



# News Letter

EDITION I: 1ST, 2024

## DIRECTOR'S PEN



**PROF. PINAKESWAR MAHANTA**

“As we embark on this exciting journey, let our passion for innovation and knowledge drive us. This society stands as a testament to our commitment to excellence. Together, let's build a legacy of ingenuity and collaboration. Here's to a thriving community of future leaders in civil engineering!”

## CIVIL ENGINEERING SOCIETY?

A Society formed envisioning NITM in fostering innovation, promoting sustainable practices, and creating a collaborative environment for students to engage in real-world projects. This includes incorporating emerging technologies, emphasizing environmental consciousness, and establishing partnerships with industry experts to enrich the learning experience. Encouraging diversity, continuous skill development, and many more to a well-rounded and impactful engineering life at NITM

## CHAIRMAN'S POV?



**DR. HRIDAY MANI KALITA**

Excited to witness the launch of our Civil Engineering Society! Your collective drive for knowledge and collaboration is inspiring I encourage you to make the most of this platform. Together, let's elevate our understanding and impact in the field. Wishing the society great success!

## PRESIDENT'S WORD?



**DR. RUBI CHAKRABORTY**

As the president of the Civil Engineering Society at NITM, I am thrilled to introduce our inaugural newsletter. This platform will serve as a bridge between our members, fostering collaboration, innovation, and knowledge-sharing within the field of civil engineering. Together, let's build a strong community dedicated to advancing our profession and making a positive impact on society.



## Demolition Practices in India: Challenges and Solutions

Dr. Suman Kumar, Scientist, CSIR-CBRI Roorkee

India has significant old tall building stocks and requires safe demolition for better resource management and utilization of the resources to preserve the natural environment. This will further help us to achieve India's sustainable development goals (SDGs) regarding sustainable development and reduction in the country's carbon footprint. However, the process of building demolition carries significant social, economic, and environmental implications in India. From urban redevelopment to infrastructure projects, the demolition of structures is a common occurrence. However, the methods employed, regulatory frameworks, and environmental considerations vary widely across regions and circumstances. Understanding the complexities and challenges of building demolition in India is crucial for ensuring sustainable development and community welfare.

### REGULATORY LANDSCAPE:

The regulatory framework governing building demolition in India is multifaceted and often fragmented. Local municipal bodies, state governments, and national regulations oversee demolition activities. The laws and regulations include safety standards, environmental impact assessments, and clearance procedures. The primary legislation governing building demolition includes the Municipal Acts, Environmental Protection Act, and regulations set by the National Disaster Management Authority (NDMA). However, enforcement and implementation of these regulations can be inconsistent, leading to issues such as unauthorized demolitions, safety lapses, and environmental degradation. This may be due to lack of availability of standard code of practices for building demolition. For instance, the only existing code on demolition (IS 4130 – Demolition of Buildings – Code of Safety) was the latest revised in 1991.



## CHALLENGES:

**1. Safety Concerns:** Building demolition, if not conducted with proper planning and adherence to safety protocols, can pose risks to both workers and surrounding communities. The use of outdated techniques, inadequate equipment, and lack of training contribute to accidents and fatalities.

**2. Environmental Impact:** Demolition activities generate large amounts of debris, dust, and pollutants, which can adversely affect air and water quality. Improper disposal of construction waste exacerbates environmental degradation and strains waste management systems.

**3. Social Displacement:** Demolition projects often entail the displacement of communities residing in the vicinity of the structures. Inadequate resettlement plans and lack of consultation with affected populations can lead to social unrest and hardships for vulnerable groups.

**4. Illegal Practices:** The prevalence of unauthorized constructions and illegal settlements complicates the process of building demolition. Encroachments on public lands and violations of building codes further challenge regulatory authorities in enforcing demolition laws.

## SUSTAINABLE SOLUTIONS:

**1. Technological Innovation:** Adopting advanced demolition technologies such as controlled implosion, robotic demolition, and high-reach excavators can improve efficiency and safety while minimizing environmental impact. Further, in compliance to honorable supreme court order India undertakes the tallest building demolition of Supertech twin tower using controlled implosion technique [1]. Prior to demolition of twin tower demolition, the Supreme Court of India ordered the demolition of five apartments in the Maradu municipality in Kerala for violating the coastal regulation zone rule/ law which was happened in 2020. These innovative techniques are efficient, safe, and sustainable solutions to demolition objectives in India. The demolition of Maradu apartment and Supertech Twin tower is shown in Figure 1.



