



**Outreach & Dissemination Services Office  
CSIR – Central Building Research Institute**

**Roorkee – 247667 (UK)**

**Training Program on**

**‘Waste to Resources Approaches ’**

**12<sup>th</sup>-13<sup>st</sup> February, 2026**

**Organized under the aegis of CSIR Integrated Skill Initiative**

CSIR–Central Building Research Institute (CSIR–Central Building Research Institute), Roorkee organized a comprehensive two-day Skill Development Program titled **“Waste to Resources Approaches”** at the Dolphin (PG) Institute of Biomedical & Natural Sciences on **12–13 February 2026** under the aegis of **CSIR–Skill Initiatives**, in collaboration with the **Research Advisory Council (RAC), DIBNS**. The program was designed with the objective of sensitizing young learners and educators to emerging concepts of sustainability, circular economy, and resource efficiency, while simultaneously exposing them to applied research and technological innovations relevant to national development. The event witnessed enthusiastic participation from **75 students** representing Undergraduate, Postgraduate, and PhD programs, along with **8 faculty members**, thereby creating a dynamic academic environment that encouraged dialogue, curiosity, and interdisciplinary learning. The diverse academic background of the participants enriched discussions and enabled the exchange of ideas on how waste streams can be transformed into valuable resources through scientific and technological interventions.



**Inaugural session**

The technical sessions were delivered by an expert team from CSIR–Central Building Research Institute, who shared insights drawn from cutting-edge research and real-world applications. **Dr. Neeraj Jain, Senior Principal Scientist and Head, ODS**, initiated the technical deliberations by presenting an overview of CSIR-CBRI’s research ecosystem and its contributions toward sustainable construction, infrastructure development, and environmental stewardship. His address emphasized the institute’s role in translating laboratory research into field-level solutions that address pressing challenges such as waste management, energy efficiency, and sustainable materials. **Dr. Soumitra Maiti, Principal Scientist**, subsequently elaborated on the concept of mineral carbonation of industrial waste, explaining its potential as a climate-resilient approach for reducing carbon emissions while producing value-added construction materials. The session highlighted how industrial by-products can be effectively utilized to support sustainable construction practices, thereby aligning environmental responsibility with economic viability.

### Day :01

Further enriching the program, **Dr. Tabish Alam, Principal Scientist**, delivered an insightful session on the practical applications of solar energy with emphasis on decentralized and scalable solutions suitable for diverse Indian conditions. He highlighted the growing role of solar technologies in meeting local energy demands and enhancing energy accessibility. The talk underlined the importance of integrating renewable energy systems within the built environment. He also demonstrated how solar interventions can reduce dependence on conventional energy sources. Overall, the session emphasized solar energy as a key driver for energy security and environmental sustainability.



The technical deliberations were further enriched by **Dr. Leena Chourasia, Senior Principal Scientist**, who presented her innovative research on developing bio-bricks using desert sand and eco-friendly binders. She highlighted the potential of utilizing locally available resources to reduce dependence on conventional construction materials. The presentation emphasized the role of bio-

based technologies in enhancing sustainability in the building sector. She also explained the performance and environmental benefits of these bio-bricks. Overall, the work demonstrated a promising pathway toward eco-conscious and resource-efficient construction practices.



## Day :02

**Waste Circularity and Low-Carbon Plasters** Dr. Neeraj Jain, Senior Principal Scientist and Head, ODS, presented insights on advancing waste circularity through the development of low-carbon plasters. His talk focused on converting industrial and construction waste into value-added building materials. He explained how such plasters significantly reduce carbon emissions compared to conventional products. The presentation highlighted performance, durability, and environmental benefits. Overall, the work showcased practical solutions for sustainable and climate-responsive construction.



**Application of Agro-Waste in Cementitious Materials: Biochar** **Dr. Srinivas Rao Naik B., Principal Scientist**, delivered an insightful presentation on the utilization of agro-waste-derived biochar in cementitious materials. He explained the process of converting agricultural residues into biochar and its role as a sustainable construction additive. The talk highlighted improvements in material performance, durability, and carbon sequestration potential. He also discussed the environmental benefits of reducing agro-waste disposal issues. The presentation emphasized the contribution of biochar toward low-carbon and resource-efficient construction practices.

**Management of Municipal Solid Waste in an Integrated Processing Plant: A Case Study** **Dr. Somitra Maiti, Principal Scientist**, presented a detailed case study on the management of municipal solid waste through an integrated processing plant. He explained the systematic segregation, treatment, and recovery processes adopted in the facility. The presentation highlighted efficient resource recovery and reduction of landfill dependency. Operational challenges and practical solutions were also discussed. Overall, the case study demonstrated a sustainable and scalable approach to urban solid waste management.

**Title: Life Cycle Assessments to Achieve Net-Zero Carbon Emissions** **Dr. Payal Bakshi, Research Associate**, delivered a focused presentation on the role of Life Cycle Assessment (LCA) in achieving net-zero carbon emissions. She explained how LCA helps in quantifying environmental impacts across the entire life span of building materials and systems. The talk emphasized identifying carbon hotspots and opportunities for emission reduction. She also highlighted the importance of data-driven decision-making in sustainable design. Overall, the presentation underlined LCA as a vital tool for climate-resilient construction practices.



The program concluded with an interactive discussion session, during which participants actively engaged with the experts, sought clarifications, and shared their perspectives on sustainability-driven innovation. The discussions reflected a strong enthusiasm among students and faculty to apply scientific knowledge in addressing real-life challenges related to waste management, resource optimization, and sustainable development. In his concluding message, the **Director**,

**CSIR–Central Building Research Institute**, emphasized that stronger synergy between academic institutions and research organizations is vital for fostering innovation, accelerating knowledge transfer, and nurturing future-ready human resources. He highlighted that such collaborative initiatives play a crucial role in shaping a sustainable and self-reliant nation by empowering young minds to transform scientific ideas into impactful solutions. Overall, the two-day Skill Development Program served as an effective platform for capacity building, awareness generation, and inspiration, reinforcing the importance of “waste to resource” approaches in India’s journey toward sustainable growth.