

GOVERNMENT OF INDIA
MINISTRY OF STEEL

LOK SABHA
UNSTARRED QUESTION NO. 1855
FOR ANSWER ON 11.03.2025

R&D PROJECTS

1855. SHRI BIDYUT BARAN MAHATO:
SHRI DINESHBHAI MAKWANA:
SHRI ARUN GOVIL:
SHRI NABA CHARAN MAJHI:

Will the Minister of STEEL be pleased to state:

- (a) the details of the priority areas of Meerut and Hapur for research and development in the steel sector;
- (b) whether there are any collaborations with academic institutions or private companies for R&D projects, if so, the details thereof;
- (c) whether there are any specific R&D projects aimed at reducing the carbon footprint of the steel industry; and
- (d) if so, the details thereof?

ANSWER

THE MINISTER OF STATE IN THE (SHRI BHUPATHIRAJU SRINIVASA VARMA)
MINISTRY OF STEEL

(a)&(b): Ministry of Steel is operating a R&D scheme viz. 'Promotion of Research & Development in Iron & Steel Sector' for providing financial assistance to reputed academic institutions, research laboratories and Indian Steel companies for carrying out research in the Iron and Steel sector. Preference is given to collaborative research by the stakeholders viz. steel companies in the public & private sector, CSIR laboratories & academic institutions. The thrust areas/priority areas of research covered under the scheme include research to develop innovative processes & technologies to address common issues faced by the steel sector such as improving efficiency, quality & productivities, utilisation of wastes, improving energy efficiency, reducing GHG emission, beneficiation of natural resources etc.

(c)&(d): There are 11 R&D projects under Ministry of Steel's R&D scheme which aim to reduce the carbon footprint of the steel industry. Details of these R&D projects are provided in **Annexure**.

Details of R&D projects under Ministry of Steel's R&D scheme which aim to reduce the carbon footprint of the steel industry

S. No	Project Name	Implementing Agency
1	Melting and Refining behaviour of gas based DRI and hydrogen based DRI	IIT Bombay
2	A comparative study on the controlling mechanisms during reduction of iron oxides with CO and hydrogen – Impact on decarbonisation of iron and steel manufacturing	IIT Bombay
3	Assessment of Design and Operating parameters using Process Simulation for Hydrogen Based DRI Production in: (1) a Continuous Vertical Shaft Reactor (2) a Vertical Batch Reactor	IIT Bombay & IIT Bhubaneswar
4	Investigation on coal-biomass blends as reductant and fuel in rotary kiln DRI making towards CO ₂ mitigation	IIT Hyderabad
5	A laboratory/ pilot scale set up to optimize the process parameters for producing DRI with varying H ₂ and CO ratio along with 3D Multiphysics modelling of DRI shaft reactor	IIT Kharagpur
6	Decarbonization of DRI process in rotary kiln using hydrogen as reductant	IIT Roorkee
7	Designing a sustainable, low-energy consuming, and modular CO ₂ capture and mineralization technology	IIT Bombay
8	Developing facile electrocatalytic CO ₂ to CO conversion technology	IIT Bombay
9	Large-scale electrocatalytic conversion of CO ₂ to CO and its further valorization	IIT Bombay
10	Development of Solid Oxide Electrolyzer Cell & Short Stack for Blast Furnace Top Gas Utilization to Reduce CO ₂ Footprint in the Iron Making Process	CSIR, CGCRI Kolkata
11	Simultaneous removal of CO ₂ , SO _x & NO _x from flue gas and their catalytic conversion into fuels and value added fertilizers	CSIR, IMMT Bhubaneswar