Hazardous Waste Management

Lebanon

Hazardous Waste Production

- **Industrial Hazardous Waste**: 100,500 tonnes per year, (the future increase is unknown). Main components: chemical, petroleum and coal production waste.
- **Medical Hazardous Waste**: more than 4,000 tonnes in 2002, expected to increase to over 5,000 tonnes per year by 2010.

Hazardous Waste Management

- In the absence of a specific hazardous waste management program, industrial solid waste, including hazardous waste, is collected with domestic solid waste and transferred to disposal sites. Liquid waste is often discharged into rivers and the sea.

Legal Framework

The current legal framework for hazardous waste is primarily defined by:

- A decree entitled “Management of Waste from Health Care Institutions” was also drafted in 2002 but has not yet been signed.
- Additional decrees on waste definition and waste classification and hazardous waste management were drafted as part of the METAP/ERM study of 2002. They have not yet been officially approved.

Institutional Framework

- The Ministry of the Environment (MoE), established in 1993, is responsible for all matters concerning the environment in Lebanon. This broad mandate was narrowed and defined in the new Environmental Code that also requires the provision of additional human and financial resources for the MoE.
- Currently, a service called the Protection of the Environment from Technology and Natural Hazards is responsible for enforcing legal requirements for hazardous waste. This service, under the General Directorate, carries numerous responsibilities and seems to be critically understaffed. A proposal to create a distinct Hazardous Waste Management Team within this service has been proposed in order to better address the increasing problems related to the management of industrial hazardous waste.

Other ministries and public institutions are also involved in hazardous waste management issues. For example, the Ministry of Health must ensure safe disposal of all medical waste, the Ministry of Industry sets conditions for industrial operating permits and the Ministry of Water and Power intervenes in industrial wastewater management.
Disposal Facility

Currently in Lebanon there is no hazardous waste treatment or disposal facility. A 2002 ERM study proposes an implementation program for such a facility over 10 years. It would be composed of four modules:

- Dedicated solid hazardous waste landfill with initial capacity of 300,000 tonnes.
- A chemical-physical treatment plant with an annual capacity of 40,000 tonnes.
- An oil and solvent purification plant possibly followed by a dedicated incineration unit capable of processing 30,000 tonnes annually.
- A chemical section aimed at maximizing solid hazardous waste recycling. Its capacity would be 50,000 tonnes annually.

The roughly estimated construction cost for the entire facility has been set by ERM at US$40 million with a yearly operating budget of US$500,000.

Overall Assessment and Options for Improvement

- A reporting mechanism should be established to improve knowledge of the quantities and types of hazardous waste produced in the country, better understand treatment and disposal practices and identify the most important problems cases requiring urgent attention.
- Private sector involvement in hazardous waste management should be encouraged through incentive measures.
- There is an urgent need to develop a comprehensive regulatory framework on hazardous waste with clear and realistic standards applicable to all industrial facilities in Lebanon and taking into consideration regional standards. Issuance of specific standards and control limits on key hazardous wastes such as heavy metals and persistent organic pollutant (POP) pesticides should be emphasized.
- A formal and intensive training program for all Ministry of Environment and other relevant ministry personnel in Beirut and all regional offices should be developed and implemented. Critical training areas include:
  - Health risks associated with various pollutants.
  - Waste minimization techniques and recycling technologies and approaches.
  - Treatment technologies and disposal safety measures.
  - Legal and regulatory environment.
- For industrial hazardous waste generators, provide in-plant information and awareness on hazardous waste management, reduction and clean production.
- Cooperation with neighboring countries in the field of hazardous waste management, through the METAP program, should be improved. For instance, beneficial cooperation can be achieved through training and awareness program development and data, experience and knowledge sharing.