

Household Solid Waste

Overview of Household Solid Waste Sector

In a general sense, waste is a broad term that refers to items consumed by the public or materials left behind by a human activity or process, and which, due to their physical and/or chemical and biological properties become of no value and therefore neglected and intended to be discarded or disposed of. In Lebanon, the current legislations governing waste, the waste management practices and the majority of CDR's projects and contracts all tackle domestic solid waste commonly known as Municipal Solid Waste (MSW). Other types of waste should be treated by the private entities producing such waste, under the guidance and full supervision of the concerned ministries, based on the "polluter pays" principle, as stipulated by applicable laws and regulations.

Current situation: Concerned authorities in Lebanon are working towards the promotion of an integrated waste management plan that is aligned with the socio-political situation and that translates into concrete actions the desired waste management expectations, in synergy with sustainable development principles embedded in other national programs and policies, which will ultimately reduce environmental degradation.

The Council of Ministers' decision No.1 dated 30/03/2010 established a committee headed by the Prime Minister and composed of the Minister of Displaced, The Minister of State for Administrative reform, the Minister of Interior and Municipalities, the Minister of Environment, the Minister of Energy and Water and the President of Council for Reconstruction and Development (CDR). This committee was commissioned to develop an integrated waste management plan proposal covering all Lebanese regions, and tackling in particular the following:

- Techniques and methods to be adopted for the implementation of the plan;
- Suggested sites for the implementation of the plan;
- Fundraising mechanisms;
- The authority to be in charge of the plan.

The said committee is also in charge of making recommendations concerning the measures and

procedures to be taken with regard to Naameh temporary landfill.

On 01/09/2010, the Council of Ministers issued decision No. 55, to endorse the recommendations of the inter-ministerial committee summarized as follows:

- 1-Adopt thermal decomposition and waste-to-energy technologies in large cities;
- 2-Adopt the 2006 master plan and study the possibility of adoption of thermal decomposition in the remainder of the country;
- 3-Engage the private sector and facilitate its tasks in the provision of Solid Waste Management Services, either on a turnkey basis (from collection to final treatment) or by handling one of the following options:
 - a.Collection
 - b.Treatment

4-Mandate the Ministry of Environment (MoE) and the CDR to merge their respective proposed plans, in synergy with what is agreed upon above;

5-Mandate the Ministry of Energy and Water to propose a legislation that entitles the private sector to produce and sell energy generated from waste;

6-Offer incentives to the municipalities that will host waste treatment facilities: thermal decomposition plants, processing stations, composting stations and landfills;

7-Mandate the CDR, in coordination with the MoE, to contract an international consulting firm to:

- Select the most appropriate and proven solutions adapted to the Lebanese case (based on the spirit of the plan);
- Develop the Request for Proposal (RFP) for the preliminary shortlisting of the thermal decomposition companies (Due diligence to short list only proven technologies);
- Assess and classify companies;
- Draft the RFP for the final tender;
- Perform bids appraisal;
- Monitor the implementation

8-Mandate the Ministry of Environment to contract an international consulting firm to control the workflow quality in accordance with the spirit of the plan and ensure good work progress;

9-Mandate the Ministry of Environment to hire a local consulting firm to conduct an awareness and guidance campaign to gain public support for the thermal decomposition technique;

10-Vest the Cabinet with the power to oversee the work progress and secure necessary funds, and to learn from successful experiences and best practices of neighboring countries.

Main Challenges:

- One of the biggest challenges facing the household waste in Lebanon lies in landfill locations, whether they are ordinary dumps or landfill sites for final dumping following sorting and recycling; another challenge is dealing with waste before reaching the dumps. Therefore, the emphasis should be moved towards recycling and composting.

- Solid waste management constitutes also a great challenge from a financial perspective, in particular in a developing country like Lebanon, due to the absence of sufficient adequate regulatory legislations.

- The legislations on household solid waste management in Lebanon are shallow, contradictory and unclear, especially with respect to the role and tasks distribution between the concerned departments and ministries. A draft law on integrated waste management is currently underway.

- The Union of Municipalities, upon the administrative and technical support of the Ministry of Environment and the Ministry of Interior and Municipalities, should consolidate the efforts for the selection of locations for dumps and sorting and composting facilities. This will be achieved through the establishment of a constructive dialogue and consultation process with the civil society, who would obstruct projects implementation, if not involved.

