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Forum: GC1- General Question and Program Support

Issue: The Issue of Sewage Treatment and Waste Disposal in LEDCs

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Introduction

According to the United Nations Country Classification Report, countries have been classified in various levels, such as developed countries, economies in transition, developing countries, landlocked developing countries, heavily indebted poor countries, low-income economies by per capita GNI, and least developed countries. The classification is an indicator of the wide spectrum of economic states of Member States in the United Nations.

Least Economically Developed Countries (LEDCs) are countries with notable need for economic and financial assistance. These countries also do not have the infrastructure enjoyed by More Economically Developed Countries. The drawbacks of this economic gap are apparent.

The underdeveloped infrastructure in LEDCs affect the sanitary conditions in a major way. The poor conditions of waste and sewage treatment system threaten health standards and stability in LEDCs. It is, therefore, of paramount importance that a regulated treatment system is established in every country to reduce the environmental impact of sewage and wastage and to provide sufficient health conditions.

Definition of Key Terms

LEDCs: LEDC is an abbreviation for Less Economically Developed Countries. LEDC countries are determined by the UN Economic and Social Council (ECOSOC). These countries are classified as LEDCs due to their poverty standards, economic vulnerability, and human resources (United Nations Institute for Training and Research).

Sewage: Sewage is a kind of wastewater, containing solid components such as feces, urine, and other materials that are produced by households and industries. It is a factor of pollution and endangers sanitary standards in densely populated urban areas (New World Encyclopedia).

Waste: Waste, in this context, is all “by-products of different human activities” (Robinson).

Waste management: Waste management is the “collection, transport, disposal, and even monitoring of waste” (Robinson).

Background Information



Waste Disposal

There are various types of waste disposal methods. One of the most common ways of waste disposal is **dumping**. This type of disposal is the most environmentally harmful type of disposal. Dumping results with millions of tons of garbage and consumption of otherwise useable land. Dumped waste goes to landfill facilities. Another common method of waste disposal is incineration.

Incineration

Incineration is more commonly used for industrial purposes and might not apply to individuals. Incineration is the combustion of waste materials to acquire energy. In other words, incineration is useful for the production of energy and stands as one of the main waste-to-energy methods. During incineration, toxic components are treated with high temperatures. Incineration is especially useful for countries with relatively small landmass (WRFound, Incineration).

Though useful, incineration causes various concerns. First of all, incineration, when unregulated, emits tremendous amounts of furans and dioxins, which are considered extremely dangerous. In addition, incineration brings about a vast emission of Carbon dioxide, a major root of climate change and greenhouse effect. Furthermore, incineration facilities release sulfur dioxide, some heavy metals, and HCl acid.

Overall, incinerators generate energy using waste material at the expense of dioxin emission. This emission when regulated is controlled to a “greater extent” (WRFound, Incineration). When plating an incineration facility, public opinion should be considered as such facilities could cause public disturbance.

Reduction, Recycling and Composting

Recycling is instrumental on sustainable consumption; however, reduction of consumption is at least as much critical as recycling. Waste reduction essentially encourages the decreased use of non-renewable or recyclable materials.

Composting, also known as biological reprocessing, is a process concerning the treatment of waste materials of “organic nature” (WRFound). As part of the composting process, organic material is broken down to its components to be used as fertilizer.

Landfill

Landfills are designated areas for waste stockpiling for future burial. Such areas could be divided into various sections, such as but not limited to hazardous waste, solid waste (EPA), industrial waste, etc. Landfills pose threats of groundwater contamination and many other environmental disturbances. Landfill sites require stern regulation and monitoring. It is one of the oldest modern ways for waste disposal and waste treatment.

Sewage Treatment

Sewage treatment is a crucial process of sewage and wastewater management. There are various methods of wastewater disposal, and sewage treatment is only one of them. Among common methods of

