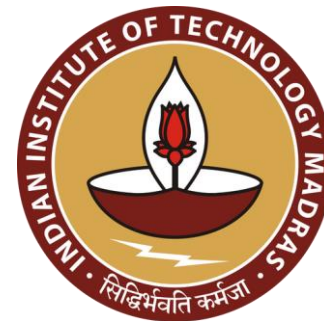




Technologies for Low-Carbon & Lean Construction



INSTITUTE OF EMINENCE
RESEARCH INITIATIVE

RESEARCH TEAM



K RAMAMURTHY



**RAVINDRA
GETTU**



**MANU
SANTHANAM**



**KOSHY
VARGHESE**



**BENNY
RAPHAEL**



**RADHAKRISHNA
PILLAI**



**PIYUSH
CHAUNALI**



**SURENDER
SINGH**



**ASHWIN
MAHALINGAM**



**SIVAKUMAR
PALANIAPPAN**

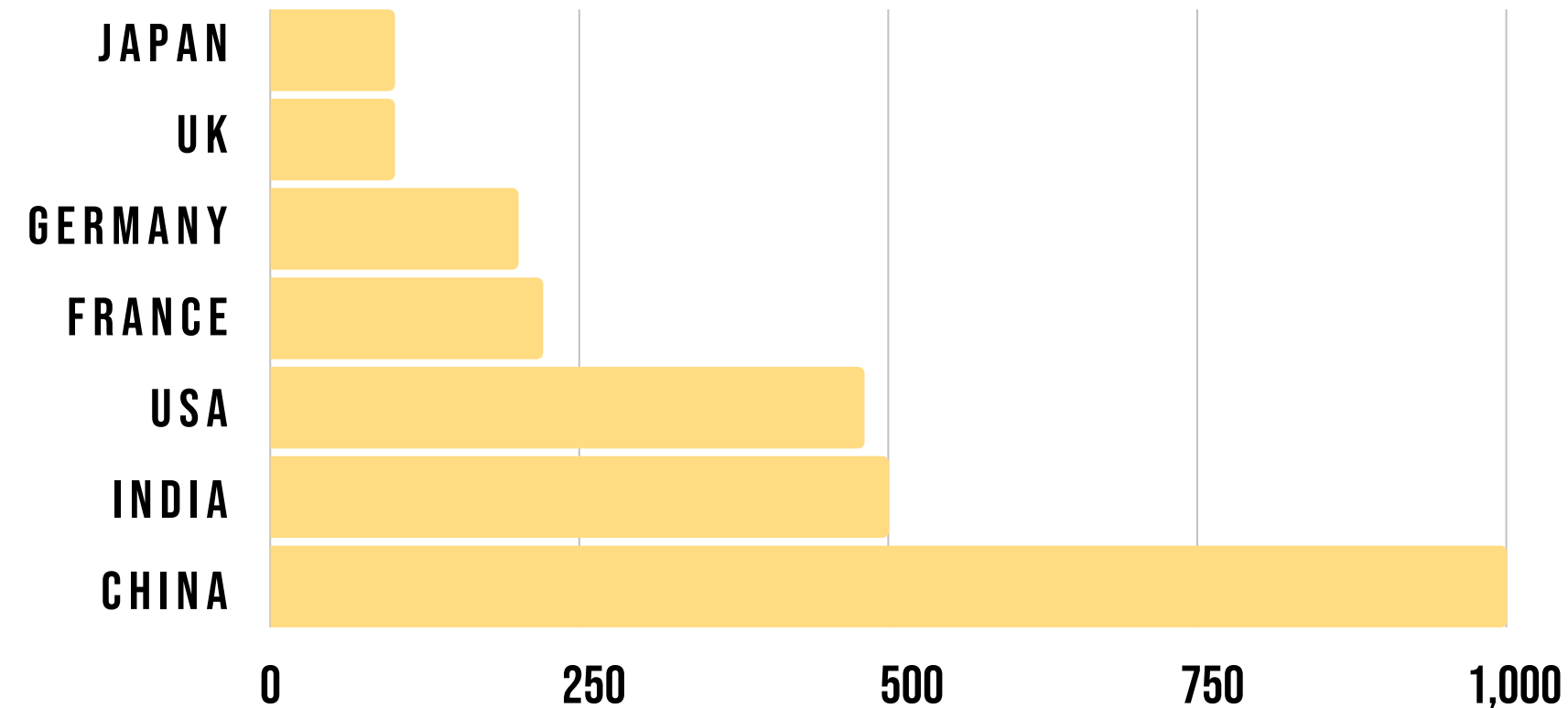


**NIKHIL
BUGALIA**

**EXPERTISE: CONSTRUCTION MATERIALS, CONSTRUCTION
MANAGEMENT AND BUILDING SCIENCE**

WASTE & SUSTAINABILITY

CONSTRUCTION AND DEMOLITION WASTE BY COUNTRY (MILLION TONNES)



