

October 07, 2026

International Stakeholder Conference 2026

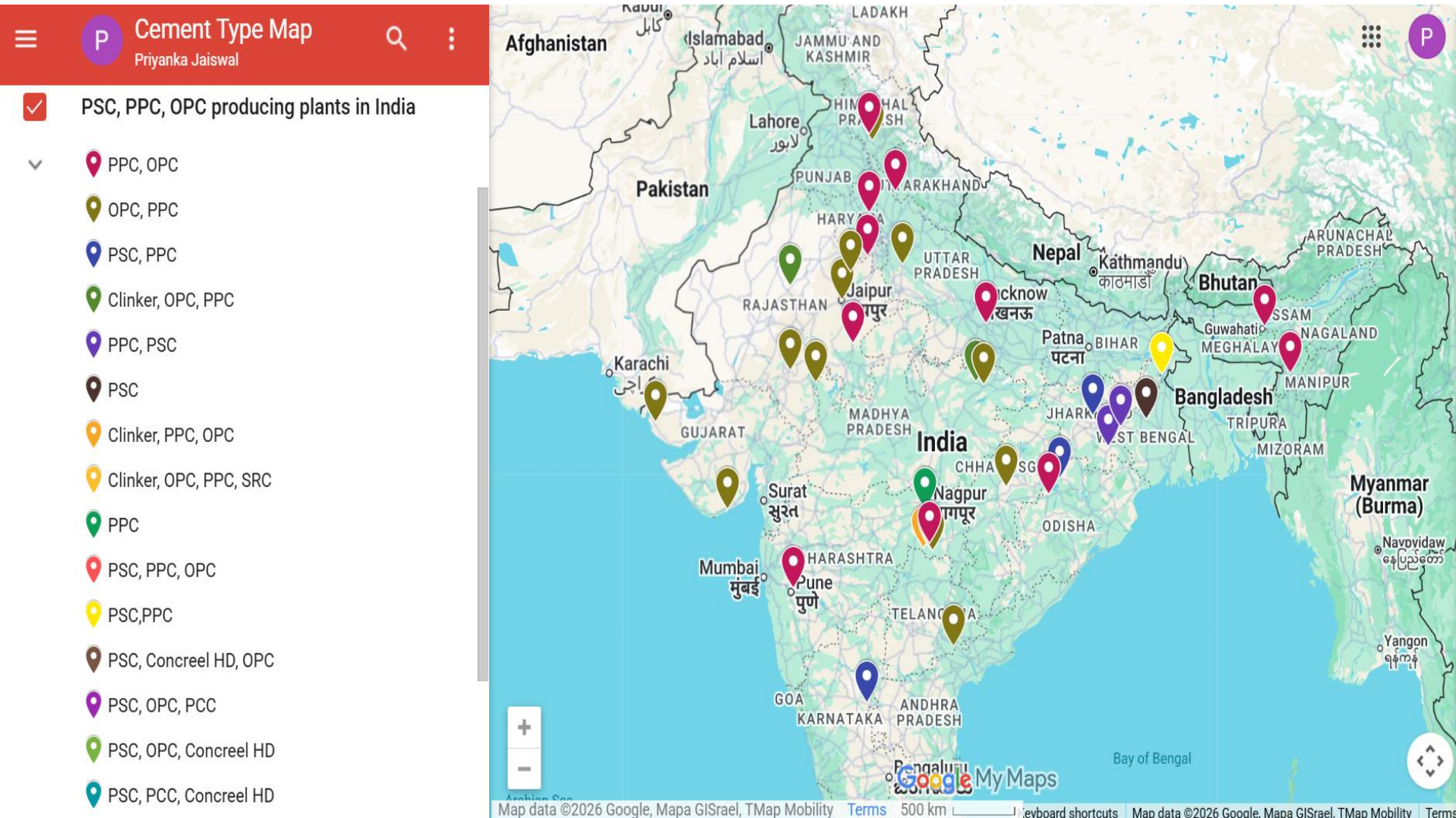
Innovation Showcase 4 Green Products for Now and Future – A View in the Construction Sector

