A Report on Expert Lecture on
"India's Waste-to-Energy Revolution: Quantifying the Potential, Transforming the Future"
Organized by Department of Mechanical Engineering
On 05.11.2026



Report Submitted by: Dr. Ranjit Kumar Dehury, Assistant Professor, Department of Mechanical Engineering
Resource Person Details: Dr. Rohan R. Pande, Assistant Professor (Grade-I), Department of Mechanical Engineering, Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat.
Mode of Conduct: Online
Attendees Count: 72 (2nd , 3rd and 4th Year-Mechanical students) and 5 faculty members
Report Received on 14.11.2026

The department of mechanical engineering organized an expert lecture in association with Waste to Wealth Research Center of MITS on "**India's Waste-to-Energy Revolution: Quantifying the Potential, Transforming the Future**" on 5th November 2026 in Seminar Hall A at 10:00 A.M

Objective of the Event:

1. To explore the potential of waste-to-energy (WtE) technologies in converting municipal, industrial, and agricultural waste into useful energy and valuable resources.
2. To understand various WtE technologies, their environmental and economic benefits, and their role in promoting sustainable waste management and a circular economy.
3. To highlight India's opportunities, challenges, and future prospects in adopting innovative WtE solutions for renewable energy generation, waste reduction, and sustainable development.

Event Details:

The Department of Mechanical Engineering organized an expert talk titled "India's Waste-to-Energy Revolution: Quantifying the Potential, Transforming the Future" with the objective of creating awareness among students about the growing importance of waste-to-energy (WtE) technologies in addressing waste management challenges and meeting the increasing energy demands of the country.

The session was delivered by Dr. Rohan R. Pande, Assistant Professor, Department of Mechanical Engineering, SVNIT, Surat, who shared his expertise and insights into emerging waste-to-energy technologies, their applications, and their potential contribution to India's sustainable development.

During the expert talk, the resource person highlighted the enormous potential of converting municipal solid waste, industrial waste, agricultural residues, and other organic waste streams into useful forms of energy, such as electricity, heat, and biogas. He discussed various waste-to-energy conversion technologies, including incineration, anaerobic digestion, gasification, pyrolysis, and refuse-derived fuel (RDF) production. The working principles, technological requirements, and practical applications of these processes were explained to help students understand how waste materials can be transformed into valuable energy resources.

The speaker also emphasized the importance of quantifying India's waste generation potential and assessing the energy recovery possibilities associated with different waste streams. Particular attention was given to the environmental and economic aspects of waste-to-energy projects, including waste volume reduction, greenhouse gas emission mitigation, resource recovery, and the development of a circular economy. The challenges associated with WtE implementation, such as waste segregation, technology selection, operational efficiency, financial viability, and emission control, were also discussed.

Furthermore, the session highlighted the role of engineers and emerging technological innovations in developing efficient, economically viable, and environmentally sustainable waste-to-energy systems. The discussion helped students understand the relevance of mechanical engineering principles in energy conversion, thermal systems, process optimization, and sustainable infrastructure development.

The expert talk provided a valuable platform for students to gain insights into current technological advancements, industrial opportunities, and research prospects in the waste-to-energy sector. It also encouraged them to explore innovative approaches to waste utilization and contribute towards addressing energy and environmental challenges.

Overall, the session was informative and insightful, enhancing students' understanding of waste-to-energy technologies and their significance in India's transition towards a cleaner, more sustainable, and resource-efficient future.

Outcome of the Program:

1. Participants gained an understanding of India's waste-to-energy potential and the importance of converting municipal, industrial, and agricultural waste into valuable energy resources.
2. Developed awareness of various waste-to-energy technologies, including incineration, gasification, pyrolysis, anaerobic digestion, and refuse-derived fuel (RDF) production.
3. Understood the environmental, economic, and societal benefits of waste-to-energy technologies in reducing landfill waste, minimizing pollution, and promoting a circular economy.
4. Gained insights into the challenges, technological advancements, and future opportunities for implementing sustainable waste-to-energy solutions in India.

Acknowledgments:

We express our sincere gratitude to Honorable Chancellor, Pro-Chancellor, Vice-Chancellor, Registrar, Additional Registrar, Dean - School of Engineering, Principal, Vice Principal (Administration), and HOD Mechanical Engineering for their unwavering support and encouragement for conducting online expert lecture.