**United Nations Environment Programme**

**MetMUNC XLVIII**

**Topic: Waste Disposal Regulations**

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Waste disposal is a systematic action for managing waste from its origin to its final disposal. It includes incineration, burial at landfills, discharge at water bodies, and recycling. Because waste disposal involves multiple processes such as collection, transportation, dumping, recycling, and treatment, there are a lot of problems associated with waste disposal. All products, from a used plastic bag to a discarded cell phone, require appropriate disposal to limit their harm to the environment. The main types of wastes are liquid wastes, solid wastes, organic wastes, recyclable wastes, and hazardous wastes. Waste disposal problems arise from a variety of sources, which lead to an excess in the amount of waste generated, causing harm to our environment.

The major waste disposal problem is linked to the generation of too much waste. With an increase in the global population and the rising demand for food and other essentials, there has been a rise in the amount of waste being generated daily by each household. Every year, an estimated 11.2 billion tons of solid waste is collected worldwide, and decay of solid waste contributes to approximately 5% of global greenhouse gas emissions.[1] It is estimated that by 2025, the world's cities will produce 2.2 billion tons of waste every year, more than three times the amount produced in 2009.[2] This excess waste is largely the result of throw-away

[1]https://www.unenvironment.org/explore-topics/resource-efficiency/what-we-do/cities/solid-waste-management
[2]https://www.unenvironment.org/explore-topics/chemicals-waste/why-do-chemicals-and-waste-matter

consumerism, which involves companies striving to maximize profits by producing one-time use products without prioritizing the importance of reusing, recycling, and using environmentally-friendly materials. Another problem is the level of toxicity of the waste that is produced. Manufacturing industries produce toxic products that contain hazardous and health-threatening chemicals. Due to the leniency of state and local legislations on these industries, everyday products that are used and thrown away contain more toxic chemicals than ever before. When these products end up in landfills or incinerators, the toxic materials contaminate the air we breathe and the water we drink. Packaging is also one of the biggest contributors of solid waste, and approximately 40% of it is plastic which is non biodegradable.[3] Because of its non-biodegradability, plastic often ends up in incinerators and releases toxic gases into the air when it is burned. These gases further cause air pollution and acid rain. A part of the problem is the inefficiency of landfills themselves. Most landfills lack proper on-site waste management, and in the long term, landfills are projected to leak. That means that runoff from landfills, including toxic chemicals, will end up in nearby water supplies, polluting water sources and other neighboring environmental habitats. When waste rots, it emits methane gas, and according to the EPA, landfills are the third largest source of human-related methane emissions.[4] [5]

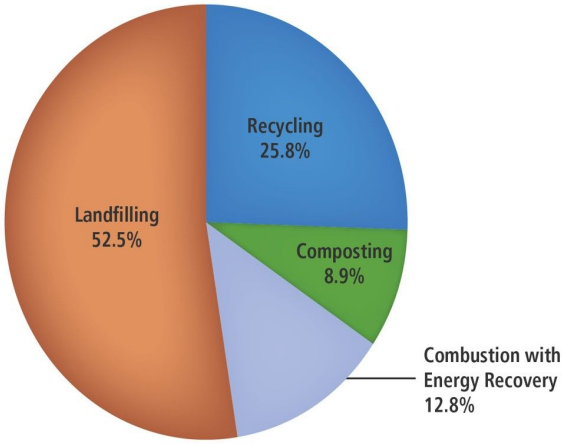
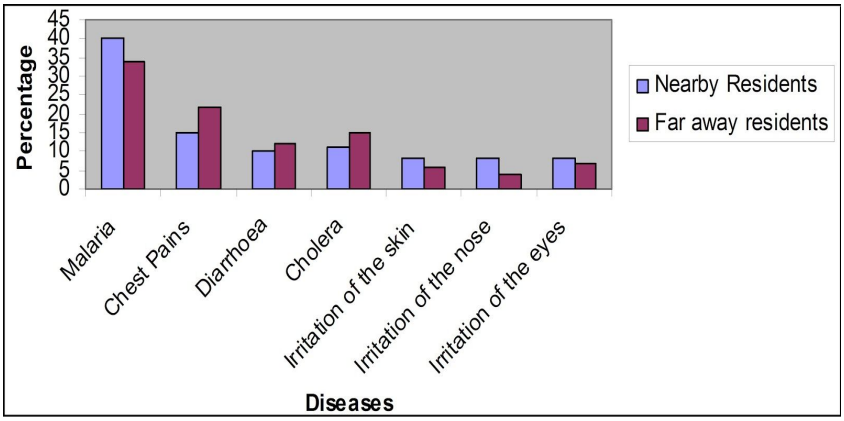