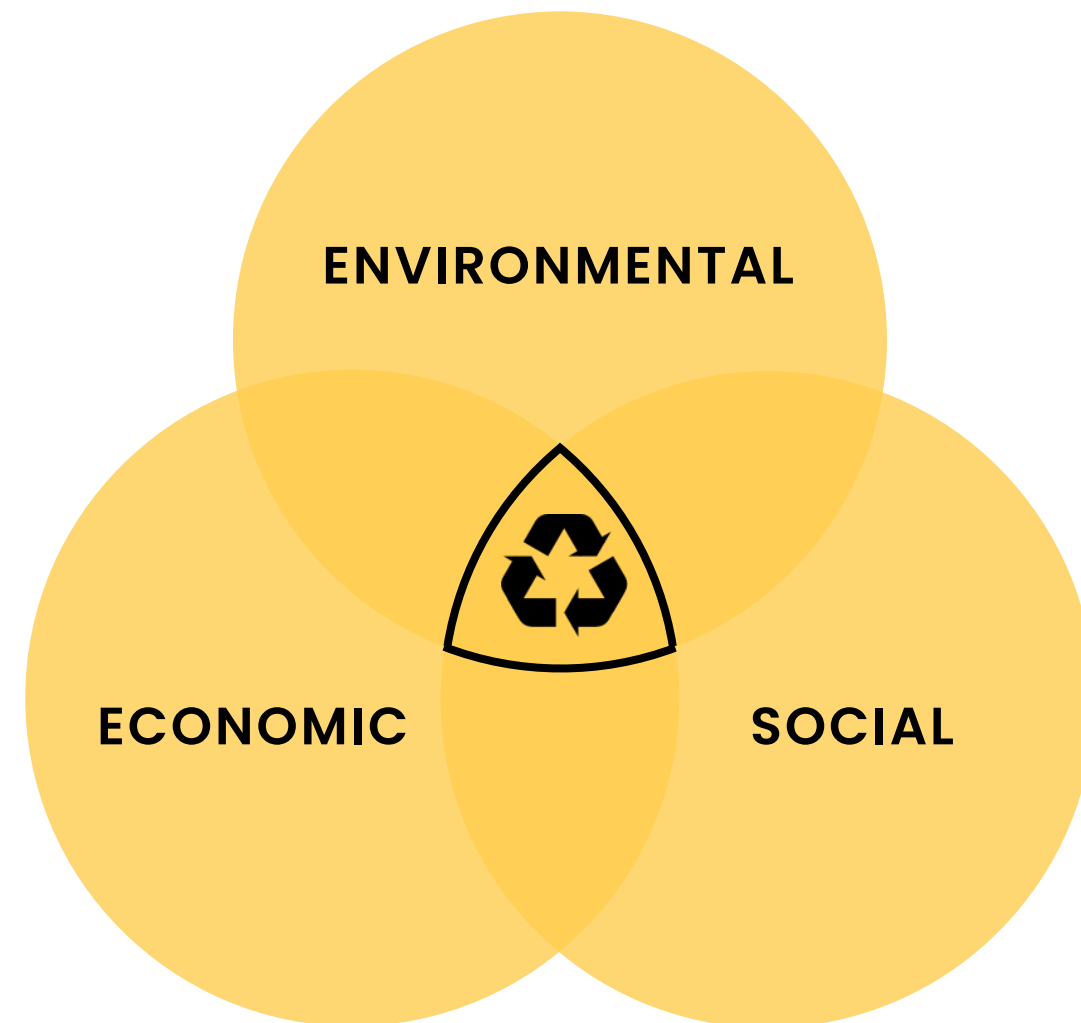
Source : Akhtar and Sarmah (2018)

DEMAND AND AVAILABLE RESERVE OF CONCRETE INGREDIENTS

MATERIAL	DEMAND (Tonne/Year)	RESERVE (Tonne)
SAND	751M	MOSTLY BANNED
STONES	1.6B	126B
LIMESTONE	320M ^a	89.3B

Source : GIZ 2016; ^aStatista2019

ABOUT CENTER



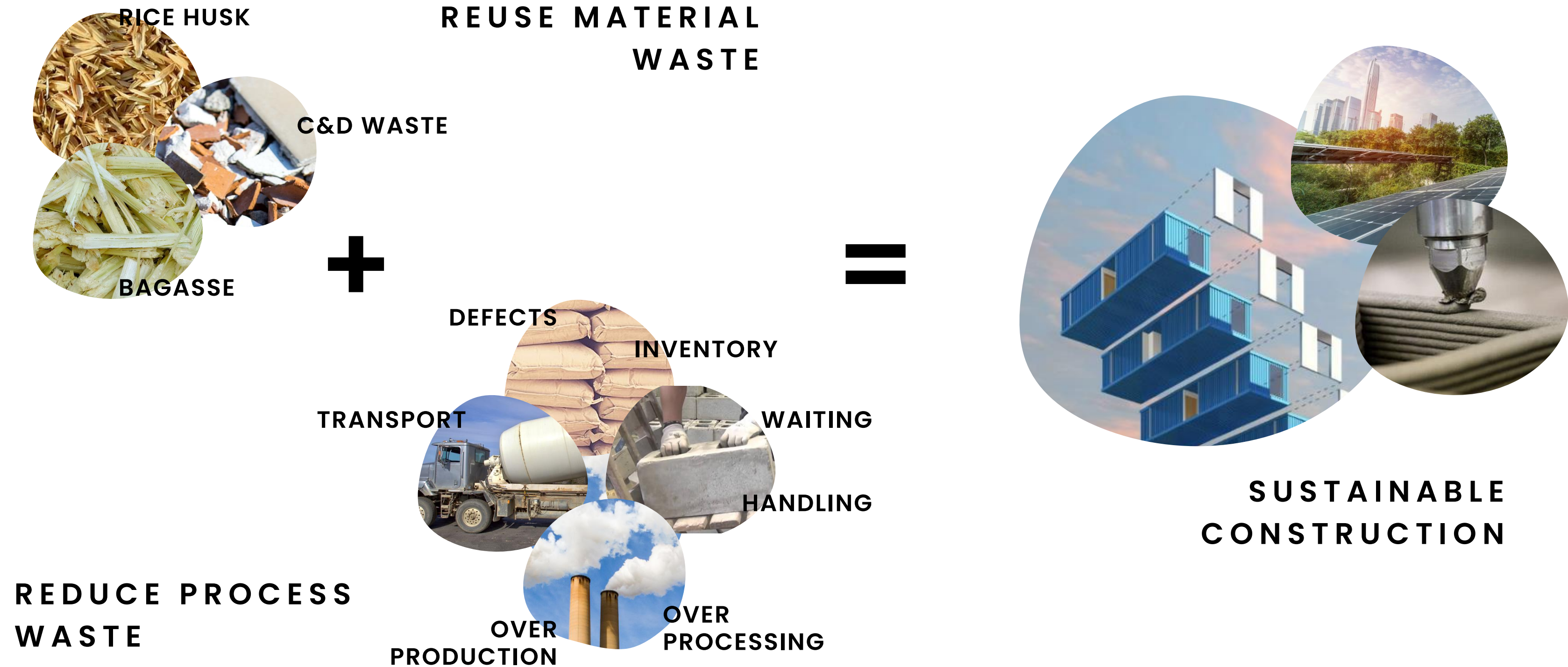
VISION:

To be the primary destination in India for all interested in developing and implementing ideas on low-carbon, lean construction technologies.

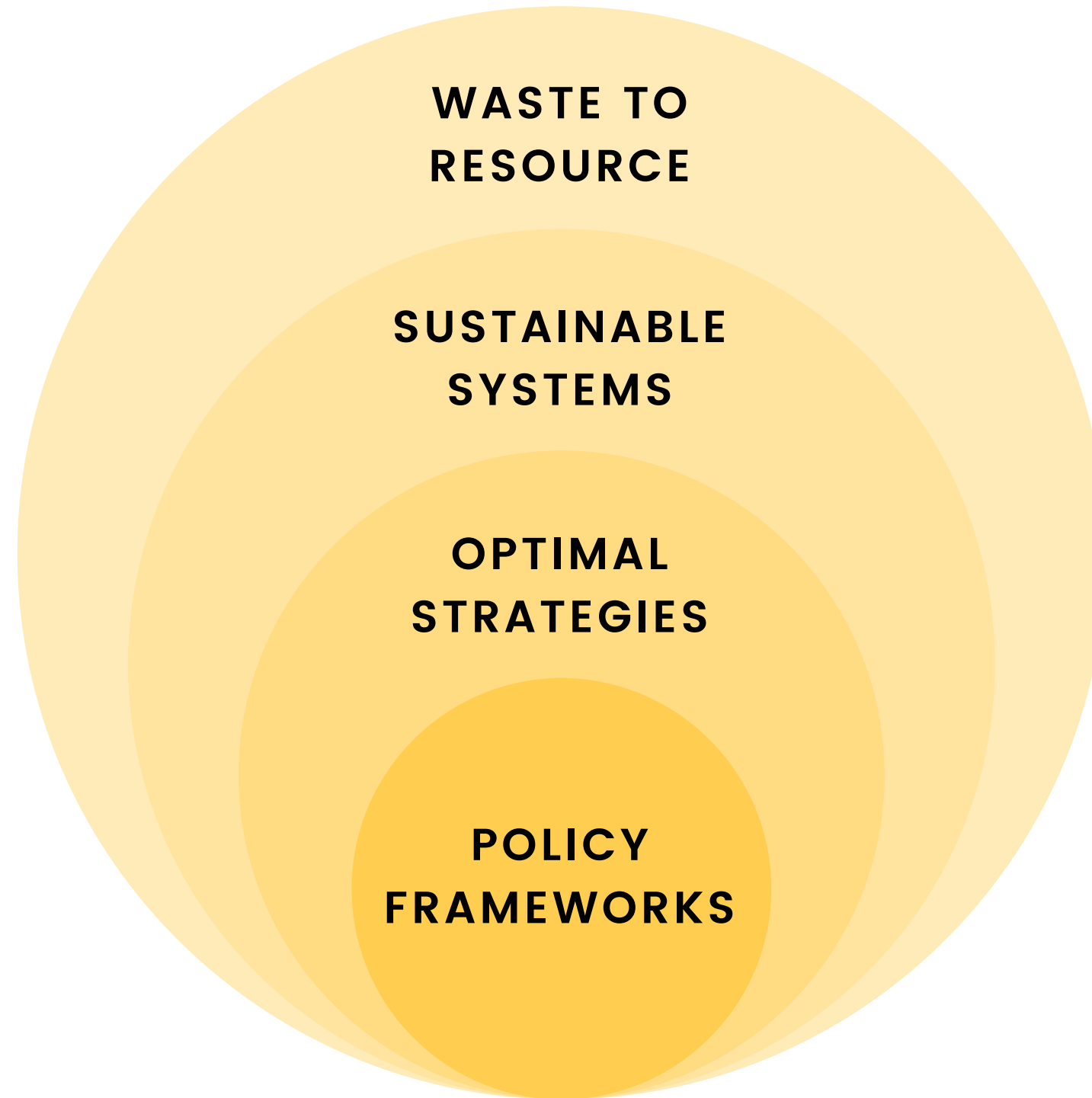
MISSION:

To develop India's first integrated testbed for evaluating the usage of agricultural, industrial, and construction & demolition waste in concrete for directing practices, policies, and standards for waste reduction in Indian construction industry.

