

# Co2 Emission from Construction Industry

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“In the race to make our sophisticated beehives we are on the verge of destroying this wonderful garden called earth”



## Abstract

Primary objective of this poster is to provide a view on how construction industry and operations involved (Raw material production & transportation, use of electricity) in it is also a major contributor to carbon emission and which ways, methodology can be used to reduce or limit that carbon emission. A qualitative and quantitative analysis is been by provided along with some real life examples of how those techniques are been used on ground zero along with their efficiency level.

## Introduction

Main reason Urbanization and rapid Development  
Construction operations account for nearly 40% of global CO2 emissions related to energy. Study conducted by IIT Madras Research Cell. According to calculations, Chennai would emit 231 million Tones of CO2 by the year 2040 due to energy consumed by buildings during construction and operation.

## Methods & Materials

- Modular construction technique.
- Replace traditional cement with low-carbon cement
- Reuse of demolition waste for future construction
- Switch to renewable resources to meet the energy requirements of operating buildings.
- Government pacts and agreement

## How it works ?

**What is modular construction?** (Like a Lego kit)

Design development  
& plan approval

Assembly of module in factory

Transport to project site

Erection of modular units

E.g. - Mumbai metro construction Bits.  
and pieces constructed off site and assembled or setup on site.

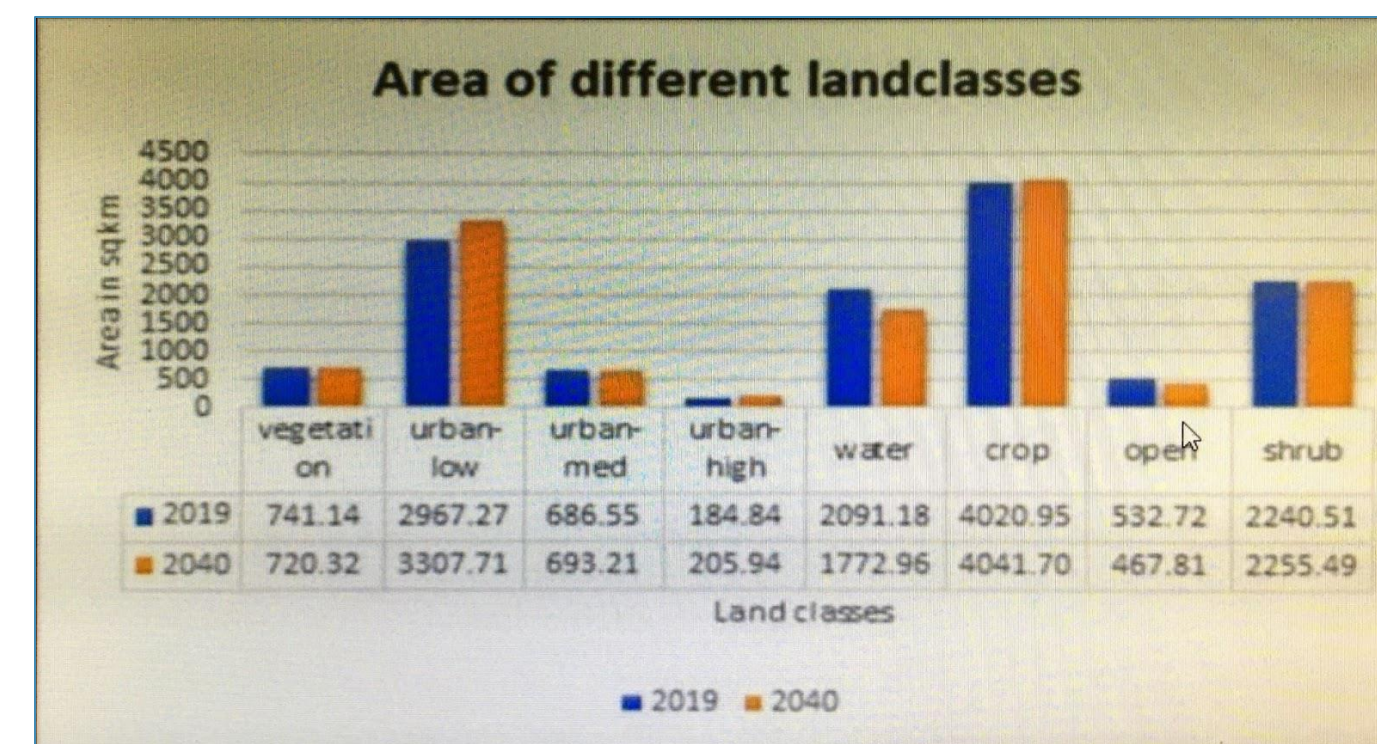
**What are the benefits of modular construction?**

Quality assurance, controlled environment & timeline follow up.  
Replace conventional cement with low-carbon cement. Reusing demolition debris in future development.