Main achievements of the (1992-2014) period

The Lebanese governments did not adopt a central policy or a unified management strategy for the treatment of solid waste in Lebanon, due to the fact that waste management used to fall within the prerogatives of municipalities, acting as the administrations overseeing the proper execution of these services. However, the Lebanese civil war negatively impacted the municipalities' financial, administrative and technical capacities, which jeopardized the continuity of their operations. In the beginning of 1992, the government assigned the management of this sector in Beirut and suburbs to CDR, due to the incapacity of municipalities to deal with this issue. Since that date, CDR has been working, in coordination with the concerned ministries, to put in place an integrated policy that provides the best solutions for Lebanon.

Emergency plan for the treatment of solid waste in Greater Beirut: Following the closure of the Bourj Hammoud dumpsite in January 1997,

the government decided to implement an urgent plan for the treatment of solid waste in Greater Beirut. A contract was signed with SUKOMI to expand and raise the capacity of the Amrousieh and Qarantina solid waste treatment plants, upgrade the sorting process, separate recyclable material and extract compost material. This plan also included the construction of sanitary landfills for Greater Beirut and its suburbs. Two sanitary landfills were established in Naameh and Bsalim. Both are currently in operation.

Rehabilitation of Tripoli dumpsite: The uncontrolled dumpsite located on Tripoli coastline has been rehabilitated. A sea wall was constructed around it to reduce environmental risks. Moreover, the necessary equipment for operating the dumpsite in an environmentally friendly way was procured in order to upgrade solid waste management in Tripoli region. The dumpsite has been in operation since 1998.

Construction of Zahleh sanitary landfill: The new sanitary landfill serving Zahleh caza has been completed and the required vehicles and equipment for its operation have been procured. The works and procurements were financed by the World Bank. This dumpsite has been in operation since 2001.

Construction of a sanitary landfill and a solid waste treatment plant in Baalbek caza: under the integrated waste management plan.

Procurement of waste collection equipment for various regions: Within the framework of the urgent program, the World Bank funded the procurement of waste collection equipment, including vehicles, street sweeping equipment and special containers. These were distributed across all Lebanese regions. In the second phase of this project and within the framework of the Household Solid Waste Management Plan (SWEMP), the World Bank funded the procurement of waste collection and street sweeping equipment for the regions where construction works of sanitary landfills or rehabilitation of uncontrolled dumpsites were completed, such as Beirut, Zahleh and Tripoli.

Hospital waste treatment: In 1998, the CDR awarded the hospital waste treatment study, funded by the World Bank, to ERM. Several phases of the study have been completed. This has al-

lowed concerned parties to take decisions regarding the most appropriate means for hospital waste treatment. The Ministries of Environment and Public Health together with CDR have decided to build a central incinerator, which complies with international standards and operates at a minimum temperature of 1200°C, as a possible means of hospital waste treatment. The environmental impact assessment and the design study have not been prepared because the appropriate construction site has not been identified yet.

Marketing of compost and recyclable material: The feasibility study for marketing organic compost and recyclable materials generated by the Quarantina, Amroussieh and other treatment plants was completed by ARCADIS/ EUROCONSULT in December 2003. The study was financed by the World Bank within the framework of SWEMP.

Financial audit of amounts due to SUKLEEN and SUKOMI: According to the Council of Minister's Decision No. 16 dated 14/8/2003 concerning the launching of an international tender for constructing and operating the solid waste treatment plants and landfills for a period of ten years, and in order to ensure the success of this tender, CDR was assigned to audit the amounts due to SUKLEEN and SUKOMI. Accordingly, the audit contract was awarded on 18/9/2003 to PRICE-WATERHOUSECOOPERS, which is an international audit firm.

Technical Assistance for identification of treatment plants and landfill locations and preparation of environmental impact assessment: To implement the Council of Minister's directives concerning the identification of treatment plant and landfill locations, CDR awarded the impact assessment to Consultant Rafic Khoury who started his mandate in the third quarter of 2003. The Consultant prepared the environmental impact assessment of the locations identified by the technical committee commissioned with this task.

The comprehensive Household Solid Waste Management Plan: The CDR put in place an integrated plan that was approved by the Council of Ministers in 2006. The plan is based on the following principles:

1-Recycling and composting to the greatest extent in order to minimize the quantity of dumped waste; and distribution of recycling, sorting and composting plants on all cazas, with one or more sanitary landfills in each service area.

