

SWIM and Horizon 2020 Support Mechanism

Working for a Sustainable Mediterranean, Caring for our Future

Solid Waste Management Sector Strategy, Objectives, Targets and Action Plan

Translation of the Strategic Objectives

Presented by:

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SWIM and Horizon 2020 SM Title of Meeting

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Solid Waste Management: Facts & Figures from Jordan

Quick Facts

- **Jordan is an upper-middle income** country with a population of 9.53 million; 30% of the population is non-Jordanians and 30% is registered refugees
- **Municipal Waste Generation** was estimated to be 2.7 million tons annually; Of this amount, 5% is generated by the Syrian refugee population
- **By 2034**, the amount of municipal solid waste to be generated is estimated to reach 5.2 million tons annually
- **In Jordan, 48% of MSW is landfilled** (19% in Egypt and 70% in Lebanon), 45% is openly dumped and 7% is recycled.
Recycling is largely undertaken by formal and informal waste pickers

Improper Solid Waste Management (SWM) can result in:

soil contamination: heavy metals, nitrates, petro-chemicals, chlorinated solvents...

climate pollution: greenhouse gases from decomposing waste enter the atmosphere

air contamination: resulting from burning of trash, methane

water contamination: deterioration and/or threatening the quality of water

harm toward animal and marine life: harmful substances can be absorbed by nearby soils and groundwater

harm to communities, individuals: workers need safety procedures and mechanisms, landfill gasses, litter

Vision of the Government of Jordan: to establish and operate a cost effective, efficient, affordable, and quality-service environmentally and socially sound MSWM system in Jordan

After the development of the National Municipal Solid Waste Management Strategy (NMSWMS), two committees were formed:

The Technical Committee: the roles of the technical committee are to 1) support the implementation of the activities defined in the NMSWMS and 2) represent the relevant government officials from the ministries related to solid waste matters.

The Steering Committee: represents the Secretary Generals (SGs) of relevant ministries to expedite the approval of applicable policies, 2) for short-term activities the EU signed, approved and allocated 100 M euros to implement short-term interventions within a five-years time. During this period, the Government of Jordan is to secure up to 50 M Euros, of which 5 M Euros are to be spent annually from the treasury of Ministry of Municipal Affairs (MoMA).

These activities set aside the funding necessary to achieve/secure the goals laid out in the short-term/emergency strategies for the SWM sector.

Planning Areas

Basic Planning Attributes

Scope:

- The new **Municipal Solid Waste Management (MSWM)** Strategy covers the whole Kingdom of Jordan
- The geographical reference of the new MSWM Strategy will be at Regional level

#	Regions	Governorates
1	Northern Region	Irbid, Ajloun, Jerash, Mafrq
2	Central Region	Amman, Balqa, Madaba, Zarqa
3	Southern Region	Karak, Tafilah, Aqaba, Ma'an

Planning Time Periods

Basic Planning Attributes

#	Planning Time Periods	Duration	Specific Dates
1	Short-term period	5 years	2015-2019
2	Mid-term period	5 years	2020-2024
3	Long-term period	10 years	2025-2032

Revision every 5-7 years (post assessment and rescheduling according to real progress)

Waste Types

Basic Planning Attributes

Municipal Solid Waste

- Residential
- Institutional
- Agricultural MSW
- Special and hazardous wastes (excluded)
- Commercial
- Industrial MSW
- MSW from wastewater treatment plants (WWTPs)

MSWM Strategy:

“Solid and semi-solid materials produced by households, as well as other waste similar in nature and composition resulting from any activity (commerce, offices, public institutions, etc.) and not included in the definition of harmful and hazardous waste, that are collected by or on behalf of municipal authorities or by the private sector (business or private non-profit institutions) and disposed of through the waste management system”

