



Stakeholders Consultation Report

**Stakeholders Consultation on
Red Mud Utilisation in Indian
Cement Industry**

16 June 2020



Project Background

EU's Resource Efficiency Initiative (EU-REI) aims to support India in the implementation of the United Nations global sustainable consumption and production (SCP) agenda to foster efficient and sustainable use of natural resources by adopting international standards and best practices in business on resource efficiency.

There are various means of promoting resource efficiency among stakeholders. One is to encourage the utilization of waste as resource through energy/ material recovery. This would create significant synergies among large industries and SMEs in clusters, where the waste/ by-product of one unit may be used as a resource by another, creating a circular loop. This will reduce the waste generation & utilization of natural resources.

EU-REI & CII are working on a project to develop a waste material exchange platform as a tool to enable exchange of waste, thereby converting waste to resource.

Workshop Record

As part of the initiative, CII-Godrej Green Business Centre (GBC) with the support of EU-REI organized the first Stakeholder's Consultation on Red Mud Utilization in Indian Cement Industry.

The Digital Stakeholders Consultation on Red Mud Utilization in Indian Cement Industry was organized successfully on 16th June 2020, using the Microsoft Teams platform. The program was well received by all the stakeholders, registering more than 60 participants, including policy makers and stakeholders such as red mud users, generators, and research institutions. (Participants' list is enclosed as Annexure-1)

The consultation was organized with the objective of promoting the exchange of red mud between Indian industries, and to create an AFR market for waste management and energy needs across Indian industries. Industry representatives, research institutions and facilitators for red mud shared their views on red mud management in cement production.

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Mr Kiran Ananth, Principal Counsellor, CII–Godrej GBC, moderated the stakeholder’s consultation on red mud utilization in cement industry. He explained about the various initiatives by CII in promoting resource efficiency in the country. Fast and sustainable use of resources has become the need of resource efficiency, he said. He also spoke about the online waste exchange platform, created by CII to promote waste exchange between industries, and the pilot study by the CII team in utilizing industrial waste in a cement plant.

Mr Ulhas Parlikar, Global Consultant, (Waste Management, Circular Economy, Policy Advocacy & Co-processing), explained in detail about the objectives of the stakeholder consultation and how the industry can maximize the benefit through the exchange of red mud. He mentioned that the present quantity of generation of red mud in India is about 9 million tonnes, and in the world about 180 million tonnes. He spoke about the concern that red mud generation can multiply 10 times from the present generation, considering the current aluminium industry growth rates, and the challenges in handling such a huge quantity of red mud for the industry. Developing a sustainable solution is the only smart way forward, he underlined.



He also spoke about the various opportunities from alternative raw material to cement and extraction of valuable elements out of red mud.



Dr. Rachna Arora, Deputy Team Leader & Coordinator; EU-REI, India, shared a presentation on promoting resource efficiency and circular economy for sustainable development.

Dr Rachna Arora highlighted the various resource efficiency initiatives taken up by EU-REI in India sectors such as renewable energy, mobility, building construction and waste management. She elaborated on some conclusions of previous studies on red mud utilization, such as requirement of legal framework for utilizing red mud, centric collaboration within private industries, and economic evaluation of iron replacement, including logistics costs. She also highlighted the mapping- and cluster-level approach for making a better circular loop among the generators and users of red mud.



Mr K Muralikrishnan, Senior Counsellor, CII- Godrej GBC, spoke about the joint initiative of CII-GBC and EU-REI on developing a draft business model for red mud exchange, which involves cluster level approach.

He shared details of the draft business model and how logistics costs become a critical factor in the business model. A total of 13 cement clusters were considered for developing the business model.

He also touched upon the opportunities and difficulties of red mud utilization in the cement industry. Opportunities vary from laterite replacement, neutralization of sulphur in pet coke, and contribution of rare metals such as titanium to the clinkerisation temperature, and the challenges majorly involve handling of red mud because of its high moisture.

The business model took into consideration the viability of different cases based on cost sharing between cement plant and aluminium plant.

Ms Kopal Agrawal, VP – Business Transformation, Hindalco, shared her views on “sustainable red mud management in alumina refinery”. She said that major cement groups such as Ultratech, ACC & Dalmia have come up with solutions to maximize red mud utilization, but making progress is still a challenge for a large number of cement plants due to moisture content and transportation costs.



She pointed out that after Covid-19, the government changed the rail fare class from class 130 to class 120, which may boost rail transportation of raw materials including red mud, and reduce transportation cost by about 8-10%.