THE IDEA



THE IMPACT

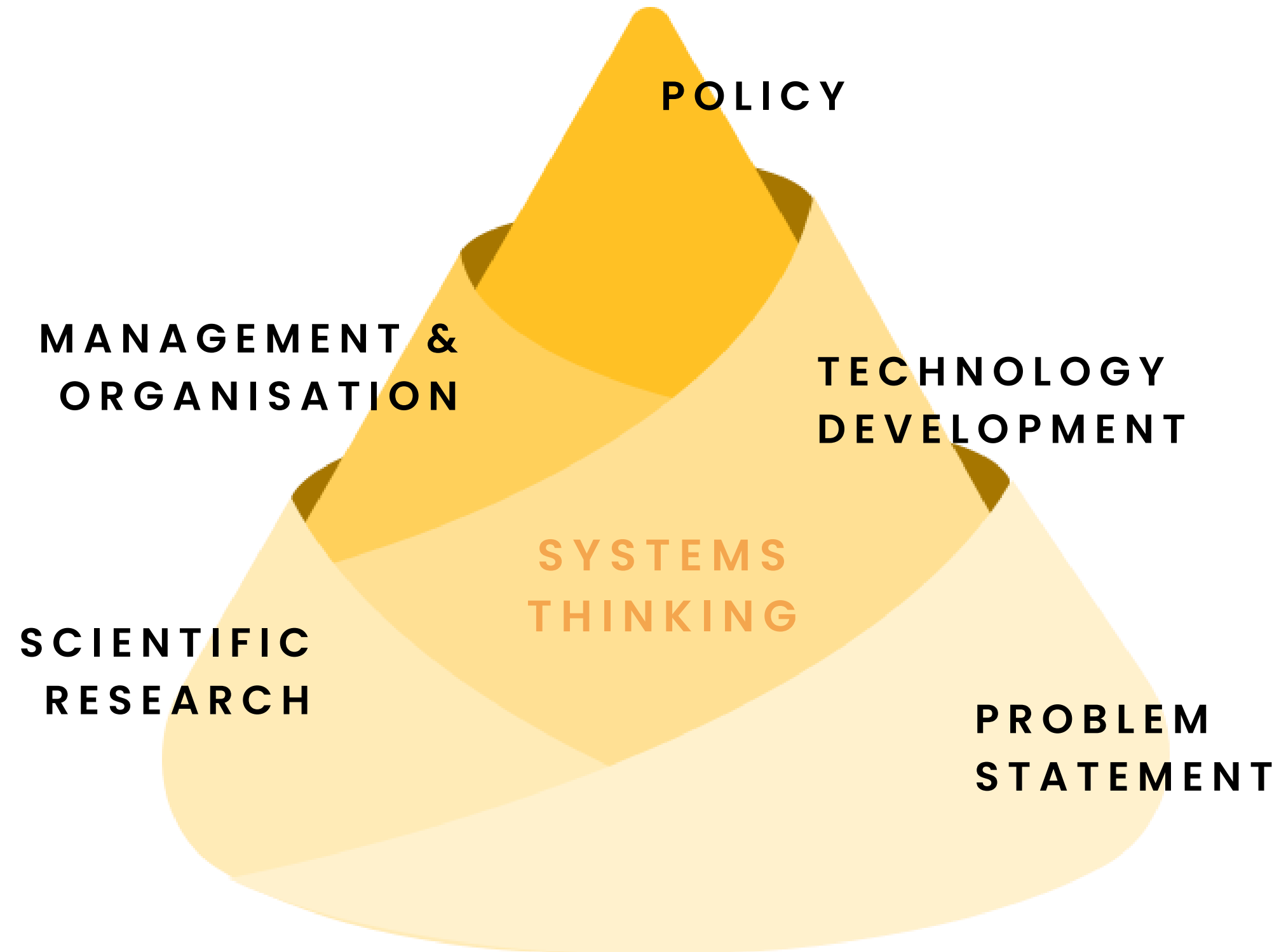


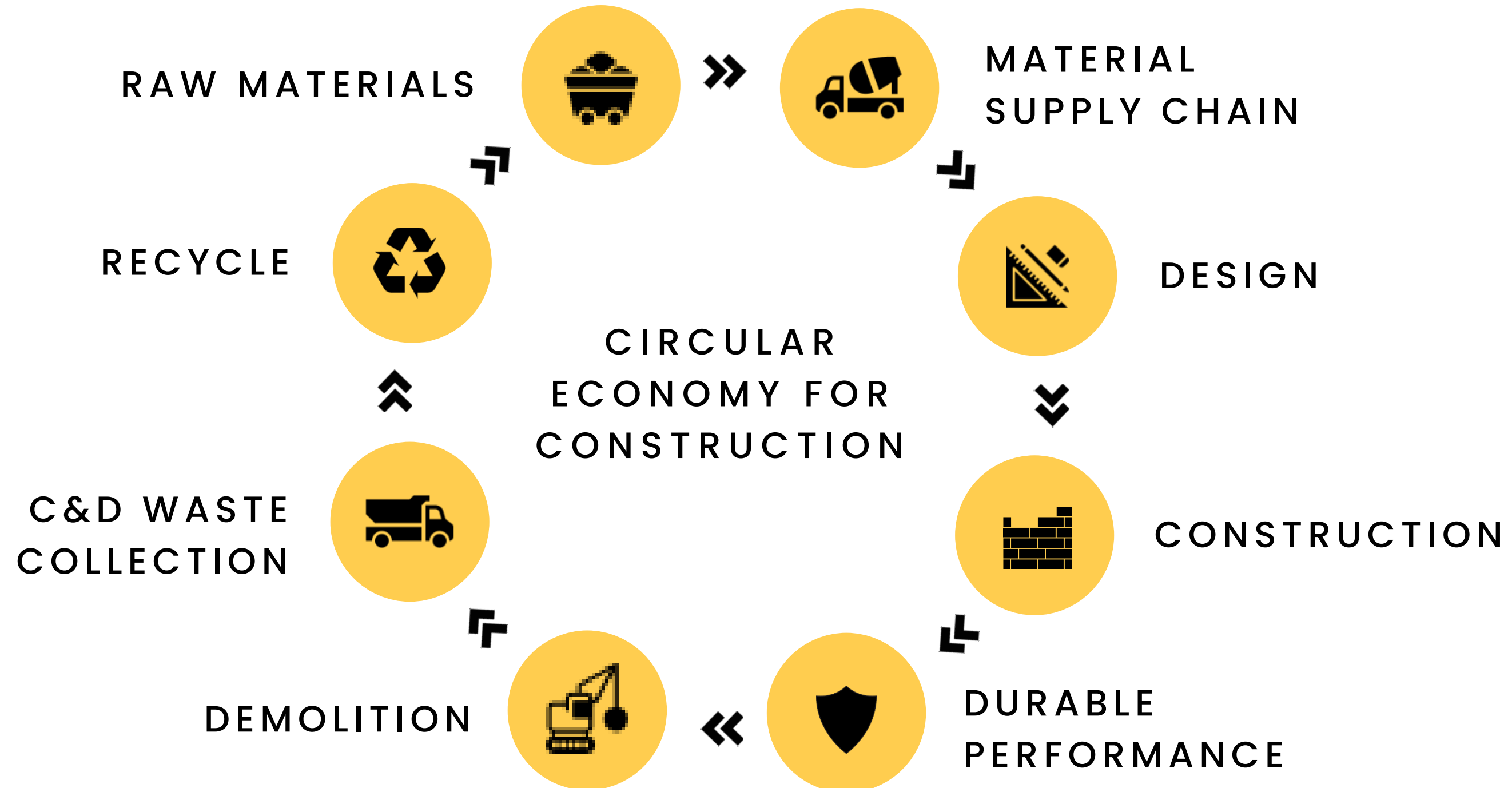
Recycling instead of landfilling
(per tons of C&D waste)

- ✓ 6.41 kg CO₂ equivalent
