



Climate Innovation in India's Building Sector

A STATUS REPORT



Climate Innovation in India's Building Sector: A Status Report

February 2026

Contributors

Suyashi Srivastava
Ritabrata Sen
Prasad Vaidya
Geetha Krishnan

Editor

Pooja Suresh Hollannavar

Design and Layout

Malavika Navale

Copyright

Published in February 2026 by Alliance for an Energy Efficient Economy (AEEE) and Indian Institute of Human Settlements (IIHS).

© 2026, AEEE and IIHS. Any reproduction of this publication in full or part must mention the full title and author and credit AEEE and IIHS as the copyright owner. All rights reserved.

Table of Contents

1

Page 4

Purpose and context

2

Page 4

Market overview: buildings and climate in India

6

Page 8

Persistent market gaps

3

Page 5

State of innovation supply

7

Page 9

Market signals from startups and stakeholders

4

Page 6

Demand-side reality: who is (and is not) buying

8

Page 9

Findings

5

Page 7

Role of innovation platforms and accelerators

9

Page 10

Key questions emerging from the current market state

10

Page 10

References

1 Purpose and context

This status report presents an overview of the current state of the buildings and climate innovation market in India. It is intended to provide a clear, standalone snapshot of market conditions, highlighting priority challenges that must be addressed to accelerate climate action in the built environment.

The report draws on recent market observations, comparative analysis of innovation support platforms, and direct feedback from startups and ecosystem actors working in energy efficiency, sustainable materials, water, cooling, and related building-sector technologies. Rather than proposing solutions, the emphasis is on diagnosing where the market stands today, what is working, and where persistent gaps remain.

India's building sector sits at the centre of the climate challenge. Buildings consume around 35% of national energy, a number projected to rise to 50% by 2030 due to rapid urbanisation and growing affluence [1]. This will lock in long-term emissions unless new technologies and practices are adopted at scale. While policy intent and entrepreneurial activity are both strong, market transformation remains uneven and slow.

2 Market overview: buildings and climate in India

2.1. Growth trajectory and emissions pressure

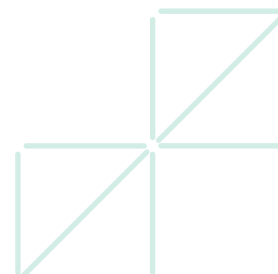
India is adding over 2.3 billion square metres of new floor space every year [2]. Much of this growth is concentrated in housing, commercial real estate, and urban infrastructure that prioritise speed and cost over long-term efficiency. Cooling demand, material intensity, and water stress are increasing faster than the adoption of climate-smart alternatives.

From a market perspective, this creates a paradox. On paper, the opportunity for low-carbon building solutions is enormous. In practice, adoption remains limited beyond a small group of premium developers and demonstration projects.

2.2. Policy and regulatory signals

India has introduced several enabling policies, including building energy codes, sustainability guidelines, and climate commitments at the national level. However, enforcement is uneven, and compliance often focuses on minimum requirements rather than performance outcomes. Green certification penetration remains low relative to total building stock with just 5% of India's building stock green-certified [3].

For the market, this translates into weak demand signals. Developers and contractors are rarely compelled to adopt better technologies unless there is a clear regulatory requirement, cost advantage, or reputational benefit.



3 State of innovation supply

India's climate-tech ecosystem now includes more than 800 operational startups across mitigation, adaptation and resilience, indicating rapid growth over the past decade [4]. A growing number of startups are developing technologies and solutions aimed at reducing energy use, emissions, and resource intensity across buildings and construction. However, the presence of innovation does not automatically translate into market readiness. In the climate start up ecosystem, only about 17% of Indian climate-tech startups progress from seed to Series A, reflecting persistent structural barriers to scaling commercially [5]. This section outlines the current profile of climate-focused building startups and highlights the structural challenges they face in moving from technically viable solutions to commercially scalable offerings.

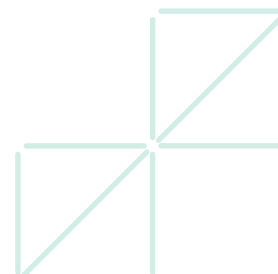
3.1. Startup landscape

India has seen a steady rise in startups addressing climate challenges in the built environment. These include innovations in:

- **Energy-efficient materials and construction systems:** Startups in this area are developing alternatives to conventional materials and building systems that reduce embodied energy, improve thermal performance, or lower lifecycle emissions. While technically promising, adoption is often slowed by cost comparisons with familiar materials and limited acceptance among contractors.
- **Cooling and HVAC technologies:** Innovations focus on reducing energy demand from space cooling through efficient equipment, passive cooling strategies, and climate-responsive design interventions. Despite strong relevance in India's warming climate, uptake is constrained by upfront costs and the dominance of established HVAC brands.
- **Water efficiency and reuse:** These solutions address growing water stress through technologies for rainwater harvesting, wastewater treatment, recycling, and smart water management. Market adoption is uneven, often driven by local regulations or acute water scarcity rather than proactive sustainability goals.
- **Digital tools for building management and monitoring:** Startups offer software and sensor-based solutions to track energy use, indoor air quality, and system performance in real time. These tools are more readily adopted in commercial buildings, while penetration in residential and mid-scale developments remains limited.
- **Waste and circularity solutions:** Innovations in this category aim to reduce construction and demolition waste through recycling, material recovery, and circular use of resources. Although environmental benefits are clear, weak enforcement and low disposal costs reduce incentives for widespread adoption.