Mr Tapan Mappat, Head of Production, Vedanta Limited, pointed out that rail class fare change may not boost red mud exchange to a large level, since the source of red mud is still far from cement industries. He also said that there is a variety of options for red mud utilization, but only the proven technology is utilization in the cement industry.

Mr Raju Goyal, Chief Technical Officer, UltraTech Cement Limited, said that red mud can be of two uses for the cement industry: one, as laterite replacement; and second, as pozzolonic material. He pointed out that if a cement plant is not using any additive, how can red mud be utilized? He underlined two handling challenges: alkali movement to ground water during monsoon, and



generation of fine dust in atmosphere in dry conditions. He also explained about the workability and durability of cement and concrete.

Ms Moumita Chakraborty, Head - Geocycle Asia and India, shared her views on red mud utilization in the cement industry, including infrastructure development in cement industry, transportation of red mud, and reactivity & leachability of red mud. She stressed on the need for a business model that incentivises both generator and user.



Mr Varun Boralkar, Head of Growth & Special Projects, ACC, said that infrastructure development was required for proper storage of red mud. He pointed out that there are solutions for red mud management but that there is a need for working together.

Dr Anupam Agnihotri, Director, Jawaharlal Nehru Aluminium Research, Development and Design Centre, explained in his presentation the status of research and development activities on red mud utilization. He said that NITI Aayog is setting up a project for red mud utilization. He spoke about the environmental, engineering and economic challenges of red mud. He pointed out that “red mud is not a waste,



it is a resource". He concluded by explaining about the "zero waste concept for bauxite residue".



Dr B N Mohapatra, Director General, National Council for Cement and Building Materials, explained about the potential of red mud as a pozzolonic material in cement, and generation of special cements using red mud.

Ms Deepti Kapil, Scientist D, Central Pollution Control Board, shared her views on policy intervention and guidelines for red mud utilization. Red mud generation is a global concern, since only 4 million metric tonnes out of 150 million metric tonnes generated is used.

She pointed out that globally, BOD determination study for the secondary raw material is happening and red mud also included in the study.

Mr Ulhas Parlikar, Chairman, CII initiative on increasing AFR usage in Indian cement industry & global consultant on Waste Management, Circular Economy, Policy Advocacy & Co-processing, concluded the session by highlighting the efforts taken up by the aluminium industry to make red mud in a user-friendly manner, and the positive approach of cement industries in promoting red mud utilization. He also spoke about



research and development activities that are boosting the overall red mud management.

Dr Dieter Mutz, Team Leader, European Union – Resource, Efficiency Initiative (EU-REI), India, shared his summary views on red mud utilization in the cement industry. He said that we should not consider bauxite residue as a waste, we should consider it as a valuable material.



After the panel discussion, the participants were requested to share their inputs on proposed business models and ways to accelerate utilisation of Red mud in Indian cement industry.



Annexures

ID	Name	Organization	Designation
1	Soubhagya Kumar Tripathy	Hindalco Industries Ltd	GM(E&S)
2	Varun Boralkar	Geocycle India	Head of Growth & Special Projects - General Manager
3	Amit Goyal	Geocycle India	Head of Sales North West India
4	Raju Goyal	UTCL	CTO
5	Awadhesh Singh	UltraTech Cement Ltd.	Sr Vice President
6	Puli Mahesh	Bharathi Cement Corporation Private Limited	Manager Process
7	Daniel Raju A.P	Dalmia	AED
8	Pinaki Dutta	JK Cement Limited	GENERAL MANAGER - PRODUCTION
9	Y Padmaveer	Orient Cement Limited	Sr GENERAL MANAGER (PRODUCTION)
10	Ramkumar	Chettinad Cement Corporation Pvt Ltd	General Manager
11	D N Singh	IIT Bombay	Professor
12	Arpan Parekh	JSW Cement	Associate Vice President
13	Vananiil Tiwari	JSW Cement Limited	General Manager
14	Venkata Varaprasad	JSW CEMENT	Asst. Gen Manager
15	Prakhar Shrivastava	JK Cement Limited	Head (QA & QC)
16	Vaishali Surawar	Hindalco	Vice President - Sustainability
17	Pradeep Kumar	JSW cement	Process Head, corporate office
18	Nandkishor charan	JK Cement	Sr. Engineer
19	Manoj Kumar Sharma	JK Cement Mangrol	DEPUTY MANAGER PROCESS
20	Dhawan Maheshwari	JK Cement Ltd. Mangrol	Process Engineer
21	Dr Anupam Agnihotri	Jawaharlal Nehru Aluminium Research Development & Design Centre, Nagpur	Director
22	M T Nimje	Jawaharlal Nehru Aluminium Research Development & Design Centre, Nagpur	HoD (Aluminium Electrolysis)
23	M J Chaddha	Jawaharlal Nehru Aluminium Research Development & Design Centre, Nagpur	HoD (Bauxite & Alumina)
24	Md Najar PA	Jawaharlal Nehru Aluminium Research Development & Design Centre, Nagpur	Principal Scientist
25	Dr Suchita B Rai	Jawaharlal Nehru Aluminium Research Development & Design Centre, Nagpur	Principal Scientist

