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Solution

Given data:

Population of the area is approximately = 800

Each generating solid waste = 0.12 kg/day

waste generate from dispensary = 2 Ton/month

Depth = D = 0.5 m

Required

Area from dumping waste = A = ?

Solution:

⇒ Assume waste generate from restaurant = 3.2 TON/m

$$= \frac{3.2 \times 1000}{30} = 106 \text{ kg/day}$$

$$\Rightarrow \text{solid waste} = 800 \times 0.12 \text{ kg/day}$$

$$= 960 \text{ kg/day}$$

⇒

$$= 500 \times 50 = 2500 \text{ kg/day}$$

⇒ waste generate from dispensary = 2 TON/month

$$= \frac{2 \times 1000}{30} = 66.66 \text{ kg/day}$$

$$\text{Total waste} = 26132.66 \text{ kg/day}$$

Assume density = 125 kg/m<sup>3</sup>

$$\text{volume} = \frac{\text{mass}}{\text{density}}$$

$$= \frac{26132.66 \text{ kg/day}}{125 \text{ kg/m}^3} = 209 \text{ m}^3$$

$$\text{= Finding Area from dumping} = A = \frac{\text{Vol}}{D} = \frac{209}{0.5}$$

$$= 418 \text{ m}^2 \text{ Ans}$$

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## **Summary**

This summary report examines the waste management .in this report begins with the statistics on the trends of population growth, urbanization, and economic growth in each of the Asian countries, which is then followed by an overview of the waste generation, collection, treatment& disposal statistics associated environmental governance (institution, policy, regulations) factors in the waste sector. The report also identifies the existing waste management challenges and gapes therein and sets out recommendation.

## **Introduction:**

Peshawar is among the biggest cities in Pakistan with estimated population of 4 million inhabitants. Like most of the cities in Pakistan, solid waste management is a big challenge in Peshawar as the city generate 600-700 tons of municipal waste every day, with per capita generation of about 0.3 to 0.4 kg per day.

Peshawar has 4 towns and 84 union councils (UCs). Solid waste management is one of their functions. Presently, there are two sites namely Hazar Khwani and Lundi Akhune Ahmed which are being used for the purpose of open dumping. Waste scavenging is a major activity of thousands of people in the city. An alarming and dangerous practice is the burning of the solid waste in open dumps by scavengers to obtain recyclables like glass and metals.

Waste has been a major environmental issue everywhere since the industrial revolution. Besides the waste we create at home, school and other public places, there are also those from hospitals, industries, farms and other sources.

## **Waste:**

It is any substance which is discarded after primary use, or is worthless, defective and of no use.

Examples include municipal solid waste (household trash/refuse), hazardous waste, wastewater (such as sewage, which contains bodily wastes (feces and urine) and surface runoff)

## **Types:**

generally, waste could be liquid or solid waste. Both of them could be hazardous. Liquid and solid waste types can also be grouped into organic, re-usable and recyclable waste. Let us see some details below

- **Solid type:**

Any unwanted or discarded materials resulting from residential, commercial, agricultural and household is considered as solid waste

- **Liquid type:**

Waste can come in non-solid form. Some solid waste can also be converted to a liquid waste form for disposal. It includes point source and non-point source discharges such as storm water and wastewater. Examples of liquid waste include wash water from homes, liquids used for cleaning in industries and waste detergents.

Liquid waste is any form of liquid residue that is hazardous for people or the environment.

## Biodegradable waste

- These are the wastes that come from our kitchen and it includes food remains, garden waste, etc. Biodegradable waste is also known as moist waste. This can be composted to obtain manure. Biodegradable wastes decompose themselves over a period of time depending on the material.

## Non-biodegradable waste

- These are the wastes which include old newspapers, broken glass pieces, plastics, etc. Non-biodegradable waste is known as dry waste. Dry wastes can be recycled and can be reused. Non-biodegradable wastes do not decompose by themselves and hence are major pollutants.

## Recycling of Waste

- Recycling of waste product is very important as this process helps in processing waste or used products into useful or new products. Recycling helps in controlling air, water, and land pollution. It also uses less energy. There are a number of items that can be recycled like paper, plastic, glass, etc. Recycling helps in conserving natural resources and also helps in conserving energy. Recycling helps in protecting the environment as it helps in reducing air, water, and soil pollution.

## Decomposition of Biodegradable Waste

- Biodegradable waste can be decomposed and converted into organic matter with the help of different processes.

## Composting

- This is the method in which waste can be decomposed and converted into organic matter by burying them in the compost pits. The wastes are composed by the action of bacteria and fungi.

## Vermicomposting

- This method involves decomposition of organic matter into fertile manure with the help of red worms. This manure is known as vermicompost.

## Chemical waste

- Chemical wastes are wastes that are made from harmful chemicals which are mostly produced in large factories. Chemical wastes may or may not be hazardous. A chemical waste which is hazardous can be solid, liquid or gaseous and will show hazardous characteristics like toxicity, corrosivity, ignitability, and reactivity.

