

*Industrial Expert Talk*

**SUSTAINABLE FRONTIERS IN IRON ORE MINING: EXPLORATION, ESG AND INNOVATION**

*Resource person*  
**SHRI MALLIKARJUN SARAPUR**  
General Manager (Productions)  
Karnataka State Mineral Corporation Ltd

**Participants**  
Geology  
Major Students

**28 March 2025**  
**10 am onwards**  
Geology Lab

**Organised by**  
Department of Geology, St. Anthony's College, Shillong  
in collaboration with Karnataka State Mineral Corporation Ltd.

KSMC  
DEPARTMENT OF GEOLOGY  
ST. ANTHONY'S COLLEGE  
SHILLONG

The Department of Geology organized an expert talk titled “**Sustainable Frontiers in Iron Ore Mining: Exploration, ESG, and Innovation**” on **28 March 2026** at Wollaston Annexe Dominic Conference Hall, St. Anthony's College Shillong in collaboration with Karnataka State Mineral Corporation Ltd. The programme commenced with **Dr. V. Jennifer J. Wallang**, Head of the Geology Department, welcoming and felicitating the guests: **Shri Basavaraju**, KAS (MD, KSMCL). **Shri Mallikarjun Sarapur** (General Manager, KSMCL), and **Shri S. Kameswara Rao** (MD, GEMS)

**Shri Basavarajun in his preliminary remarks**, shared valuable insights drawn from the mining industry's rich 59-year legacy. He spoke passionately about the evolution and growth of the sector, emphasizing its critical role in nation-building. He encouraged the young geology students to actively pursue careers in mining and related fields. To support their professional development, he generously offered internship opportunities within his organization, providing students a platform to gain practical exposure and hands-on experience in real-world mining operations.

**Shri Mallikarjun Sarapur**, with 25 years of experience, delivered the technical session. He gave a detailed overview of **KSMCL's** operations in exploration, excavation, and beneficiation. He explained the distribution and chemical composition of iron ore deposits across India, common impurities, and current reserve status. He emphasized the significant contribution of mineral production to the national economy. He elaborated on Karnataka's best practices, including the **Integrated Lease Management System (ILMS)**, **Drone Surveys** to curb illegal mining, **One State One GPS (OSOG)** for transport tracking, and **Sand Policy 2020** promoting M-sand. Shri Sarapur detailed the **Comprehensive Environment Plan for Mining Impact Zone (CEPMIZ)**, mandatory **Reclamation & Rehabilitation (R&R)** in Ballari and Chitradurga, and the **Maximum Permissible Annual Production** model. On ESG, he discussed Scopes 1, 2 & 3 emissions and strategies for decarbonization through battery-operated equipment, carbon capture, and green energy. He highlighted the **National Critical Mineral Mission (NCMM)** and legislative reforms for auctioning 24 critical minerals. He advocated shifting to **slurry pipelines** (80% CO<sub>2</sub>

reduction) and inland waterways for sustainable logistics. He concluded with the **UNFC Classification** and **Nick Tate's Twenty Golden Rules**, stressing "drill holes make ore deposits." **Shri S. Kameswara Rao** spoke on the importance of mining for national development, sustainable practices, and the pivotal role of future geologists in responsible resource management. The session offered valuable insights into modern sustainable mining.

