

SCP Framework for Affordable and Climate Resilient Building Construction & Materials – Start up Research and Way Forward

Background note for Workshop

The challenge of construction sector

In India 31% of current population lives in urban areas, which contribute to around 63% of India's GDP (Gross Domestic Product) (Census 2011). By 2030, it is expected that 40% of India's population will be living in urban areas that shall contribute to 75% of India's GDP. Construction sector and built environment is one of the key factors of growth and urbanization. Construction industry contributes to about 7% of India's GDP. Construction and related manufacturing activities contribute about 25% of nation's carbon emissions¹, and this for sure is expected to rise, as 70% of India's buildings are yet to be build².

Government of India, has unveiled sustainable development urban strategies for the next 2 decades. According to Shri. M. Venkaiah Naidu, Minister of Urban Development, "The challenge is about ensuring sustainable development while taking advantage of economic growth that results from rapid urbanization in the country". The Government will provide a big push to rapid growth and urbanization while committing itself to address issues of sustainable development and climate change.

What is Sustainable Construction?

Sustainable construction refers to the process of creating buildings and infrastructure that is responsible to the environment and resource efficient throughout its life cycle. In a developing country like India, with fragile environment and high levels of land degradation, construction poses a huge pressure on the existing infrastructure and environment. In order to reduce or lower the impact of construction sector on environment, it is important that the sector identifies and adopts sustainable construction materials, techniques and practices which result in sustainable operation and production.

Improved energy and resource efficiency in buildings, infrastructure and manufacturing processes, using alternate sustainable materials have high potential in reducing the environment impact of construction sector.

United Nations Environment Programme for Global Action on Sustainable Consumption and Production

Sustainable Consumption and Production (SCP) is the core theme of UNEP's 10 year framework programme. One of the definitions of SCP as per UNEP publication is "*The use of services and related products, which respond to basic needs and bring a better quality of life while minimising the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardise the needs of future generations*".

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1. http://www.teriin.org/events/docs/present_japan/sess2/ghosh.pdf
 2. Ficci-PWC Construction Industry Overview, June 2014, <http://www.thebig5constructindia.com/knowledge-center/construction-industry-overview/>

Sustainable Buildings and Construction (SBC) is a thematic area under the overarching programme. One of sub programme area under the SBC theme is to "Establish, promote, and enable conditions for sustainable building and construction policies ". Another very relevant programme area is to reduce climate impact and strengthen climate resilience of the building and construction sector. Through the support of this program, buildings can improve the social, economic and environmental performance of regions, cities and nations.

About the Project

The research project carried out encompasses the above programme areas in the context of affordable and social housing. Affordable housing built with climate resilient features is one of the priority concerns in South Asian region. Climate vulnerabilities such as Extreme hot/extreme cold days, floods, landslides and sea level rise are features that the future housing projects need to integrate. At the same time, depletion of natural resources for construction of built environment pose challenge for innovation of building materials based upon the concept of sustainable consumption and production. Hence, the project focused on, developing SCP framework for affordable and climate resilient building materials. In South Asia, the Himalayan region is highly prone to disasters due to geological reasons as well as the stress posed by a growing population and exploitation of natural resources. Rapid and unplanned growth of construction activities without following prescribed norms and guidelines adversely affects the fragile Himalayan region³ .

The process followed in the project, involved stakeholder engagements starting from household owners, architects, builders, Government departments and manufacturers of building materials who supply material for construction in the Himalayan regions, to understand the sustainability attributes of materials at production level and consumption level. This was followed by developing a framework for Sustainable Construction and Production of building materials, evaluating Sustainability Index of a few building materials and understanding the existing policy gaps in implementing sustainable, affordable and climate resilient construction in the Himalayan region of South Asia.

Way Forward

The project created a framework to calculate Sustainability Index of building materials based upon the SCP concept for Low Cost Climate Resilient construction in the Himalayan Regions of South Asia. The framework has been created with interventions of stakeholders from the specific study region. In order to replicate the proposed SCP framework for low cost climate resilient construction in other parts of World, Asia, India, it is required to carry out studies to understand the replicability and adaptability of the framework for different region specific building materials.

It is also important to integrate the SCP framework in the existing building regulations for on ground implementation of sustainable and climate resilient construction.

3. MoEF (2011), Governance for Sustaining Himalayan Ecosystem

For wide scale replication and use of the concept of Sustainability Index of building materials based upon the concept of SCP, it is important to create tools for designers and decision makers, to assist in calculation of Sustainability Index of various building materials.

Along with the tool, it is also important to create study modules with academic institutes to integrate SCP framework, its concepts and calculations to increase capacity of young designers in selecting sustainable construction materials and techniques.

Panel Discussion Points

- Role of SCP framework and Sustainability Index to promote sustainable and climate resilient construction.
- Can the SCP framework be standardized for its adoption across various regions of India? Challenges and suggestions.
- Which stakeholders can play key role in promoting sustainable and climate resilient construction. What are the current barriers. What is the way forward
- What is the policy support required by various stakeholders to integrate Sustainable Construction and Production based construction practices.
- Opinion on key studies that need to take place to mainstream sustainable construction and materials, based on the concept of achieving sustainability in their complete life cycle. Discussion with examples.



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POLICY SUPPORT



10YFP
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Consumption and Production



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The Energy and Resources Institute

Workshop on SCP Framework for Affordable & Climate Resilient Building Construction & Materials

30th November 2016

**Venue: TERI Auditorium, TERI- South Regional Centre, 4th Main, 2nd Cross, Domlur II
Stage, Bangalore – 560 071.**

Agenda

09:30 – 10:00	Registration
10:00 – 10:30	Coffee / Tea
10:30-12:30	Technical presentations along with Q&A session
12:30-13:30	Lunch
13:30-14:30	Panel discussion on Adoption and Replication of SCP Framework For Affordable & Climate Resilient Buildings