- ✓ 89.93 MJ in energy saving
- ✓ 0.32 m² of arable land

Source : V.G. Ram et al. 2020

THE APPROACH

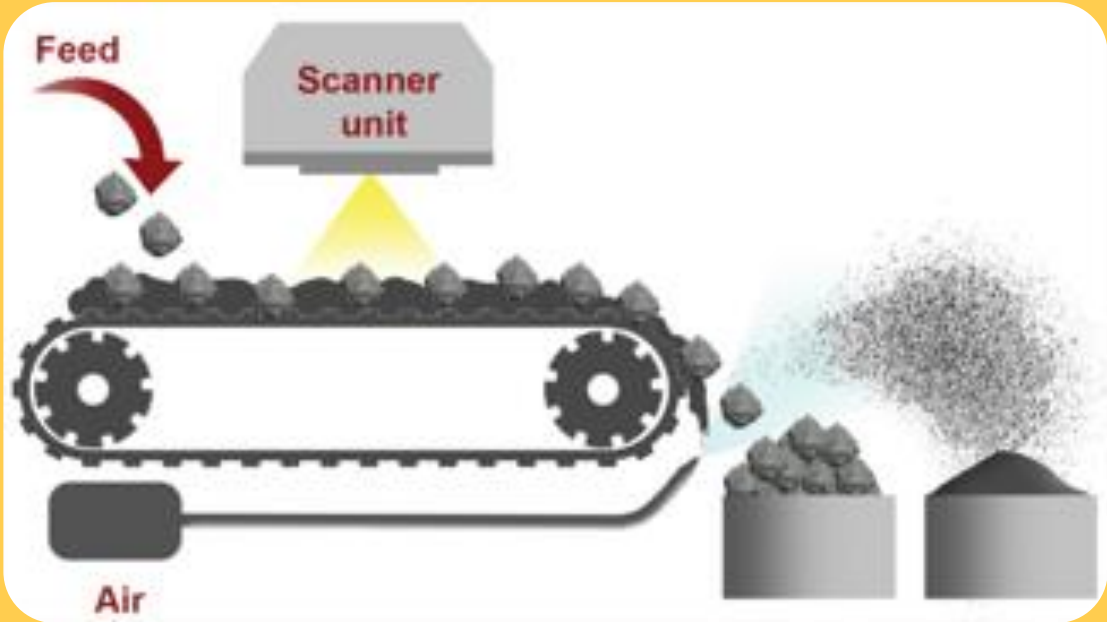
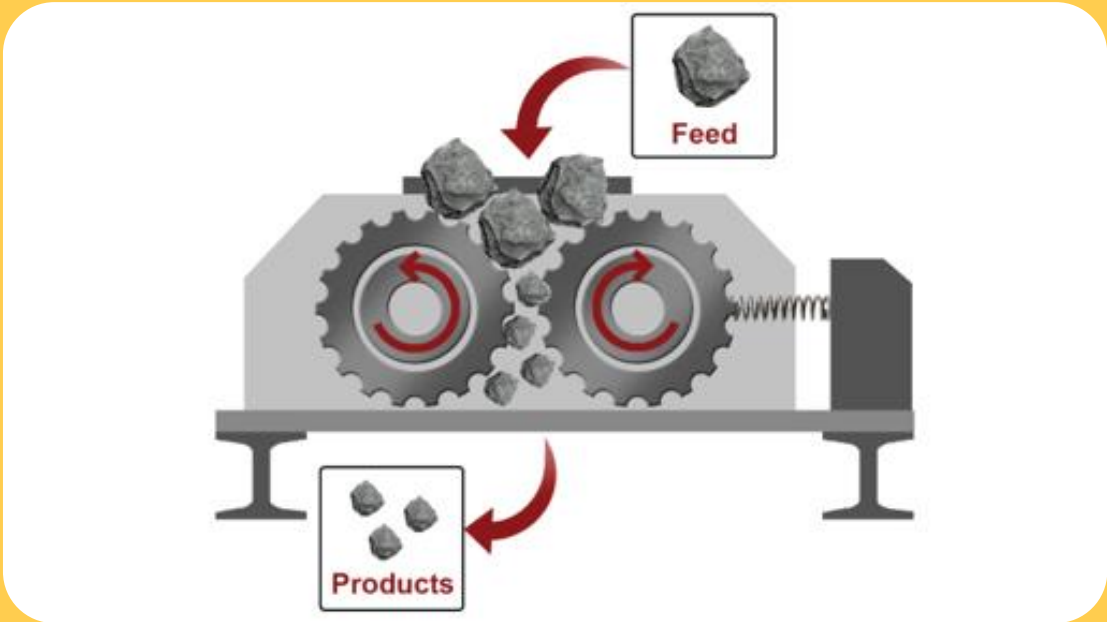