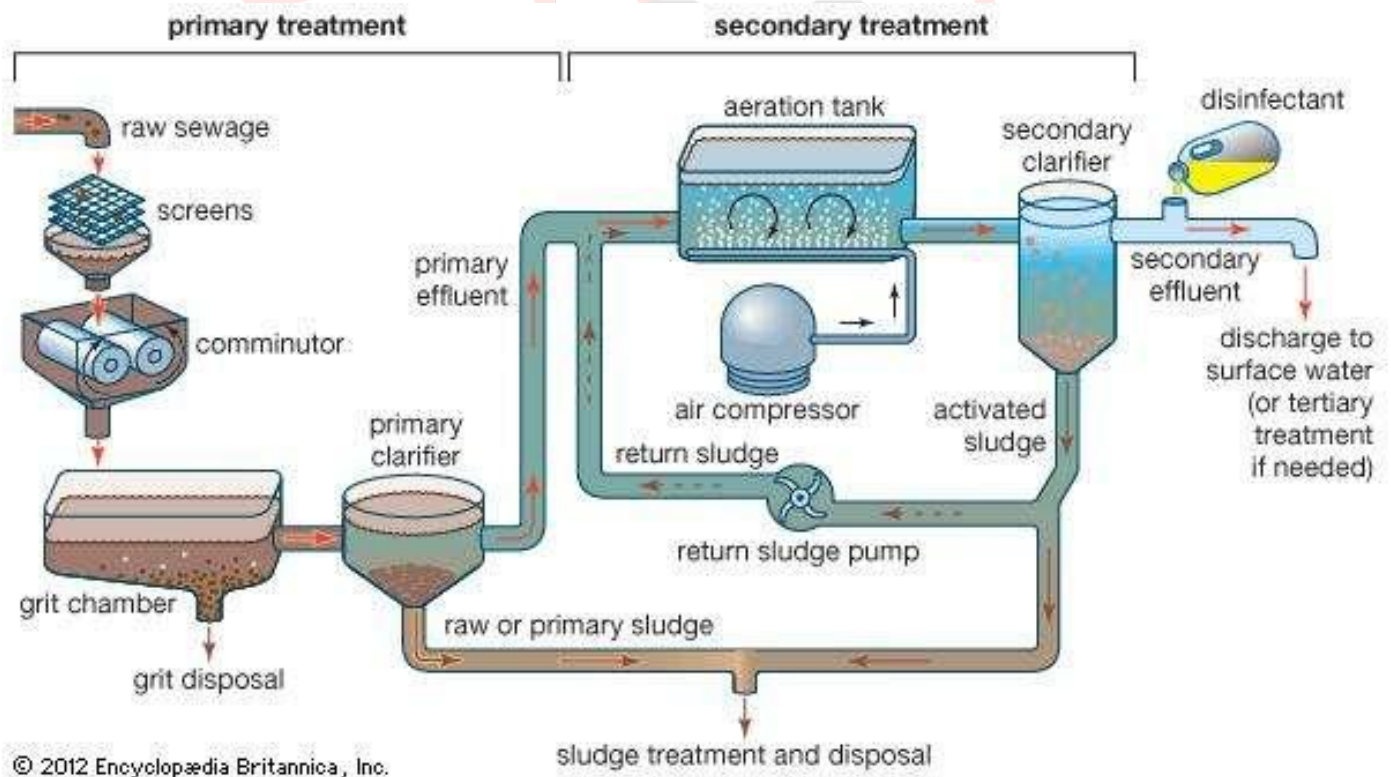


wastewater disposal are tank deposition, distribution over farm lands, and discharge into a body of water. Depositing a collected wastewater, however, is not a preferable solution. The method requires various stages of temperature adjustment, purification stages, and testing stages. Therefore, this method is expensive and impractical, especially for Least Economically Developed Countries and developing countries (Health Guidance).

Distribution over farm lands is also an “unsuccessful” method (Health Guidance), partly because it requires vast area of farm lands and partly because sewage components do not have substantial fertilizing value.

Another method of sewage disposal is discharging into water bodies, such as lakes and rivers. This method is extremely dangerous. The amount of contamination resulting due to discharges is tremendous and endangers sanitary standards. Discharging also causes putrefaction.

Because of the massive contamination simple disposal produces, wastewater treatment and sewage systems, also known as “wastewater collection systems” (Britannica), are essential in order to uphold a high safety and health standard. Wastewater treatment is a multi-staged process with fundamental primary and secondary phases and optional tertiary treatment phase. These treatment phases aim to adjust and regulate “biochemical oxygen demand... suspended solid [particles], acidity, and coliforms” (Britannica).



Picture 1. A diagram of sewage treatment process



Timeline of Major Events

- In 1920s, first sanitary landfills are invented in England.
- UN Country Classification Report annexes the statistical data of World Economic Situation and Prospects (WESP) and updates and publishes “Least developed countries” in 2014.

Major Countries and Organizations Involved

World Health Organization

World Health Organization (WHO) cooperates with various regional partners to ensure the decontamination of wastewater. In Liberia, WHO deals with the decontamination of wastewater for infection prevention of Ebola. “Reducing wastewater generation and implementing on-site sewage and wastewater technology” are prioritized as effective measures by WHO.

Organisation for Economic Co-operation and Development

Organisation for Economic Co-operation and Development (OECD) was established in 1961 to “promote policies that will improve the economic and social well-being of people” OECD collects and analyzes data to predict global shifts. Business and Industry Advisory Committee (BIAC) and Trade Union Advisory Committee (TUAC) of OECD work with governments to assist policy-making and economic and financial action-taking. OECD has come up with 3r approach—Reduce, Reuse, and Recycle—to abate the impact of excessive waste, which gains growing international support (Organisation for Economic Co-operation and Development).

United Nations Development Programme

United Nations Development Programme (UNDP) was established in 1965 to create a global network for development projects. UNDP aims to achieve inclusive sustainable development by strengthening development capacities of nations in need. UNDP is guided by 2030 Agenda for Sustainable Development. For the purposes of economic and environmental sustainability, UNDP is involved in governmental partnerships for the completion of maintenance or the construction of sewage systems in various countries (UNDP).

Previous Attempts to Solve the Issue



There has been no attempt in an international level to tackle the issue, and no international currently applies. However, the international community increasingly supports 3Rs approach of OECD: Reduce, Reuse, and Recycle (United Nations).

Possible Solutions

Although the 3Rs approach is an important guideline, it does not have complete relevance for LEDCs. If anything, LEDCs should increase production, infrastructure, and financial resilience. Therefore, even though 3R approach is a fundamental reference point, it is not the ultimate solution for LEDCs, which are in dire need of infrastructural development.

International collaboration and standards are essential. The committee should find ways to obtain an international agreement on how to proceed with tackling this issue. Sanitary standards for sewage and waste management should apply to ensure sustainable urban development. Strict health regulations should apply for every planned project.

Infrastructural projects should be undertaken to strengthen the urbanization and the health standards in LEDCs. Also, knowledge dissemination and education is crucial.

Useful Links for Further Research

https://youtu.be/HjNv_iTsXn8

http://web.mit.edu/12.000/www/m2015/2015/solutions_nutrient_runoff.html

http://www.maine.gov/dhhs/mecdc/environmental-health/plumb/documents/training/2013/history_of_sewage_disposal.pdf

<http://dx.doi.org/10.1787/data-00604-en>

http://www.un.org/en/development/desa/policy/wesp/wesp_current/2014wesp_country_classification

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