

















LANDBELL GROUP













Third International TouMaLi Conference

Reducing Marine Litter in the Mediterranean Through Waste Wise Cities Lebanon (REMAL) Hammam Sousse, 26th and 27th November 2025

Burcu Goezet, Senior Researcher (Wuppertal Institute for Climate, Environment and Energy)



Reducing Marine Litter in the Mediterranean through Waste Wise Cities Lebanon





Duration

2022 - 2025 (3 years)



Donor

German Federal
Ministry for the
Environment,
Climate Action,
Nature
Conservation
and Nuclear
Safety
(BMUKN)



Lead agency

Wuppertal
Institute for
Climate,
Environment
and Energy



Implementing partners

UN-Habitat
Lebanon
Country
Programme
&
Technical
University of
Berlin



National partners

(MoIM)

Ministry of
Environment
(MoE)
& (UoM) across
Ministry of
Interior and
Municipalities

Thirteen (13)
coastal Unions
of Municipalities
(UoM) across
Lebanon
Lebanon



Budget

Around EUR 4.6M



Target group: UoM/Municipality officials, national level policy makers, informal waste workers (scavengers), private waste collection and treatment companies (formal and informal), Non-Governmental Organizations (NGOs), & residents/community members.



















Geographic

coverage





Current state of Waste Management in Lebanon



Waste crisis in 2015

High waste management costs: SWM in Lebanon costs ~160 USD per ton, among the highest in the world

Large share of informal sector: Work in the informal sector increased from 35.2% in 2018-2019 to 48.3% in January 2022

Over 1.5 million displaced Syrians (since 2011) increase waste generation especially in Mount Lebanon - refugees to blame in public perception





















Logical framework



Outcome: Integrated sustainable waste management systems have been planned and piloted in a participatory process in Lebanese coastal Unions of Municipalities by municipality staff whose capacity on the topic has been built, as well as national framework conditions to address marine litter improved.

Baselines on solid waste management are available in each UoM and used as basis for evidence-based decision making.

WP 1&2

Pilot projects to improve management of plastic waste and avoid marine litter are successfully implemented in each UoM, as well as feasibility of infrastructure projects identified

WP 3&4

Public awareness on sustainable waste management and marine litter prevention is raised.

WP 5

Relevant national institutions have started addressing ISWM and marine litter challenges through developed policy recommendations.

WP 6



mpact: Enhanced municipal solid waste management and resource efficiency in coastal Lebanon is reducing Marine Litter in the Eastern Mediterranean Sea

























Waste Wise Cities Tool (WaCT)



Step by Step Guide to Assess a City's Municipal Solid Waste Management Performance through SDG indicator 11.6.1 Monitoring

- 7 steps to collect data on waste MSW generated, collected, and managed in controlled facilities.
- The tool provides
 - a household survey on total MSW generation,
 - a questionnaire to identify the MSW recovery chain
 - criteria to check the environmental control level of waste management facilities in a city.

Step 2: HH MSW generation and composition

Step 3: Non-HH MSW generation

Step 4: MSW received by recovery facilities and control level of recovery facilities

Step 5: MSW received by disposal facilities and control level of disposal facilities

Step 6: Waste composition at disposal facilities

Step 7: Calculating food waste, recycling, plastic leakage, GHG emissions and air pollution











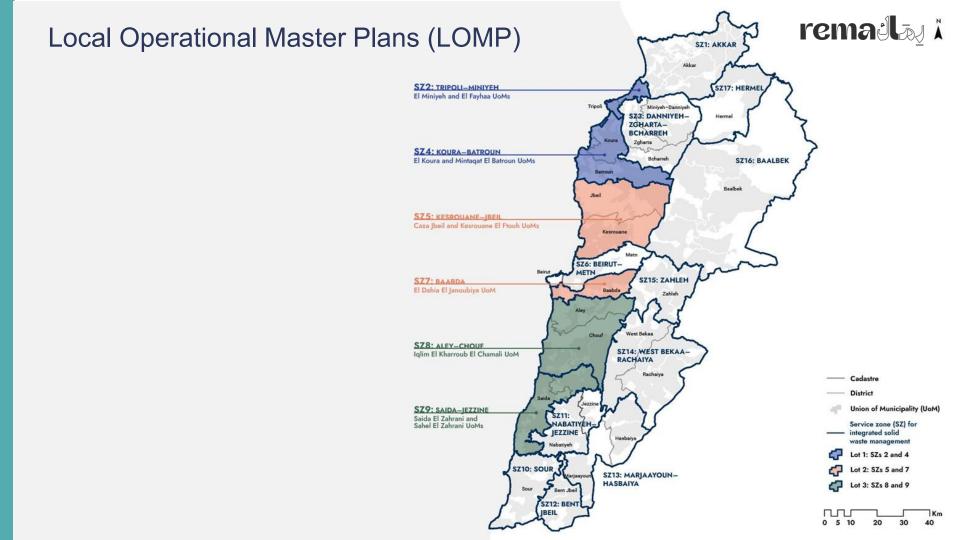






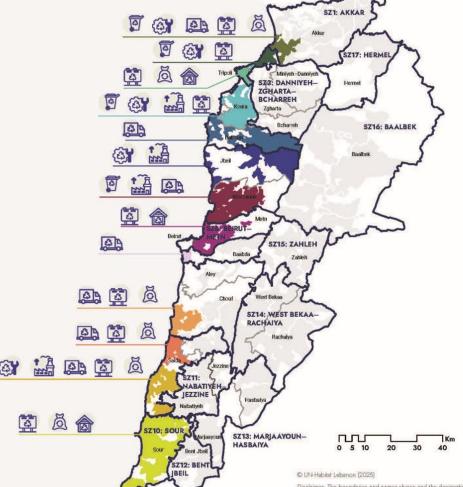








Pilot projects





Cadastre

District

Union of Municipality (UoM)