Supported by:



based on a decision of
the German Bundestag

Cement Plants in India



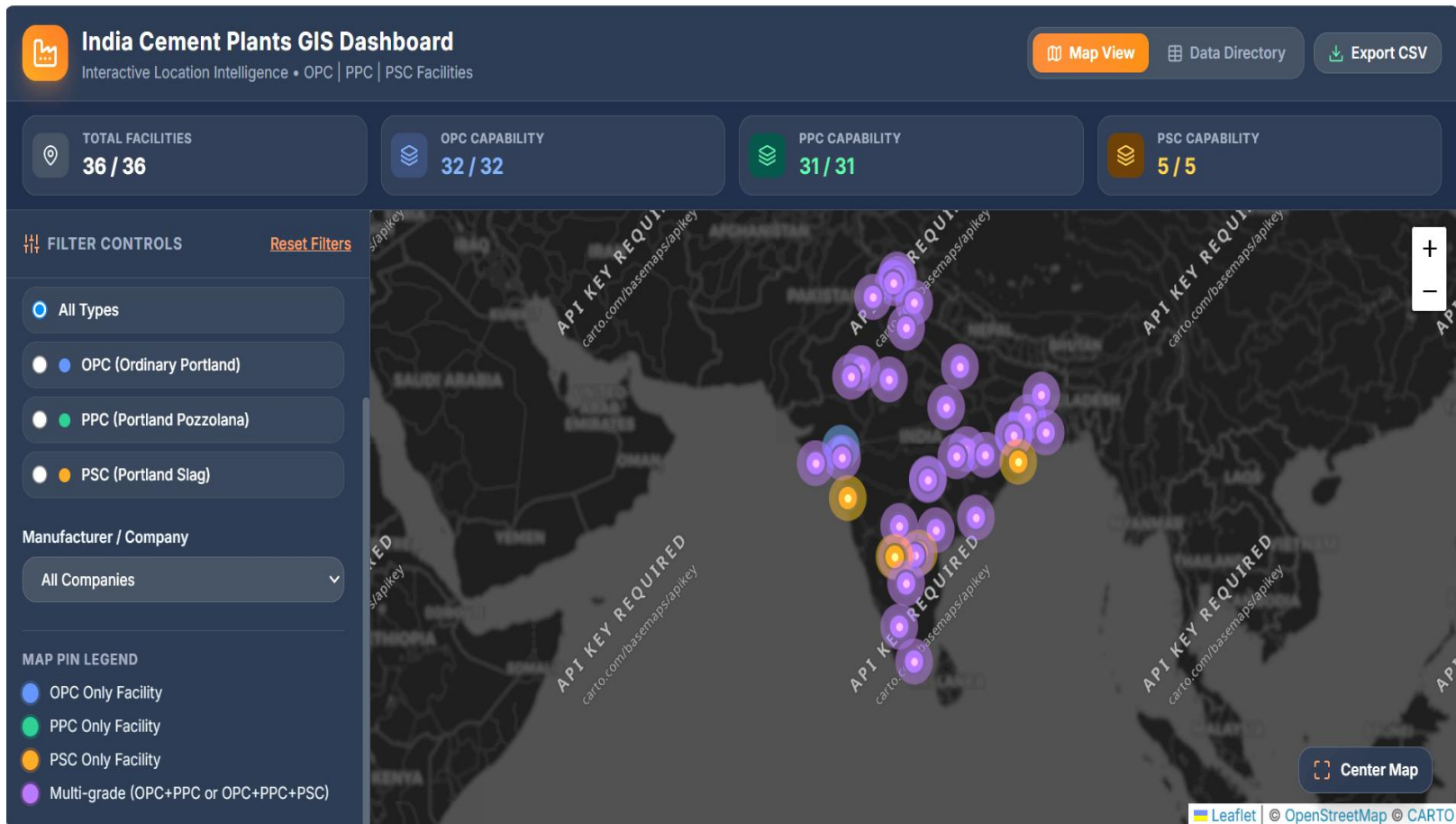
- There are **333 cement** manufacturing units in India comprising **159 integrated**, large cement plants- Niti Aayog.

Source:[Roadmap_for_Cement_Sector_Decarbonisation.pdf](#)

- In FY26, India's cement production volumes reached 491.4 million metric tonnes (MT), up from 453 million tonnes in FY25, registering an estimated 8.6% YoY growth.

Indian Cement Industry Analysis | IBEF.

