

# Soil safely filters 38 million tonnes of human waste each year

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A pit latrine toilet in Kayunga District, Uganda

Sean Sprague/Alamy

Nature sanitises around 38 million tonnes of human waste per year – the equivalent of around £3.2-billion-worth of [commercial water treatment](#).

Alison Parker at Cranfield University in the UK and colleagues looked at 48 cities in Africa, Asia, North America and South America. They analysed how much human waste is produced and where it ends up by reviewing existing data from interviews, observations and direct field measurements.

The team looked at waste management not connected to sewers. This included pit latrines and septic tanks where waste is primarily contained on-site – in a hole below the ground for pit latrines and in box tanks for septic tanks.

Liquid waste from pit latrines and excess water from septic tanks can [gradually filter through soil](#) – a process that cleans it before it reaches groundwater. However, this doesn't happen in cities where the water table is shallow or where large volumes of waste are discharged in a crowded area. Instead, the liquids can contaminate ground water, posing a health risk.

With 892 million people, predominantly in low and middle income countries, using this type of waste management, the researchers estimate that nature safely treats around 38 million tonnes of human waste per year. The team did not look at how much waste is not safely treated.

More than 4 billion people don't have access to safe sanitation services, with one-third living in low income countries. Unsafe sanitation is responsible for 775,000 deaths each year.

“Sanitation that involves the ground naturally treating waste can be part of the solution,” says Parker. However, pit latrines, septic tanks and other natural waste management options only work if the soils can filter the waste or if the waste dumped in rivers can be diluted safely without causing harm to the environment, which is not always the case.

Duncan Mara at the University of Leeds, UK, says that approaches like this cannot be the “be-all and end-all” as every person on this planet should be given access to sanitation which is safe for the environment and protects human health. This should include also sewers in crowded areas as they are safer.