



MINERAL BUSINESS DEVELOPMENT (MBD-2022)

POST CONFERENCE REPORT

1. INTRODUCTION

The first Mineral Business Development conference (MBD-2022) organized by Mineral Information & Development Centre (MIDC) in Nagpur during November 10-11, 2022 was highly successful and provided the necessary eco-system for the value addition of minerals in the country. The main objective of this conference was to highlight the major advances in value addition of minerals and utilization of wastes, which directly promotes the Government of India initiative of 'Make in India'. About 60 mining and mineral based industries/companies participated in 2 days event and about 50 papers were presented by industries and leading experts. The conference was inaugurated by Mr. Deependra Singh, CMD, Indian Rare Earths Limited (IREL). Prof. Suddhasatwa Basu, Director, Institute of Minerals & Materials Technology (IMMT) and Mr. Amit Sharma, IAS Secretary to the Government, Jammu and Kashmir were the Guests of Honors. The inaugural session highlighted the importance of value addition and utilization of mineral wastes in the country. Honorable Shri Nitin Gadkari, Minister for Road Transport & Highways, Government of India, conveyed his best wishes by a video message for success of the Conference.



2. KEYNOTE ADDRESSES

The first keynote address of this conference was delivered by CMD of IREL, where he highlighted the resources of rare earths in the country and extraction work being carried out in India in an environment friendly manner. The uses of rare earths in the 'Clean Energy Technology' were highlighted. In the second keynote address, Prof. Basu highlighted various types of wastes generated in the Steel & other Metallurgical industries in the country and their possible valorization according to R&D work carried out at IMMT, Bhubaneswar. The presentation had several flowsheets developed for utilization of mineral wastes and production of value-added products. Mr. Sharma presented the third keynote address on the mineral wealth of J&K and invited the mineral industry to invest in bauxite, magnesite, gypsum, gemstones, marble and limestone mining and processing industry. Further Dr. Indra Chakraborty of Calderys India suggested how the country can be self-reliant in Refractories, mainly by recycling of the used materials and by developing synthetic raw materials.

3. INVITED PRESENTATIONS

In the post lunch session, Mr. Chanchal Manna, GM (TGM) of Uranium Corporation of India (UCIL) spoke on the sustainable development in the mining and processing of low-grade Uranium deposit at their Jaduguda mine of Jharkhand. It is evident that India is lagging behind China in the extraction of rare earths and it is necessary to develop advance processing technology in the country. Prof K.R. Randive spoke on the transformation of mining waste into value-added products. Mr. Arnab Majumder of PricewaterhouseCoopers (PwC) presented a



thought-provoking presentation on investment & economic growth potential for Indian mining sector, where he also mentioned about the special minerals required for the battery industry. Dr. A.K. Soni of CIMFR highlighted enormous water resources of mining areas, suitable use and demonstrated several mineral-based Industries like silica sand and glass raw materials from coal mining wastes. Mr. K. Ramachandra Rao of SMS Limited highlighted the strategies for minimizing the mine waste generation and given several examples of mine waste conversion to wealth.

4. TECHNICAL PRESENTATIONS

On the second day (November 11) about 40 presentations in three parallel sessions of REE, Waste Utilization and Analytical Techniques; Ferrous, Non-Ferrous Minerals & Industrial Minerals were presented.

4.1 There was a special Session on Rare Earth Elements (REE) which was chaired by Dr. V. Balaram, Former Emeritus Scientist and Head, Geochemistry Division CSIR - NGRI, Hyderabad with Dr. M.K. Roy, former Addl. Director, AMD, in Co-chair. Seven papers were presented. Dr. Balaram opened the session with a presentation of the prospects of REE and other minerals from sea bed. The potential is huge but challenges are many, particularly the environment concerns. Other papers discussed about the origin and geochronology of REE, the occurrences and huge potentials in Ambadongar carbonatite, Gujarat, Siwana Ring Complex in Rajasthan and in about 80 km shear zone in Arunachal Pradesh. The occurrence of REE and other important elements in Arunachal Pradesh opened up a new resource potential. Recovery of the strategic element Scandium from red



mud (bauxite residue) by a process of initial beneficiation followed by solvent extraction developed by JNARDDC was also highlighted.