Cement Facilities with EPDs

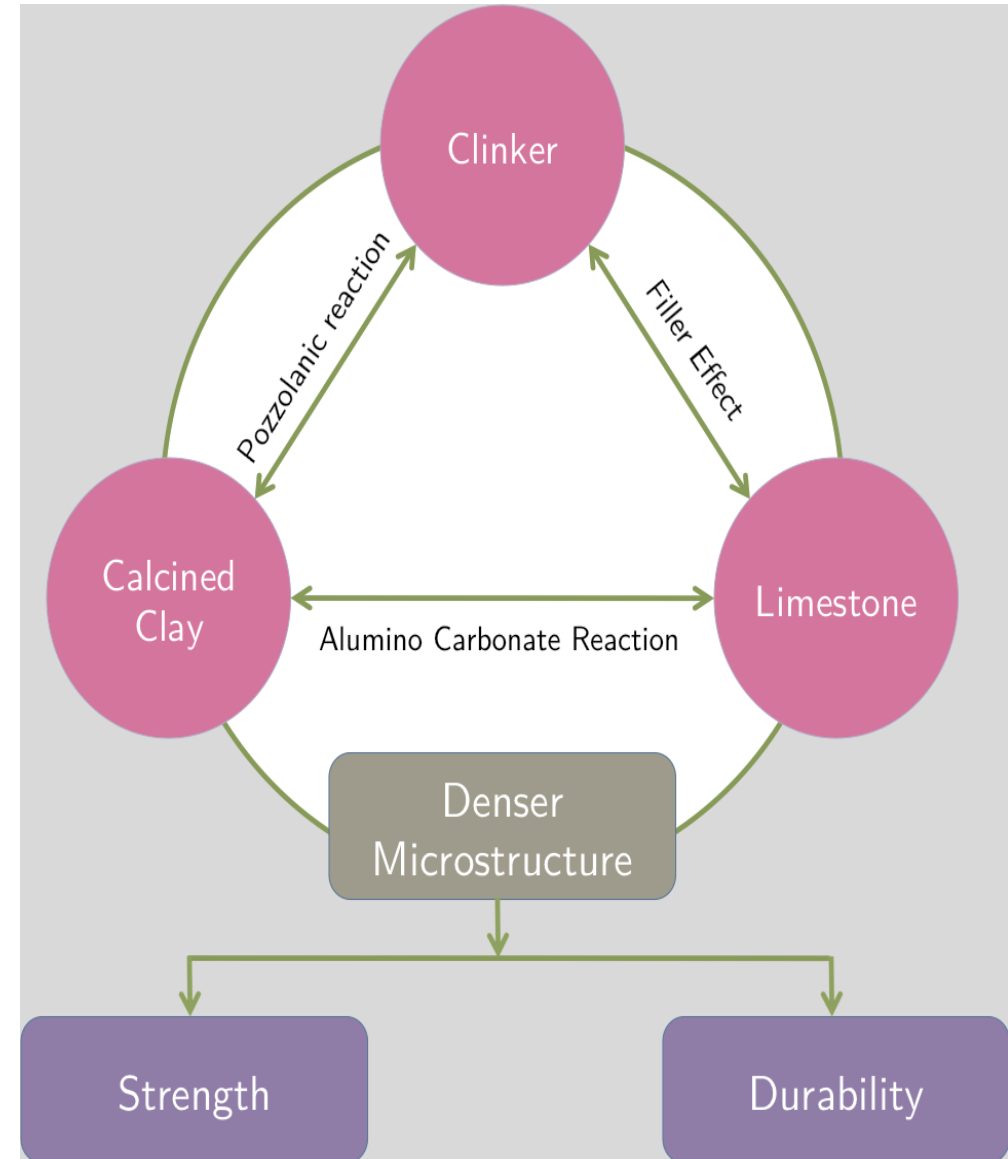