### Hazardous type:

Hazardous or harmful waste are those that potentially threaten public health or the environment. Such waste could be inflammable (can easily catch fire), reactive (can easily explode), corrosive (can easily eat through metal) or toxic (poisonous to human and animals). In many countries, it is required by law to involve the appropriate authority to supervise the disposal of such hazardous waste. Examples include fire extinguishers, old propane tanks, pesticides, mercury-containing equipment (e.g, thermostats) and lamps (e.g. fluorescent bulbs) and batteries.

## Classification of Wastes:

### ➤ Industrial Waste

These are the wastes created in factories and industries. Most industries dump their wastes in rivers and seas which cause a lot of pollution.

**Example:** plastic, glass, etc.

### ➤ Commercial Waste

Commercial wastes are produced in schools, colleges, shops, and offices.

**Example:** plastic, paper, etc.

### ➤ Domestic Waste

The different household wastes which are collected during household activities like cooking, cleaning, etc. are known as domestic wastes.

**Example:** leaves, vegetable peels, excreta, etc.

### ➤ Agricultural Waste

Various wastes produced in the agricultural field are known as agricultural wastes.

**Example:** cattle waste, weed, husk, etc.

## **EFFECTS OF WASTE...**

- Affects our health
- Affects our socio-economic conditions
- Affects our coastal and marine environment
- Affects our climate, Foul smell
- Increase in disease transmitting vectors
- Global warming, Eutrophication
- Ground water contamination
- Large quantities of solid waste are subjected to uncontrolled, unscientific and incomplete combustion which in turn results in release of no. of pollutants in atmosphere which cause air pollution.
- Large quantities of chemicals are quickly pushed into drains rivers causing immense damage to man health and ecology.
- Dumping of agricultural solid waste may pollute streams and waterways.
- Municipal workers are found to be infected due to intentional parasites.
- Bronchitis, throat blocking, lung cancer, headache diseases etc.
- Solid waste changes the properties of air, soil and water.
- Solid waste creates the water pollution problems.

## **Solid Waste Treatment**

- Waste Prevention and Minimisation
- Re-use
- Recycle
- Composting
- Land filling

## **7 COLLECTION OF WASTE**

Waste collection is the component of waste management which results in the passage of a waste material from the source of production to either the point of treatment final disposal. Waste collection also includes the kerb side collection of recyclable materials that technically are not waste, as part of a municipal landfill diversion program.

### **What should be done?**

- Apply 3-R Principle
- Use waste as source of power generation
- 3-R Principle

### **REDUCE**

- The amount of waste generated can be reduce through our small efforts
- Things that last longer, things that can be used more than once

## **REUSE**

- We can reuse many things before we through them. Polythene bags, clothing, shoes, containers etc.

## **RECYCLE**

- Many items such paper, cans and plastics bottle can be recycled to use again

## **WHAT SHOULD BE DONE**

- **Reduce Waste**
  - Reduce office paper waste by implementing a formal policy to duplex all draft reports and by making training manuals and personnel information available electronically.
  - Improve product design to use less materials.
  - Redesign packaging to eliminate excess material while maintaining strength.
  - Work with customers to design and implement a packaging return program.
  - Switch to reusable transport containers.
  - Purchase products in bulk. □ What should be done
- **Reuse**
  - Reuse corrugated moving boxes internally.
  - Reuse office furniture and supplies, such as interoffice envelopes, file folders, and paper.
  - Use durable towels, tablecloths, napkins, dishes, cups, and glasses.
  - Use incoming packaging materials for outgoing shipments.
  - Encourage employees to reuse office materials rather than purchase new ones.

### **Advantages of Reuse**

- Energy and raw materials savings as replacing many single use products with one reusable one reduces the number that need to be manufactured.
- Reduced disposal needs and costs.
- Refurbishment can bring sophisticated, sustainable, well paid jobs to underdeveloped economies.



- Cost savings for business and consumers as a reusable product is often cheaper than the many single use products it replaces.
- Some older items were better handcrafted and appreciate in value.
- Disadvantages of reuse:
  - Reuse often requires cleaning or transport, which have environmental costs.
  - Some items, such as Freon appliances or infant auto seats, could be hazardous or less energy efficient as they continue to be used.
- Sorting and preparing items for reuse takes time, which is inconvenient
- Benefits of Recycling:
  - Conserves resources for our children's future.
  - Prevents emissions of many greenhouse gases and water pollutants.
  - Saves energy.
  - Supplies valuable raw materials to industry.
  - Creates jobs.
  - Stimulates the development of greener technologies.
  - Reduces the need for new landfills and incinerators

## **Biological Waste Treatment**

Composting is another most frequently used waste disposal or treatment method which is the controlled aerobic decomposition of organic waste materials by the action of small invertebrates and microorganisms. The most common composting techniques include staticpile composting, vermin-composting, windrow composting and in-vessel composting.

Anaerobic Digestion also uses biological processes to decompose organic materials. Anaerobic Digestion, however, uses an oxygen and bacteria-free environment to decompose the waste material where composting must have air to enable the growth of microbes.

### **5. Conclusion:**

The construction version is not only limited to beauty of the residential/industrial plans but is also environmental friendly. Waste water treatment is an important initiative which has to be taken more seriously for the betterment of the society and our future. From the above discussion we will take for this area the solid waste treatment is more suitable and more acceptable because these method is used to more powerfully.