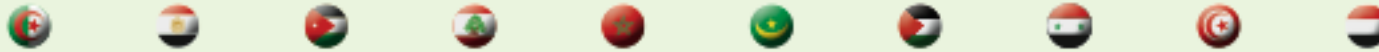


THE REGIONAL SOLID WASTE EXCHANGE OF INFORMATION AND EXPERTISE NETWORK IN MASHREQ AND MAGHREB COUNTRIES



1st REGIONAL FORUM ON INTEGRATED SOLID WASTE MANAGEMENT

April 12 -14, 2011 – Beirut, Lebanon



Strategy for Waste Management and Challenges in Lebanon

Bassam Sabbagh

National Coordinator

Head of Urban Environment pollution control Department – MoE - Lebanon

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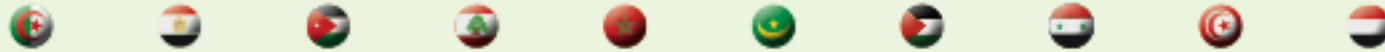
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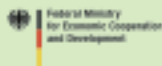
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Statistics & Numbers

- Population in Lebanon : 4.5 millions
- Average MSW generation : 0.95 kg/cap/d
- Growth in MSW generation : 1.65 %
- Lebanon generates about 1.57 million t/year
- 60 % of total waste is generated in Beirut & Mount Lebanon

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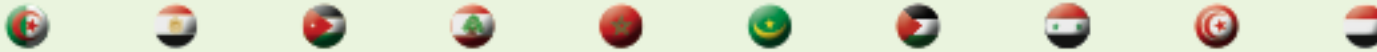


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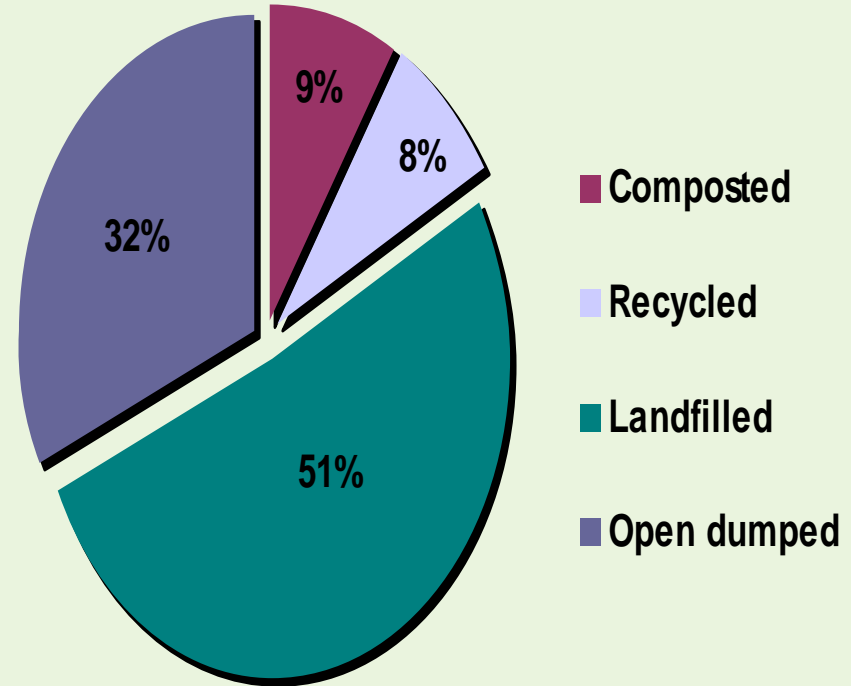
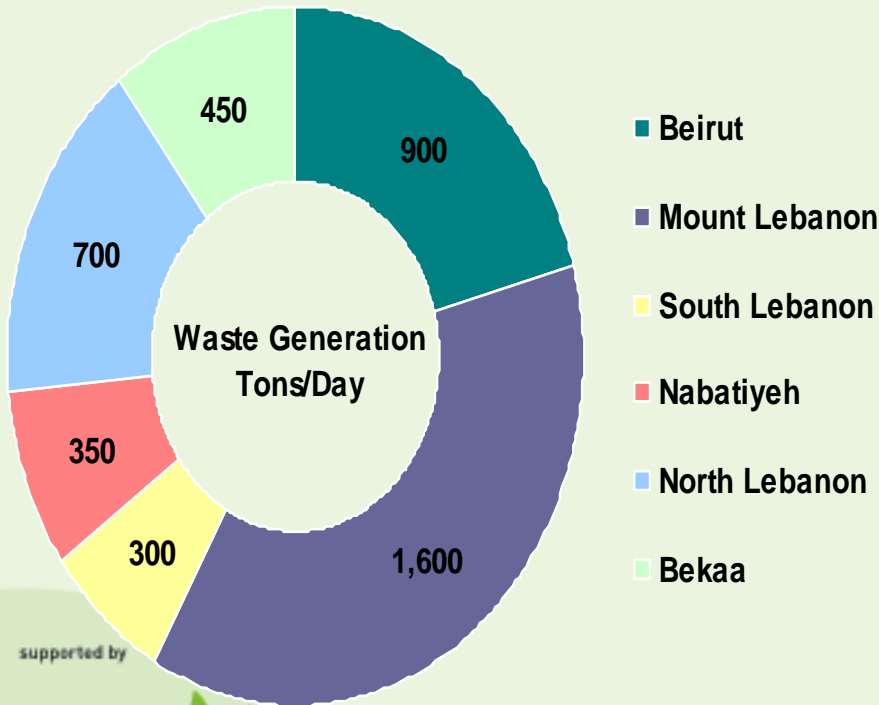
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Cooperation for Sustainable Development





