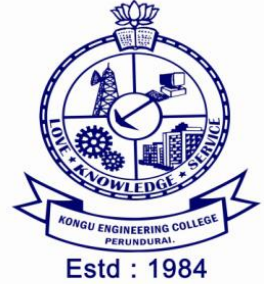




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## ACI CONCRETE CONVENTION, QUEBEC CITY, CANADA

# Cast in-situ CO<sub>2</sub> Sequestrated blocks from C&D debris using Carbon-di-oxide curing technology

**Research Member**  
**Ve. Gowtham**  
**B.E. Civil Engineering**  
**Kongu Engineering College**  
**India**

**Mentor**  
**Dr. G. S. Rampradheep,**  
**Associate Professor, Department of Civil Engineering,**  
**Kongu Engineering College**  
**India**

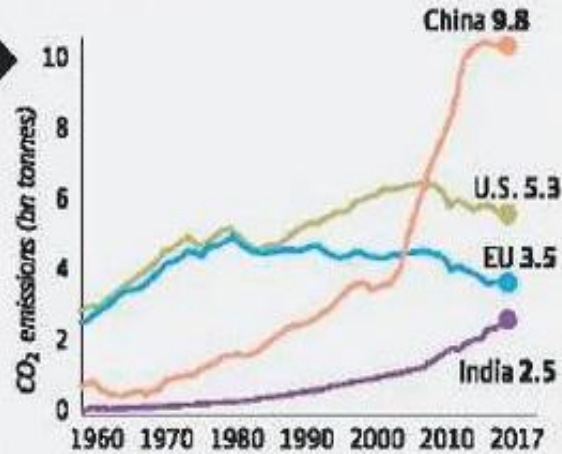
**ACI TRAVEL STIPEND AWARDEE'S 2018**

# Problem Statement

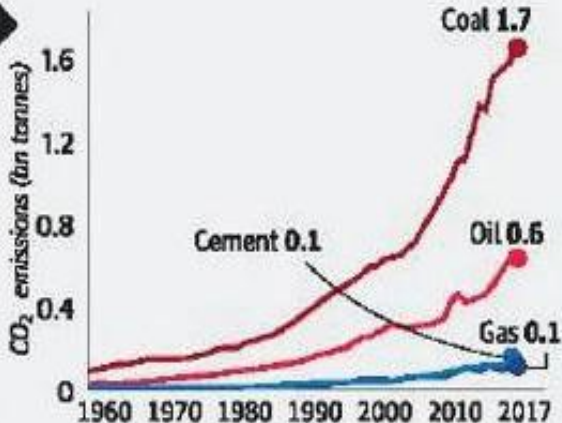
## A breath of foul air

India's projected carbon emission of 2.6 billion tonnes in 2018 would account for 7% of the global CO<sub>2</sub> levels, which are set to hit an all-time high this year

Global CO<sub>2</sub> emissions have risen steadily over the decades. China's emissions accounted for 27% of the global total. India was the third-highest contributor



Although India is rapidly going in for solar and wind power, coal usage continues to grow strongly. Coal is responsible for 65% of India's CO<sub>2</sub> emissions



## Building from waste

Updated on September 04, 2018



The construction industry's gripe against the Supreme Court ban lacks conviction

- India the third largest contributor of **CO<sub>2</sub> emission** (The Hindu, December 6, 2018)
- The Supreme Court has created a flutter by staying construction activity in States that do not have a **construction solid waste management policy** (The Hindu, September 4, 2018)
- Gurugram: The MCG has earmarked **15 new village spots for dumping construction and demolition (C&D) waste** across the city. (The Times of India, July 25, 2018)