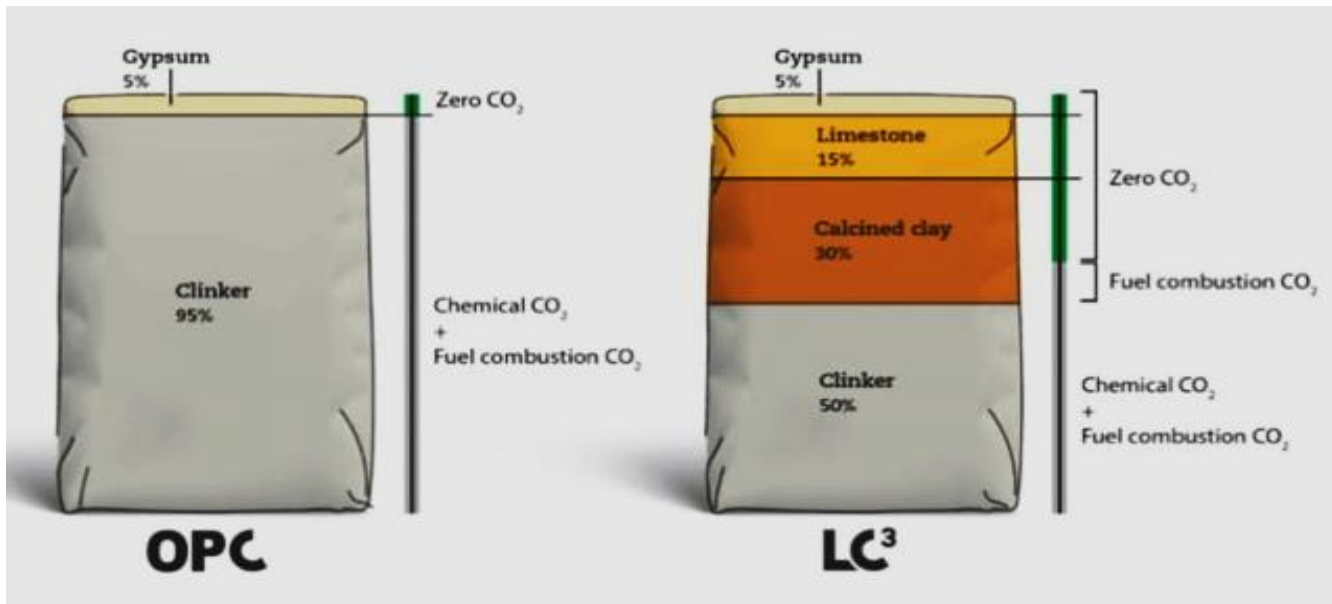
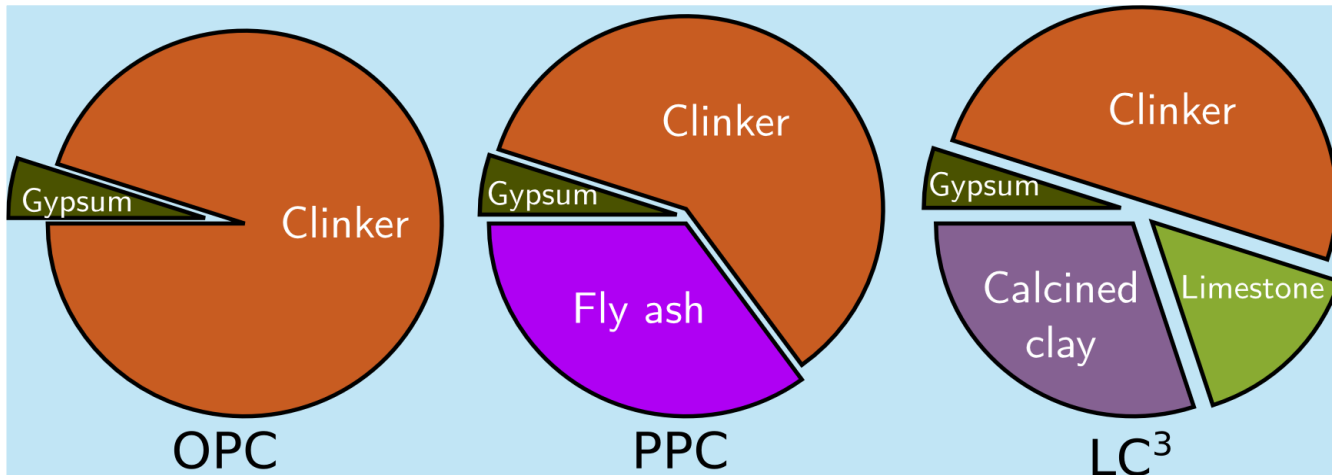


