

SIMPLY WASTE ?

A monthly newsletter on waste by Green Connect



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Editor's Note:

Welcome to the landmark tenth edition of "Simply Waste?" This newsletter is your window into the impactful work done by various players throughout India in the field of waste management, alongside the inspiring initiatives led by Green Connect. We're thrilled to share updates and stories about the progress we're making in finding innovative solutions to handle waste more sustainably.

In this edition, we have curated four insightful articles that highlight waste management. Explore how the black soldier fly is transforming waste management, delve into the crucial role of biogas in achieving net zero emissions in India, and discover how organisations like LIC and ATC Tyres are partnering with us to implement sustainable waste management and energy solutions using Green Connect's biogas technology.

We hope these articles provide valuable insights and inspire you to join us in our mission to create a cleaner, greener future. Thank you for being a part of our journey through "Simply Waste?"

LIC Chennai Holds Green Innovation with Eco-Friendly Biogas Plant



In a significant stride towards environmental sustainability, the Life Insurance Corporation (LIC) in Chennai took an eco-conscious initiative back in 2013 by installing a Green Connect biogas plant. This initiative was made possible through a partnership with Eco Care, a leading channel partner for Green Connect.

Eco Care Technologies has emerged as a prominent player in the environmental engineering sector in India. Initially established to undertake environmental projects, the company has evolved into a key player, offering comprehensive solutions for water and wastewater treatment, air pollution control equipment, and environmental consultancy services.

LIC's collaboration with Eco Care has resulted in the installation of a cutting-edge Green Connect biogas plant capable of processing 50 kg of food waste daily. The plant utilizes an advanced water jacket model, producing 8 to 10 cubic meters of biogas per day. This sustainable approach not only aids in waste management but also provides LIC with an alternative energy source, contributing to their commitment to

environmental responsibility.

The success of the Green Connect biogas plant at LIC Chennai stands as a testament to the positive impact of public-private partnerships in fostering environmentally conscious practices. As corporations increasingly embrace eco-friendly initiatives, this collaboration sets a noteworthy example for other organizations to follow suit and contribute to a greener, more sustainable future.



Sustainable Waste Management: ATC Tyres' Biogas Plant Revolution



In 2017, ATC Tyres in Jayam Kondan took a significant step towards environmental responsibility by installing the Green Connect 200 kg food waste biogas plant. With the company generating 200 to 250 kg of food waste daily, ATC Tyres recognized the importance of efficient waste management. Impressed by Green Connect's successful track record, ATC Tyres enthusiastically embraced the idea of a biogas plant to address their waste-related challenges.

The biogas plant, designed to handle 200 kg of food waste per day, now produces an impressive 30 kg of biogas daily – equivalent to 15 kg of LPG. This clean and sustainable energy source is utilized for three hours each day, reducing the company's reliance on conventional fossil fuels.

However, ATC Tyres faced challenges with biogas production due to the acidic conditions of the biogas plant, particularly when acidic foods were introduced, it hinders the biogas production. Neutral pH

level of 7-8 is required for good biogas production. Responding promptly, Green Connect recommended discontinuing the feeding of acidic foods. ATC Tyres heeded the advice, eliminating acidic foods from the biogas plant's feedstock resulting in good biogas production.

Moreover, the company found a valuable secondary use for the biogas plant's byproduct – slurry. ATC Tyres mixed slurry into their Sewage Treatment Plant, turning wastewater into a treated reusable water which acts as a resource for gardens. This shows a complete approach to using waste efficiently and environmentally friendly.

ATC Tyres' successful integration of Green Connect's biogas solution not only addresses their waste management concerns but also establishes them as a model for sustainable practices in the industry. This initiative showcases the potential for businesses to contribute to a greener future through innovative and environmentally conscious solutions.

Operating a Black Soldier Fly Waste Treatment Facility: A Sustainable Solution for Organic Waste Management.



SOURCE: WATCH?v=LO1UZP5NETU

In recent years, the growing urgency for sustainable waste management solutions has spurred interest in innovative approaches. One such method gaining popularity involves harnessing the efficiency of Black Soldier Fly (BSF) larvae to process organic waste. Operating a Black Soldier Fly waste treatment facility not only contributes to reduced landfill waste, but also yields nutrient-rich byproducts and lowers greenhouse gas emissions.

In an Indonesian facility where waste primarily stems from food and vegetable markets, a crucial step is preparing the waste for consumption by BSF larvae. Using a hammer mill for shredding proves effective, ensuring that the waste is appropriately processed to facilitate the larvae's access. It's worth noting that the adaptability and efficiency of the biowaste treatment process are underscored by the fact that any type of shredded material can fulfill this purpose. These facilities capitalize on the remarkable efficiency of black soldier fly larvae to transform organic

waste into valuable resources.

This article will explore key aspects of running such a facility, including the life cycle of black soldier flies, facility design, waste management strategies, and the potential benefits for both the environment and businesses.

