



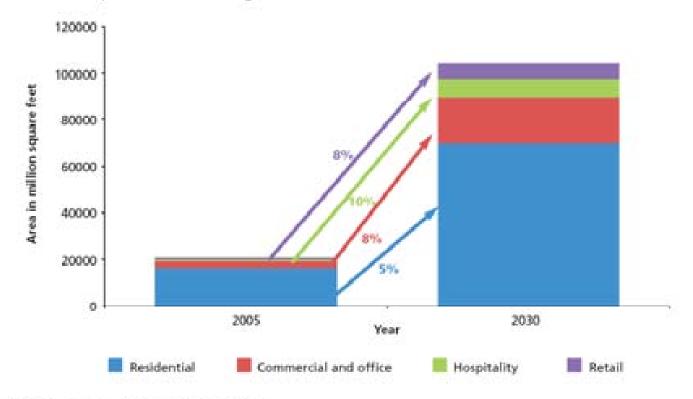




 More than 70 per cent of the buildings that will stand in India in 2030 are yet to be built. This scale of change has triggered green worries

GRAPH 1: EXPLOSIVE INCREASE IN BUILT-UP AREA

India is already the world's third largest centre for the construction sector



Source: Environmental Design Solutions Pvt Ltd.



 Environment impact assessment (EIA) is currently the only explicit legal instrument available to comprehensively assess resource impacts of large buildings and townships. But it is ineffective and vulnerable to corrupt practices. This undermines compliance





 Should the EIA process be reinvented and integrated with the building approval process of municipal agencies and urban planning in cities to minimise bottlenecks and duplication and to get better results?



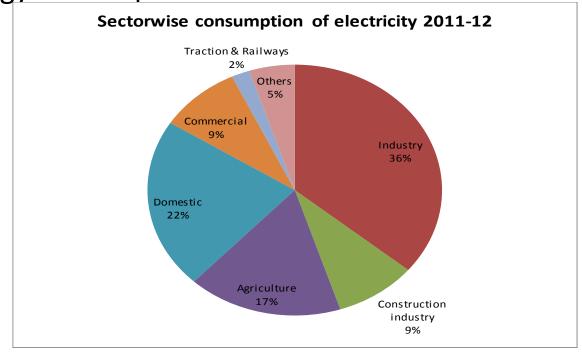


- Need to reinvent EIA clearance: Why do this truncated system?
- Need to do clearance at the city/municipal level
- Need to do so that it takes into account all impacts – land use; air, water, energy
- Current system corrupt; ineffective and we need to let go





• The Energy Statistics 2013 say the building sector in India is already consuming close to 40 per cent of the electricity; it is expected to increase three-fourth by 2040. Changing lifestyles are set to change the energy landscape





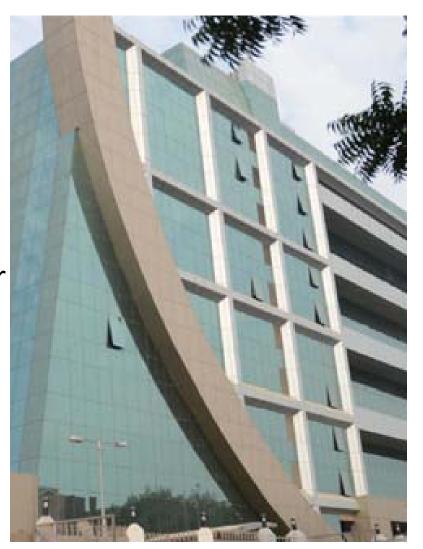


- India has adopted the Energy
 Conservation Building Code (ECBC) to improve energy performance of buildings.
- An ECBC-compliant building is expected to use 40-60 per cent less energy than conventional buildings. But these estimates are not backed by any survey
 or impact assessment





- Gaps in code allow energy guzzling.
- It allows excessive use of glass;
- several norms are not adapted to climatic zones;
- there is an absence of temperature thresholds for designing air-conditioning and ventilation systems to reduce energy load. R
 - eview and remedy before its implementation becomes widespread







- ECBC is for building design;
- Star Rating sets EPI target
- Need link between ECBC compliance and star rating. Otherwise, no idea what design will achieve when operationalised
- Space for green façade Get ECBC but not save energy





- Green rating system for buildings:
- Another instrument now to check if building is green
- Governments giving incentives property tax; FSI; fast track EC etc
- Is this working?





 This system is opaque. There is little information in the public domain on the green measures, costs and paybacks. As a result, public understanding of greenrated buildings and their benefits remains poor





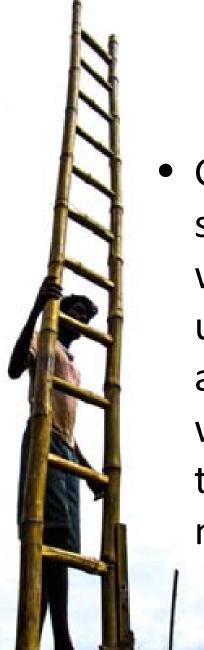
 If rating systems must get government patronage and incentives.