- **My Home Industries Limited-** 3 facilities
- **Ambuja Cements Limited-** 15 facilities
- **ACC Limited-** 14 facilities
- **JSW Cement Limited-** 4 facilities
- **Ultratech-** No. of facilities not mentioned in EPD

GIS Dashboard: Facilities with Declared EPDs

- 36 facilities: 32 OPC-capable, 31 PPC-capable, 5 PSC-capable
- Purple = multi-grade plants, orange = PSC only, blue = OPC only

What is LC3? Lower clinker = lower CO₂



Development of LC3

Invented by Prof. Karen Scrivener (EPFL, Switzerland) and Prof. Fernando Martirena (CIDEM, Cuba)

Indian partners: IIT Delhi, IIT Madras, IIT Bombay & TARA

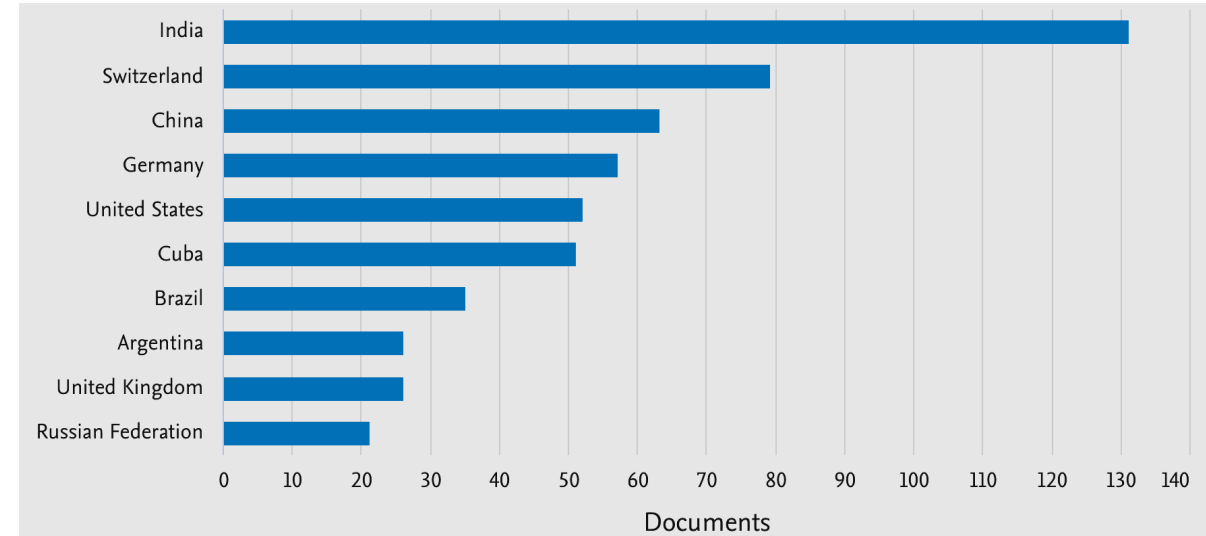
R&D supported by Swiss Agency of Development and Co-operation for a global LC3 project led by EPFL

Open technology – free to use

Can reduce CO2 emissions by 40% or even more

BIS standard available: IS18189-2023 (IIT Delhi played key role in publishing of this standard)

IITD providing support to industry through LC3TRC



Number of publications on calcined clay cement listed in Scopus (2010-2021)

भारतीय मानक

IS 18189 : 2023

Indian Standard

पोर्टलैंड निस्तापित मृत्तिका चूना पत्थर
सीमेंट — विशिष्टि

Portland Calcined Clay Limestone
Cement — Specification

LC3 use around the world



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

NET ZERO
PARTNERSHIP

LC³

EPFL

Commercial Upscale in India

• Why Cement Sector?

- A key hard-to-decarbonize sector to its peculiar energy needs and production processes
- Contributes to about 8–9% of GHG emissions
- Prominent cement companies committed net-zero
- A priority hard to abate sector under the LeadIT initiative launched by India & Sweden where Germany is a member country
- Hypothesis for commercial upscale: Post BIS certification of LC3 a commercial pilot with cement manufacturer and user will enhance the acceptance of this cement in the market and hence will lead to its upscale.

The road towards commercial upscale

- BIS certification not enough, LC3 needed nod from local pollution control boards to be commercially produced (EIA or NPLC). Intense capacity building of regulatory body about this new cement.
- Regular technical advisory to cement producers and users for this new cement and solving issues on the ground – LC3TRC at IIT Delhi
- Regular dialogues with cement and construction sector to showcase learnings from the commercial pilot

Commercial Upscale in India



Public Announcements of LC3 production and Use

JKCement
239,412 followers
4mo • Edited •

JK Cement Ltd. is proud to lead the way in sustainability with the successful production of LC3 – Calined Clay Limestone Cement, for the first time in India and the Indian Subcontinent. A breakthrough in green construction, LC3 reduces carbon emissions by up to 40%.

This milestone reflects our unwavering commitment to building a cleaner, more sustainable future—made possible with the valuable support of our collaborators.

