



# Wastes and its Current Status Challenges and Opportunities

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## Abstract

Solid waste is a serious dilemma that affects the environment and human health, and it is not customary to do so collecting or disposing of solid waste in the proper way. Solid waste accumulates randomly without collection, and sometimes it is burned to get rid of it and these practices resulted in severe damage to the environment and health. Leaving solid waste in places not designated for it creates Unpleasant odors and the gathering of insects and germs that cause diseases, as well as the hazardous materials resulting from Random and improper disposal of solid waste that may leak into water resources and cause pollution, including potable groundwater, which is the main source of fresh water in many countries of the world. Disposing of solid waste in open and uncontrolled sites around the world is the dominant method. These sites are mostly not subject to any real or strict monitoring .Solid waste production is increasing rapidly annually, which indicates an increase in costs. In addition to greater impacts on human health and the environment, with a lack of efficient treatments and recycling of solid waste, which does not occur in an organized, systematic and scientific manner. It did not have a positive effect on solid waste treatment quantitatively and qualitatively. This chapter came to highlight the main challenges of solid waste accumulation and propose possible solutions to reduce the harmful impact of its accumulation..

*Keyword : Solid waste, harmful impact ,Challenges and Opportunities*

## 1. INTRODUCTION

The Middle East is one of the most fertile places for waste generation in the world, and the wasteful lifestyle, ineffective legislation, obstacles to providing infrastructure, indifferent public behavior, and lack of environmental awareness are among the main factors leading to the growth of waste problems in the Middle East. The high standard of living, coupled with the lack of waste collection and disposal facilities, also contributes to transforming the issue of "garbage" into a responsibility [1]. The general perception of waste is centered around indifference and indifference, and waste is treated as "waste" and not as a "resource". There is an urgent need to raise public awareness about environmental issues, solid waste management practices and sustainable living. Public participation in community initiatives for waste management is characterized by inactivity due to the low level of environmental awareness and public education. Unfortunately, none of the countries in the region have an effective waste separation mechanism at the source [2].Solid waste management in the Middle East suffers from deficiencies in legislation and poor planning. There is no legislation available in many countries to deal with the issue of waste, in addition to insufficient funding, the absence of waste management plans, weak coordination between the relevant authorities, the lack of qualified human resources, as well as weak technical and administrative decisions, which in general leads to inability. Those countries to implement an integrated waste management strategy in the region. The powers of waste management are assigned in many countries to companies affiliated with the government and municipalities, and this in turn leads to discouraging the participation of the private sector and entrepreneurs in this sector [3].

The per capita waste generation rates in many development countries through Arab countries are among the highest in the world. Due to the lack of proper facilities for waste collection and disposal, it is common in the region to see waste dumped randomly in open spaces, deserts and water bodies. Moreover, the lack of

awareness and failure of people to reduce their waste, separate it at the source, and manage it in a proper manner constitutes another critical issue. A sustainable waste management system requires broad public participation, effective legislation, adequate funding, as well as modern waste management practices and technologies. The region hopes to improve waste management scenarios by separating waste at the source, encouraging the participation of the private sector, applying recycling systems and generating energy from waste, and developing a strong and influential legislative and institutional system [4].

## **2. CHALLENGES FACING SOLID WASTE MANAGEMENT**

Governments and local communities face great and varied challenges arising from the production of solid waste. The situation is the same, if not greater, in the development countries, where per capita production rates of solid waste are high compared to other countries. This is due to several reasons, the most important of which are the rapid pace of industrial growth, construction boom, population growth, rapid urbanization, and an improved lifestyle coupled with unsustainable consumption patterns that have all contributed in creating a waste crisis facing the governments there [5]. The main part of it is biodegradable and also possible to be recycled. Nevertheless, the widely practiced method is to dump the waste in landfills, due to the abundance of vast lands in many countries. The waste management sector in the middle east countries faces several major challenges, including Arab countries [6].