**Figure 1:** This infographic illustrates the percentages of waste that end up in certain disposable industries.

[3] https://www.conserve-energy-future.com/various-waste-disposal-problems-and-solutions.php
[4] https://www.conserve-energy-future.com/various-waste-disposal-problems-and-solutions.php
[5] https://www.biocycle.net/2018/08/07/biocycle-world-174/

The improper management and disposal of waste can cause serious impacts on health and the surrounding environment. Waste that is not properly managed, especially solid waste from households and communities, is a health hazard and results in the spread of infectious diseases. Direct handling of solid waste can result in various types of infectious and chronic diseases, with the workers handling and disposing waste being the most vulnerable. In particular, organic domestic waste poses a serious threat, since it ferments, creating ideal conditions for the growth of microbial pathogens. Unattended waste lying around attracts flies, rats, and other creatures that spread disease. In Manila, residents generate 8,000 tons of garbage each day, but for years, the government did not collect the waste or educate the public about recycling or other waste reduction options. As a result, the city's garbage simply piled up at numerous dumps, attracting these animals, rats, and other vermin. Groups that are at a high risk because of unregulated waste disposal include populations in areas where there is no proper waste disposal method, populations living close to a waste dump or a water supply that has become contaminated due to leakage from landfill sites, waste workers, and workers in factories producing toxic and infectious materials.

**Figure 2:** This chart shows the proximity and frequency of diseases of people living near waste facilities in developing cities.




Certain chemicals, if released from factories or other sources untreated, like cyanides, mercury, and polychlorinated biphenyls are highly toxic and even a small exposure to them can

lead to disease or death. Studies have also detected an increase of cancer in residents exposed to hazardous waste. Contamination occurs all the time, and its effects are usually overlooked. In 2009, the U.S. Environmental Protection Agency (EPA) recorded 23 million cases of pollution risks that were voluntarily disclosed. The disposal of plastics is also a matter of concern. Colored plastics are harmful because their pigment contains heavy metals like copper, lead, chromium, cobalt that are highly toxic. Lastly, direct dumping of untreated waste in rivers, seas, and lakes results in the accumulation of toxic substances in the food chain through the plants and animals that feed on it.

Along with waste disposal having a damaging effect on our population, its effect on the environment has been proven to be more severe. For example, the United Kingdom is buried in landfill sites—holes in the ground where garbage is stored. If the waste does not rot, it tends to smell, leading to the generation of methane gas. Methane gas is an explosive substance and is a major contributor to the greenhouse effect. As waste decomposes, it produces leachate, which is a liquid that passes through a landfill and has extracted suspended matter from it, also causing pollution. Additionally, burning waste is associated with its own problems.

