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# WASTE WATER TREATMENT TECHNOLOGIES: DOMESTIC WASTE WATER TREATMENT SYSTEM COMPOSTING TOILETS AND WETLANDS

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**ABSTRACT**

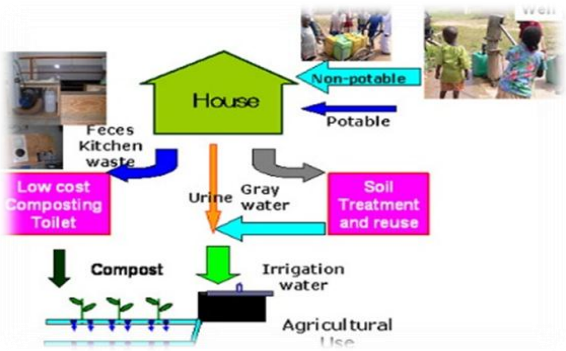
Wastewater is dirty, used water that goes down the drains & toilets of homes, schools, business & factories. Wastewater is collected in networks of pipes called "Sewers" that carry it to wastewater treatment works. At these works, it is cleaned before it put into the river. Firstly, the wastes in wastewater is dangerous & can threaten the health of humans & environment. These dangerous wastes must be taken out of the water & treated and disposed off safely. Secondly, Water is a precious resource and must be returned to the natural water cycle. Conventional 'waste' treatment systems, both sewer and septic systems pollute by design. That is, they are not intended to capture nutrients from human excreta in a form that would allow their healthy re-use. The current study is a new method not only to conserve water but also clean water supply for humans. In this research, Domestic water is processed through compost toilet system to treat human excreta by composting or aerobic decomposition producing compost and wastewater which further processed by natural or constructed wetlands which act as bio-filters to remove sediments & pollutants such as heavy metals. Thus water can be recycled.

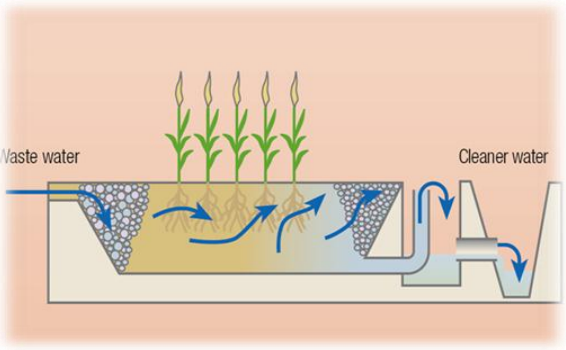
**KEYWORDS:** Wastewater is dirty, wastes in wastewater is Thus water can be recycled.

## INTRODUCTION

The Waste water that comes into contact with fecal content from toilets, urinals etc. Fecal matter is a heaven for harmful bacteria and disease-causing pathogens & this waste doesn't break down and decompose in water fast called "Black Water" and the wastewater that originates from clothes washers, bathtubs, showers, dishwashers, and sinks called "Grey Water". Although grey water contains less than 10% of nitrogen found in black water, grey water has a higher level of un-reacted organic material readily available to micro-organisms and therefore decomposes much faster than black water.[1-2] Water use, sustainability and efficiency by choosing quality systems and materials and providing environmental friendly solutions like Composting Toilets along Wetlands.[3]

Interest in the anaerobic treatment of agro-industry wastes is increasing due to its being both an economical and ecologically sound approach, as well as having lower energy requirements, these being just a few advantages among several others, when compared with aerobic treatment processes.[4] Wastewaters produced in the food industry are characterized by their high organic content, most of which is being composed of easily biodegradable compounds such as carbohydrates, proteins and in some cases, smaller contents of lipids. Food processing wastewaters are suitable for anaerobic treatment processes because they rarely contain toxicants or inhibitory compounds in their composition. The process is successfully used for the treatment of dairy wastewater, animal manure, domestic, industrial and municipal wastewaters.[5-12]



