



UK Government



Bureau of  
Energy Efficiency

Ministry of Power, Government of India

Accelerating Smart Power and Renewable Energy in India (ASPIRE)

**IE01 – REJUVENATION OF KNOWLEDGE EXCHANGE PLATFORM**

**IE01a – TECHNICAL ASSISTANCE FOR OPERATIONS AND MAINTENANCE OF IDEEKSHA PLATFORM**

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# Programme Introduction & Architecture

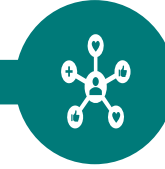
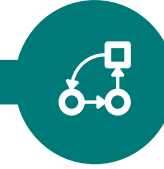
**2 Projects**  
Smart Power & Renewable Energy

**7 Themes**  
Spread across two projects

**£15.4 Mn**  
including GoI contribution of £7.7 Mn in kind & capital

**2-year project**  
extension possibility of 1 year

**Multiple Work Packages**  
Initiatives focused on center & in select states



## Smart Power Project Architecture

## Renewable Energy Project Architecture

Project Themes	Electricity Distribution	Industrial Energy Efficiency	E-mobility Charging Infrastructure	Solar Energy	Off-Shore Wind Energy	Energy Storage & Green Hydrogen
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Work Packages with Central & select states (chosen among Andhra Pradesh, Himachal Pradesh, Telangana, Karnataka, Gujarat, Tamil Nadu, Delhi & Maharashtra)

Cross Cutting Activities	Green Financing
	UK India Knowledge Forum / Investment Promotion
	Gender and Social Inclusion

Intermediate Outcomes	Policy Products and Tools	Robust project pipeline	Commercial & Knowledge Partnership	Innovation
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Outcome	Improved investment environment through policy adoption, investment mobilisation & enhanced knowledge and skills	New partnerships between India and international institutions
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**Impact** → Increased investment to support energy security & economic growth that is inclusive, low carbon, supports poverty reduction & climate action  
Increased trade, investment & relationships between India and UK



# **IE01- Rejuvenation of Knowledge Exchange Platform**

# Activities carried out under IE01 work package of ASPIRE

1

## REJUVENATION OF KEP (IDEEKSHA Platform)

Preparation of technical documents for IDEEKSHA (BRD & Webhosting Requirement Document)

Development of beta version of KEP and Preparation of Help Manuals

**Organised Launch Event** for IDEEKSHA Platform (rejuvenated KEP) and Event Summary Report

Database/Repository of IEED Technology/Solutions Providers

2

## ORGANISING SECTORAL WORKSHOPS AND POLICY ROUNDTABLE

Organised sectoral workshop for **Aluminium Sector** (November 2022)

Organised sectoral workshop for **Textile Sector** (December 2022)

Organised sectoral workshop for **Cement Sector** (March 2023)

Organised sectoral workshop for **Iron & Steel Sector** (April 2023)

Organised national-level cross-sectoral workshop & launch of IDEEKSHA during BEE's 21<sup>st</sup> Foundation Day Event

Organised **Policy Roundtable** and prepared 2 policy recommendations

3

## ORGANISING SECTORAL LEARNING STUDY TOURS

Organised sectoral learning study tour for **Aluminium Sector** (November 2022)

Organised sectoral learning study tour for **Textile Sector** (December 2022)

Organised sectoral learning study tour for **Cement Sector** (March 2023)

Organised sectoral learning study tour for **Iron & Steel Sector** (April 2023)

4

## IEED NEWSLETTERS

Newsletter 1  
(IDEEKSHA Launch Event)

Newsletter 2  
(March 2023)

Newsletter 3  
(June 2023)

# Rejuvenation of KEP – IDEEKSHA Platform

## 8 Energy Intensive Sectors Covered

- |                |                |
|----------------|----------------|
| ▶ Aluminium    | ▶ Pulp & Paper |
| ▶ Textile      | ▶ Refinery     |
| ▶ Cement       | ▶ Chlor Alkali |
| ▶ Iron & Steel | ▶ Fertilizer   |

## Features of IDEEKSHA Platform

- 1 One-stop shop for all IIED needs
- 2 Access to tools, technologies, and technology providers in India & globally
- 3 Dedicated tab on Govt. of India's Global Commitments
- 4 Collaboration facility – Technology, Discussion Forums and Blogs
- 5 Secure and quick user registration
- 6 Dedicated tab for Gender Equality and Social Inclusion in hard to abate sectors
- 7 Access to IEED Newsletters, Events, Workshops, Study Tours, Webinars
- 8 Robust system to ensure quality content

Click here to know more about IDEEKSHA

Click here to know about India's Global Commitment

Click here to get information about upcoming and past events

Click on 'Collaborate' to read blogs, participate in discussion forums and submit EoI, etc.