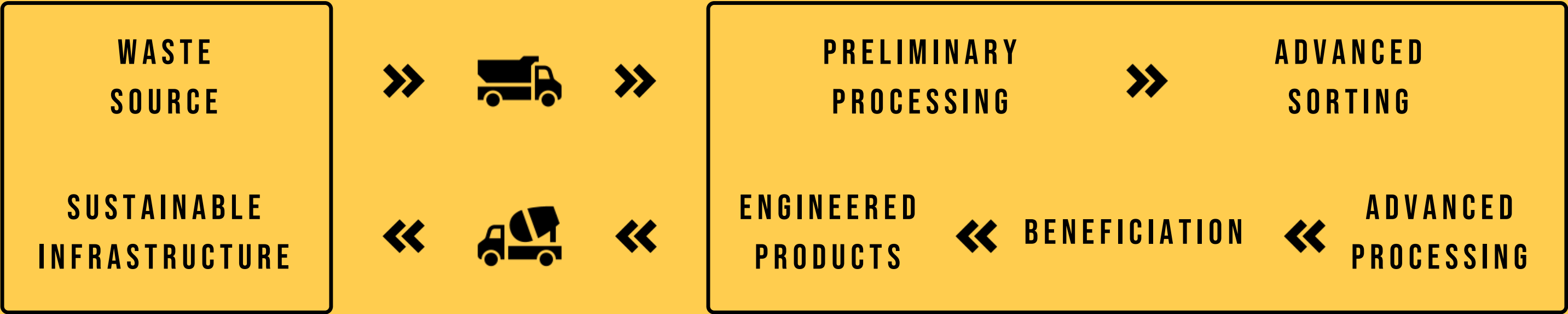
RAW MATERIALS



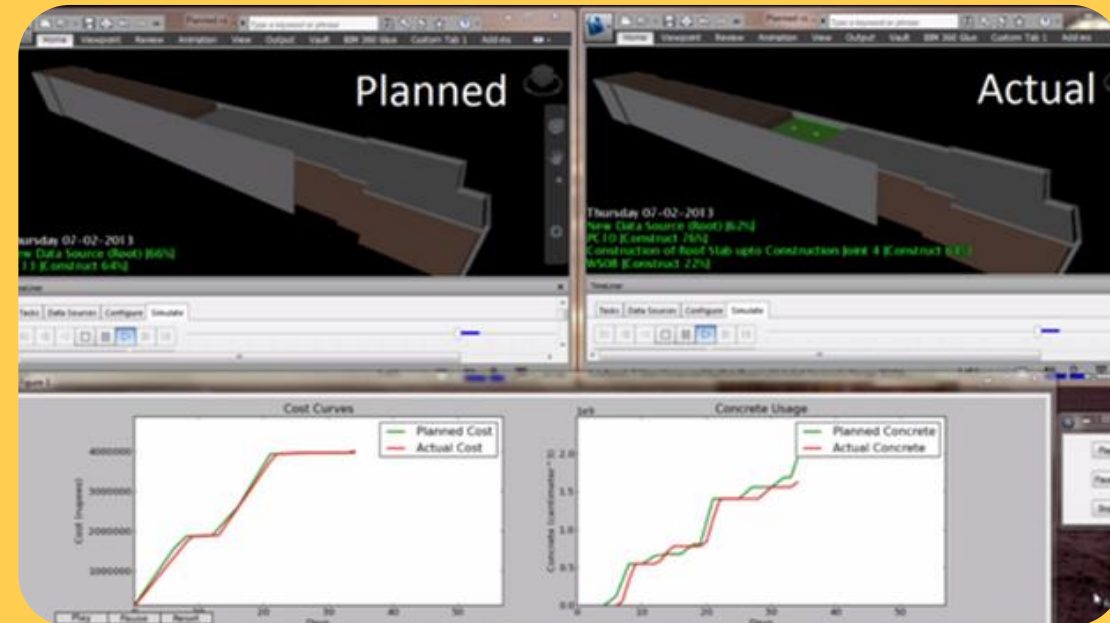
RECYCLE



INTEGRATED TEST-BED



TECHNOLOGIES FOR LOW-CARBON & LEAN CONSTRUCTION



ND BIM SIMULATIONS



NATIONAL MAPS
FOR WASTE
MATERIAL USE IN
CONSTRUCTION



INDIA'S FIRST 3D PRINTED HOUSE
(IITM-TVASTA INITIATIVE)



