ICAR-IARI and Arcelor-Mittal Nippon-Steel India Sign MoU for Sustainable Agricultural Use of Iron Ore Tailings

New Delhi, September 1, 2026: The ICAR–Indian Agricultural Research Institute (ICAR-IARI), New Delhi, and ArcelorMittal Nippon Steel India (AM/NS India) today signed a Memorandum of Understanding (MoU) to undertake advanced scientific research on the sustainable utilization of iron ore tailings (IOTs) in agriculture. The collaboration marks an important step towards developing science-based pathways for waste valorization, resource conservation and circular economy in agriculture.

The MoU was signed and exchanged by Dr. C. Viswanathan, Joint Director (Research), ICAR-IARI, and Dr. Vishwanathan N., Head–Research & Development, AM/NS India, in the presence of Dr. Bhupinder Singh, Principal Scientist and Principal Investigator, ICAR-IARI, along with senior officials from both institutions.

The collaboration builds upon preliminary studies initiated in 2024 by AM/NS India and ICAR-IARI to assess the potential of iron ore tailings generated during iron ore beneficiation for agricultural applications. The studies indicated that IOTs contain naturally occurring minerals, including silica, iron oxides, alumina, calcium and magnesium, along with other mineral elements that may have potential value for crop production and soil health, subject to rigorous scientific evaluation and safety assessment.

Initial laboratory and field investigations conducted at ICAR-IARI, New Delhi, and near AM/NS India's beneficiation facility at Kirandul, Chhattisgarh, have generated encouraging results. The studies indicated potential for utilizing appropriately characterized iron ore tailings as sources of mineral nutrients in crops such as paddy, wheat and vegetables.

Under the present MoU, the two institutions will undertake multi-season, long-term studies at ICAR-IARI, New Delhi, and AM/NS India's facilities at Kirandul. The research will comprehensively assess crop response, nutrient availability, phyto-toxicity, nutrient dynamics, leaching behaviour and potential environmental impacts. The objective is to generate robust scientific evidence and develop safe, beneficial and environmentally responsible pathways for agricultural utilization of iron ore tailings.

The initiative seeks to transform a mining by-product requiring long-term storage into a potential value-added resource for agriculture, while reducing waste accumulation and promoting resource efficiency. The research may also contribute to reducing dependence on externally sourced mineral inputs, improving nutrient-use efficiency and supporting sustainable soil management. In particular, the programme will examine the potential role of iron-rich tailings in addressing iron deficiency in degraded and nutrient-deficient soils and enhancing iron concentration in agricultural produce, thereby complementing ongoing efforts in crop biofortification.

The collaboration aligns with the broader sustainability objectives of AM/NS India, particularly in the areas of resource efficiency, waste valorization and circular economy. The company has undertaken several initiatives aimed at maximizing resource utilization, including steel scrap recycling, conversion of steel slag into its branded aggregate product “Aakar” for infrastructure applications, extensive water recycling through Zero Liquid Discharge systems, and reuse or recycling of more than 90% of process by-products generated in its operations.


Sanctioned Budget
Expected Outcome
Dr. C. V. SWANATHAN