Click here to get information about sector specific information

Click here to share information of technologies, financial products, R&D, best practices etc. with KEP Secretariat

Click here to know about the various initiatives taken by industries for promoting GESI

Click here to know about sectoral and cross-sectoral technology and solutions

Click here to know about sectoral and cross-sectoral technology and solutions

Click here to get database of Financing Institutions

Video Gallery, Newsletters and other Industrial Deep Decarbonisation initiatives can be accessed from here

Enter email ID to subscribe for Newsletter



<https://www.ideeksha.in/>



# Four Sectoral Workshops (1/2)

	Aluminium Workshop	Textile Workshop
<b>Venue &amp; Date</b>	Aditya Aluminium, Lapanga, Odisha November 21, 2022	Raymond Ltd., Chhindwara, Madhya Pradesh December 08, 2022
<b>No. of Participants</b>	<b>100+</b>	<b>70+</b>
<b>IEED Initiatives identified in Workshop</b>	<ul style="list-style-type: none"> <li>Decarbonize electricity use (60% emissions)</li> <li>Decarbonize aluminum processing emissions (25% emissions)</li> <li>Recycle aluminum scrap efficiently to reduce 15% of sector emissions</li> </ul>	<ul style="list-style-type: none"> <li>Use renewable energy for most electricity</li> <li>AI-based management for water, energy, and steam</li> <li>Recover waste heat in various processes</li> <li>Use waterless/chemical-free dyeing tech</li> </ul>
<b>IEED technologies/ solutions – interest expressed by industries</b>	<ul style="list-style-type: none"> <li>Techniques and technologies for enhanced waste heat recovery, especially from Kilns</li> <li>Future of power plants including hydrogen fuel based</li> <li>Advanced energy management systems</li> </ul>	<ul style="list-style-type: none"> <li><b>Alchemie's 'Endeavour'</b> and <b>'Novera'</b> technologies for waterless low-energy textile dyeing and energy-saving non-contact finishing</li> <li><b>Centrica's IoT 4.0</b> energy management system, driven by wireless sensors and advanced analytics, improves operating margins and sustainability</li> </ul>



Group Photograph from Aluminum Workshop



Group Photograph from Textile Workshop

# Four Sectoral Workshops (2/2)

## Cement Workshop

### Venue & Date

Udaipur, Rajasthan  
March 14, 2023

### No. of Participants

**80+**

### IEED Initiatives identified in Workshop

- CCU technology applications
- Low-energy drying for cement/mineral products
- Next-gen circular materials, incl. supplementary cementing materials
- Delta zero cement, AI-based platform for production
- New carbon sequestration tech in concrete

### IEED technologies/solutions – interest expressed by industries

- Techniques and technologies for enhanced waste heat recovery
- CCUS Technology
- Advanced energy management systems
- Recycling technologies and processes



Group Photograph from Cement Workshop

## Iron & Steel Workshop

Raipur, Chhattisgarh  
April 19, 2023

**100+**

- AI and IoT-based decarbonization
- Convert waste into circular value chain links
- Achieve zero emissions with Electric Arc Furnace while creating revenue
- Use sustainable refractory solutions
- Reduce process fluctuations for EE optimization

- Enhanced techniques for recovering waste heat
- Advanced electrolysis processes and technology
- Advanced systems for managing energy
- Recycling technologies and processes



Group Photograph from Iron & Steel Workshop



# Four Sectoral Learning Study Tours (1/2)

## Study Tour of Aluminium Plant

Aditya Aluminium, Lapanga, Odisha  
November 22, 2022

Venue & Date

No. of  
Participants

**50+**

- Leveraging the power of Energy Analytics Platform, integrated with Power BI with AI, to harness the full potential of their data and drive meaningful insights.
- Use of Copper Insert Collector Bar / Cathode (CuCB)
- Upcoming 10 MW floating solar plant by 2023

IEED measures  
adopted by the plant

## Study Tour of Textile Plant

Raymond Ltd., Chhindwara, Madhya Pradesh  
December 09, 2022

**50+**

- IoT for machine monitoring and energy analytics, with auto WhatsApp reports to officials.
- Efficient fans and Harmonic Filters installed.
- Waste Heat Recovery systems in use.
- Advanced Compressed Air System with Air Pressure Band Separation.
- Rice Husk used in boilers and thermopacs, with the upgraded fuel system



