waste segregation to prevent the mixing of non-hazardous and hazardous e-waste to be managed
- An inventory check list of the disposal items needs to be prepared and approved prior to final disposal

#### 6.1.3 *E-waste Recycling, Reuse, and Recovery*

- Operational assessment of the PV system (including solar panels, invertors, off grid storage batteries, and other equipment and installations of the PV system), air conditioners, and ICT equipment's/machines shall be conducted in collaboration with

relevant ICT and electric engineers/experts. The total amount of e-waste may be significantly reduced through reusing utilizable components by donation to other public institutions or through outsourcing to certified and licensed firms that shall be contracted to receive project related e-waste for material recovery

- In cases e-waste management is awarded to Private Service Providers and recycling companies, these companies shall be responsible for collecting and present to the PCU a proof of safe disposal.

#### *6.1.4. E-waste Storage*

The storage of project related e-waste shall be conducted in accordance with the national laws and legislations and the World Bank EHS Guideline. E-waste shall be stored in a way that prevents and controls accidental release to natural resources (air, soil, and water). The following measures are to be taken in the storage of e-waste.

- Temporary storage shall be available on site until transportation to their final storage location
- E-waste shall be stored in closed containers, each depending on type and composition away from direct sunlight, rain, wind, electrical fixtures, water systems and in an area where ventilation system is not circulated to other rooms or facilities
- E-waste shall be stored in full compliance with the manufacturer instructions, and in an appropriate manner preventing the mixing or contact between different sorts of e-waste and in a separate location from solid waste
- The storage arrangement shall allow for inspection between containers
- The Contractor, workers involved in the e-waste management, and the disposal or recycling enterprises shall provide their personnel with training and induction on the proper handling of e-waste
- Workers involved with e-waste management shall be provided with the appropriate Personal Protective Equipment (PPEs) and shall be trained on good eOwaste management practices (handling, collection, segregation, temporary storage, transportation, etc., final treatment/disposal)
- Containers with different types of e-waste shall be correctly labelled, with a datasheet attached and specified for each type including but not limited to number of containers, number of units within each container, type, weight, hazardous material content (Lead, mercury, etc.), date of collection, e-waste management personnel name, receiver, and final disposal method
- periodic inspection of e-waste storage area shall be conducted by the PCU and the findings of the inspections should be documented

#### *6.1.5. E-waste Transportation*

All e-wastes designated for off-site transport shall be secured in the designated storage location and shall be labelled as indicated with the contents, associated hazards, receiver, destination, and other information. E-waste shall then be properly loaded onto the transportation vehicles in accordance with guidelines on loading and unloading, specified in the World Bank EHS Guidelines.

#### 6.1.6. *E-waste Treatment and Disposal*

Treatment or processing of e-waste shall take place at a licensed E-waste recycling facility. Awarded companies or contractors shall specify in their proposals the treatment method that they are to apply. The implemented processes and management methodologies shall be documented, and records are to be stored.

### 6.2. CDM Waste

CDM can be managed through various mitigation measures. The following are the general requirements for CDW management:

#### 6.2.1. *Reuse:*

This measure involves re-using materials that have been generated from demolition as sources of materials in the site or outside the site such as for road construction for example.

#### 6.2.2 *Recycling:*

This measure involves processing waste materials into new products. Identified materials can be recycled by other industrial processing operations. Investigate such potential and if necessary, add this requirement in the tender documents of the contracting company in charge of the minor civil works.

#### 6.2.2 *Final Disposal:*

Final disposal of unused and/or non-recyclable CDM shall be permitted only at final disposal sites (landfills or dumpsites) licensed by the regulatory authorities and in compliance with the instruction of the Ministry of Environment.

## 7. ROLES AND RESPONSIBILITIES

The Project Coordination Unit (PCU) at Ministry of Finance and the Environmental and Social (E&S) specialist of the project, shall adhere to the relevant decrees and decisions issued in relation to these matters.

## 8. MONITORING

The PCU at MOF and the E&S Specialist shall conduct:

- Visual inspection of all waste collection and storage areas to verify that waste is properly labeled and stored.
  - o Name and identification number of the material(s) composing the hazardous e-waste or physical state.
  - o Quantity (i.e., tons, number of containers)
  - o Content (i.e., devices, screens, servers)
  - o Schedule (date of collection, date of transportation, etc...)
  - o Hazardous and pollutant contents (i.e., existence of mercury, lead, PAHs)
- Transport tracking documentation shall include quantity and type, date dispatched, date transported, and date received, record of the originator, the receiver, and the transporter.

- Documenting any changes to the storage facility, and any significant changes in the quantity of materials in storage.
- Method and date of storing, repacking, treating, or disposing at the facility, cross-referenced, including details about the final disposal facility.

Monitoring reports should be kept in the records.

## **9. BUDGET AND RESOURCES REQUIREMENTS**

The planning, design and monitoring of the WMP Plan, falls under the responsibilities of the PCU and E&S specialist of the Project. The disposal of e-wastes and CDW will be included in the tender documents of the supervising engineers and that of the consultant/contractors. Consequently, no additional budget or resources are required specifically for the implementation of the WMP.

### Annex 1: E-waste Record Template

E-waste Type Generated + serial number and Location	Type of Hazardous content (Pb, Hg, PAH, ...)	Separated		Stored		Recycled/ Reused/ Recovered		Disposed		Satisfactory	
		Y	N	Y	N	Y	N	Y	N	Y	N

### Annex 2. CDW Record Template

#	Material	Anticipated? (Y/N)	Estimated Quantity and Units
<b>SOLID</b>			
1	Clean fill – specify types (brick, block, rock, concrete, etc.)		
2	Commingled Construction and Demolition Debris		
3	Concrete		
4	Masonry (specify)		
5	Roofing		
6	Metals		
7	Asbestos Containing Materials		
8	Lead Containing Materials		
9	Wood		
10	Insulation		
11	Drywall / Gypsum board		
12	Exterior finishes		
13	Interior finishes		

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#	Material	Anticipated? (Y/N)	Estimated Quantity and Units
14	Glass/ fenestration		
15	Cardboard/ paper		
16	Plastics		
17	Styrofoam		
18	Furniture, fixtures, and equipment for donation to approved end user		
19	Municipal Solid Waste (MSW)		
20	Other identified wastes		
21	Other identified wastes		
<b>LIQUID</b>			
100	Paints, Thinners, Solvents		
200	Concrete mixing waste		
300	Concrete cutting waste		
400	Other identified wastes/ wash water		
500	Other identified wastes/ wash water		