MATERIAL
SUPPLY CHAIN



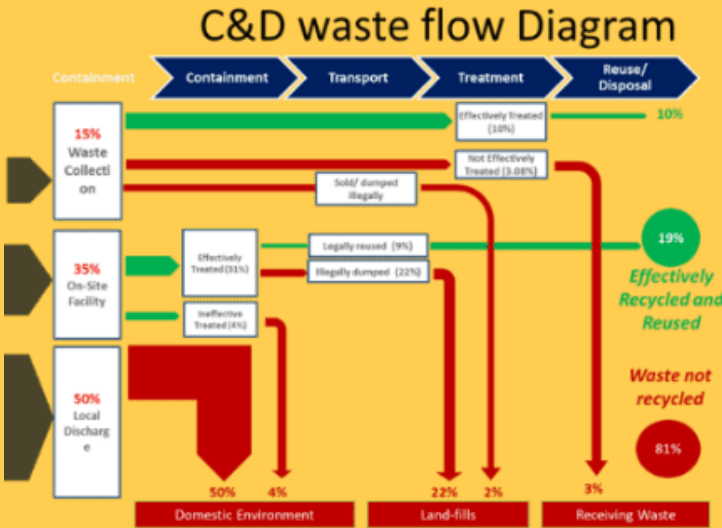
DESIGN



CONSTRUCTION



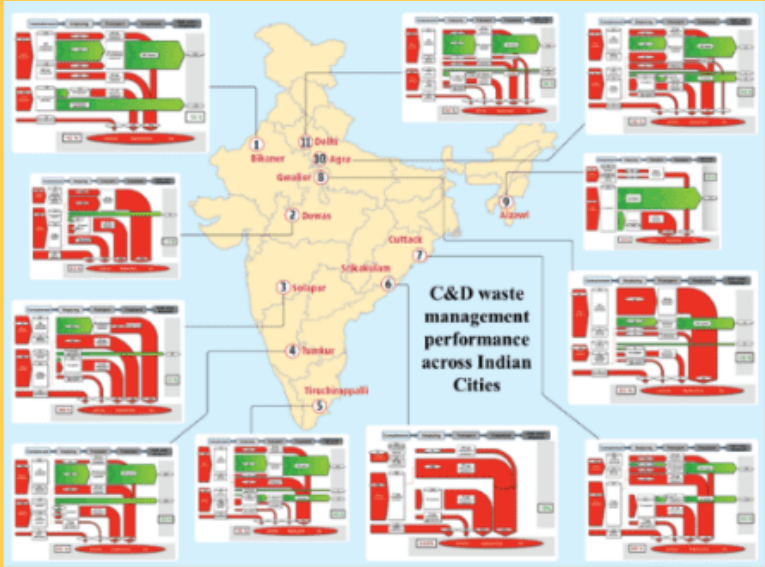
DURABLE
PERFORMANCE



FRAMEWORK TO
TRACK C&D
WASTE FLOW AT
A CITY LEVEL

+

COUNTRY-WIDE
CASE STUDIES
FOR C&D
WASTE FLOW



FRAMEWORK TO LEVERAGE PRIVATE
SECTOR PARTICIPATION

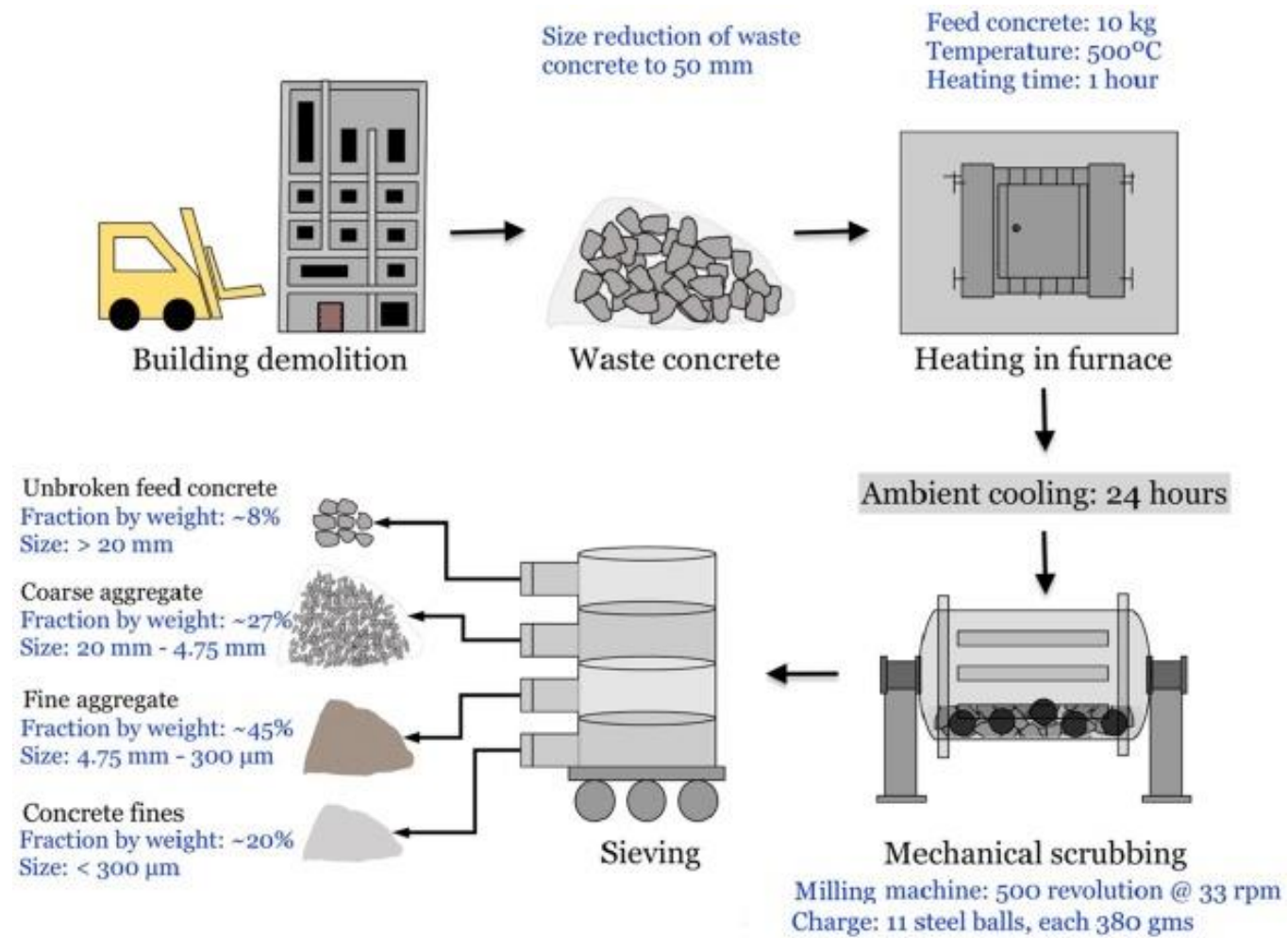
C&D WASTE
COLLECTION



DEMOLITION