Group Photograph from Aluminium Study Tour



Group Photograph from Textile Study Tour



# Four Sectoral Learning Study Tours (2/2)

	Study Tour of Cement Plant	Study Tour of Iron & Steel Plant
Venue & Date	Udaipur Cement Works Ltd., Udaipur, Rajasthan March 15, 2023	Godawari Power & Ispat Ltd., Raipur, Chhattisgarh April 20, 2023
No. of Participants	<b>40+</b>	<b>40+</b>
IEED measures adopted by the plant	<ul style="list-style-type: none"><li>• IoT sensors for real-time condition monitoring of equipments.</li><li>• AI-based "Advanced Process Control Suite" for kiln &amp; mills optimization</li><li>• Tracking of Vehicles by Ultra High Frequency</li><li>• Online Particle Size Distribution system for mills</li></ul>	<ul style="list-style-type: none"><li>• Operating a 70 MW solar power plant near Rajnandgaon (Chhattisgarh) since July 2022.</li><li>• Commissioning a 30 MW solar power plant near Bemetara (Chhattisgarh) to further increase their reliance on renewable energy sources.</li><li>• In the process of generating power using biomass and wind</li></ul>



Group Photograph from Cement Study Tour



Group Photograph from Iron & Steel Study Tour

# National Level Cross-Sectoral Workshop & Launch of IDEEKSHA Platform



- **Launch of IDEEKSHA Platform** and Newsletter by Shri. R.K. Singh, Hon'ble Cabinet Minister on 1<sup>st</sup> March' 23 during BEE's 21<sup>st</sup> Foundation Day
- Database of **34** UK based IEED technologies hosted on IDEEKSHA platform



## 5 UK companies presented their IEED technologies/ solution during IDEEKSHA Launch Event/ BEE Foundation Day:

- **Innovate UK:** Transforming Foundation Industries (India Collaboration)
- **Alchemie:** Waterless Dyeing Technology
- **LAT Water:** Wastewater Treatment and the Water Energy Nexus
- **Carbon Clean:** Technology to Achieve Net Zero
- **Centrica:** Improving Operating Margins and Drive Sustainability with IOT 4 Real Time Machine level EMS



# Policy Roundtable

## Policy Roundtable

### Venue & Date

Conference Room, Bureau of Energy Efficiency, 4th Floor, Sewa Bhawan, New Delhi  
June 09, 2023

### Topic of Policy Roundtable

Enabling circular economy and resource efficiency in Aluminium & Cement sectors: Utilising spent pot lining and other waste products of Aluminium Sector

### No. of Participants

**30+**

### Key Aspects of Policy Roundtable

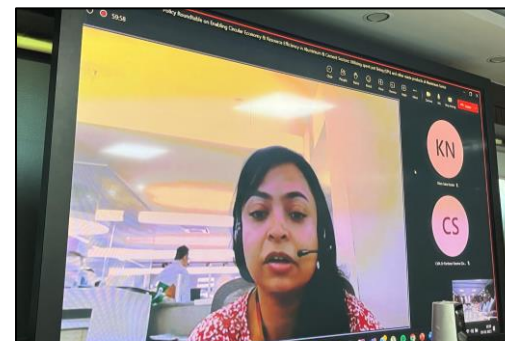
The policy roundtable focused on the following key aspects:

- Discussions on key interventions required in policies to accelerate SPL utilisation in Cement Industries.
- Discussions on key challenges faced by the Aluminium and Cement sectors for enabling circular economy.
- SPL utilization was discussed, emphasizing the need for pilot studies to assess its impact on kiln operations and clinker formation.
- The aluminium industry expressed commitment to SPL utilization, while the cement industry had concerns. Both sectors explored ways to incorporate SPL as a raw material replacement.
- The collaborative atmosphere between the aluminium and cement sectors showcased a willingness to find mutually beneficial solutions.
- A successful national case study demonstrated the effective implementation of SPL utilization.