Statistics & Numbers



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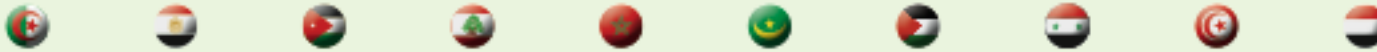


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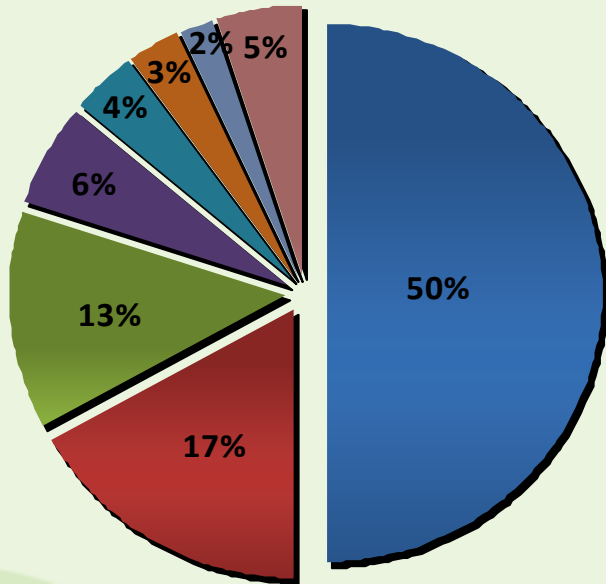
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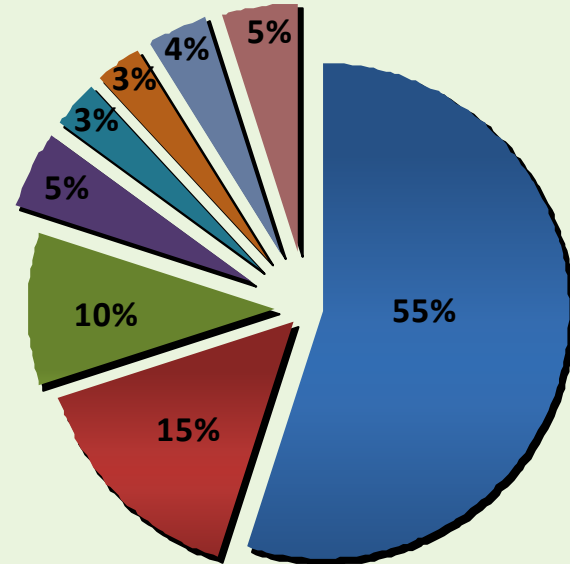


SW composition in Lebanon

Urban Areas



Rural Areas

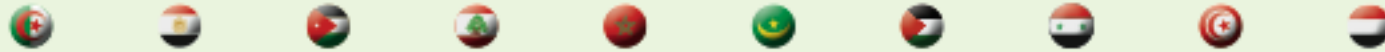


supported by ■ Organic waste ■ Paper & Cardboard ■ Plastics ■ Metals & Cans ■ Glass ■ Textile ■ wood ■ Others



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Institutional Framework

Ministry of Environment :

- Review all studies related to SWM (EIAs, TORs, Tender documents, ...)
- Participation in committees for reception of works linked to SWT facilities
- Preparation of Strategies, Master plans and programs related to SWM
- Define standards and environmental limit values for disposal of SW

Ministry of Interior and Municipalities :

- Municipalities are responsible for waste collection, building facilities
- The Ministry control the Independent Municipal Fund IMF

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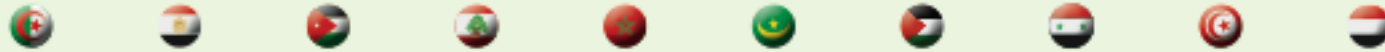