 But we need transparency, accountability, stringent compliance and monitoring along with penalty will have to be put in place





- Official incentives must only drive the top line. 5+ plus
- Minimum and regular green requirements should be within the realm of every project.
- All projects must follow regulations and these should be uniformly enforced





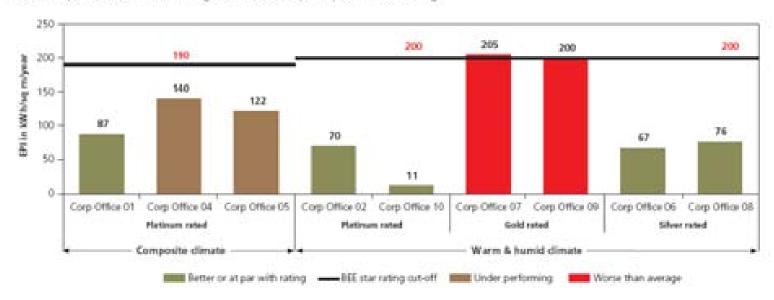
 Globally, rating systems are under scrutiny. In the US, several buildings with LEED certification are underperforming. Other governments are now putting systems in place that will compel more transparent data in the public domain for verification and monitoring

First time date on performance of rated buildings released by LEED



GRAPH 2: ENERGY PERFORMANCE OF LEED-RATED CORPORATE OFFICES

About 22 per cent of the buildings do not even qualify for a star rating



Note: See Annexure for the names of the buildings

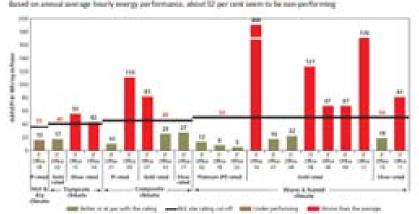
Source: Computed by CSE on the basis of LEED-India (IGBC) data.





- 1. Wipro Technologies KDC Tower-4, Kolkata
- 2. Wipro Technologies Chennai Development Center, S3 & S4 blocks, Chennai
- 3. Wipro S1, Kochi





Note: See Animone for the running the Indiana, ASAST - Armod Surings Model Energy Performance India Season Compared by CSE on the basis of 2010-leads (KSE) data.

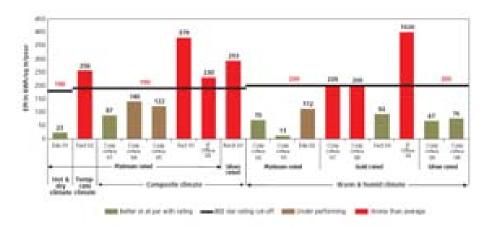




- 1. Wipro Technologies KDC Tower-4, Kolkata
- 2. ITC Limited, Saharanpur
- 3. Du Pont Knowledge Centre, Hyderabad

GRAPH 3: ENERGY PERFORMANCE OF LEED-RATED DAYTIME USE BUILDINGS

Almost 59 per cent of the daytime use buildings are not performing as per their LEED rating



Make: See donescure for the names of the buildings Searce: Composed by CSE on the basis of USES ends (CRC) data



Poor peoples' settlements are growing at 6 per cent annually and fast outstripping the urban growth rate of 3-4 per cent. According to the UN Habitat, India is adding 4.4 million people to 'slums' every year and 202 million Indians will be residing in these 'slums' by 2020





 Poor households have to deal with poor building designs and cheaply built dwellings, which often require costly repairs and, therefore, their purchase is ultimately not sustainable. Living comfort is seriously compromised





 Globally, countries like Thailand have subsidy programmes for architects to offer professional help to the poor communities for designing homes and negotiating for land or long term leases. In Brazil, programmes mobilise a community of professional architects to improve construction quality of poor peoples' homes





 Very large majority of the people in India are still not included in the formal banking/financial systems, therefore limiting their access to housing finance and good design and material. This demands innovative financing schemes and community-based resource planning for improvement of poor peoples' habitat



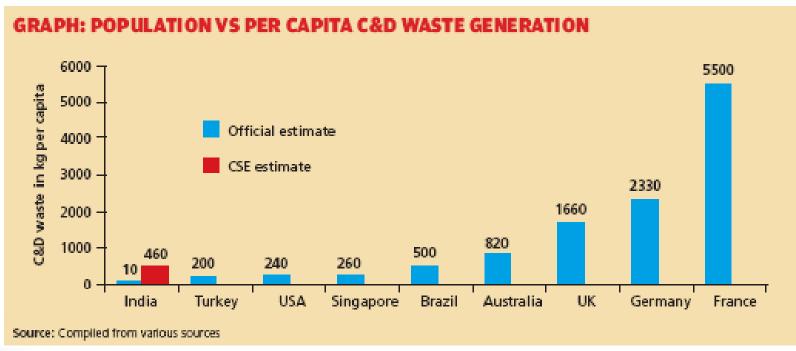
 Construction and demolition (C&D) waste, from the anticipated construction boom, can create serious environmental problems unless immediate steps are taken to recycle and reuse it and turn it into a resource





Brazil: 500kg per capita India: 10kg per capita





C&D waste accounts for 13-67% of MSW, and the generation in the world ranges from 130 to 3000 kg per capita per year.



C S E

 It is ironical that C&D waste that can be recycled and ploughed back into the construction sector to reduce demand for naturally sourced material, has not found much policy support

yet





 Though a number of innovative costeffective recycled building materials, components and construction techniques have been developed and are available in the market, the Indian housing and building agencies have not adopted them in their construction practices because of policy hurdles



 Lack of standardisation, not listing these techniques and material in Indian Standard Codes and/or the Schedule of Rates, poor policy push and lack of awareness are the key barriers. The ongoing reform process that the Bureau of Indian Standard has initiated needs to gather momentum



Smart cities need smart policies



- Need green cities
- Need green building
- Must push the envelope to bring best practice into policy
- Efforts at individual buildings must be up scaled; built into smart policies
- Only then will it actually make a difference; otherwise greenwash

BUILDING SENSE: BEYOND THE GREEN FACADE OF SUSTAINABLE HABITAT