2-For this purpose, Lebanon shall be divided into four service areas:

- The North and Akkar governorates
- The Bekaa and Baalbek-Hermel governorates
- The South and Nabatiyeh governorates
- Mount Lebanon and Beirut governorates

3-Create an incentives scheme for the municipalities that will host sorting stations, composting plants, sanitary landfills or incinerator centers. These municipalities will be paid a certain amount per every ton of solid waste, as proposed in the plan and according to laws and decrees that will be issued in this respect.

4-Municipalities shall deal with sweeping, collection and transport of waste to sorting stations and composting plants at their own expenses.

5-The contractor shall be responsible for financing the relevant study, executing and preparing the sanitary landfills, incinerator centers, sorting stations and composting plants. The contractor shall also be charged with the management of these facilities for ten years on the basis of a certain fee per each ton of transported and treated waste.

Maritime and back-filling works in Saida waste mountain area: the Council of Ministers issued Decision No. 37, dated 26/5/2009, directing the CDR to develop the necessary studies and draft decrees, and to implement the maritime and back-filling works in Saida waste mountain area. Funding is secured through the US\$ 20 million grant donated by the Kingdom of Saudi Arabia, and the remainder of the cost is financed by the Lebanese government.

Construction of several solid waste management and treatment plants and supply of their necessary equipment, by the Office of State for Administrative reform (OMSAR) with the financial assistance of the European Union: Since 2004, in the framework of ARLA (EUR 14.2 million) and SWAM1 (EUR 14 million), funded by the European Union, OMSAR, implemented several projects in the field of solid waste management: These projects include the following:

-Under the umbrella of ARLA: Construction and equipping of sorting and composting plants in the following regions: Ain Baal (Sour), Nabatiyeh, Ansar, Khiyam, Kabrikha, Chouf-Souaijani, Baalback, Jbeil, Tripoli, Minnieh, Mechmech (Akkar), and a medical waste treatment plant in Abbassiyeh.

-Under the umbrella of SWAM1: Rehabilitation and expansion of waste management plants in the following regions: Srar –Akkar (sorting, composting and sanitary landfilling), Baalback (sorting and sanitary landfilling), Zahle (sorting and composting), Jib Jannin (sorting, composting and sanitary landfilling).

Progress during 2015 and 2016:

Construction of several solid waste management and treatment plants and procurement of their necessary equipment, under the execution of the Office of State for Administrative reform (OMSAR) and with the financial assistance of the European Union: on 27/08/2015, the Council of Ministers approved the European Union grant intended to finance SWAM 2 (EUR 21 million), which includes the implementation of several solid waste management projects distributed as follows:

•Sorting and composting in the following regions: Dannieh, Zgharta, Koura, Batroun, Bint Jbeil.

- Sanitary landfilling in Bint Jbeil and Nabatiyeh.
- Rehabilitation of Ras Al Ain dumpsite.

OMSAR manages also a US\$ 50 million Lebanese government budget allocation, to operate and supervise afore-mentioned solid waste treatment plants.

Expropriation and rehabilitation of the Ras el Ain waste dumpsite in Sour: On 22/05/2014, the Council of Ministers issued decision No. 99 regarding the approval of a list of projects suggested by the Ministry of Finance among which the expropriation of the Sour – Ras el Ain garbage mountain (US\$ 2 million). On 09/09/2015 the Council of Ministers issued decision No.1 regarding the elaboration of the solid waste treatment plan, which mandated the CDR to prepare the necessary studies in partnership with the Ministry of Environment to rehabilitate the Ras Al Ain waste dumpsite and award the related contract. Based on this decision, the CDR commissioned the Consultant MORES to develop an environmental impact assessment for the rehabilitation of Ras Al Ain waste dumpsite and prepare an expropriation file. This study was completed during

the second half of 2016.