Main Objectives

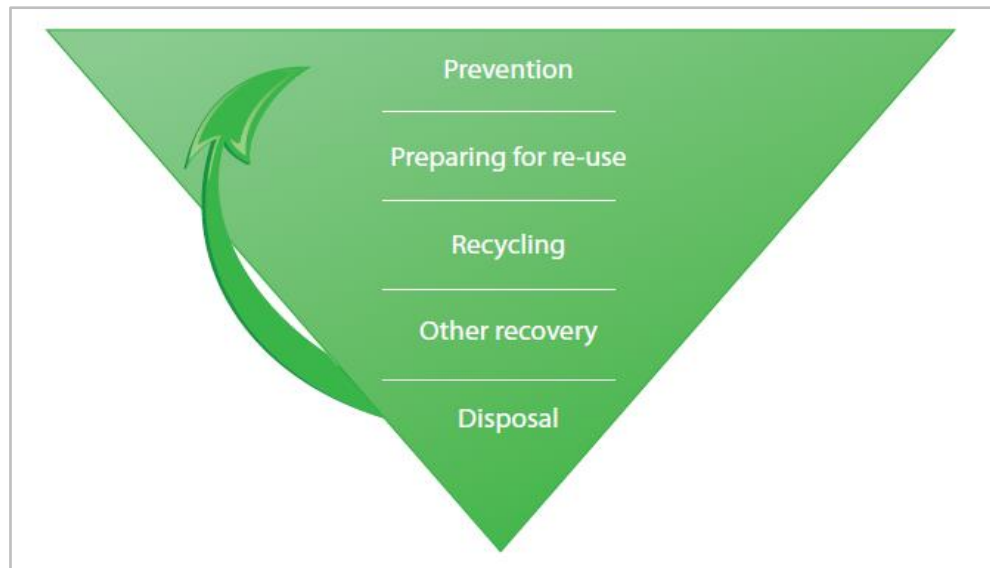
to establish and operate a cost effective, efficient, affordable, and quality-service environmentally and socially sound MSWM system in Jordan

General context:

- Satisfaction of the needs of the entire population of Jordan (100% of permanent native population, refugees and visitors)
- Following the EU and International guidelines
- Integrated MSWM based on the “Three R's” approach (Reduce - Reuse - Recycle)
- Hierarchy of integrated SWM practices

Hierarchy of integrated SWM practices

Vision



- Food waste is recycled as organic matter or source of nutrients
- Recyclables are used as secondary resources of raw material
- Energy recovery is limited to non-recyclable materials
- Landfilling is limited to residues (non-recyclable / non-recoverable)

Basic principles

Vision

- **Extended producer responsibility**
- **Polluter-pays principle**
- **Proximity principle**
- **Precautionary principle**

Actions

Vision

- Enforcement of the **avoidance of co-management of MSW with hazardous** (e.g. medical, industrial, etc.) **or special SW streams** (e.g. WEEE, etc.) currently ending up in waste collectors (bins, etc.)
- Establishment and **promotion of systems and plants for integrated management of the aforementioned special and hazardous SW streams**, with aim to cover the whole Kingdom, with the participation of the public and/or the private sector
- **Prohibition of unsafe disposal of MSW** and promotion of environmentally sound disposal sites
- **Exclusion from the disposal facilities** of the following: liquid waste, flammable waste, explosive or oxidizing waste, medical or infectious clinical waste, used tires (with certain exceptions), C&D, any other type of waste which does not meet specific acceptance criteria
- Establishment of a **national recording and monitoring system** for MSW and enforcement of its use and implementation

Objectives of the new MSWM Strategy

Vision

1. Mitigation of risks on the environment and human health by MSWM through integrated management (planning, design and operation)
2. Extension of the MSW collection coverage to ultimately reach 100% of the population
3. Promotion of MSW prevention and reuse practices
4. Promotion of separate collection and management of special & hazardous waste
5. Promotion of sorting-at-source to increase MSW prevention, reuse & recycling;
6. Maximisation of the use of the energy content of MSW, when viable
7. Establishment of appropriate MSW treatment facilities with respect to the ISWM hierarchy in the long-term
8. Establishment of the appropriate tools for recording, analysis, monitoring and efficient decision-making on MSWM in national, regional and local level
9. Strengthening of the Jordanian MSWM sector to correspond to potential emergency conditions that may occur in the future
10. Integration of informal waste-pickers in the new MSWM facilities
11. Promoting effective public awareness & education on MSWM in the long-term
12. Promoting effective capacity building activities to maintain and upgrade the MSWM system in the long-term
13. Increase of MSWM system efficiency through public administration initiatives and private sector involvement
14. Increase of efficiency of infrastructure and equipment maintenance

Targets: Setting

Vision

- Targets for coverage of MSW street-cleaning and collection services
- Targets for the separate collection of recyclables (at least for paper, metal, plastic and glass)
- Targets for preparing for re-use and the recycling of MSW materials (at least for paper, metal, plastic and glass)
- Targets for ceasing operation of uncontrolled or unlicensed disposal sites
- Targets for reduction of biowaste ending-up to landfills
- Targets for recovery and recycling of packaging waste

Targets (1 of 2)

Targets

- Targets similar to those of the least advanced EU member states
- Some targets smoothed due to the lag of Jordan in specific initiatives that were already on-site during enacting relevant EU MSWM legislation