### **2.1 Reduction by source**

Reduce, reuse and recycle reduction is done at the source by encouraging producers and consumers to produce, buy and use various products in a way that reduces as much as possible the amount of waste before it reaches the waste stream. The aim of source reduction is to reduce pollution, conserve natural resources and protect human health. The reduction begins with the design of products and the reduction in the purchase of unnecessary things, continuing with the separation of waste in the home, the factory and the commercial store, where the local authority responsible for waste treatment can convert the separated waste materials into recycling and reuse, and reduce the materials that must be landfilled in the end [7,8].

Reducing at source is the simplest and least expensive way to reduce waste. Each person can contribute to the reduction of the source in many ways that, over time, become a new approach to daily life:

- Preference for products without excess wrap.
- Buy bulky reams and bags for refilling.
- Reducing the use of single-use bags.
- Preferring to buy products bearing the green badge.

### **2.2 Reuse**

Encourage people to reuse products that have been put together in some way and use them again for the same purpose or use them for new purposes. Reuse brings economic and environmental benefits, which encourages reuse.

Examples of classic reuse are:

- Using empty cans or boxes as a piggy bank to collect money or as gift boxes with wrapping and decorating them.
- Refilling bottles and glass containers.
- Buying various life necessities from shops selling used goods.

### **2.3. Recycling**

The process of recycling waste is known as the process of treating consumable materials, so that they are returned to the raw form of this material, to be manufactured again and reused and used again. Or it can also be defined as the process of using the natural resource again after it has been recycled. In recycling, we convert waste into products that are useful to humans. This process also helps to reduce the consumption of raw materials, reduce energy consumption, reduce water and air pollution and reduce greenhouse gas emissions.

- Based on the Ministry's policy for environmental protection, and as a result of increasing awareness of the importance of reducing waste as much as possible, many local authorities have begun to treat waste through separation from the source and waste sorting at transitional stations.

- Sorting the waste and reducing the remaining waste that must be landfilled may contribute to reducing the expenses of the local authority in transporting the waste to the landfill sites and paying the landfill fees, which gradually increase.

The Ministry of Environmental Protection supports the local authorities with regard to waste management and conducts an educational campaign for citizens about the importance of waste separation and transferring what is appropriate from it to recycling:

- o Support for transferring waste to recycling plants.
- o Support for setting up facilities for sorting waste and separating materials suitable for recycling.
- o Public consultation of local authorities on the development of plans for waste treatment infrastructure.
- o Support and guidance on citizen education campaigns.
- Local authorities must submit reports
- There are some stations for sorting residues and waste.

### **2.4. Energy production from waste**

Waste to energy (WtE) or energy from waste (EfW) refers to any processing of waste to generate energy in the form of electricity or heat. Waste is converted to energy in many ways. Producing energy from waste is also a way to reduce landfilling as much as possible. The policy for materials management in the waste market in Israel calls for the reduction of waste and final waste through 4 means: reduction at source, reuse, recycling, and energy generation. The decision on how to use the materials found among the waste is taken based on the economic benefit of each material: The materials that cannot be recycled are recommended by the Ministry of Environmental Protection to be converted into energy with the appropriate technology, with an emphasis on the principles of Best Available Technology. Facilities to generate energy from waste and household waste may generate electricity, power generation, or combined heat and electricity [9,10].

### **2.5 Dumping waste in landfills**

The Ministry's policy for environmental protection calls for reducing, as much as possible, the dumping of waste and waste in landfills, in order to prevent damage to nature and the environment. Solid waste landfill is the final link in the integrated waste treatment chain. The waste that remains after exhausting all means of reduction at the source, creation and recycling must be buried in regulated and licensed landfills, without causing environmental pests. No matter how much we contribute to reducing the amount of waste, it will always remain landfill waste[11-15].

### 3. CONCLUSION

In conclusion, while waste management in the Middle East faces significant challenges, there is growing momentum towards adopting sustainable solutions. By addressing these challenges proactively and collaboratively, the region can pave the way towards a cleaner, more resilient future.

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