26	Dr Upendra Singh	Jawaharlal Nehru Aluminium Research Development & Design Centre, Nagpur	HoD (Analytical)
27	Dr Priyanka Nayar	Jawaharlal Nehru Aluminium Research Development & Design Centre, Nagpur	Jr Scientist
28	S B Wadodkar	Jawaharlal Nehru Aluminium Research Development & Design Centre, Nagpur	Technical Consultant
29	R N Chouhan	Jawaharlal Nehru Aluminium Research Development & Design Centre, Nagpur	HoD (Downstream)
30	Om Prakash Sharma	J K Cement	Manager
31	Yadvender Singh	JK Cement Ltd.	Senior Engineer
32	Harshita Chaurasia	JK cement limited	Engineer Trainee
33	Moumita Chakraborty	Geocycle India	Head Geocycle India-Asia
34	Pratas Baruah	ACC limited	Sr General Manager
35	György (George) Bánvölgyi	Bán-Völgy Ltd	Technical Director, Sen. Process Consultant
36	Aurora Rios Islas	BFS	IBD
37	Sagar S Pandit	Hindalco Industries Limited	Assistant General Manager (Bayer Process Development & Engg)
38	Nageswar Kapuri	Hindalco Industries Limited	Asst. Vice President
39	V Krishna Kumari	National Aluminium Company Limited	Assistant General Manager
40	Rashmi Gupta	Hindalco Industries Limited	Manager
41	Rama Satyanarayana Midde	National Aluminium Company Ltd	Manager (R&D)
42	Amol Mankar	Hindalco	Manager
43	Rama Chandra Nahak	Utkal Alumina	Assistant General Manager
44	G Vasudev Rao	Utkal Alumina International Ltd	AGM
45	Jayant Malhotra	J K Cement Works	Technical Head
46	Vikas prajapat	JK Cement Ltd	Asst manager
47	Vaishali Surawar	Hindalco Industries Ltd	Head Sustainability
48	Anastasios Kladis	Advanced Minerals & Recycling Industrial Solutions (AdMiRIS) P.C.	Founding Partner and Co-owner
49	Katy Tsesmelis	International Aluminium Institute	Manager - Mining & Refining
50	Konstantinia Papadimitriou	Advanced Minerals and Recycling Industrial Solutions - AdMiRIS	Project Manager
51	Ravikumar M	UltraTech Cement Limited	Vice President
52	Shaurya Manish	UltraTech	Manager
53	Soubhagya Kumar Tripathy	Hindalco Industries Ltd	General Manager (E&S)

54	Konstantinia Papadimitriou	Advanced Minerals & Recycling Industrial Solutions P.C. - AdMiRIS P.C.	Chemist, Project Manager
55	Pulkit Jindal	JK Cement Ltd.	Process Engineer
56	Salma Trojette	BlackForest Solutions GmbH	Project manager
57	Gopal Gupta	JK Cement Ltd	Manager, Business Excellence Cell
58	Ravindra Kumar Tripathi	JK Cement Ltd	Dy. Manager
59	Kamal Singh Dangi	JK Cement Works	Sr. Manager
60	Gopal Gupta	JK Cement Ltd	Manager, Business Excellence
61	Manoj Kumar Nyati	Jahnavi Minerals	Director
62	Astha Surbhi	Vedanta Limited	Business Analyst
63	Prof Manoj Deshmukh	M.H. Saboo Siddik Polytechnic, Byculla	Head of civil engineering department

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Background

The European Union's Resource Efficiency Initiative (EU-REI) aims to support India in the implementation of the United Nations global sustainable consumption and production (SCP) agenda to foster efficient and sustainable use of natural resources through adoption of international standards and best practices in business on resource efficiency.

The Confederation of Indian Industry - Sohrabji Godrej Green Business Centre (CII-Godrej GBC) with the support of EU-REI is working on an initiative to promote Resource efficient practices in the Country.

