Written report

[Author Name(s), First M. Last, Omit Titles and Degrees]

[Institutional Affiliation(s)]

Author Note

[Include any grant/funding information and a complete correspondence address.]

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Waste is an inevitable raw product of various human activities. Magnitude and complexity of produced waste is increased in Australia due to the commercial growth and increase in standards of living. Developed modification and the establishment of extended health-care delivery centres have further added considerable amounts of industrial dangerous surplus waste and biomedical waste. The accumulation of this waste has potentially added severe ecological and human health concerns. Our discussion would be focused on the sources, management and removal of the rising volume of waste. These are the difficult challenges equally confronted by the high and low-income republics of the region. Overall, the established countries produce abundant amounts of waste per capita as compared to the developing countries. Though, it is significantly more challenging to manage even a small quantity of waste.

# Sources of waste

The agricultural, residential, industrial and commercial waste are the major sources of solid waste. Four major classes of waste sources are municipal solid waste, industrial, agricultural and hazardous waste.

## Municipal solid waste sources

Municipal solid waste is produced from homes, workplaces, hotels, factories, universities and other organizations. The major constituents are foodstuff waste, plastic, and metallic waste. Although annihilation and building debris are also incorporated as municipal waste (Parbhakar, Edraki, Hardie, Hall, 2014). This waste includes small amounts of hazardous waste, such as electronic batteries, automotive fragments, chemicals, and bulbs, etc. Production rates of municipal waste differ from city to city and from country to country. High-income countries including Australia produces 1.1 and 5.0 kg/capita/ day. Middle-income countries such as Malaysia generate between 0.52 and 1.0 kg/capita/day municipal waste. Domestic waste by single and multifamily homes produces wastes in the form of food by-products, plastics, fabrics, leather, wastes from metals, ashes and bulky waste such as residues of batteries, electronics, etc. Industrial solid wastes comprise Housekeeping litters, wrappings, foodstuff wastes, building, and electronic waste materials.

**Industrial waste sources**

Industrial waste includes a varied range of things of varying ecological toxicity. Usually, this variety would contain paper, wrapping constituents, and residues from foodstuffs, resins, dyes, and ceramics etc. wastes from small and large manufacturing industries, construction places, power, and chemical industries are considered industrial wastes. Timber, metals, concrete and electronic wastes are produced by industries.

**Agricultural waste sources**

Increasing the agricultural industry has certainly given rise to amplified amounts of livestock by-product, agricultural crop scums, and agrochemical residues. Agricultural by-products include livestock waste, paddy shell, grass as well as the leftover by-products from the wooden industry includes charcoal etc. around 2 million tons of waste is generated by the commercial rice industry. The coir industry generates approximately 700,000 tons of waste each year in Australia (Ghafourian, Mohmamed, Malakute, Abolghasemi, 2016).

**Hazardous waste sources**

With fast growth in farming, manufacturing, trade, hospital and health-care facilities, the developed countries are consuming noteworthy amounts of poisonous chemicals and generating a great quantity of dangerous and hazardous waste. Presently, there are around 110,000 kinds of toxic substances commercially produced by these industries. Every year, additional 1000 new poisonous substances are introduced to the market from these industries (Ghafourian, Mohmamed, Malakute, Abolghasemi, 2016). The disposal of waste, hazardous substances are increasing day by day. Maximum poisonous waste is the by-product of a wide range of manufacturing, farming and engineering procedures, atomic institutions, hospitals, and health-care service deliveries. Chiefly, generators of manufacturing industries are producing the biochemical, petrochemical, fuel, metals, flesh and paper as a by-product.

**Waste control and management policies**

The current practices working in the management and control of the solid waste within the country differ significantly among the high, middle and low-income regions of the world.

**Source Reduction**

In low-income countries, there are no organized programs to manage waste. Roughly a few management practices re-observed for the reduction of sources in middle-income countries (Parbhakar, Edraki, Hardie, Hall, 2014). Systematized education programs are being introduced in developed countries, also in Australia, to highlight source reduction and recycle of constituents.

**Dumping**

Open Dumping is the utmost prevalent technique of solid waste removal in the country and normally includes the uncontrolled discarding. This type of discarding is done without measuring and controlling the hazardous effects of the by-products. In some cities, open combustion of waste is practiced. In coastal cities, a by-product is discarded along the seashore or directly into the sea.

**Landfilling**

In Australia, industrialists have accepted controlled tilting or hygienic landfilling for solid waste removal. Hygienic landfills with a mixture of liners, leak recognition, leachate assemblage system, and treatment systems have also been adopted. The production of landfill vapors has been revolved to beneficial in some landfills by the advancement of electricity production facilities.

**Compositing**

Small-scale composting of biological waste is extensively practiced in the region and also the efforts to familiarize large-scale composting in the region are completed. This is the best way of reducing the amounts of municipal solid waste. Australia has been now more popular in practicing both backyard and large-scale composting. However, the availability of land, extraordinary operations, preservation, and transport expenditures remain a major limitation to the implementation of co-composting in the region.

**Incineration**

The technique of incineration is predominantly adopted in zones with high land costs. To some extent, there are only a few incinerators and furnaces which have an energy retrieval system (Gentel, Gallo, Cristensen, 2011). Latest, full-scale furnaces and incinerators are presently in function only in countries such as Australia, China and Japan etc.

**National Strategies & Policies**

Organizations and legislation at the state level usually offer the rudimentary infrastructure for the application of strategies, schemes, and activities for waste management. Three common developments in waste management organizations and legislation have been marked in recent years. These are the establishment of institutes for the reinforcement of eco-friendly procedures and approaches. Secondly, the growth of more intensive eco-friendly legislation in the country. Thirdly, the increase in labor competencies through training and teaching (Gentel, Gallo, Cristensen, 2011).

**Waste recycling strategies**

Reducing the amounts of waste disposal, through substance retrieval, recycle and reprocessing, is progressively being appreciated as an essential foundation of an integrated method to waste control. In Australia, a decrease in the quantities of waste produced at the source has been appreciated by the government. Encouragement of plant alteration to reform the industries and to educate the consumers to use the environment-friendly products by the government is also growing.

**Privatization strategies**

The foundation for the privatization of waste management facilities is most cost-effective. Studies have shown that public endowment is extra costly and commonly unsatisfactory due to the incompetence and firmness of government organizations. Privatization essentially involves the allocation of organizational responsibility or proprietorship from the government to the private sector. Studies have proved the privatization to be an influential means of improvement. The productivity of some waste management facilities is improving nowadays. The methods of collection, transport, and removal have been done with maximum efficiency.

**Economical and financial strategies**

Several diverse economic strategies have been in practice for the management of waste across the country. The challenges are to choose an accurate commercial tool to manage waste disposal (Pickin, Yuen, Hennings, 2002). For example, permits and licenses charges have been used to guarantee that harmful waste is properly disposed of, income tax deductions and pollution taxes are introduced to certify that clean manufacture practices are encouraged. Execution of dues for disposing waste into the chosen facilities. The appreciation in terms of reward for safe waste management and disposal by the government. Performance appraisals have been introduced as an encouragement for enterprises to accomplish their businesses in an ecologically sound way.

**Conclusion**

Over the approaching six to ten centuries, the country faces various waste organization challenges that will need clear and efficient applied strategies and plans. Struggles to grow inter-regional debates on combined policies and shared approaches are ongoing. However, separate countries will require to address their specific problems associated with waste management. Appropriate policy design, awareness programs, adequate funding, competent staff, and long-lasting planning would be required to decrease the environmental problems associated with the poor disposal and management of waste.

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