KEC - INDIA CHAPTER OF ACI TEAM WITH

**Ms.RADHIKA MARKAN, ICACI PRESIDENT, MUMBAI**



CO<sub>2</sub> SEQUESTRATION LABORATORY


INAUGURATED BY

**Ms.RADHIKA MARKAN, ICACI PRESIDENT, MUMBAI**



**Experimental Setup**

Indian Patent Filed no: 305934




Renewable Energy Innovation  
Competition for Startups


Carbon Capture & Sequestration Research on

## “CAST IN-SITU CO<sub>2</sub> SAND BRICKS IN-BUILT WITH SODIUM SILICATE AS A SELF-CURING AGENT”


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# Story Board



1. Collection



2. Pulverising and Grading



3. Graded C&D waste



3. C&D into CO<sub>2</sub> chamber



4. Control Unit



8. Collection of  
Carbonated C&D  
Waste



7. Carbonation Process



6. Monitor for Calculations  
(Temperature, Pressure, Humidity)



5. Passing of controlled CO<sub>2</sub>



9. Blocks Manufacturing Process



10. Final Products for testing



11. Product used in our college

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#### LETTER OF AWARD

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June 2018

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## Engineering students convert debris into building blocks

U Tejonmayam | TNN | Updated: Mar 4, 2018, 06:20 IST



CHENNAI: The concrete waste after a building is demolished mostly ends up in landfills, in unauthorized places or simply dumped on the roadside. If the

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Engineering students convert debris into building blocks

The team from Kongu Engineering College, Erode recently won an award in the Carbon Zero Challenge competition organised by IIT Madras for developing blocks from concrete debris.

March 7, 2018 541 0

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Erode students develop low-cost bricks from recycled construction debris

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Sunday, June 17, 2018 08:21:07 PM

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Erode students in Tamil Nadu develop low-cost bricks from recycled construction debris

One of the pitfalls of growing demand for housing and urban space is the mounting construction debris. Disposal of construction and demolition waste is emerging as a major challenge and

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By SV Krishna Chaitanya

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Anjali Bisana | Updated: March 14, 2018 1.4K SHARES FACEBOOK TWITTER REDDIT SAVE

11 Brilliant Inventions By Engineers That Can Solve A World Of Problems

HACKERLOOP COLLECTIVE

3. Engineering students use recycled debris to make building blocks

A team from Kongu Engineering College, Erode, in Tamil Nadu recently won an award in the Carbon Zero Challenge competition organised by IIT Madras for creating building blocks from concrete debris. They said that the debris can be recycled into construction material like hollow or paver blocks which are stronger and more durable than conventional bricks and concrete blocks.





# ACI STUDENT CHAPTER AWARDS

## COUNTRY LEVEL



January 4, 2019

To Whom It May Concern,

It is our pleasure to invite the student(s) and their faculty advisor listed below to attend the 2019 ACI Concrete Convention and Exposition. The convention and student competition will be held by the American Concrete Institute (ACI) in Québec City, QC, Canada Québec City Convention Centre, March 24 - 28, 2019.

The following student and faculty advisor are representing Kongu Engineering College in the EcoConcrete Competition:

Student:	Passport #
Gowtham Vetrivel	S 9621352
Faculty Advisor:	
Rampradheep Gobi Subburaj	K 1083468

ACI is able to award Kongu Engineering College US \$5,000 travel stipend to attend this competition which covers flight travel, ground transportation, hotel accommodations, meals, convention registration, and immigration visa. We sincerely believe that the seminars, forums, and tours are very educational and beneficial to all in attendance. The students and their faculty advisor are free to attend technical sessions, educational seminars, and forums that are held throughout the week, as well as more than 300 committee meetings.

We look forward to seeing each of them at the 2019 ACI Concrete Convention and Exposition!

Please let me know if you have any questions.

Regards,

*Sharon K. Schuman*

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Awards and Student Competitions Coordinator  
phone +1.248.848.3188  
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## ACI STUDENT CHAPTER EVENTS





# Acknowledgement

- We would like to thank **ACI, USA** for providing **ACI Travel Stipend of USD 5000**
- We would like to express our deepest acknowledgement to **IIT Madras and US Consulate General, Chennai** who provided us the opportunity by giving a platform to work in our proposed area with a **Start-up grant of Rs. 6,69,000/- (USD 9399.30)**
- We would like to thank personally **Dr. Hiran Vedam, Professor IITM and Former R&D Member, National University of Singapore** for guiding us through the entire journey in building up the prototype and marketing it into the market.
- In addition, We would like to express our deepest acknowledgement to **IITMIC & EngSUI** for supporting our project with a **Research Fund of Rs.21,94,500/- (USD 30832.24)**
- We would also like to thank our **Parents, Institute Principal and Management** who motivated us to do all these works.

**Thank You**