We developed an online material exchange platform (www.ciiwasteexchange.org), which aims to foster exchange of waste/ by-products among industries, creating a win-win situation for both generators and users. You can register at the online platform and share details of waste/ by-product generated and best practices adopted. We are also working on developing viable business models for effective & sustainable material management, which accelerate resource efficient practices in the Country.

As part of this initiative, we are planning to organise a "Stakeholders Consultation on Red Mud Utilisation in Indian Cement Industry" on 16 June 2020 (Tuesday). The primary objective of the consultation is to discuss the potential Business models, challenges and opportunities in resourceful utilisation of Red Mud.

The detailed agenda of the program is enclosed below.

Stakeholders Consultation on
Red Mud Utilisation in Indian Cement Industry

16 June 2020: 1500 – 1715 hrs IST: Agenda

1500 hrs	Session moderation	Mr Kiran Ananth Principal Counsellor, CII- Godrej GBC
1505 hrs	Objective of Stakeholders consultation	Mr Ulhas Parlikar Chairman, CII initiative on increasing AFR usage in Indian cement industry, and global consultant on Waste Management, Circular Economy, Policy Advocacy & Co-processing.
1510 hrs	Resource efficiency initiative in India	Dr Rachna Arora Deputy Team Leader & Coordinator European Union – Resource Efficiency Initiative (EU-REI), India
1520 hrs	Potential Business models on Red Mud utilisation in cement industry	Mr K Muralikrishnan Senior Counsellor, CII-Godrej GBC
1530 hrs	Aluminium Industry perspective	Ms Kopal Agrawal Vice President, Hindalco Industries Limited
		Mr Tapan Mappat Head of Production, Vedanta Limited
1540 hrs	Cement Industry perspective	Mr Raju Goyal Chief Technical Officer, UltraTech Cement Limited
		Ms Moumita Chakraborty Head - Geocycle Asia and India
		Mr Varun Boralkar Head of Growth & Special Projects, ACC
1555 hrs	Policy Guidelines	Ms Deepti Kapil Scientist D, Central Pollution Control Board
1605 hrs	Stakeholders perspective	Dr Anupam Agnihotri Director, Jawaharlal Nehru Aluminium Research Development and Design Centre
1615 hrs	Stakeholders perspective	Dr B N Mohapatra Director General, National Council for Cement and Building Materials

1625 hrs International perspective	Mr George Banvolgyi Technical Director, Bán-Völgy Limited Partnership
<p>1635 hrs: Stakeholders Discussion: Utilisation of Red Mud in Indian Cement Industry Session Moderator: Mr Ulhas Parlikar Suggested discussion points:</p> <ul style="list-style-type: none"> ➤ Potential business models for effective management of Red Mud ➤ Challenges and opportunities in Indian industrial environment for Red Mud ➤ Strategies for resourceful utilisation of Red Mud ➤ Policy and environmental impacts of Red Mud utilisation 	
<p>Potential stakeholders:</p> <ul style="list-style-type: none"> ➤ Government (Central and State pollution control boards, MoEFCC, JNARDDC). ➤ Industry (Hindalco, NALCO, Vedanta, ACC/Geocycle, Ultratech, Dalmia, Vicat). ➤ Research institutions, sectoral experts, waste management companies. 	
1705 hrs Consultation summary & Way Forward	<p>Mr Ulhas Parlikar Chairman, CII initiative on increasing AFR usage in Indian cement industry & global consultant on Waste Management, Circular Economy, Policy Advocacy & Co-processing.</p> <p>Dr Dieter Mutz Team Leader, European Union – Resource Efficiency Initiative (EU-REI), India</p>

Date
16-06-2020
Time Duration
15:00 to 17:00
IST

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Join, Listen and Interact

- ❖ Recent developments & best practices on red mud management
- ❖ Discussion with experts & policy makers
- ❖ Discussion on red mud business models
- ❖ Challenges and opportunities in utilisation
- ❖ Industry perspective on red mud management
- ❖ Red mud chemistry & potential beyond laterite replacement

Who Should Attend:

- ❖ Industry Professionals (Cement and Aluminium)
- ❖ Material management companies & consultants
- ❖ Research Institutions
- ❖ Policy makers & AFR experts



Scan QR code to register:
<https://bit.ly/2XwrkuX>

No participation
fee



Dr Dieter Mutz
Team Leader, European
Union -Resource efficiency
Initiatives (EU-REI), India



Mr Ulhas Parlikar
Chairman, CII initiative on increasing
AFR usage in Indian Cement Industry &
Global Consultant, (waste management,
Circular Economy, Policy advocacy &
Co-processing)

For more information, contact us

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