#	Subject of Target	European Targets		Proposed Targets for Jordan		
		EU Legislative Act	EU Targets	Short-term Period (2015-2019)	Mid-term Period (2020-2024)	Long-term Period (2025-2034)
1	Coverage of MSW street-cleaning and collection services	e.g. Directive 75/442/EEC	100% of population	100% by 2019	100%	100%
2	Set-up of separate collection systems for recyclables (at least paper, metal, plastic and glass)	Directive 2008/98/EC (article 11)	✓ by 2015	-	✓ by 2024	✓
3	Preparing for re-use and recycling of MSW materials (at least paper, metal, plastic and glass)	Directive 2008/98/EC (article 11)	50% by weight by 2020	-	50% by weight by 2024	65% by weight by 2034
4	Cease of operation of uncontrolled or unlicensed disposal sites	Directive 1999/31/EC (article 14)	✓ by mid-2009	50% by 2019	100% by 2024	✓

Targets (2 of 2)

Targets

#	Subject of Target	European Targets		Proposed Targets for Jordan		
		EU Legislative Act	EU Targets	Short-term Period (2015-2019)	Mid-term Period (2020-2024)	Long-term Period (2025-2034)
5	Reduction of biowaste ending-up to landfills	Directive 1999/31/EC (article 5)	% by weight reduction according to 1995 amounts: <ul style="list-style-type: none"> 75% by mid-2011 50% by mid-2014 35% by mid-2021 	-	75% by weight by 2024 (according to 2014 amounts)	50% by weight by 2029 35% by weight by 2034 (according to 2014 amounts)
6	Recovery of packaging waste (including reuse, materials' recovery and energy recovery)	Directive 94/62/EC (article 6)	% by weight recovery: <ul style="list-style-type: none"> 25% by mid-2000 50% by 2005 increased after 2005 	-	25% by weight by 2024	50% by weight by 2029 65% by weight by 2034
7	Recycling of packaging waste	Directive 94/62/EC (article 6)	% by weight recycling: <ul style="list-style-type: none"> <25% by mid-2000 25% (15% w/w per material) by 2005 increased after 2005 	-	15% by weight by 2024	25% by weight by 2029 (with 15% per material) 50% by weight by 2034 with 25% per material)

Regulatory Framework for SWM

Adapting relevant best practices to the Jordanian context and its enforcement is also applied to the SWM sector as part of the Government of Jordan's overall national environmental reform process.

Circular Economy Package (2015) targets:

- Recycling 65% of MSW by 2030
- Recycling 75% of packaging waste by 2030
- Reduce landfilling to a maximum of 10% by 2030

National to Project Level: Siting

- multi-environmental criterial
- exclusionary items (next slide)
- conduct a full Environmental Impact Assessment (EIA), which is to be approved by the Central Environmental Permitting/Licensing Committee with in the Ministry of Environment

Elaboration of Exclusionary Criteria (1 of 2)

Exclusionary Criteria	Sanitary Landfills	"Clean" MRFs	Composting Units
Groundwater depth	0 - 3 m	-	0 - 3 m
Urban areas	0 - 3,000 m	0 - 5,000 m	0 - 3,000 m
Lakes, springs, dams, rivers	0 - 3,000 m	0 - 5,000 m	0 - 3,000 m
Slope	> 60%	> 60%	> 60%
Main roads	0 - 1,000 m	0 - 1,000 m	0 - 1,000 m
Power lines	0 - 30 m	0 - 30 m	0 - 30 m
Land uses	Forest, Water, Irrigated fruit trees, Irrigated non-deciduous trees, Irrigated vegetable-cereals		
Archaeological sites	0 - 3,000 m	0 - 500 m	0 - 3,000 m
Railways	0 - 1,000 m	0 - 100 m	0 - 1,000 m

Elaboration of Exclusionary Criteria (2 of 2)

Exclusionary Criteria	Sanitary Landfills	"Clean" MRFs	Composting Units
Environmental protected areas	0 - 3,000 m	0 - 500 m	0 - 3,000 m
Protected aquifers	0 - 3,000 m	-	-
Seismicity/Seismic faults	0 - 500 m	-	0 - 500 m
Wells	0 - 3,000 m	-	0 - 3,000 m
Universities, hospitals	0 - 3,000 m	0 - 500 m	0 - 3,000 m
Airports	0 - 5,000 m	0 - 1,000 m	0 - 5,000 m
Industries (food, water, pharmaceutical)	0 - 3,000 m	0 - 500 m	0 - 3,000 m

National to Project Level: Capacity of Facilities

1. Identify the service areas to be defined
2. Detail the solid waste catchment area; i.e. from where the solid waste items are to be collected (w/i the municipality, from 'greenpoints', etc.), transported and eventually delivered to the facility.
3. Determine the amount of waste to be accepted into the facility
4. Determine the composition of the waste to be accepted into the facility
 - Amount and composition of wastes are important when determining the output options available. For example, the calorific content of the input materials would determine whether Refuse-derived fuel (RDF) is possible
5. Outline and strategize cost recovery systems available for the goal of sustaining operations.
 - Some of these tools may include waste collection fees, a tax, etc. These can be contrasted with the willingness of the 'customers' to pay said fees and the affordability of said means.
6. Conduct socio-economic impact assessments to measure the competition within the job market as well as for marketing the output product (whether it be recyclables, gas, compost, energy, etc). This is also incorporated into the sustainability of the operations.