**2. Strategic Planning:** Prioritizing strategic planning and comprehensive risk assessments before undertaking demolition projects can mitigate safety hazards and reduce adverse effects on communities and ecosystems.



Figure 2 Representative image for dust suppression in demolition [4]

**3. Waste Management:** Implementing robust waste management practices, including recycling and proper construction debris disposal, helps minimize environmental pollution and promotes resource conservation. The representative image for suppressing dust in demolition and processing and recycling of debris is shown in Figure 2 and Figure 3 respectively.



Figure 3 A representative image of demolition waste processing and recycling [5]

**4. Community Engagement:** Involving local communities in the decision-making process and ensuring transparent communication regarding demolition projects can foster trust, mitigate social tensions, and facilitate smoother transitions for affected residents.

**5. Regulatory Enforcement:** Strengthening regulatory enforcement mechanisms, enhancing inter-agency coordination, and promoting awareness of demolition laws and procedures are essential for upholding safety standards and preventing illegal practices.

## Conclusion:

Building demolition in India presents a complex set of challenges ranging from safety and environmental concerns to social displacement and regulatory compliance. Addressing these challenges requires a multifaceted approach encompassing technological innovation, strategic planning, community engagement, and effective regulatory enforcement. There is grave need of in-depth scientific study and formulation of guidelines to accomplish the challenges posed by the building demolition. The multi-disciplinary approach to tackle the challenges will provide more realistic and sustainable solutions.



## Our 1st Technical Event

The Civil Engineering Society (CES) of NIT Meghalaya organized its first webinar (an online Lecture) from 5.00- 6.00 PM on 23.02.2024.

**Speaker Details:**  
Dr. Suman Kumar  
Scientist, HSS Group,  
CSIR-CBRI Roorkee, Uttarakhand.

**Topic: Various Aspects of Building Demolition:  
Through the Demolition of the Supertech Twin  
Tower, NOIDA**  
Venue: Lecture Hall (LH)  
Time: 5.00- 6.00 PM  
Date: 23.02.2024

**Organized by:**  
**CIVIL ENGINEERING SOCIETY, NIT  
MEGHALAYA**

**Place:**  
**Lecture Hall**





# The International Conference on Environmental Sustainability and Climate Change

The International Conference on Environmental Sustainability and Climate Change (ICESCC-2023) was organized through hybrid (Online/Offline) mode organized by Department of Civil Engineering. This event was designed to cater to a diverse target audience of faculty members, scientists, research scholars, students, industry professionals, NGOs, academia, policymakers, stakeholders and media. It aims to provide a platform for collaboration, knowledge exchange and discussions across these varied sectors to collectively address environmental issues and tackle global climate challenge.



**Advisory Committee Patron**  
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HOD, Dept. of Civil Engineering,  
NIT Meghalaya  
**Convener/Organizing Secretary**  
**Dr. Ganesh Chandra Dhal**  
Assistant Professor, Dept. of Civil Engineering, NIT Meghalaya

**Co- Convener**  
**Dr. Smrutirekha Sahoo**  
Assistant Professor, Dept. of Civil Engineering, NIT Meghalaya



# ACHIEVEMENTS

## FACULTY

### DR. COMINGSTARFUL MARTHONG



Executing  
highest  
consultancy  
project in FY  
2022-2023-  
Awarded by  
NIT Meghalaya

## DAUGHTERS OF INDIAN SOIL

### DR. SMRUTIREKHA SAHOO



#### *Smrutirekha Sahoo*

I am Dr. Smrutirekha Sahoo, currently working as an Assistant Professor in the Department of Civil Engineering at NIT Meghalaya since 2015, and also a mother of two lovely children (a 7-year-old Son, Master Shivansh Sasmal, and a 4-year-old daughter, Miss Saanvi Sasmal).

