

Report
on
Seminar on “Sustainable Construction Materials and Green Technologies in Civil Engineering” (SCMGTC-2024) sponsored by SERB

A three-day SERB sponsored seminar on “Sustainable Construction Materials and Green Technologies in Civil Engineering (SCMGTC-2024)” was organized by Department of Civil Engineering, Integral University in collaboration with UltraTech Cement from 22nd to 24th August, 2024. During the three days, six keynote addresses were delivered by the experts from CRRI, IIT-Roorkee, MMMUT, UltraTech Cement and Integral University. The event aimed to bring together experts, researchers, and students to discuss innovative practices and industry trends for sustainability.

Inaugural Session:



Hon'ble Vice Chancellor Prof. Javed Musarrat addressing the audience

The inaugural session was started by welcoming the guest by Prof. Syed Aqeel Ahmad, Head, Department of Civil Engineering, Integral University. During the inaugural session, Prof. Javed Musarrat, the Hon'ble Vice Chancellor of Integral University, underscored the significance of adopting sustainable materials and technologies, as well as the importance of industry-academic collaboration in developing innovative solutions for the construction sector.

Dr. P. S. Prasad, Chief Scientist and Head of the PME Division at CSIR-CRRI, New Delhi, highlighted the need for interdisciplinary approaches and the utilization of waste materials to provide solutions for sustainability issues related to construction filed.

Prof. Syed Aqeel Ahmad, discussed the seminar's objectives and departmental effort in collaborating with Industry in achieving sustainable development goals.



Hon'ble Vice Chancellor Prof. Javed Musarrat presenting University memento to Dr. P.S. Prasad



Prof. Syed Aqeel Ahmad speaking at the inaugural session

Prof. Abdul Azeez, Dean, Faculty of Engineering and Information Technology at Integral University, shared insights on the lifecycle approach to sustainability starting from designing to demolition of a structure.

Prof. Abdur Rehman Khan, Controller of Examinations and Head, Department of Chemistry, Integral University emphasized the role of science in generating sustainable solutions for the construction industry. The inaugural session was well-attended by numerous professionals, faculty members, and students from various government and non-government institutions.



Prof. Abdul Azeez addressing the participants



Prof. Abdur Rahman Khan discussing his thought on sustainability

Day 1:

The first keynote address on Day 1 was delivered by Dr. P. S. Prasad, Chief Scientist and Head of the PME Division, CSIR-CRRI, New Delhi. Dr. Prasad's presentation focused on sustainable construction and green technologies in road construction. He explored various sustainable materials and techniques,



Keynote address of Dr. P. S. Prasad, CSIR-CRRI

including the Stabilroad® stabilizer, pond ash, and copper slag as filler materials in retaining walls, and geo-composite layers for soil stabilization. Dr. Prasad highlighted the advantages of using Stabilroad® stabilizer, which enhances the flexibility and durability of cohesive soils while reducing cracking when combined with cement. He also discussed the use of pond ash and copper slag as effective fillers for retaining walls. Additionally, he emphasized the role of geo-synthetic mesh in soil stabilization, which reduces the need for traditional stabilizers

and allows for a significant decrease in drainage material requirements.

Following this, the second address on Day 1 was delivered by Dr. Ravi Shankar S., Senior Scientist at CSIR-CRRI. His talk, titled “Construction Protocol for Building High-Performance Concrete Pavements,” focused on advancing road construction practices. Dr. Shankar emphasized the importance of durability, serviceability, and cost-effectiveness to minimize maintenance needs, thereby reducing overall construction costs and conserving natural resources. He also examined different types of pavement concrete and their properties, highlighting how they can enhance both durability and serviceability.

Day 2:



Address by Dr. Zishan Raza Khan, Integral University

Day 2 of the event began with address by Dr. Zishan Raza Khan, Associate Professor, Integral University, on water transmissible pavements. Dr. Khan discussed the challenges posed by urbanization and road construction, which reduce pervious land and increase runoff, leading to issues like flooding, soil erosion, and traffic disruptions. He critiqued conventional storm water systems for being inefficient and unsustainable. To address these issues, Dr. Khan proposed water transmissible pavements. Unlike traditional porous surfaces, these pavements use a base course with pipes and dust separators to manage storm water. This method enhances durability and reduces clogging. Additionally, he suggested harvesting the stored water for groundwater replenishment using microbes for purification.