National to Project Level: Design Specifications

In Jordan, the MSWMS recommends the following:

- 1) The rehabilitation of open dumpsites and the reconstruction of new sanitary landfills
- 2) In the short- and medium-terms, establishing transfer stations to reduce the cost of transportation for government

MSWM Targets

Recyclable and re-use materials collected to meet the 2019 target of not more than 33, 000 tons annually was established as an optional goal while interventions build the capacity and know-how of individuals to fully participate/be employed within the new opportunities in the sector.

Additionally, this indicator is a reference for stakeholders (implementing partners, NGOs, local private partners, municipal and ministry leaders) to use in preparation for the mid-term and long-term targets, which are aimed at upscaling the solid waste sorting and recycling business in the country.

Short-term SWM Interventions in N. Jordan

Sanitary Landfills 2015-2019

El Ekaider Sanitary Landfill
New

Al Huseyneyat Sanitary Landfill
New

New Al Rwaished (Small) Sanitary Landfill
New

Rehabilitation of Dumpsites 2015 – 2019

Al Ekaider Dumpsite	1 st Priority
Al Huseyneyat Sanitary Dumpsite	1 st Priority
Al Aghwar al Shamalyeh Dumpsite	2 nd Priority
Al Badyeh Al Shamalyeh Dumpsite	2 nd Priority
Al Rwaished Dumpsite	2 nd Priority
Al Safawi Dumpsite	2 nd Priority

Design Capacities of Proposed MSWM Projects

Sanitary Landfills 2015-2019

El Ekaider Sanitary Landfill

921, 500 tn/yr

Al Huseyneyat Sanitary Landfill

210, 500 tn/yr

New Al Rwaished Small Sanitary Landfill

3,000 tn/yr

Rehabilitation of Dumpsites 2015 - 2019

Al Ekaider Dumpsite

908 dunams

Al Huseyneyat Dumpsite

450 dunams

Al Aghwar al Shamalyeh Dumpsite

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Al Badyeh Al Shamalyeh Dumpsite

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Al Rwaished Dumpsite

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Al Safawi Dumpsite

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Institutional Arrangements and Mapping of Key Stakeholders for short- and long-term solutions

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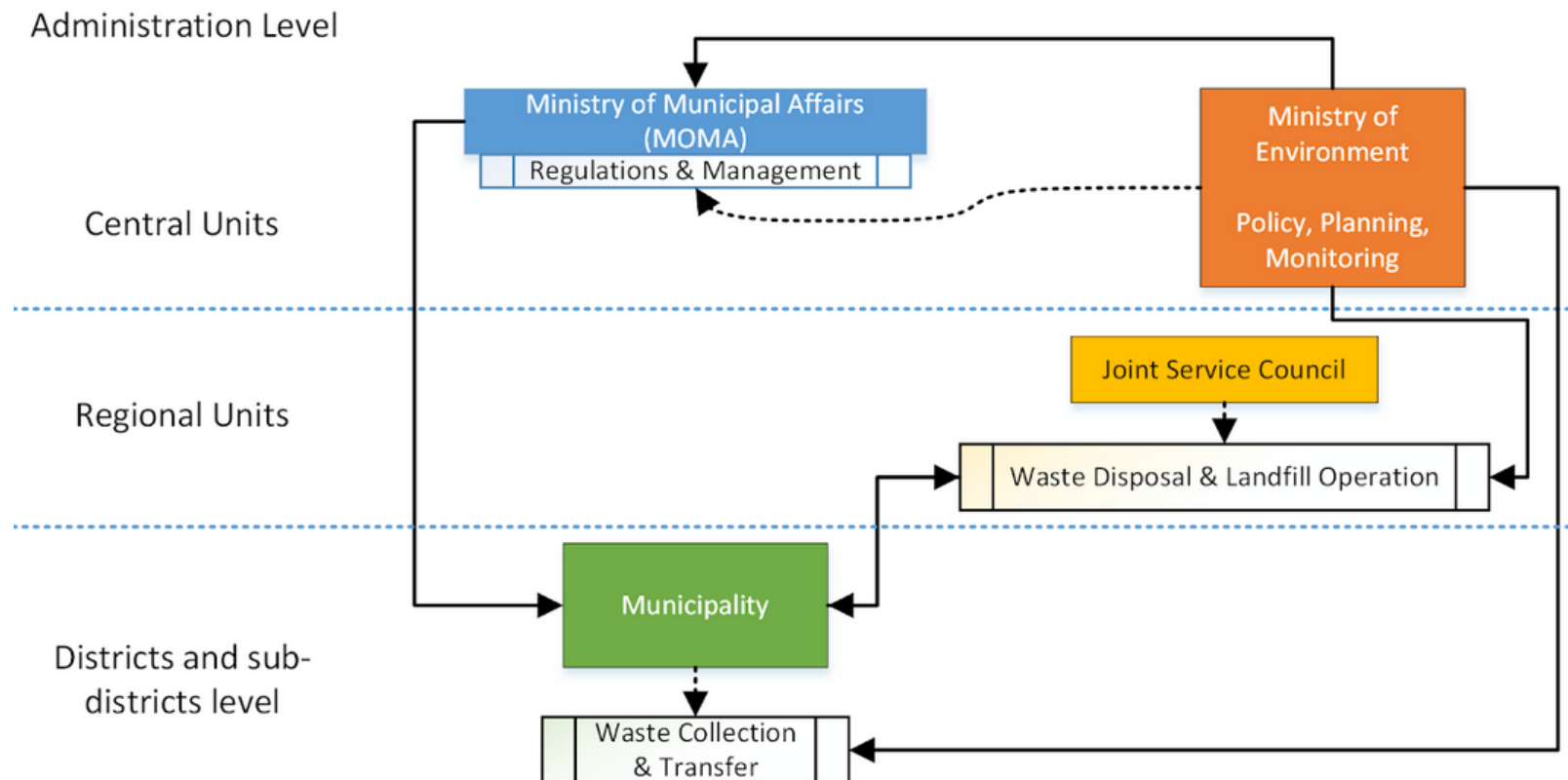