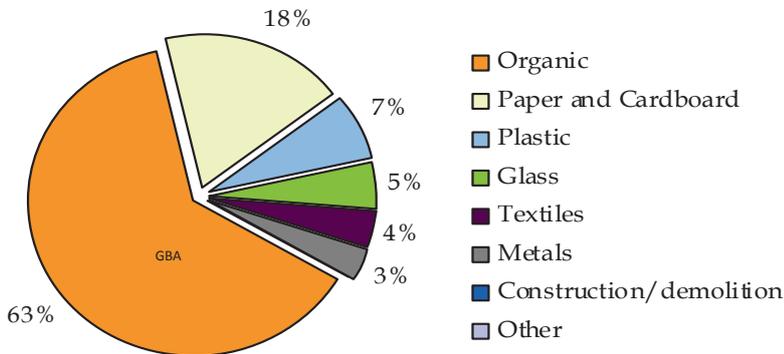
Tenders to outsource the Management of Solid Waste (sweeping, collection, treatment and landfilling) in five service areas and a forced shutdown of the Naameh landfill: On 30/10/2014 the Council of Ministers' decision No.46 mandated the CDR to prepare an RFP to outsource a) the garbage sweeping and collection works and b) the garbage treatment and landfilling works. The decision identified five service areas across the Lebanese territories. Subsequently, the CDR released the tenders for the five service areas.

After the bids have been submitted and evaluated, the Ministry of Environment suggested the rejection of the bids results. On 25/08/2015, the Council of Ministers approved this suggestion (Decision No.1). The closure of Naameh landfill was forced as of 17/07/2015 which resulted in the accumulation of garbage in Beirut and Mount Lebanon.

On 27/08/2015, the Council of Ministers approved to commission the Ministry of Interior and Municipality to request from municipalities and unions of municipalities to announce their preparedness and plans to bear responsibility for the treatment of solid residential waste, each within its geographical jurisdiction.

On 09/09/2015, the Council of Ministers backed Agriculture Minister's waste management plan which called for the decentralization of waste treatment, and the restoration of the role of local municipalities and unions of municipalities in handling garbage, and as a first phase, to take necessary measures to transfer the garbage piled up since the closure of the Naameh Landfill (i.e on 17/07/2015) as well as the generated waste, to many landfills that will be prepared for this purpose, for a period not exceeding 18 months. And after negotiations regarding the location of the sanitary landfills failed, the Council of Ministers decided on 21/12/2015 to export garbage and initially approved to contract out the 2 companies selected following the tender process, and emphasized the Council of Ministers' decision No. 55 of /01/09/2010 stipulating the use of waste-to-energy technology and mandating the CDR to prepare the tender document within a period not exceeding two months.

Proportion of organic solid waste in Greater Beirut and in Lebanon



Greater Beirut

Whereas, the Council of Ministers approved by Decision No. (1) dated 12/03/2016 amended by Decision No. (1) dated 17/3/2016, to mandate the CDR to conduct the tender for the outsourcing of waste services and their associated facilities, and the outsourcing of studies and supervision over works, within a period of two months.

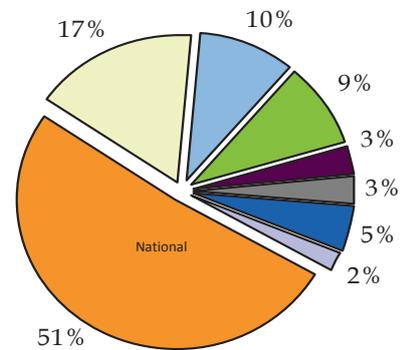
The distribution of waste services and their associated facilities has been distributed into five independent tenders related to the following projects:

- Project for the setup of a temporary sanitary landfill near the mouth of Al Ghadir River (with marine protection works).
- Project for the setup of a temporary sanitary landfill center in Bourj Hamoud area, Jdeide - Bouchrieh- Al Sadd (with marine protection works and treatment of the waste mountain).
- Project for the sorting and treatment of solid household waste for Beirut administrative areas and Mount Lebanon, excluding Byblos.
- Project for household solid waste collection and transport for the following two service areas (two independent bids):
 - 1 - Metn and Keserwan districts.
 - 2 - Baabda, Chouf and Aley districts.

First: Regarding the status of each of the above-mentioned projects:

1-Project for the setup of a temporary sanitary landfill near the mouth of Al Ghadir River:

- On 22/07/2016, the CDR signed with «Al Jihad Group for Commerce and Contracting» Contract



Lebanon

No. 19682 related to the implementation of the project intended to setup a temporary landfill near the mouth of Al Ghadir River. On 25/07/2016, the above-mentioned contractor was instructed to commence the implementation of the marine protection works observed in this project. And on 25/08/2016, the contractor was instructed to commence landfilling works.

- On 16/08/2016, the CDR signed with the merger group «Dar Al-Handasah Nazih Taleb & Partners (SES)» Contract No. 19697 related to the supervision over the implementation of the project for the setup of a temporary sanitary landfill near the mouth of Al Ghadir River.