Service zone (SZ) for integrated solid waste management

Targeted UoMs

- UoM Oussat oua Sahil El Qaytaa
- **UoM El Menieh**
- **UoM El Fayhaa**
- **UoM El Koura**
- **UoM Mintagat El Batroun**
- **UoM Caza Jbeil**
- **UoM Kesrouane El Ftouh**
- UoM El Maten El Chamali El Sahili El Aousat
- **UoM El Dahia El Janoubiya**
- **UoM Iglim El Kharroub El Chamali**
- UoM Saida El Zahrani
- **UoM Sahil El Zahrani**
- **UoM Caza Sour**

Project type







Machinery and/or Truck procurement



Clean up campaigns

Regional technical office (RTO) establishment

Disclaimer. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Pilot projects - Implementation outcomes (Nov/2025)



More than

3800 people

participating in awareness-raising activities

Localization and mapping of

waste dump sites

open

More than

events

bins,

between awareness-raising initiatives, beach cleanups campaigns and capacity **building workshops**

> **GIS** mapping of existing waste procurement and



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Procurement and replacement of

equipments



Integration of informal waste pickers into local recycling programs



redistribution

strategy















Informal waste sector integration



REMAL considers informal waste workers throughout implementation, strengthening local ownership and operational effectiveness.

WORKFORCE PARTICIPATION IN WACT

Informal

(4 per Service Zone) engaged in waste collection, sorting, weighing and disposal.

hands-on training



delivered on waste characterization. safe handling, and proper disposal.

Shaded areas for sorting



coverage

secured by the implementing partner for all participants.

WHO ARE THE WORKERS?

18-64 age range

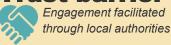
Nationality: Lebanese **Syrian Palestinian**

Skillset:

- Strong sorting skills for high-value recyclables
- Limited experience handling diapers and light plastics

CHALLENGES & HOW WE ADDRESSED THEM

Trust barrier



PPE use resistance

Daily follow-up ensured compliance

Documentation

gaps

Some workers lacked IDs, limiting attendance records.





























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Policy Recommendations



EPR

Legal framework

Need for decentralization

EPR basic setup

- Aligned with existing and upcoming legislations
- Responsibility scheme: mandatory

Financing mechanism

- · Better data about waste amounts
- Monitoring on the field and more specific planning of infrastructure needs and awareness campaigns and forecasting

Informal sector integration

• The structure of the informal sector in Lebanon needs to be considered



High level meetings between UN agencies, World Bank, MoE are planned for the upcoming weeks

+

Data collection is at the final phase

REMAL team will elaborate the final recommendations























Policy Recommendations



FPR

European Union funded project supports the initial implementation of an Extended Producer Responsibility (EPR) scheme for selected single-use plastics (SUP) in Lebanon, with a focus on packaging plastic waste.

Stakeholder Meeting November 25:

- Stakeholder Consultation → Product Take Back
- Based on the following criteria: Policy compliance, cost effectiveness, environmental impact, feasibility, stakeholder acceptance, infrastructure readiness, monitoring & enforcement
- Timeline: Developing legislation by 2026; Official Launch, Infrastructure expansion, Monitoring, Biannual reviews (2027-2031)























Alignment with MoE priorities



MoE priorities:

REMAL project's contributions:

Sector governance priorities

- National solid waste management authority
- National waste management information system
- Delineation of solid waste service zones
- Financial accounting and cost recovery

- Establishment of a solid waste observatory
- Formulation of policy recommendations

Waste diversion priorities

- Divert commercial waste (non-hazardous)
- Maximize sorting at source at the household level
- Maximize drop-off centres
- Communication and outreach for waste diversion

- Implementation of pilot projects
- Raising awareness through a national campaign

Operations and investments priorities

- Local solid waste masterplans
- Sorting, collection and transportation
 - Infrastructure for waste treatment and disposal

- Development of feasibility studies/LOMPs
- Implementation of pilot projects





















Challenges



- International politics
 - Airstrike in Lebanon (2022 and ongoing)
- National politics
 - Lebanon went through presidential vacancy from October 2022 to January 2025
 - The municipal elections took place for the first time after 10 years (May 2025)
- Data collection and verification
 - Identify and engage households in unfamiliar areas
 - Interaction between women in households and male collectors
 - Bureaucratic delays to access disposal sites
 - Data limitation on non-household waste sources
- Informal sector
 - Difficulty of data collection from informal waste scavengers (major recyclers in Lebanon)
 - Refusal of waste scavengers to wear masks, gloves or aprons



















Online Waste Observatory

An online portal that graphically represents collected MSW data across six Service Zones and updates on the REMAL project.

It uses the WaCT tool to identify the following for each service zone, which is also clearly illustrated in the graphics:

- Total MSW collected
- Total MSW managed in controlled facilities
- City recovery rate
- Kg/capita MSW generation/day
- Kg/capita household food waste generation/day
- Kg/capita/year plastic leakage into water systems











































Burcu Goezet

Senior Researcher

Wuppertal Institute

burcu.goezet@wupperinst.org



Georges Abi Sleiman

Environmental Architect
UN-Habitat
georges.abi-sleiman@un.org