Institutional Arrangements

Existing administrative structure for MSWM in Jordan:

- Ministry Level (national), which is mainly regulated by MoMA;
- JSC level (regional)
- Municipal level (local)

Legal Framework Governing SWM in Jordan



Institutional Arrangements

Due to the interconnectedness of the SWM sector, collaborating with the appropriate stakeholders in the relative frameworks aids interventions in the following ways:

- Creating a shared commitment to goals
- Streamlining knowledge sharing among key players
- Delegation of required tasks/studies to be completed for short-/long-term success
- Smoother project launch and or adjusting project parameters
- It's the key to successful project management

This led to the establishment of the technical and steering committees developed under the National Municipal Solid Waste Management Strategy (NMSWMS) mentioned earlier.

Roles of Municipalities & JSCs in MSWM

	Main Roles & Responsibilities	Funding of MSWM Activities	Ability to Set-Up PPPs
Municipalities	Responsible for MSWM. Regularly dealing with street cleaning, MSW collection and (s/t) transfer/transport	Collection of MSWM fees through electric bills; Paying municipal contribution to JSCs for MSWM activities; borrowing by the CVDB.	Yes
Joint Service Council (JSCs)	Responsible for MSWM on delegation of responsibilities by the municipalities. Regularly dealing with transfer/transport, treatment and disposal	Collection of Municipal contributions, gate fees at MSWM facilities by the private sector, revenues from recycling contracts, MoMA support for balancing costs and revenues	Yes
MoMA	Facilitation, supporting and monitoring of municipalities'/JSCs' performance, establishment of JSCs with Ministerial Decision	Lending the Municipalities through the CVDB, providing support to the JSCs	Yes

Regional Municipal Solid Waste Management Plan

Two master plans – one for the northern region and another for the central region – were published in 2016.

The [Regional Municipal Solid Waste Management Plan for Northern Jordan](#) (RMSWMP), one of the two plans, is to highlight the emergency/response situation in the SWM sector and provide more efficient, environmentally friendly and socially sound SWM systems in terms of collection, transfer and disposal.