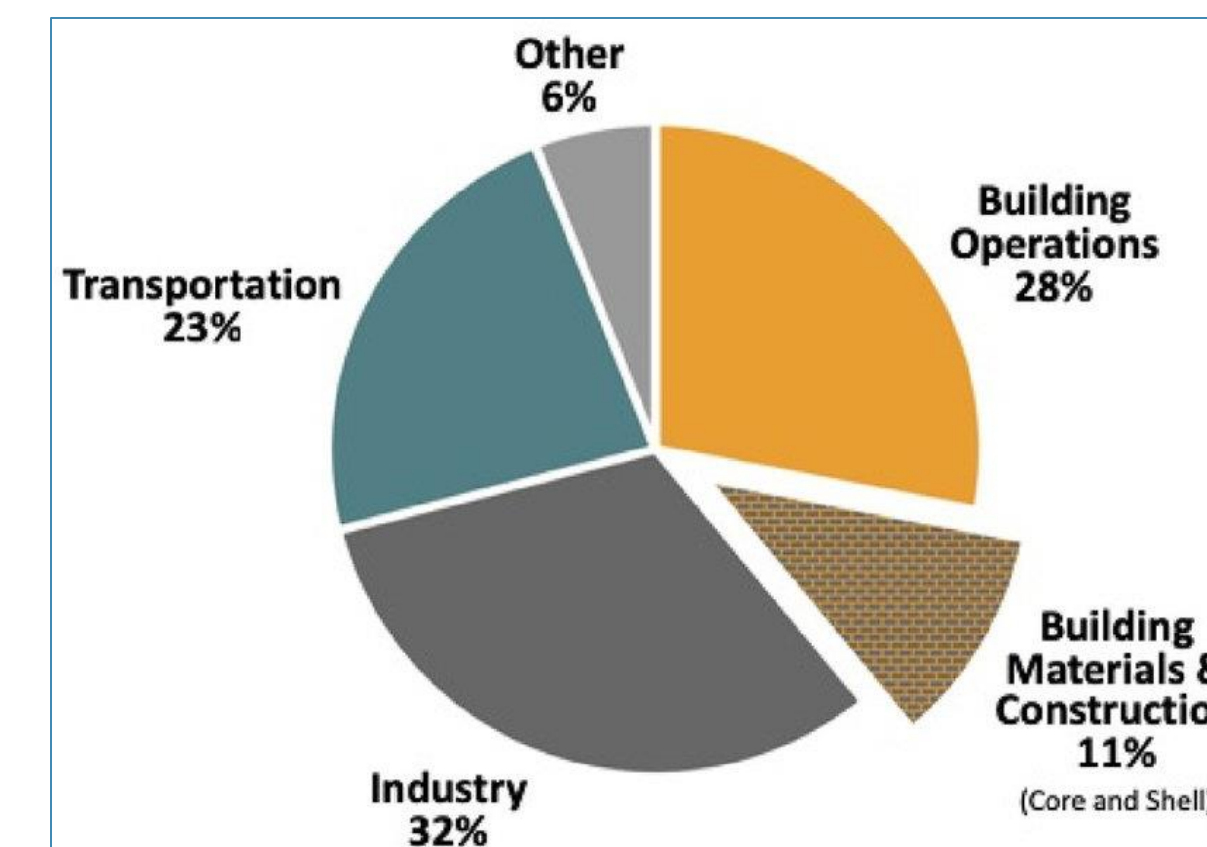
To address the energy needs of operational buildings, renewable resources are being used.

**Use of AI, ML for daily operation and maintenance of buildings**

E.g. - Bee'ah Headquarters Sharjah UAE.



2019 – 2040 Environmental Changes Probability



Average carbon emission %

## Advantages

Controlled production system and quality.  
Faster project schedule.  
R&D and analysis can help in better future decision.  
Pacts like Paris agreements can have a check and control on independent bodies to reduce Co2 Emission.

## Results

IIT Madras research found that the largest contributor to reduce emissions was the change in energy sources. Between 2019 and 2040, up to 115 million tons of CO2 emissions can be avoided if clean energy sources were used to supply 50% of a building's operational energy requirements. Low-carbon cement had a lower impact on reducing emissions than traditional cement. Modular construction technique and use of green energy prove to save at least 30% of development cost.

## Conclusion

Gradual shift towards more sustainable and environmental friendly construction material. Continuous R&D, Adapting of best possible technique for construction. Reduction in cost of building projects. A better future for the future.

## References

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