### Policy Recommendations

**Two major** national-level policy interventions have emerged which will enable Cement Industries to enhance the utilization of SPL:

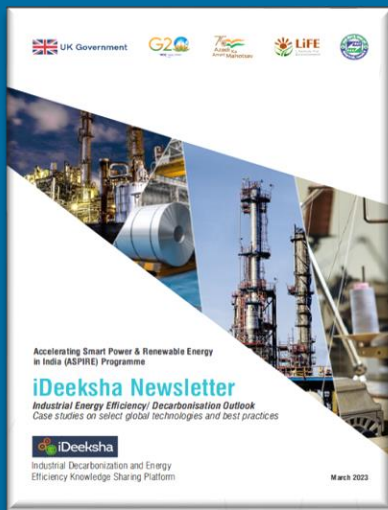
S.No	Suggested Policy Intervention	Issuing Department/ Ministry
1	Establish clear regulations and guidelines for SPL management and utilization in Cement Industries.	CPCB/ MOEFCC
2	Mandate Cement plants for Percentage Utilisation of SPL in Kiln.	MOEFCC



Photographs from the Policy Roundtable



# 3 IDEEKSHA Newsletters (1/2)



- **Case Studies on Global IEED Technologies**
  - **Textile Sector: UK's Waterless Smart Dyeing Technology**
  - **Cement Sector: Low carbon multi-component cement for UK concrete applications**
  - **Industry 4.0 Wireless Energy Solutions for Net Zero and Energy Productivity from UK**
  - **Pulp & Paper Sector: Novel dewatering solutions within corrugated case medium manufacture**
- **International Best Practices – UK Aluminium Sector**
- **Expert View on Emerging Low Carbon Technologies - Importance of Inert Anode technology for the Aluminium Sector**
- **Initiatives by industries to promote GESI (Gender Equality & Social Inclusion)**



- **Case Studies on Global IEED Technologies**
  - **Waste heat powered treatment of industrial wastewaters**
  - **Simulation aided/digital twin control of drying process in paper production**
  - **Total dissolved solids detection and control in industrial steam boilers**
  - **Carbon Clean's technology to become net-zero**
- **International Best Practices in Waste Heat Recovery**
- **National Best Practices**
  - **Energy Analytic Platform using Power BI with AI – Aditya Aluminium (Hindalco Industries Limited)**
- **From the Archives (IDEEKSHA Portal, First Newsletter, Sectoral Workshops of Aluminium, Textile and Cement Sectors, and Study Tours of Aluminium, Textile and Cement Sectors )**

# 3 IDEEKSHA Newsletters (2/2)



- **Case Studies on Global IEED Technologies**
  - Carbon8 - Carbon Capture Technology Decarbonising the Cement Industry
  - Cambridge Electric Cement: A Zero-Emissions Breakthrough
  - Carbon Re's AI-based Delta Zero Cement Platform - Decarbonising Cement Production
- **National Case Studies**
  - Dalmia Cement (Bharat) Limited: Co-processing of Spent Pot Lining (SPL) Mixed Fines in Cement Plants
  - Raymond Limited, Vapi Plant: Energy Savings & Greenhouse Gases Mitigation to Manage Climate Change
- **From the Archives (Sectoral Workshop and Study Tour of Iron & Steel Sector)**

# Major Outcomes of IE01 Work Package

34

Launch of IDEEKSHA Platform by Shri. R.K. Singh, Hon'ble Cabinet Minister. IDEEKSHA includes database of 34 global IEED technology/ solution providers.

16

International IEED companies showcased their technology/ solution during sectoral workshops in 4 hard to abate industrial sectors.

500+

Capacity building of 500+ stakeholders (including 30 women) from various energy intensive industrial sectors.

3

Newsletters covering international case studies and best practices in IEED technologies/ solutions developed and disseminated.

4

Facilitating B2B partnerships for pilot projects between Centrica (UK) and Indian textile firms – Raymond Ltd., DCM Shriram Rayons, Loyal Textile Mills, Vardhman Fabrics





**IE01a- Technical Assistance for  
Operations And Maintenance of  
IDEEKSHA Platform**

# Objectives of IE01a WP under ASPIRE Programme

Extend IDEEKSHA Platform support to 4 new energy intensive sectors

Organisation of Capacity building workshops and study tours for 4 new sectors

Preparation of Database/ Repository of IEED Technology/Solutions Providers for 4 new sectors



2

- Pulp & Paper
- Chlor-Alkali

(Industrial sectors from the remaining 4 sectors **currently covered under PAT scheme and IDEEKSHA platform**)

2

- Sugar
- Tyre Manufacturers

(Industrial sectors from the new sectors which are **to be included under the PAT scheme** as per Ministry of Power's notification dated 6th June 2023)

After consultation with BEE, selected 4 new sectors for IE01a WP are:



**Thank You**