RMSWMP in the Northern Region

Of the 657,629 registered Syrian refugees (UNHCR, 2018) in Jordan:

- 157,951 reside in Mafraq Governorate (24%)
- 135, 799 reside in Irbid Governorate (21%)
- 7, 154 reside in Ajlun (about 1.1%)
- 9,411 reside in Jerash (about 1.4%)

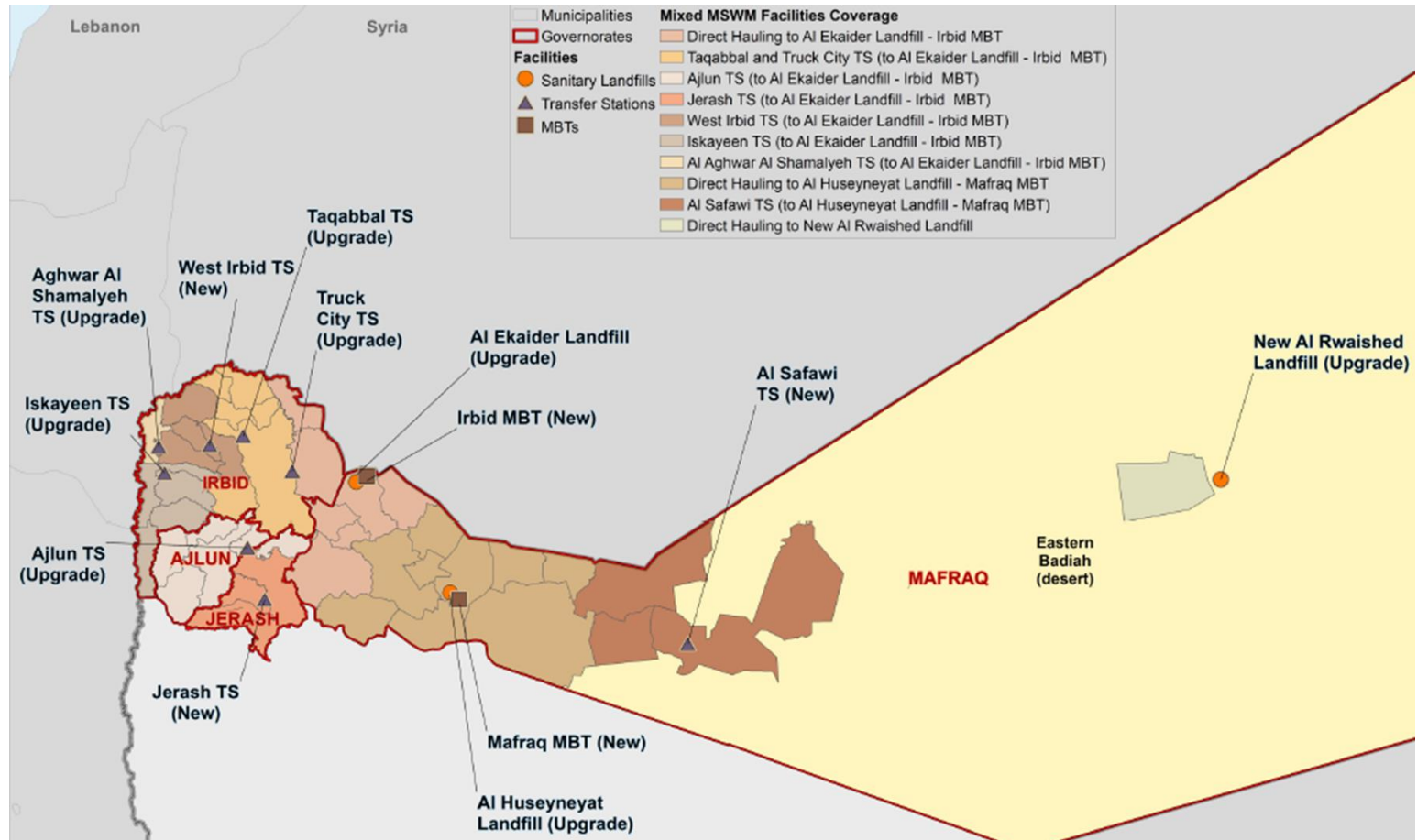
About 47% of registered refugees from Syria reside in the governorates of the Northern Region.

MSW collection and disposal has become a major challenge for local municipalities and Joint Service Councils (JSC), further stressing the existing MSW collection capacity, the limited airspace, and the operational capacity of the landfill and disposal facilities.

Near-, Medium- and Long-term MSW Generation in the Northern Region:

- 1,337,352 tons annually by 2019
- 1,622,075 tons annually by 2024
- 2,511,386 tons annually by 2036

RMSWMP in the Northern Region



SWOT Analysis of N. Jordan's Institutional Framework

Strengths

- Responsibilities of different entities adequately described in the MSWM policy framework
- No conflict of responsibilities
- Rational interactions between MSWM competent authorities

Weaknesses

- No comprehensive single regulation for MSWM (A new Framework Law of SWM is under Final Stage to be issued)
- Not specifically determined responsibilities for sophisticated MSWM activities
- Low operational efficiency of municipalities and JSCs in MSWM
- Ministry of Environment (MoENV), municipalities and JSCs suffer qualified human resources shortage to fulfill their targets
- Low entering of the private sector into MSWM
- Low autonomy of municipalities and JSCs with regards to administrative, financial and operational issues
- Often splitting and merging of small municipalities in Jordan creates administrative gaps with effect – inter alia – to MSWM