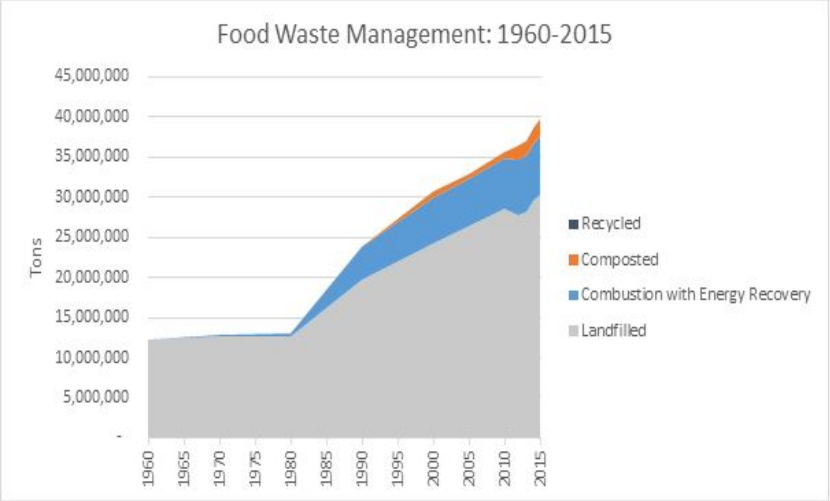



**Figure 3**: This illustrates the changes in the United Kingdom's food-waste management between 1960 and 2015.

Plastic, one of the most common materials incinerated, tends to produce chemical substances such as dioxins. Gases from incineration can cause air pollution and contribute to acid rain, as the pollutants from the waste burned may contain heavy metals and other severe toxins. More recently, however, communities around the world have started to use the ocean for waste disposal. Materials often dumped into the ocean include chemical and industrial wastes, radioactive wastes, plastic, trash, and other contaminated items. Though this issue was present before, in recent years, it has increased at an alarming rate. The Marine Protection, Research and Sanctuaries Act of 1972 (MPRSA), or Ocean Dumping Act, is one of several key environmental laws passed by the US EPA and Congress. The act aims to regulate ocean disposal to prevent any further damage to our marine animal population and our environment. The increasing volume and complexity of waste from today's world creates a serious risk to ecosystems and human health. To solve the waste disposal issue, there are numerous solutions. First, local communities should place more emphasis on recycling, reusing, and reducing waste. Authorities, states, and neighborhoods need to put more efforts towards the education of waste management. In addition, an effective strategy is to control and monitor the amount of waste being produced. Everyone should cut back on the amount of waste by using and throwing out less. In order to do so, some states have adopted regulatory strategies to cut back on waste. "Just this month, India's Prime Minister pledged to eliminate all single-use plastic in the country by 2022, with an immediate ban in urban Delhi. Many other European countries have introduced a levy on plastic bags, while China, Kenya and Morocco have implemented a ban on thin plastic bags."[6] Recycling, for example, is another beneficial method that leads to substantial resource savings. For every ton of

[6] https://www.weforum.org/agenda/2018/06/how-the-world-is-fighting-plastic-pollution/

paper recycled, 17 trees and 50 percent of water can be saved. Moreover, recycling creates jobs; though this benefit does not correlate with waste disposal, it still helps the people living in affected communities. Another effective approach is to make sure that landfills are purposefully located in strategic locations to ease waste collection and transfer. This can be implemented through UNEP's Waste Disposal Plan which includes proper monitoring, regulation of municipal solid and food waste, livestock waste, clinical waste, and construction waste. Hence, there are several different solutions that we can implement to reduce the production of waste and regulate the amount of waste disposed.[7]

Because the issue of waste disposal remains unsolved, it is causing harm to the population and the environment. Many potential solutions have been introduced, and it is time for communities and governments to institute them. The United Nations Environment Programme hosted the joint secretariat of the Basel, Rotterdam and Stockholm Conventions, multilateral environmental agreements that "regulate the transboundary movement of waste, the import of hazardous chemicals, and the production and use of persistent organic pollutants."[8] In addition, UNEP currently promotes the sound waste management through their International Environment Technology Centre, "which works with governments around the world to help them reduce waste and manage it effectively."[9] UNEP has actively been working to promote solutions for regulating waste, however the implementation of additional solutions is imperative.

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[7]

[8] https://web.unep.org/environmentassembly/waste

[9] https://web.unep.org/environmentassembly/waste

**Questions to Consider:**

1. What waste disposal regulations does your country currently have?
2. How much waste does your country produce on average annually?
3. What type of waste does your country produce the most?
4. What is the primary waste disposal method in your country and how can it be improved?
5. How is the population of your country affected by the waste disposal crisis?

**Helpful Links:**

- http://edugreen.teri.res.in/explore/solwaste/health.htm
- https://toxicsaction.org/issues/waste/
- https://www.conserve-energy-future.com/various-waste-disposal-problems-and-solutions.php
- https://www.greenchoices.org/green-living/waste-recycling/environmental-impacts
- https://sciencing.com/list-7431070-effects-solid-waste-disposal.html
- https://www.unenvironment.org/explore-topics/resource-efficiency/what-we-do/cities/solid-waste-management