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JSS 3

Flood Energy Generator (FEG): An Innovative Waste-to-Energy Converter with Integrated Flood Management

In 2022, approximately 7,400 people were killed across the globe as a result of floods. According to Wikipedia, a flood is an overflow of water that submerges land that is usually dry. If I were to invent something new, what would it be? A Flood Energy Generator (FEG). It is a device that filters floodwater, purifies it and generates electricity from the kinetic energy gotten from the water and the waste filtered. This invention would harness the destructive power of floods, converting it into sustainable energy. This device would provide a dual solution to two pressing issues: controlling floods and generating sustainable energy.

The Flood Energy Generator (FEG) which would be located underground would include a flood warning system, a subterranean drainage network, water refiners, turbines and a waste-to-energy converter. These components would work together to manage floodwater and produce electricity.

At the core of this invention is a sophisticated flood warning system, equipped with highly sensitive flood detection sensors that would be strategically placed in flood-prone areas and it would monitor water levels and weather conditions. Upon detecting potential flooding, these sensors would trigger alerts, automatically activating the underground converter. This proactive approach would ensure timely response, minimising damage and maximizing the efficiency of floodwater utilization.

Once the flood warning system is activated, water would be directed into an extensive subterranean drainage network. This network of robust pipes and channels would quickly divert floodwater away from streets and buildings, thereby reducing damage. The drainage network would be designed for maximum efficiency, ensuring that water is quickly and safely diverted into the device for processing.

Before the floodwater reaches the energy conversion stage, it would pass through water refiners which would remove debris, pollutants and other impurities, ensuring that only clean water flows into the turbines.

The purified water directed towards the turbines which is powered by the kinetic energy of moving water would generate electricity. The turbines would be specifically designed to handle large volumes of water, making them ideal for flood situations.

In addition, the device would also incorporate a waste-to-energy converter; a module designed to process organic waste into electrical energy. Floodwater often carries organic waste, which can be processed into biogas through anaerobic digestion. The biogas would then be converted into additional electrical energy.

The integration of these components into an underground structure is very beneficial. It protects the system from environmental damage. It also allows for efficient management of floodwater without disrupting surface activities.

This invention represents a groundbreaking approach to managing floods while simultaneously generating sustainable energy. By converting the destructive power of floodwater into a valuable resource, the device addresses two critical challenges with a single solution. If I could invent something new, it would be this multifaceted system, transforming floods from a devastating natural disaster into a source of renewable and clean energy, ultimately contributing to a safer and more sustainable world.