We acknowledge the invaluable contribution of Prof. Shashank Bishnoi and his team [Indian Institute of Technology, Delhi](#) and [LC3 Technology Resource Centre](#) in transforming LC3 from Lab idea to now a full-scale production. Their consistent technical guidance over 5+ years "from the research lab at [Indian Institute of Technology, Delhi](#) and during plant scale pilots" has been a key to this successful innovation. Grateful for this partnership in pioneering [#lowcarbon](#) cement for the future.

We're also grateful to [LODHA Group](#) for placing the LC3 order to us and championing its early adoption.

Together, we're reshaping the future of construction—one greener bag at a time.

[International Climate Initiative](#)
[GIZ India](#)
[Indian Institute of Technology, Delhi](#)
[LC3 Technology Resource Centre](#)

[#SustainableCement](#) [#LC3](#) [#ClimateAction](#) [#GreenBuilding](#) [#JKCementLtd](#) [#IITDelhi](#) [#LODHA](#) [#LowCarbonConstruction](#)

A STRONG COLLABORATION

Through strategic collaboration with India's premier institute, [IIT Delhi](#), [JKCement](#) has developed [India's first LC-3](#), a [next-generation cement](#) that reduces carbon emissions and sets new benchmarks in sustainable construction.

DEVELOPED WITH SCIENCE. BACKED BY PURPOSE

Lodha
417,160 followers
2mo • Edited •

Lodha has introduced the innovative LC3 concrete in Palava's road infrastructure, setting a milestone in sustainable urbanization and taking an early mover role in testing its potential for wider adoption.

This achievement was made possible through the technical expertise of [Indian Institute of Technology, Delhi](#) and RMI in close collaboration with [JKCement](#), India's first producer of LC3, and [Sika](#), whose material innovations helped bring this vision to life.

Together, we are shaping the future of how India builds - responsibly, sustainably and for generations to come.

[#SustainableUrbanization](#) [#Decarbonization](#) [#EmbodiedCarbon](#) [#Concrete](#)

[Lodha Foundation](#), [LC3 Technology Resource Centre](#), [RMI](#), [RMI India](#)

A first for India

With LC3 concrete at Palava,
Lodha marks a new milestone

Noida International Airport
60,029 followers
2mo •

Noida International Airport has become the first large-scale infrastructure project in India to build with Limestone Calined Clay Cement (LC3) – a breakthrough low-carbon material developed through a decade-long global collaboration.

By embedding LC3 into our construction, we are setting a new benchmark for sustainable infrastructure in India. Compared to conventional cement, LC3 offers:

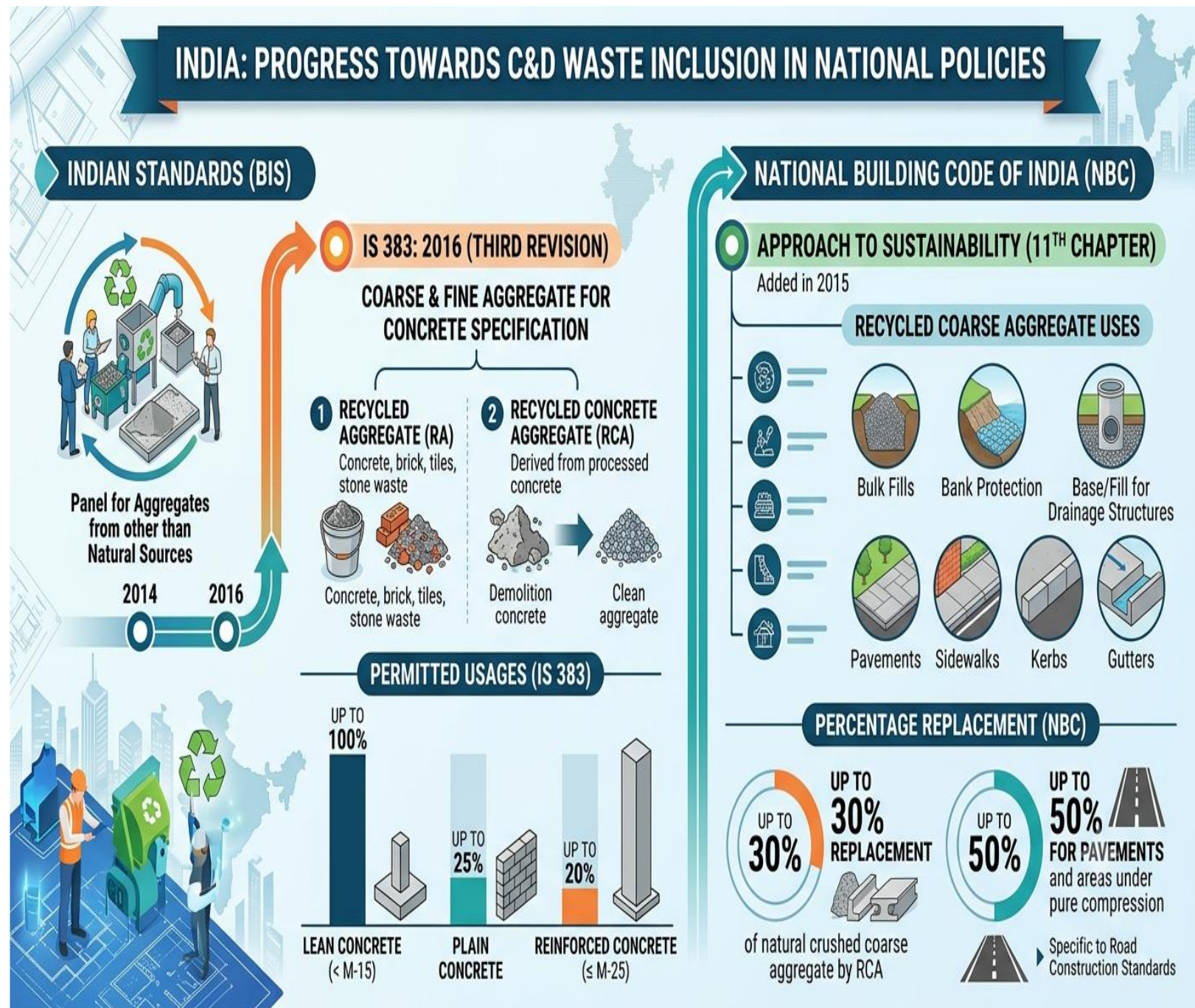
- ✓ Up to 40% lower CO₂ emissions
- ✓ 25% more cost-effective production
- ✓ Greater resource and energy efficiency
- ✓ Performance equal to or better than traditional cement

This milestone was marked at our airport site in the presence of leaders from the [Embassy of Switzerland in India](#) and [Bhutan](#) and senior representatives of India's cement industry – underscoring a shared commitment to cleaner, more sustainable growth. [#NIAairport](#)

[JKCement](#), [JK Lakshmi Cement Ltd.](#), [UltraTech Cement](#), [Dalmia Bharat Group](#), [Shree Cement Ltd.](#), [Tata Projects](#)