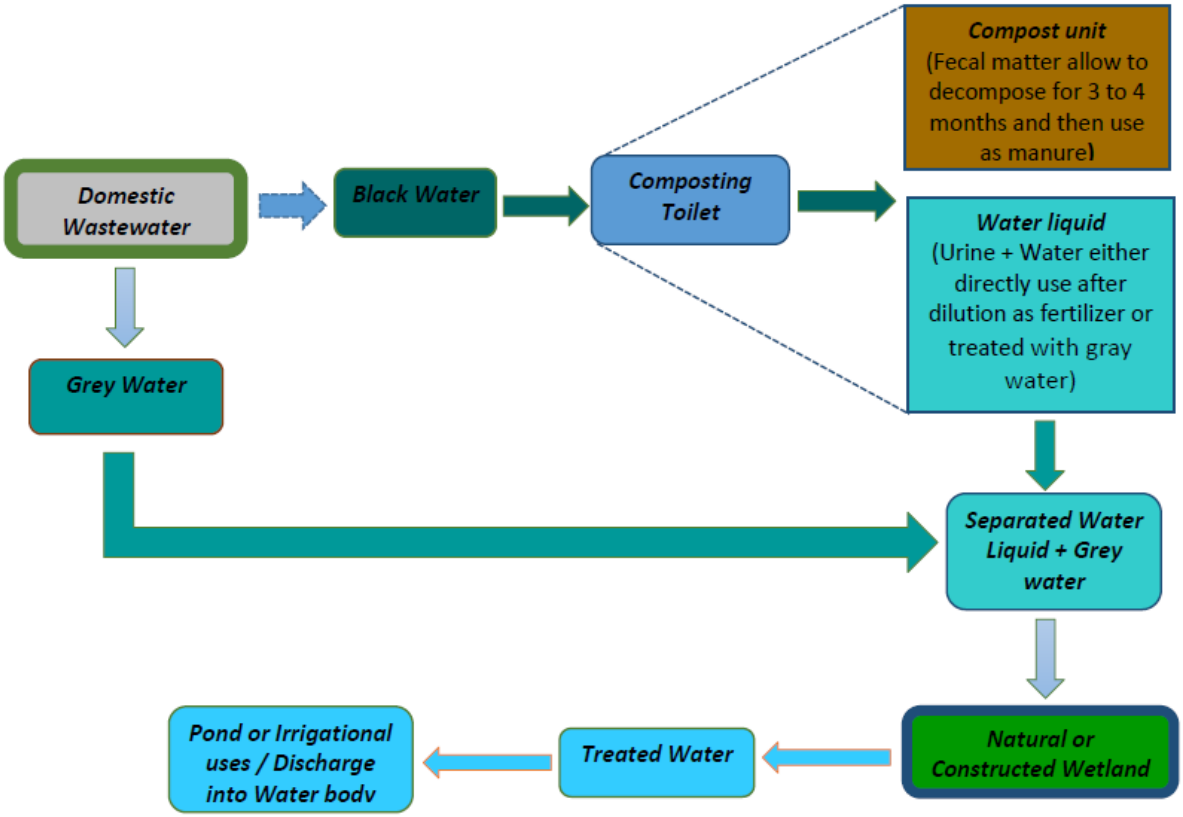
***COMPOSTING TOILETS***

Composting is the bio-chemical decomposition of organic matter by aerobic organisms. Composting takes place in all soils which support plant and animal life. The compost toilet employs the same process in the controlled environment of the compost chamber. Composting toilets can be suitable in areas such as a rural area or a park that lacks a suitable water supply, sewers and sewage treatment. They can also help increase the resilience of existing sanitation systems in the face of possible natural disasters such as climate change, earthquakes or tsunami. Composting toilets can reduce or perhaps eliminate the need for a septic tank system to reduce environmental footprint (particularly when used in conjunction with an on-site grey water treatment system). This process is distinct from anaerobic decomposition, which takes place naturally in water-saturated environments. A less chemically complex, more chemically stable substance, rich in organic matter, is produced. Feces volume, which is mostly water, is reduced by over 90%.


***WETLANDS***

Natural wetland systems have often been described as, “the earth’s kidneys” because they filter pollutants from water that flows through. On its way to receiving lakes, streams & oceans. Because these systems can improve water quality, engineers & scientists constructs the system that replicate the functions of natural wetland. A constructed wetland is an artificial wetland, marsh or swamp created as new or restored habitat for treatment of water, improving water quality, storm water runoff or for land reclamation after ecological disturbances, thus providing habitats for plants & wildlife. These natural bio-filters removes sediments & pollutants such as heavy metals.

**MECHANISM**




**Composting Toilets along Wetland**

***CONCLUSION AND FUTURE PRESPECTIVE***

It is relatively new technology (requires further research) can treat both human excreta and organic household waste (kitchen and garden waste) which requires little space and conservation of feces in highly fertile black soil. There is production of urine-based liquid fertilizer and prevention of ammonia loss to the atmosphere and allows carbon sequestration with no or only negligible greenhouse gas production. Stable process, High pathogen reduction. This method is Cost effective and can be used for Community as well as household-level.

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