The second speaker of Day 2, Er. Amit Choudhary, UltraTech Cement, delivered his address on “New|Age Building Products: Shaping the Future”. he offered a comprehensive overview of sustainable building solutions. His address was started with fulfilling UN goal in achieving carbon neutrality by 2050. His presentation addressed the shortcomings of traditional construction methods in terms of sustainability. Mr. Chaudhry highlighted several innovative materials and technologies aimed at reducing the environmental impact of construction. He covered advanced cements, water-proofing materials, coatings, plasters, and grouts designed to lower carbon emissions, enhance strength and durability, and minimize energy and water consumption. His talk underscored the importance of adopting these new solutions to foster a more sustainable construction industry.



Presentation by Er. Amit Chaudhary, UltraTech Cement

Day 3:



Address by Dr. Nikhal Saboo, IIT Roorkee

The final day of the seminar began with a presentation by Dr. Nikhil Saboo, Associate Professor, Department of Civil Engineering, IIT Roorkee. His talk, on “Mix Design Paradigm of Bituminous Mix Design: Using Reverse Engineering,” was both insightful and well-articulated. Dr. Saboo detailed the conventional mix design method, highlighting its limitations, and introduced an innovative approach for designing bituminous concrete. This new method aims to reduce bitumen content while enhancing the rutting and fatigue properties of pavements. Additionally, it eliminates the need for trial runs, thus conserving materials, time, and effort. Dr. Saboo

also discussed the open-source software STAB and BBM, developed by IIT Roorkee, which supports this advanced mix design methodology.

The second address of the day was given by Dr. Vinay Bhushan Chauhan, Assistant Professor, MMMUT, on “Construction Materials: Innovations with Glass.” Dr. Chauhan discussed the environmental impact of waste materials and their potential use in construction. He presented research on incorporating glass into clay bricks, demonstrating that it enhances the physical, chemical, and mechanical properties of the bricks, making them a viable sustainable material. Additionally, Dr. Chauhan proposed using red mud as a cement replacement in concrete pavements. This approach not only improves the workability of the concrete but also enhances its compressive, tensile, and flexural strengths at certain red mud percentages. Furthermore, utilizing red mud in concrete helps mitigate its toxic effects when disposed of in landfills.



Address by Dr. Vinay Bhushan Chauhan, MMMUT

Valedictory Session:

The seminar concluded with a valedictory session. Dr. Syed Aqeel Ahmad welcomed the dignitaries and presented report of the seminar. He summarized the seminar's success and highlighted the collaborative efforts of all participants.



Dignitaries of valedictory session



Address by Prof. Mohammad Haris Siddiqui, Integral University

On the occasion, Prof. Mohammad Haris Siddiqui, Registrar of Integral University, addressed the challenges of providing cost-effective and sustainable construction solutions and congratulated the Department of Civil Engineering on the successful program.



Prof. Aqil Ahmad Interacting with participants

Dr. Aqil Ahmad, Advisor to the Hon'ble Chancellor, emphasized the need for collective environmental efforts and the construction industry's role in this mission.

Dr. Vinay Bhushan Chauhan, Assistant Professor, MMMUT spoke about the importance of sustainable materials and technologies in the construction sector and congratulated the Head of

the Department of Civil Engineering for organizing a successful seminar. At the end, participation certificates were distributed to attendees. The University and seminar mementos were also presented to dignitaries during Inaugural and Valedictory session.

Dr. Zishan Raza Khan concluded the seminar with a vote of thanks, expressing gratitude to Prof. Syed Waseem Akhtar, the Hon'ble Chancellor of Integral University, the university management, speakers, sponsors, collaborators, participants, organizers, and students for their invaluable support. The event was efficiently managed by Mr. Anwar Ahmad, Mr. Mohd Sajid, and Vikash Singh, with smooth compering by Dr. Neha Mumtaz and Mr. Mohd Asim.



Dr. Zishan Raza Khan presenting vote of thanks