Innovative Recycling Processes

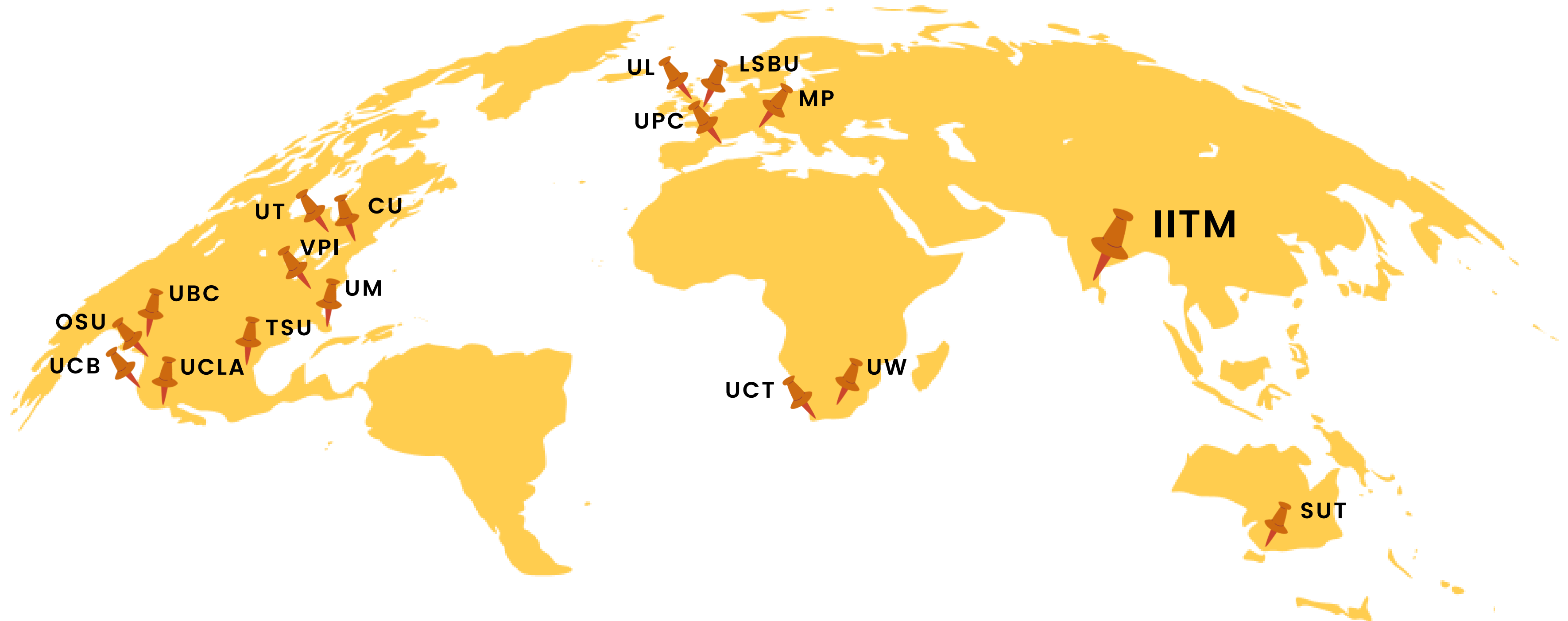


- Concentrated Solar Energy for Aiding the Crushing of Demolished Concrete**



<https://doi.org/10.1016/j.conbuildmat.2021.125200>

INTERNATIONAL ENGAGEMENT



**THANK YOU FOR
ATTENDING!**

You can visit us at-

<https://civil.iitm.ac.in/pcoe/tlc/index.php>

or, contact us at-

btcmmoffice@civil.iim.ac.in