- On 02/12/2016, the CDR signed with the technical inspection bureau «Socotec» Contract No. 19750 related to the provision of technical supervision services over the project for the setup of a temporary sanitary landfill near the mouth of Al Ghadir River.

- The capacity of the landfill is 1,000,000 tons of waste.

2- Project for the setup of a temporary sanitary landfill station in Bourj Hammoud area, Jdeide - Bouchrieh- Al Sadd:

-On 03/08/2016, the CDR signed with «Khoury Contracting Company LLC», Contract No. 19687 related to the implementation of the project for the setup of a temporary sanitary landfill center in Bourj Hamoud-Jdeide - Bouchrieh- Al Sadd, noting that on 11/08/2016 the contractor was instructed to start the implementation of the maritime protection works observed in the scope of this project. Also on 08 /10/2016, instructions were given to start landfilling works.

-On 05/09/2016, the CDR signed with the consultant «Rafik Al-Khoury and Partners», Contract No.

19702 related to the supervision over the implementation of the project for the setup of a temporary landfill in Bourj Hamoud- Jdeide – Bouchrieh – Al Sadd.

-On 05/12/2016, the CDR signed with the technical inspection bureau «Apave», Contract No. 19751 related to the provision of technical inspection services with regard to the project for the setup of a temporary landfill in Bourj Hamoud- Jdeide- Bouchrieh- Al Sadd.

-The capacity of the landfill is 1,250,000 tons of waste.

Notes on the sanitary landfill contracts:

In this context, it is worth noting that the Government's plan adopted in March 2016 was based on the fact that it was a transitional four year period (which is the timeline required for the completion of the sustainable plan if approved) and that the quantities required to be landfilled during the four-year period were estimated at around 3 million tons distributed on three sanitary landfills (Al Ghadir, Bourj Hamoud - Jdeide, and a third site servicing the Chouf, Aley and part of Baabda). Back then, the ministerial committee estimated this amount (i.e 3 million tons to be landfilled within four years) on the basis that some municipalities and federations would implement their decentralized projects and exit the centralized plan.

In fact, the Council of Ministers has not yet decided on the third site of sanitary landfill, and municipalities and federation of municipalities have not withdrawn from the centralized plan, which has resulted in the use of Al-Ghadir and Bourj Hamoud-Jdeide, at a higher capacity than the capacity noted in the plan.

3- Project for the sorting and treatment of solid household waste for Beirut administrative areas and Mount Lebanon, excluding Byblos:

- On 23/09/2016, the CDR signed with the merger group «Al-Jihad Group for Commerce and Contracting/SORIKO, Contract No. 19706, related to the sorting and treatment of solid household waste for Beirut and Mount Lebanon (excluding Byblos), knowing that this project's works started on 01/01/2017.

- The CDR Board of Directors approved the assignment of the consultant Laceco to supervise the implementation of the project for the sorting

and treatment of solid household waste for the areas of Beirut and Mount Lebanon (excluding Byblos).

4- Project for household solid waste collection and transport:

- On 14/12/2016, the CDR signed with the merger group «Aramco/Altas» Contract No. 19765, related to the collection and transportation of solid household waste in the districts of Metn and Keserwan (Lot 1), and this project's works started on 15/05/2017.

- On 03/01/2017, the CDR signed with the merger group «Mouawad-Edde/SORIKO» Contract No. 19772, related to the collection and transportation of solid household waste in the districts of Baabda, Chouf and Aley (Lot 2), and this project's works started on 04/06/2017.

-The CDR's Board of Directors, at the request of the Municipality of Beirut, agreed to extend the term of the contract signed with Sukleen for the cleaning, collection and transportation of solid household waste within Beirut administrative area until 31/12/2017, a date on which the Municipality of Beirut expects to be able to outsource the sweeping, collection and transportation of solid waste within its area.

-The CDR will release the tender for the outsourcing of the supervision tasks over the collection and transport of solid household waste, noting that the consultant D.G. Jones & Partners is currently in charge of overseeing the implementation of all the above-mentioned solid waste collection and transport activities. It is preferable that the consultant D.G. Jones & Partners continue to perform its functions until the termination of the Sukleen contract, as it prepares a consolidated report showing the distribution of waste weights in the areas served under the above-mentioned contracts.