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Institutional Framework

Council for Development and Reconstruction CDR

- ❑ Implementation of SWM plans in Lebanon
- ❑ Develop proposals, TORs and Tender Documents for SWM

Office of Minister of State for Administrative Reform OMSAR

- ❑ Develop a program to improve the provision of SW services in rural areas
- ❑ Develop proposals, TORs and Tender documents for projects under the same program

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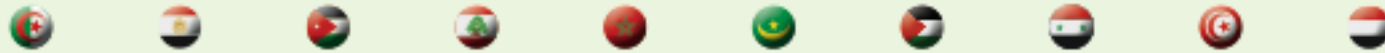


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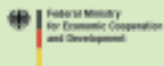




Legal framework

- No specific legal framework dealing directly with Solid waste.
- MoE has prepared a draft law for SWM in Lebanon and issued to COM in 2005
- **Current Legislations**
 - ❑ **Law No. 64 (dated 12 August 1988):** the preservation of public cleanliness, municipalities are responsible for the collection and disposal of household wastes.
 - ❑ **Law No. 444 (dated 29/7/2002): Environment protection Law** – fundamental principles and public rules, EIAs, Responsibilities, fines and other institutional regulations

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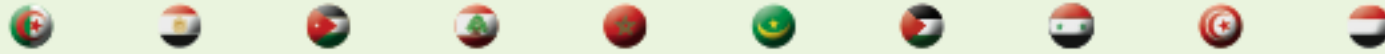


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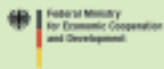




- **Current Legislations**

- ❑ **Decree No. 9093 (dated 15 November 2002)** provides financial incentives to municipalities for hosting SWM facilities or landfills. To date, the decree has never been implemented.
- ❑ **MoE Decision No 8/1 (dated 30/1/2001)** setting standards for air emissions, liquid effluents, and waste water treatment plants
- ❑ **COM Decision 1 (dated 28/6/2006)** : approval of MoE and CDR MSW plan for Lebanon which consists of (1) dividing Lebanon into 4 service areas (2) construction of solid waste complexes (sorting, composting and landfilling)
- ❑ **COM Decision 55 (dated 1 September 2010)** to **amend and complement the SWM plan of 2006**. It advocates **waste-to-energy technologies in large cities (Generation of electricity from waste conversion technologies)**. It also invites private sector participation in waste management systems.

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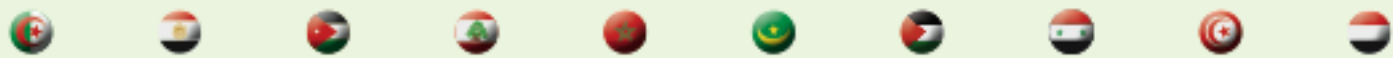


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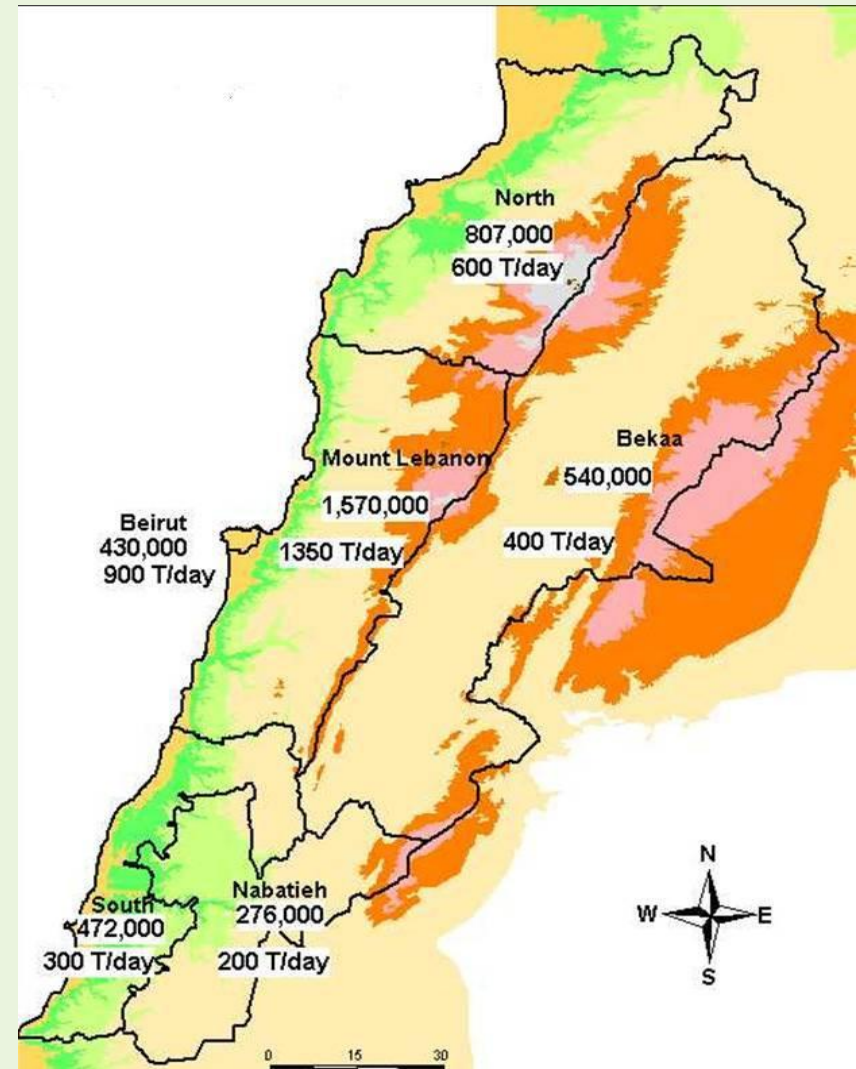
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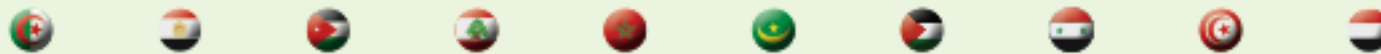


