



## Building Energy Efficiency Project (BEEP)

### CONTEXT

India's construction sector is experiencing unprecedented growth due to both a rising economy and population. Over the next decade, it is expected to grow at seven to eight percent annually. In fact, the total building floor area is expected to increase by four to five times between 2012 and 2047. From 2012 until 2047, the residential building area is expected to increase by four times, the commercial sector area by 13 times.

While growth is a positive indicator of India's development, it also poses considerable challenges in terms of energy demand and supply, as well as carbon dioxide emissions. At present, India's buildings account for 33 percent of the country's total electricity consumption. With the increasing building stock as well as the intensity of electricity consumption in urban buildings, mainly due to rapid growth of air conditioning, buildings will soon become the largest consumer of electricity in India.

In view of this, the Swiss Agency for Development and Cooperation (SDC) in partnership with the Ministry of Power, Government of India, is supporting a project to reduce energy consumption in new commercial, residential and public buildings.

### OBJECTIVES

Energy consumption in new commercial, public and residential buildings in India is reduced through energy-efficient and thermally comfortable design and the application of renewable energy technologies. The project includes:

- **BUILDING DESIGN:** Energy-efficient and thermally comfortable building design adopted as standard practice by the Indian building sector.
- **BUILDING TECHNOLOGY:** External movable shading systems for windows and glazed areas in buildings developed and established in the Indian market.
- **POLICY:** Measures for energy-efficient and thermally comfortable buildings integrated in national, state and city-level policy.
- **OUTREACH:** Knowledge on energy-efficient and thermally comfortable buildings widely communicated.



Clean Energy & Energy Efficiency

PROJECT AT A GLANCE

**Area:** Mitigation

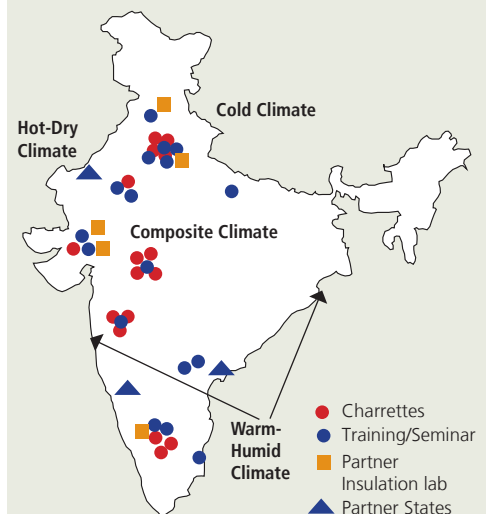
**Duration:** 2017 – 2023

**Budget:** CHF 7'000'000

**Implementation Partners:**

- Effin'Art, Switzerland
- Greentech Knowledge Solutions, India

**Geographic Focus:**



## KEY ACHIEVEMENTS

- Energy conservation building code for the residential buildings (ECBC-R) launched at the national level by the Government of India.
- The ECBC-R is being applied in the construction of 3 million affordable housing units with the potential to impact more than 12 million housing units across India.
- 7000 people benefited from 445 better housing units due to energy efficient and thermally comfortable design measures in buildings.
- Guidelines for the design of energy-efficient multi-storey residential buildings for three climate zones in India released.
- Technical advice to 40 building projects showed 25-40 percent energy reduction potential through better building design with minimal cost additions, including, the first net-zero building in India.
- National award on energy-efficient and thermally comfortable building design established.
- Five new designs of external movable shading systems tested with the support of Swiss experts.
- 3000 building professionals and students introduced to energy-efficient building design processes and specific strategies for energy efficiency in buildings.
- 5 BEEP student camps on integrated building design implemented to train more than 250 young architects and engineers from about 50 Indian institutions.
- Over 160 media sector professionals, journalists and students are sensitized and trained to report on energy efficient and thermally comfortable buildings to the general public.



**ECO-NIWAS SAMHITA 2018**  
(Energy Conservation Building Code for Residential Buildings)  
PART I: BUILDING ENVELOPE



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## PLANNED RESULTS

- Strategies and capacities for mainstreaming of energy-efficient and thermally comfortable buildings developed for selected states.
- Competencies of selected builders/developers for energy-efficient and thermally comfortable building design enhanced through trainings and workshops.
- Simple manuals and online tools for applying energy-efficient building design measures developed and disseminated for large-scale applications.

## IN NUMBERS



Buildings in India account for 33% of India's electricity consumption.



India's construction sector is expected to grow at 7-8% each year over the next decade.



As per India Energy Security Scenario (IESS) estimates, Residential and Commercial buildings built-up area of ~14 billion m<sup>2</sup> in 2012 is going to increase to ~66 billion m<sup>2</sup> by 2047 i.e. ~5 times.



The Energy Security Scenarios of India identify the building sector as a sector with one of the largest energy and carbon mitigation potentials.

## ABOUT SDC IN INDIA

The Swiss Agency for Development and Cooperation (SDC) has been a partner of India for more than 60 years. Since 2011, SDC's engagement focuses specifically on climate change adaptation and mitigation, and other environmental challenges. The office in India is part of SDC's strategic engagement on Climate, Disaster Risk Reduction and Environment. As part of its regional and global initiatives, SDC also has ongoing activities related to food systems, water and health in India.

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