I was born in a small town in Keonjhar, Odisha, on 27th April 1988. Since my parents worked in different towns, I stayed with my mother till I was five years old and then stayed with my father to have my schooling at Jhaleswar Noida U.P. School, Odisha. When I was in Class 5, I got selected through the Jawahar Navodaya Vidyalaya Selection Test (JNVST) conducted by CBSE to have my further studies from class 6 to 12 in Jawahar Navodaya Vidyalaya Haldigharj (JNV Haldigharj), which is a free of cost and fully boarding school. Then, I did my BTech in Civil Engineering from IIT Bombay under EPMU, Rourkela, Odisha, in 2009. As I qualified in GATE 2009 and had Geotechnical Engineering as my favorite subject during BTech, I decided to join MTech in Geotechnical Engineering at NIT Rourkela, Odisha. Immediately after my MTech in 2011, I joined for PhD in Geotechnical Engineering in July 2011 at IIT Delhi under the guidance of Prof. Hridaynath Manna and Prof. K. G. Sharma to strengthen my knowledge and get better career opportunities. On 2 November 2015, I joined NIT Meghalaya after finishing the experimental and numerical works and while writing my PhD thesis. There were a few ups and downs on my personal and professional fronts since then for a few years, and finally, I got my PhD on 22nd June 2017 (i.e., thesis titled "Seismic response of steep nailed soil slopes - shaking table tests and analysis").

At NIT Meghalaya, I have been associated with several academic and administrative responsibilities assigned to me from time to time and extended contributions to various outreach activities whenever I get an opportunity to do so. I have completed three sponsored R&D projects amounting to 38 lakhs (approx.), including the prestigious Early Career Research Award from SERB, DST and IISER (approx. 10 lakhs approx.). I have received several awards and recognitions from various agencies and organizations and delivered several invited talks at various Institutes. I have guided 11 BTech and MTech projects to date and am currently guiding 3 Ph.D. scholars, one of whom is about to submit her thesis. I have published 20 research articles in various reputed national and international Journals, book chapters, and conferences. I have been the reviewer of various national and international Journals. I have also attended and participated in various national and international conferences, workshops, and short-term courses to enhance my knowledge and broaden my expertise in interdisciplinary research.

For the young girls of India: Nothing can stop you from achieving something great if you believe in yourself and give your sincerest effort. And don't forget to take care of yourself.

A woman's real success and happiness is having a good career-family balance, which is only possible if she can have a supportive environment from her family.

### DR. SUSMITA SHARMA



#### *Susmita Sharma*

I am Dr. Susmita Sharma, currently serving as an Assistant Professor in the Department of Civil Engineering at NIT Meghalaya. As the daughter of a Civil Engineer with 40 years of experience in the field, I was exposed to civil engineering from an early age. The unwavering support and encouragement from my parents have played a crucial role in shaping my educational and professional journey. I completed my early education in Guwahati, Assam, India, and went on to graduate from Assam Engineering College. Subsequently, I pursued my post-graduation degree at IIT Bombay.

My time at IIT Bombay was truly inspiring. Mentoring by Prof. DN Singh and receiving care from Ritu Maam from the very beginning were memorable experiences that significantly influenced my life. The initiation of my Ph.D. in the ENVGEO lab marked a turning point when Prof. DN Singh posed intriguing questions about the philosophy behind soil characterization and its response to anthropogenic influences. This led me to specialize in geoenvironmental engineering, exploring the impact of activities like waste disposal and leaching on soil properties. The experience broadened my understanding of the physical, chemical, mechanical, and durability changes in soil, posing challenges to engineering applications. An unexpected opportunity to investigate the impact of microbes on soil properties and engage in DNA extraction from soil came through a Fellowship from the European Commission via the Marie Curie IRSES GREAT at the University of Strathclyde Glasgow.

Transitioning to NIT Meghalaya brought about a unique experience. The state, adorned with majestic rivers and lush hills, also faced challenges, notably landslides and the impact of waste dumps on soil and water. My work involved examining changes in the land surface due to rapid urbanization, revealing that each landslide case is unique. The quality of waste disposal is a particular challenge due to seasonal tourism and the socio-economic conditions of the local population. Engaging in research, consulting, and teaching, I've worked in Meghalaya, Assam, and Manipur. My primary areas of interest in geotechnical engineering include bio-cemented soil characteristics, soil-water-pollutant interaction, and valorization of waste.

As a consultant/technical member, I was appointed by the Central Pollution Board to review environmental reports related to waste management and groundwater quality evaluation of SPCBs. Additionally, I serve as the Vice Chair of the Technical Oversight Committee (TOC) of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE).

## PHD



### • AVISHEK GOSWAMI (P21CE006)

Best paper award under theme 'Hydrological Modelling and Forecasting' in IWCSGDG 2024 International conference organised by MANIT Bhopal, M.P.



### • ANJALI KUMARI PRAVIN KUMAR PANDEY (P21CE007)

Best poster award at 5th research conclave hosted by NIT Meghalaya

# SOCIETY STRUCTURE



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