Roundtable Discussion on
Affordable Housing
Addressing Thermal Comfort, Energy Efficiency, and Environmental Sustainability

Centre for Science and Environment (CSE), New Delhi with support from Shakti Sustainable Energy Foundation has taken an initiative to integrate thermal comfort, energy efficiency and sustainability with mass affordable housing schemes.

CSE in collaboration with Institute of Urban Designers India (IUDI) – Karnataka Chapter and School of Planning and Architecture (SPA), University of Mysore (UoM) is convening a dialogue to further the advocacy and integration work in the state of Karnataka. The discussion will focus on:

- Adoption of Eco Niwas Samhita 2018
- Addressing liveability: thermal comfort and daylighting through design
- Innovation in alternative materials and walling assemblies for climate appropriateness, thermal comfort, energy efficiency, sustainability, etc.
- Market presence of these materials, especially in government mass housing
- Barriers in scaling up of these materials
  - In current building codes
  - In current policies and guidelines ex. PMAY
  - In procurement framework, Schedule of Rates, etc.
  - In adoption by state governments
  - In user perception
- Strategies and market instruments required to promote sustainable affordable housing
- Roadmap to mainstream thermal comfort in mass affordable housing

Keynote Addresses by:

Dr. Hariharan Chandrashekar
Co-founder and Chairman, ZED Homes

Anumita Roychowdhury
Executive Director, CSE

Moderator:

Rajneesh Sareen
Programme Director, CSE

Conveners:

Anup Naik

Dr. Gopi Prasad
Members, IUDI

Dr. H.S. Kumara
Assistant Professor, SPA, UoM

26th July
11:30 - 17:30
Lavelle Hall
The Chancery Hotel
Bengaluru

Contact:
mitashi.singh@cseindia.org ; sugeet.grover@cseindia.org

Register at:
https://docs.google.com/forms/d/e/1FAIpQLSd2a6Gt1LjfBHwHuWuLqfil7vjIMR5tST8t_-P15h5k05KvA/viewform?usp=sf_link

Press release

Proceedings of Round Table Discussion on Affordable Housing: Addressing Thermal Comfort and Energy Efficiency

Center for Science and Environment (CSE), Delhi has organized a roundtable titled **'Affordable housing: Addressing Thermal Comfort and Energy Efficiency' on 26th July 2019 at the Chancery Hotel, Bengaluru.** The event was partnered with School of Planning and Architecture University of Mysuru, Mysuru and Institute of Urban Designers India – Bangalore chapter. Around 60 experts, academia and professionals of the built environment were convened to draw on strategies to mainstream thermally comfortable, energy efficient and sustainable mass affordable housing.

Urban poor are the most vulnerable to warming climate. The India Meteorological Department (IMD) has attributed 40 per cent of all extreme weather-related deaths in 2016 to heat waves -- the largest proportion of deaths due to any type of extreme weather event.

India Cooling Action Plan, recently launched in 2019, has brought to the table the need to construct affordable housing with reduced heat gain and cooling load. If not done so, the ongoing frenetic construction under Pradhan Mantri Awas Yojana (PMAY) will lead to a building stock that performs poorly on thermal comfort and forces people to switch to active means of cooling. With this agenda, CSE Executive Director (Research and Advocacy) Ms. Anumita Roychowdhury kicked off the roundtable.

"If the growing discomfort due to increasing heat is not addressed with wide-ranging architectural design solutions, mixed use of cooling approaches (including less energy-intensive devices like fans) and improved energy efficiency of mechanical cooling methods, India's energy security and climate change mitigation efforts will be deeply undermined." – Ms. Roychowhury pointed.

Dr. Hariharan Chandrashekar, Co-founder and Chairman, BCIL ZED Homes, shares "Rs. 100 per sq.ft. is tentatively the cost of thermal comfort in housing. Builders are not concerned to bear this cost." Builders will be concerned when there is a demand for thermal comfort in mass housing. New codes such as Eco Niwas Samhita 2018 or Energy Conservation Building Code are a good start towards generation of this demand. Still, the current mass housing regime is supply-driven. "Government should completely abstain from focusing at housing supply. It is high time to start understanding the demand side and intervening accordingly" – added Dr. Chandrashekar.

CSE has been researching into the affordable housing sector. It is observed that the current government-provided formal housing does not ensure appropriate location, adequate daylighting and wind penetration and are very far from reducing heat stress in dwelling units by the design of the building envelope.

"Even animals do not enter unfamiliar or unsuitable habitat, expecting humans to live in dwelling units not designed to suit them is out of question" remarked Rajneesh Sareen, Programme Director, Sustainable Habitat Programme, CSE. Citing the

example of Rajaji National Park and the fact that elephants do not use underground railway crossings due to unfamiliarity and unsuitability, Mr. Sareen highlighted an essential point about looking at the planning and design of our affordable housing stock.

Relocation to the city periphery, increased distances to social services such as schools and clinics, overall elevated transportation needs, cost of operation and maintenance, etc. all add to the energy and cost burden of the poor of living in a formal dwelling unit. “Master plans have the capacity to offset some of the cost burden of the poor incurred due to moving from informal settlements to a formal housing, by appropriately locating affordable housing in the city” - said Mitashi Singh, Programme Officer, Sustainable Habitat Programme CSE, beginning the technical sessions for the day.

Unsuitable location and building typology of the formal housing are responsible for preference of the poor towards self-constructed housing over formal group housing. About 63 per cent of units sanctioned under PMAY (Urban) fall under Beneficiary Led Construction (BLC) vertical.

Ms. Singh further provided an overview of Ministry of Housing and Urban Affairs’ Global Housing Technology Challenge. Six Light House Projects are underway for development, aimed to serve as living labs for using alternative materials and construction techniques for fast-paced, sustainable and cost-effective housing delivery.

Avikal Somvanshi, Programme Manager, Sustainable Habitat Programme, presented CSE’s study titled ‘A Midsummer Nightmare’ to decode the link between comfort, space cooling and energy consumption in a climate-stressed world.’ Summertime heatwaves have become the norm in northern parts of India. At the same time, the use of air-conditioners (ACs) and resultant energy consumption have started hitting the roof. With this trend, demand for space cooling in buildings is expected to explode and upset the energy budget of India. This calls for designing buildings for reducing the heat load on them, promoting adaptive comfort, and cutting down over-dependence on air conditioning.

Another CSE study titled ’Optimizing the Third Skin’ brings the agenda of adherence of the currently developing housing stock to the prevalent codes in the country. Sugeet Grover, Programme Officer, Sustainable Habitat Programme, CSE, shared the study and highlighted how a sample housing scheme performs when it comes to thermal comfort and daylighting as suggested in the National building Code 2016. The study further elaborated on the performance of alternative walling materials as per Eco Niwas Samhita 2018 and suggested that the future modifications to the code should have provisions to accommodate these materials.

The technical sessions were panelled by Ms. Roychowdhury and Mr. Sareen from CSE, Dr. Gopiprasad and Anup Naik from Institute of Urban Designers India – Bangalore Chapter, and Dr. Chidambara Swamy (Director) from co-organizer School of Planning and Architecture University of Mysuru.