Opportunities

- High potential to increase MSWM efficiency through institutional capacity building
- Increasing autonomy of municipalities and JSCs may increase efficiency of provided MSWM services
- Strengthening cooperation of MoMA and MoENV in the MSWM sector through the Framework Law
- Harmonization of the relationship between the private and public sectors in MSWM through the PPP Law
- Use of Greater Amman Municipality and Aqaba Special Economic Zone Authority as examples for institutional set-up and monitoring/control of MSWM activities

Threats

- No comprehensive single regulation for MSWM setting responsibilities of all concerned public authorities with regards to the whole SWM chain, including SWM recycling and processing

Institutional Support Spurring SWM Interventions

Jordan's Ministry of Municipal Affairs (MoMA), through the European Union, has been dedicated to take the lead in the procurement process for short-term solutions and actions

The tendering process is administered and monitored by MoMA and AFD.

Recall from earlier, that to support short-term activities, the EU signed, approved and allocated 100 M euros to implement interventions. Simultaneously, the Government of Jordan is to secure up to 25 M Euros of which 5 M Euros are to be spend annually from the treasury of MoMA.

on the other hand, some international entities ; such as United Nations Development Program, Action Against Hunger (ACF) and GIZ will continue working on improving the SWM system at the host communities through collaboration with MoMA and other relevant Ministries in line with the recommended actions of the National Strategy and related regional master plans.

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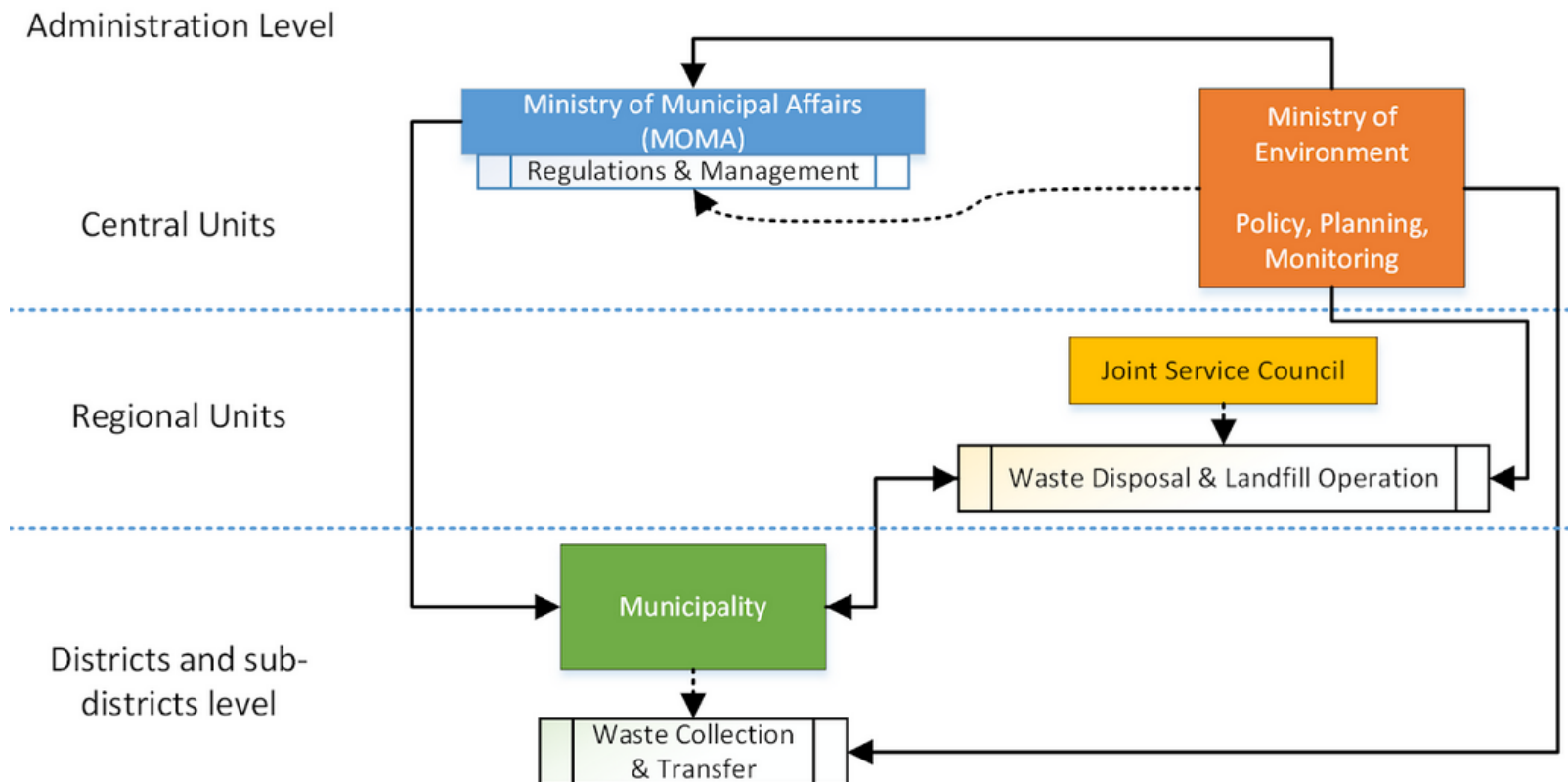


