

Managing solid waste: strategies for a sustainable future.

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Solid waste management is the process of collecting, treating, and disposing of solid waste generated by human activities. The increasing amount of waste generated by human activities is a major environmental concern. Improper waste management can lead to air and water pollution, soil contamination, and a host of other environmental problems. Solid waste can be categorized into various types such as household waste, industrial waste, hazardous waste, biomedical waste, e-waste, and construction waste. Each type of waste requires a different approach to management. One of the most common methods of solid waste management is landfilling. Landfills are sites where waste is disposed of by burying it in the ground. However, landfills have been associated with environmental problems such as groundwater contamination, methane emissions, and land-use conflicts. To minimize these problems, landfills are now designed with liners to prevent leachate from contaminating groundwater, and with systems to capture and utilize methane gas [1].

Another method of solid waste management is incineration, which involves burning waste at high temperatures. Incineration reduces the volume of waste by up to 90% and generates energy in the form of heat and electricity. However, incineration produces air pollution in the form of particulate matter, nitrogen oxides, and sulfur dioxide. To minimize these problems, incinerators are equipped with air pollution control devices such as electrostatic precipitators, fabric filters, and scrubbers. Recycling is another important aspect of solid waste management. Recycling involves the collection and processing of waste materials such as paper, plastic, glass, and metal, and converting them into new products. Recycling conserves natural resources, reduces energy consumption, and helps reduce greenhouse gas emissions. However, recycling requires separate collection and sorting of waste materials, which can be costly [2].

Composting is another method of solid waste management that involves the biological decomposition of organic waste materials such as food and yard waste. Composting produces a nutrient-rich soil amendment that can be used in gardening and agriculture. Composting reduces the amount of organic waste that is sent to landfills and reduces greenhouse gas emissions. Solid waste management is an important environmental issue that requires a comprehensive approach that involves the reduction, reuse, recycling, and safe disposal of waste. The implementation of effective waste management practices can help reduce the environmental impact of solid waste and protect human health and the environment [3].

Environmental waste is any material or substance that is harmful to the environment and poses a risk to human health. It can come in many forms, such as hazardous waste, electronic waste, food waste, plastic waste, and more. Improper disposal of environmental waste can lead to a wide range of negative impacts on the environment, including pollution, soil contamination, air and water pollution, and even climate change. Hazardous waste is a type of environmental waste that is particularly dangerous. It can be toxic, flammable, corrosive, or reactive and can cause serious harm to human health and the environment. Hazardous waste is produced by a variety of industries, including chemical manufacturing, electronics, and healthcare. Proper handling, treatment, and disposal of hazardous waste is critical to prevent harm to the environment and human health [4].

Electronic waste, or e-waste, is another form of environmental waste that has become a major concern in recent years. E-waste includes electronic devices such as computers, televisions, and cell phones that have reached the end of their useful life. Improper disposal of e-waste can release toxic chemicals into the environment and pose a risk to human health. Recycling and proper disposal of e-waste are crucial to prevent environmental pollution. Food waste is a significant contributor to environmental waste. In the United States alone, it is estimated that 30-40% of the food supply is wasted each year. Food waste contributes to methane emissions, which is a potent greenhouse gas that contributes to climate change. Reducing food waste through composting, donation and other methods can help reduce the environmental impact of food waste [5].

References

1. Ma Y, Lin X, Wu A, et al. Suggested guidelines for emergency treatment of medical waste during COVID-19: Chinese experience. *Waste Dispos Sustain Energy*. 2020;2:81-4.
2. Sarkodie SA, Owusu PA. Impact of COVID-19 pandemic on waste management. *Environ Dev Sustain*. 2021;23:7951-60.
3. Ragazzi M, Rada EC, Schiavon M. Municipal solid waste management during the SARS-COV-2 outbreak and lockdown ease: Lessons from Italy. *Sci Total Environ*. 2020;745:141159.

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4. Singh N, Tang Y, Zhang Z, et al. COVID-19 waste management: Effective and successful measures in Wuhan, China. *Resour Conserv Recycl.* 2020;163:105071.
5. Zand AD, Heir AV. Emerging challenges in urban waste management in Tehran, Iran during the COVID-19 pandemic. *Resour Conserv Recycl.* 2020;162:105051.