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Municipal Solid Waste Management Master Plan (2006)

Service Area	MSW Generation (t/d)	Sanitary Landfills		Composting Plants		Sorting Plants	
		No.	Proposed Location	No.	Proposed Location	No.	Location
Group 1: North Lebanon & Akkar	712	1	Srar	1	Srar	1	Srar
Group 2: Bekaa & Baalbeck-Hermel	425	2	Zahle & Teybeh	2	Zahle & Teybeh	2	Zahle & Teybeh
Group 3: South Lebanon & Nabatiye	626	2	Mazraat Bsfour & Shakraa Barashit	2	Mazraat Bsfour & Shakraa Barashit	2	Mazraat Bsfour & Shakraa Barashit
Group 4: Beirut & Mount Lebanon	2,300	1 or 2	Jiyeh (Dahr el Mghara) or Khreybeh	1 or 2	Jiyeh (Dahr el Mghara) or Khreybeh	1 or 2	Jiyeh (Dahr el Mghara) or Khreybeh
Lebanon	4,063	6-7	-	6-7	-	6-7	-

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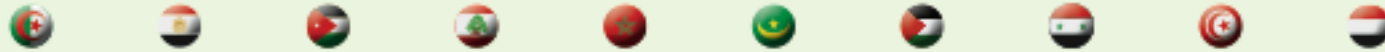


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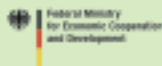




Emergency Plan for SWM 1997

- provides a framework for SWM in Beirut and most of Mount Lebanon (around 55 % of the population).
- Pursuant to the plan, the GOL shut down the Bourj Hammoud dumpsite and established a waste management system as follows:
 - ❑ Construction of 2 sorting facilities: Quarantina (1500 T/d) and Amrousieh (800T/d),
 - ❑ Construction of 1 composting facility (300T/d),
 - ❑ Warehouse for recyclables (160 T/d) and shredding of inert materials,
 - ❑ Disposal of sorted MSW at the Naameh Landfill Site, (around 2000 T/d)
 - ❑ Disposal of inert and bulky items at the Bsalim Landfill (around 70 T/d)

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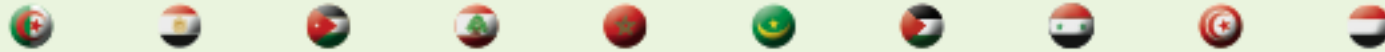


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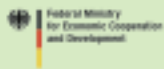




Challenges

- Lack of Environmental Awareness & community engagement in SW issues
- No legislation for awareness campaigns
- No integration of Awareness programs in the educational institutions
- Absence of incentives for municipalities & communities for SWT
- Absence of incentives regarding waste Minimization and sorting at source systems

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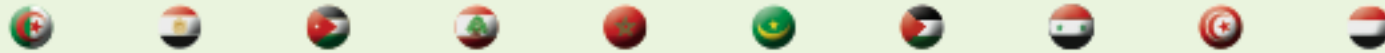


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Challenges

- **Absence of legal & institutional framework which should include**
 - Management of SW (collection, sorting, composting , power generation and final disposal)
 - Data storage and record keeping (information system)
 - Allocation of SWM responsibilities and overall institutional setting
 - Application of the “ polluter pays “ principle
 - Penalties and sanctions
- **Absence of financial and cost recovery system**
 - Apply incentive systems to encourage all kind of treatment
 - Sources of financing
 - Cost recovery system via tax exemptions and others

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