

LOW-COST SUSTAINABLE BUILDING MATERIALS AND CONSTRUCTION TECHNOLOGIES

THE CHALLENGE

The building and construction industry is considered a major contributor to climate change - and a key player in sustainable development - with the potential to significantly impact the environment in both positive and negative terms. According to the International Energy Agency, buildings account for 30 to 40 percent of energy use worldwide. The construction industry consumes over 3 billion tons of raw materials each year (40% of total global use)¹.a With growing concern over global warming and climate change, global responsibility in the consumption and production of renewable energy becomes not only a vital necessity, but a moral imperative.

METHODOLOGY

Improving building energy efficiency is an important instrument in mitigating greenhouse gas emissions and preserving limited natural resources in the short to mid-term, as well as for adapting to the new conditions brought about by climate change.

Shelter Initiative for Climate Change Mitigation and Adaptation (SICCMA) aims to encourage research into, and use of, energy-efficient and low greenhouse gas emitting building materials, manufacturing processes and construction technologies, and will also encourage collaborating building and neighborhood design to complete the package of assistance in mitigating climate change. The overall programme will provide decision makers and the construction industry with guidelines on developing policies and practices related to the whole lifecycle of building materials and applied technologies. Moreover, local authorities will be encouraged to enhance the use of energy-efficient building materials and technologies by supporting the revision of municipal building codes and zoning plans to include minimum energy standards for new developments and retrofiting of existing buildings to meet the new standards.

SICCMA will also explore innovative modalities and incentives related to the Clean Development Mechanism and carbon credits, among others, to support the utilization of low emissive, environmentally friendly materials and technologies - introducing policy changes, strategies and guidelines at the national and local levels.

¹ D.M. Roodman and N. Lenssen, A Building Revolution: How Ecology and Health Concerns are Transforming Construction, Worldwatch Paper 124, Worldwatch Institute, Washington, D.C., March 1995, p. 5.



THE RESPONSE

In recognition of its important role and influence in the development of affordable and green housing policy guidelines for Ministries of Housing and local authorities, UN-HABITAT's Shelter Initiative for Climate Change Mitigation and Adaptation (SICCMA) aims to encourage the use of low-cost energy-efficient sustainable building materials and construction technologies and green building and neighborhood design in order to mitigate and adapt to the new conditions of climate change. The initiative is developed within the framework of UN-HABITAT'S Sustainable Urban Development Network (SUD-Net), and accordingly with the Kyoto Protocol.



Local government, developers as well as building and construction industry will be encouraged to use materials and products with identifiable recycled content. The industry will also be advised to use natural, plentiful or renewable materials, such as earth (which may be composed of different percentages of clay silt, sand, gravel, pebble, without any organic matters) or bamboo harvested from sustainably managed sources that have an independent certification. Manufacturing processes are also a key factor and products manufactured with resource-efficient processes including reduced energy consumption, minimized waste (recycled, recyclable and or source reduced product packaging), and reduced greenhouse gas emissions will be encouraged. Use of locally available, locally produced materials will be promoted as they minimize the use of energy or pollution caused by transportation of the material. Finally materials that are longer lasting or are comparable to conventional products with long life expectancies will be highly recommended for building and construction use.²

2 California Integrated Waste Management Board, ciwmb.ca.gov



Stabilised Compressed Earth Block housing project, East London, Republic of South Africa

THE BENEFITS

Energy efficient and sustainable building materials and technologies offer many benefits to building owners and building occupants including but not limited to:

- Positive impact on local economy
- Energy conservation
- Improved occupant health and productivity

Use of green building materials and products promotes conservation of the declining non-renewable energy resources worldwide resulting in the reduction of negative environmental impacts associated with extraction, transportation, processing, fabrication, installation, reuse, recycling, and disposal of building materials.



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