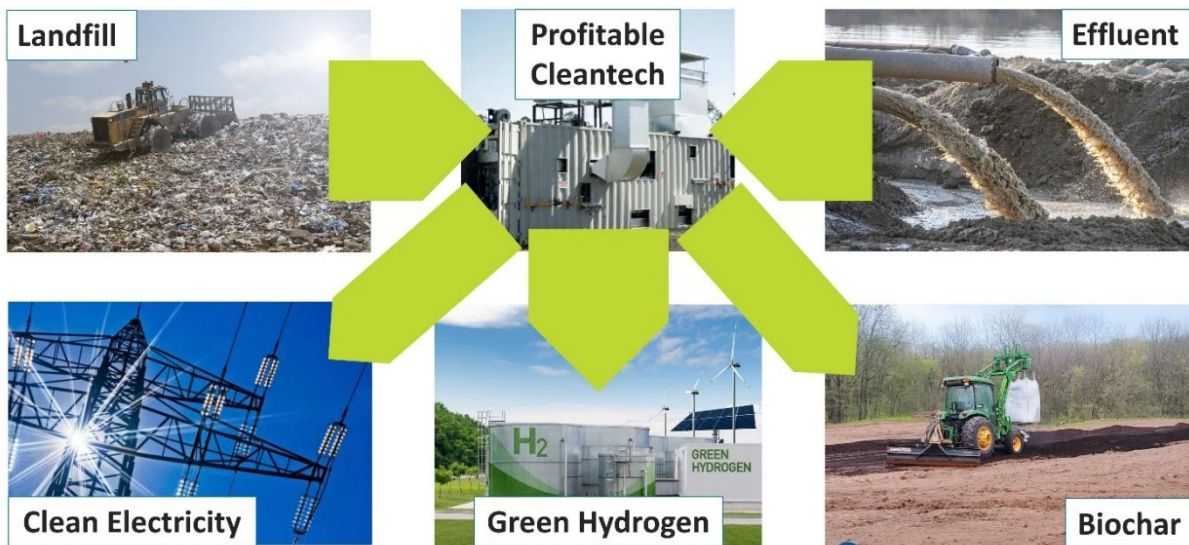


Major Cleantech – waste from landfill

... and from sewerage. This can now be profitably converted into clean electricity with no emissions.

This technology also generates green hydrogen and biochar which accelerates crop growth and captures more CO₂ from the atmosphere.



The technology uses pyrolysis:

Pyrolysis is a chemical process that involves the thermal decomposition of materials at elevated temperatures in an inert atmosphere. It is often used to convert organic materials into solid residue, liquid, and gaseous products without the presence of oxygen to prevent combustion.

<https://en.wikipedia.org/wiki/Pyrolysis>

Applications

Pyrolysis is most commonly used in the treatment of organic materials. It is one of the processes involved in charring wood. In general, pyrolysis of organic substances produces volatile products and leaves char, a carbon-rich solid residue. Extreme pyrolysis, which leaves mostly carbon as the residue, is called carbonization. Pyrolysis is considered the first step in the processes of gasification or combustion.

The process is used heavily in the chemical industry, for example, to produce ethylene, many forms of carbon, and other chemicals from petroleum, coal, and even wood, or to produce e coke from coal. It is used also in the conversion of

natural gas (primarily methane) into hydrogen gas and solid carbon char, recently introduced on an industrial scale. Applications of pyrolysis would



Tackling the Global Waste Treatment Crisis

Waste treatment presents a significant challenge globally, with landfills and incineration plants contributing to environmental pollution. Landfills, often the most common method for waste disposal, emit methane, a potent greenhouse gas that exacerbates climate change. The decomposition of organic waste in landfills produces this gas, which has a global warming potential 25 times greater than carbon dioxide over a 100-year period.

Incineration plants, while reducing the volume of waste, release harmful emissions such as dioxins, furans, mercury, and particulate matter into the atmosphere. These pollutants can have severe health impacts, including respiratory issues, cardiovascular diseases, and cancer. Moreover, incineration can lead to the loss of recyclable and compostable materials.

The problem is exacerbated by the increasing volume of waste generated by growing populations and consumerism. Many countries struggle with inadequate waste management infrastructure and policies, leading to illegal dumping and unregulated burning of waste, which further pollutes air, soil, and water bodies.

To address these issues, a shift towards a circular economy is essential. This includes reducing waste generation through better product design and increased recycling and composting rates. Investment in clean technologies for waste treatment, such as anaerobic digestion for biogas production or advanced thermal treatment methods like pyrolysis that reduce emissions and produce valuable outputs for circular economy, is also crucial.

Global collaboration and stringent regulations are needed to minimize the environmental impact of waste treatment. By adopting sustainable practices and technologies, we can mitigate pollution from landfills and incineration plants and move towards a cleaner future.

Mounting Waste Crisis Demands Sustainable Solutions

Waste disposal is a global concern. Landfills, the most common method, emit methane, a potent greenhouse gas, while incineration releases harmful air pollutants. These issues worsen with population growth and increasing consumption

Many countries lack proper waste management, leading to illegal dumping and burning, further polluting the environment.

A shift towards a circular economy is critical. This means reducing waste at the source through better product design, alongside increased recycling and composting. Investing in clean technologies like anaerobic digestion (waste-to-energy) and advanced thermal treatments (reducing emissions) is also crucial.

International collaboration and stricter regulations are essential to minimize the environmental impact of waste treatment. By adopting sustainable practices and technologies, we can combat pollution and pave the way for a cleaner future.