The second half of this Session was devoted to Waste Utilization and Analytical Techniques. The session was chaired by Dr. Suchita Rai, Principal Scientist, JNARDDC, Nagpur and Prof. K.R. Randive, Head, Post-graduate Department of Geology, RTMNU, Nagpur. Six papers were presented. The various applications of red mud in cement industry was highlighted. The industrial rejects generated during alumina and aluminium production process are listed for their potential use after the removal of toxic materials. The utilization of banded hematite jasper (BHJ), which is generated as internal wastes during chromite mining by OMC, can be used as decorative stone and building material, which not only reduced the wastes but also generates local employment. The soft overburden wastes of chromite mining can be used as nutrients for agriculture. In the analytical section, the use of near infrared technology for online analysis during the process control was discussed with case studies. Another technique developed by PFT neutron activation generated by short electrical pulse not only gave accurate online elemental analysis but also eliminated radiation hazards.

- 4.2 In the Ferrous and Non-Ferrous Minerals technical session, a total of 11 presentations were organized during second parallel technical session. The majority of papers were presented by Scientists and Engineers of NMDC, IBM, CSIR-NML and CSIR-IMMT, JNARDDC, and companies like Calderys India



Refractories Ltd. and Beach Mineral Producers Association. There were three papers from R&D division of NMDC, Hyderabad. This technical session focused on beneficiation, mineralogical aspects, and the utilization of low-grade iron ore resources. Under the non-ferrous division, there were some interesting technical papers presented by Calderys Refractories, and the Beach Minerals Producers Association. Mr. G. Venkateswara Rao, chairman of this session, explained the role of NMDC in mineral conservation. Mr. Satyaki Mandal highlighted the development of high alumina synthetic aggregates based on impure raw bauxite. Mr. Sakthi Ganapathi explained the need for value addition to abundant beach minerals in India to achieve self-sufficiency in critical materials to meet "Make in India" objectives. At the end of this session, Dr. P. G. Bhukte presented a paper on the characterization and beneficiation of Pyrophyllite.

- 4.3 In the third parallel session on industrial minerals, 13 papers were presented mainly on clay, bentonites and refractory minerals. Out of total presentations, 4 were presented by Gimpex – Imerys team of Gujarat. Mr. Pradeep Kothari, Chief Executive officer from Gimpex Imerys, shared his views on the clay mining, processing and their uses in Gujarat. Other two papers were presented on the synthesis of calcium silicates from low grade bentonite clay and beneficiation of low-grade bentonite using various techniques. Mr. Dhananjay Choudhary, technical advisor of Gimpex -Imerys, focused on the use of bentonite in fertilizer manufacturing, which was well appreciated. Further 2 papers were presented by a team of



Calderys India Refractories focusing on the R3 key i.e. reducing, recycling, reusing of refractories- industrial waste and substitution of raw material in refractory industry as a self-reliant initiative (Atmanirbhar Bharat). Mr Alok Sood, a mining business consultant, has raised several valid points for exploration, exploitation and use of the industrial minerals. He emphasized that under-reporting of industrial mineral resources, lack of proper classification and suitable uses / applications, kill several promising projects. Dr P K Jain, chief mineral economist (Retd.) from IBM explained the importance of flux grade limestone in iron and steel industry in India. Dr R Bhima Rao, former Chief scientist from Mineral Processing Department of CSIR-IMMT, highlighted his views on the recovery of placer industrial minerals from sediments of Badlands topography and their value addition for industrial use. Mr V.A Sonatakkey, an ore dressing officer from IBM put his views on beneficiation of low-grade graphite and recovery of vanadium as a by-product from the central India deposit. Ms Shobhana Dey from CSIR-NML, Jamshedpur, focused on the gainful utilization of siliceous limestone wastes for iron making. An important concept about the coal gasification in India was put forward by Mr Debasis Maiti, Executive Vice president for coal gasification plant project of Jindal Steel & Power (JSPL). Lastly, Mr Mohona Rao of CSIR NML, explained about the efficacy of pilot scale Bitac Jig and their use in LVC Coal for production of coke production.



5. VALEDICTORY FUNCTION

On second day late evening, all the Chairman of various technical sessions, expressed their view about this conference and its outcome. Dr. Nandi conducted the whole session and invited several companies and delegates to provide their frank and free opinion about this conference. Several valuable comments and suggestions were noted and everybody agreed to conduct this kind of highly technical conference on value added mineral products and waste utilization of mining and processing industry. It is proposed to prepare a database of all the mining wastes as some useful products can be generated by mixing various types of waste with industrial rejects. For example, red mud of alumina refinery can be mixed with fly ash of power plant and any other acidic wastes to neutralize and further generate new product. Dr. M.K. Roy, thanked all the companies and participants for their useful contribution and make this first conference successful.