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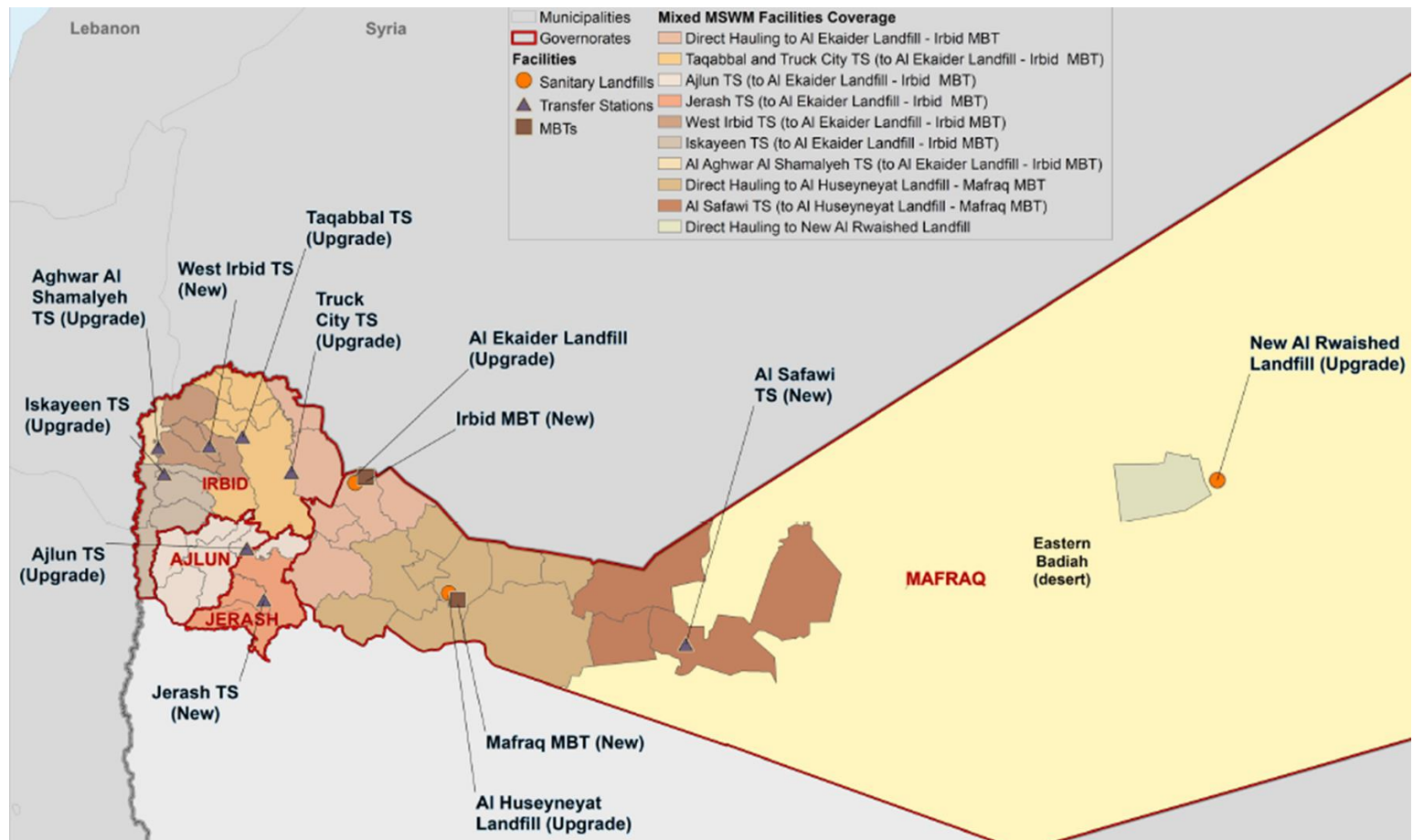
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