1. Life Cycle of Black Soldier Flies:

Understanding the life cycle of black soldier flies is crucial for operating a successful waste treatment facility. The life cycle consists of four stages: egg, larva, pupa, and adult. The larvae, commonly known as "BSF grubs," are the primary waste processors. They voraciously consume organic waste, converting it into nutrient-rich biomass.

2. Facility Design:

Designing an efficient BSF waste treatment facility involves considerations for the larvae's habitat, waste input, and environmental controls. Here are key components:

a. Larvae Rearing Area: Design a space for larvae to thrive, providing optimal ,

conditions such as temperature, humidity, and substrate.

b. **Waste Reception and Sorting:** Establish a system to receive and sort organic waste. Effective separation of contaminants ensures a clean and efficient process.

c. **Bioconversion Chambers:** Design bioconversion chambers where black soldier fly larvae can consume the organic waste. Ensure proper ventilation, drainage, and temperature control.

d. **Harvesting and Processing:** Implement mechanisms for harvesting mature larvae and processing the nutrient-rich frass (larval waste) for use as fertilizer or animal feed.

3. Waste Management Strategies:

Effective waste management is at the core of a black soldier fly waste treatment facility. Consider the following strategies:

a. **Waste Selection:** Choose organic waste streams suitable for black soldier fly larvae consumption, such as kitchen scraps, agricultural residues, and food processing by-products.

b. **Monitoring and Optimization:** Regularly monitor key parameters like waste moisture, temperature, and larvae density. Optimize these conditions for maximum efficiency.

c. **Quality Control:** Ensure the quality of the end products, such as larvae and frass, by implementing quality control measures throughout the process.

- **Environmental and Economic Benefits:**

Operating a black soldier fly waste treatment facility offers several environmental and economic advantages:

a. **Waste Diversion:** Divert organic waste from landfills, reducing greenhouse gas emissions and mitigating environmental pollution.

b. **Nutrient Recycling:** Convert organic waste into nutrient-rich biomass, closing the nutrient loop and providing a sustainable source of natural fertilizer.

c. **Potential Revenue Streams:** Explore potential revenue streams by selling harvested larvae as protein-rich animal feed or frass as a high-quality organic fertilizer.

Operating a black soldier fly waste treatment facility requires careful planning, efficient facility design, and consistent waste management strategies. By harnessing the natural capabilities of black soldier fly larvae, these facilities contribute to waste reduction, nutrient recycling, and the development of sustainable practices for a healthier environment and economy.

SOURCE: WATCH?v=LO1UZP5NETU



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Revolutionizing India's Energy Landscape: The Role of Biogas in Achieving Net Zero Emissions.



India stands at the crossroads of a burgeoning demand for energy, fueled by a surging GDP and a growing population. Currently, 70% of the nation's energy needs are met by coal and oil, but with depleting fossil fuel reserves and environmental concerns on the rise, India is steering towards a greener future. The transition is outlined in ambitious climate action goals, with key milestones set for 2030 and the ultimate objective of achieving net-zero emissions by 2070.

Renewable energy, particularly solar and wind power, has been in the spotlight, but the potential of biogas is gaining momentum. Despite the focus on solar and wind, biomass energy, especially biogas, can be seamlessly integrated into existing fuel infrastructure, contributing significantly to reducing carbon footprints.

Biogas: A Game-Changer for India's Energy Transition

India's heavy reliance on oil imports, accounting for \$94.3 billion from April 2021 to January 2022, necessitates a paradigm

shift. Biogas emerges as a pivotal player, offering a solution that ensures energy security, affordability, job creation, and economic growth.

The Sustainable Alternative Towards Affordable Transportation (SATAT) initiative, launched by the Indian government, is a testament to this commitment. Envisioning an investment of \$263 billion by 2024, SATAT aims to set up 5,000 compressed biogas (CBG) plants, producing 15 million metric tons of CBG and 50 million metric tons of bio manure. Incentives such as a long-term price guarantee for CBG, priority sector lending for CBG plant setup, and incorporation of bio manure in fertilizer policies underscore the government's dedication to this eco-friendly transition.

Biomass and Waste: The Untapped Resources

India's vast agricultural and livestock waste, totaling 500 million metric tons annually, presents an opportunity for biogas production. The SATAT initiative, although making strides, faces challenges in supply

chains, financing, and delays in plant setup.

Overcoming Roadblocks: Strategies for a Robust Biogas Ecosystem

To realize the potential of biogas, addressing challenges at the local level is crucial. State governments and local municipalities must align with central policies to support initiatives. The government's focus on ease of access, involvement of local stakeholders, access to information, organic farming practices, and mandates for CBG-based stations are steps in the right direction.

Towards Net Zero: A Call for Collaboration and Innovation

As of March 2022, progress towards the 5,000 CBG plant target is slow. To accelerate the transition, collaboration between stakeholders, innovation in technology, and robust financial support are essential. By fostering healthy competition, promoting research and development, and building capacity, India can harness the enormous potential of the CBG industry and achieve its ambitious net-zero emissions goal. The journey to zero is challenging, but with a concerted effort, India can lead the way in clean energy production and sustainable development.

Source: icf.com/insights/energy/biogas-core-india-clean-energy





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