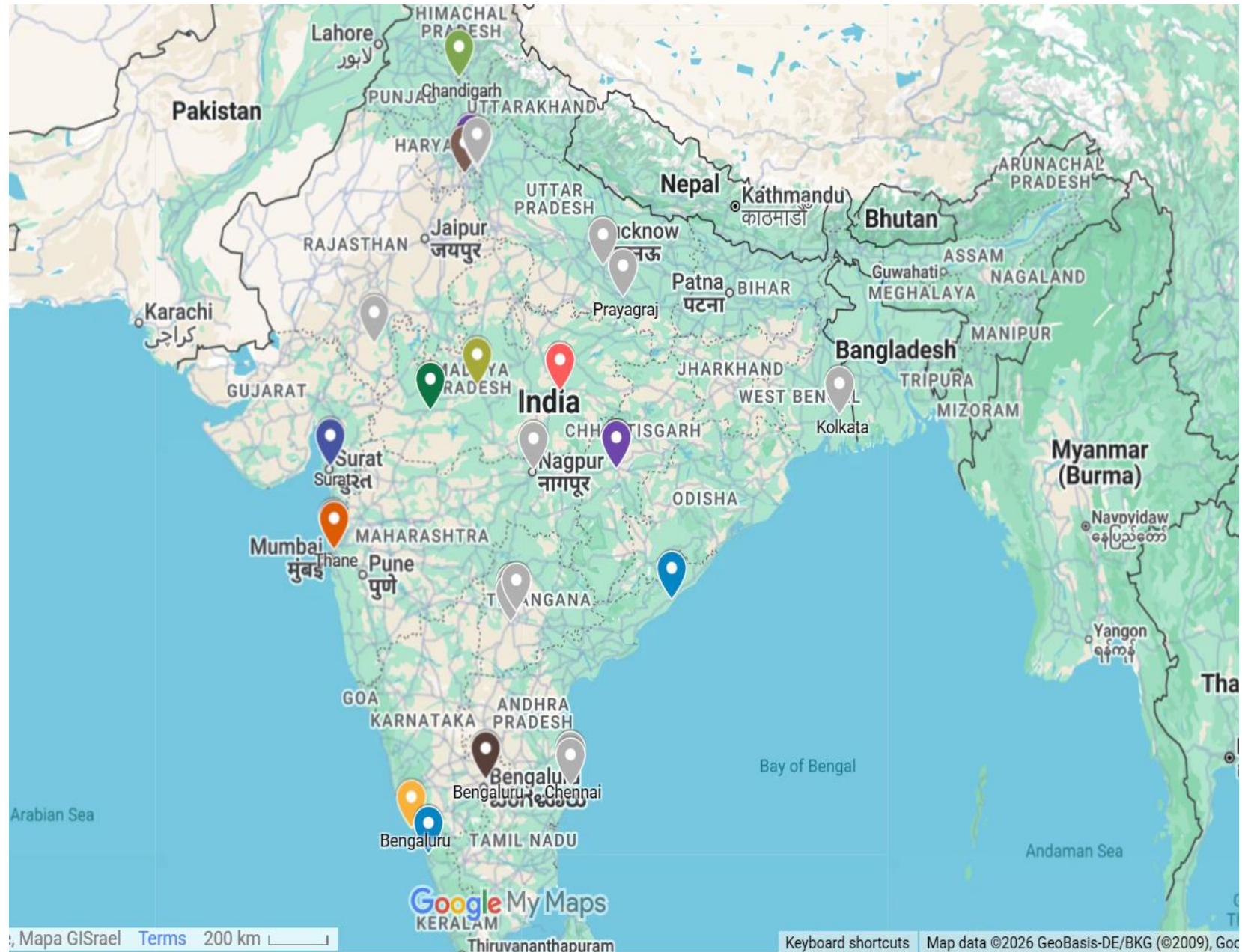
Construction and Demolition Waste

- Sand, soil, stone and limestone - supply disruptions and price spikes due to mining bans and restrictions.
- Use of secondary materials needs to be promoted.
- Recycled C&D waste is one of the best available options.
- Ready Mix Concrete (RMC), pavement blocks, kerb stones and concrete bricks- produced in C&D waste recycling plant in Burari in north Delhi.



Existing C&D Waste Plants in India

- More than 34 plants of various capacities covering over 28 cities exist in the country.
- Total Installed Capacity-20785 TPD; Actual Throughput-approximately 3000 TPD.
- Screen Soil, Recycled/ aggregate sand, concrete, pavers, kerbs, bricks, etc., are some of the products produced.



EPDs – C&D waste products

No EPDs of products made from C&D waste.

ACC Limited- Ready Mix Concrete (M10, M15, M20 & M25) as a case in point

“Since demolition waste includes different materials (e.g. concrete, steel and wood), an assumption has been taken that the fraction of disposed/recovered waste concrete is the same with the fraction of disposed/recovered demolition waste”.

Environmental Product Declaration



In accordance with ISO 14025:2006, EN 15804:2012+A2:2019/AC:2021 & EN16757:2021 for:

Ready Mix Concrete (M10, M15, M20 & M25) *

From

ACC Limited



Programme:

Programme operator: EPD International AB

Licensee:

EPD registration number: EPD-IES- 0023969

Version Date:

2025-06-20

Validity Date:

2030-06-19

The International EPD® System, www.environdec.com

EPD India

EPD India

EPD-IES- 0023969

2025-06-20

2030-06-19

An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com.



* EPD of multiple products, based on a representative product

What does this mean for EPDs?

- LC3 has an opportunity to be benefited from EPDs. As a new commercial product, getting an LC3 EPD registered by manufacturers in India can support demand from builders who select green products from available EPDs.
- C&D waste based products have a clear gap of EPDs even though C&D market is well established in India. The operational C&D waste plants should be supported to register EPDs for their finished concrete products.
- Policies in government construction should signal a move from L1 based procurement to EPD based procurement for Cement and Concrete which are used in high volumes and hence have huge environmental footprint in a building. Low-carbon alternatives are available.
- Both LC3 and C&D waste need strong demand signals in India for upscale – EPDs can play a crucial role.
- More cement companies should register EPDs.

WONDERFUL
THINGS
THESE BRIDGES.

vaibhav.rathi@giz.de

MOODYN2007