Most of these startups are early to mid-stage and hardware-intensive. Their solutions are often technically sound but face long development cycles, high capital requirements, and slow customer adoption.

Most of these startups are early to mid-stage and hardware-intensive. Their solutions are often technically sound but face long development cycles, high capital requirements, and slow customer adoption.



3.2. Mismatch with conventional capital

Unlike software-driven sectors, building-sector climate technologies rarely fit traditional venture capital expectations. Returns are slower, pilots are complex, and scaling requires manufacturing, certification, and supply chain integration. As a result, many promising innovations struggle to move beyond pilots or small demonstration projects, even when the underlying value proposition is strong.

Building-sector climate technologies rarely fit traditional venture capital expectations.

4 Demand-side reality: Who is (and is not) buying

The demand side of India's building sector is not uniform. Adoption of climate-smart solutions varies sharply depending on scale, risk appetite, and commercial priorities. For the purpose of this status assessment, the market can be broadly understood through three segments: early adopters, the middle market, and compliance-driven actors [6]. Each segment responds to different incentives, faces different constraints, and plays a distinct role in shaping how and whether climate innovations move from niche applications to mainstream practice.

4.1. Early adopters

A limited segment of the market actively seeks climate-smart building solutions. These are typically large developers, institutional clients, or organisations driven by ESG commitments. They are willing to experiment, absorb risk, and pay a premium for innovation.

While important, this segment is too small to drive sector-wide transformation on its own.

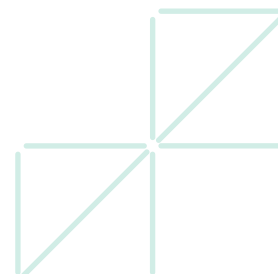
4.2. The middle market

The bulk of India's building activity sits in the middle market: mid-sized developers, contractors, housing projects, and commercial buildings that are highly cost-sensitive and risk-averse.

This segment demands:

- Clear and short payback periods
- Proven performance in Indian conditions
- Low perceived risk
- Compatibility with existing practices

Currently, most climate-smart solutions are not packaged or validated in a way that meets these expectations.



4.3. Laggards and compliance-driven adoption

At the other end of the spectrum are actors who respond only to mandatory requirements. For them, climate considerations remain secondary unless enforcement becomes stricter or incentives change materially.

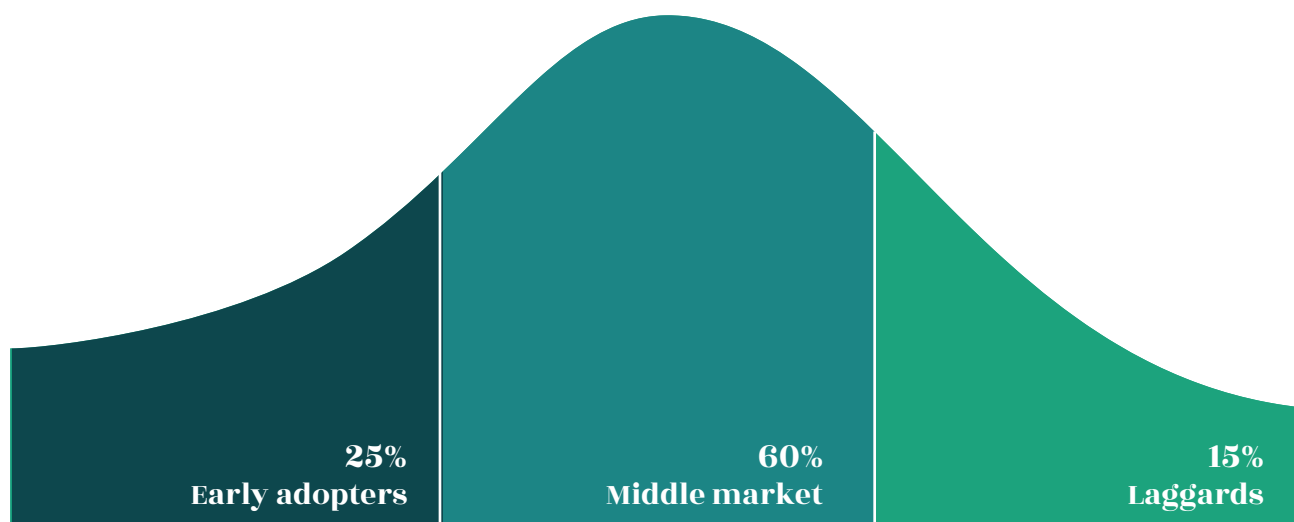


Fig: Market adoption model

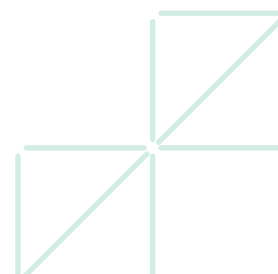
5 Role of innovation platforms and accelerators

Innovation platforms, accelerators, and funds play a critical intermediary role in shaping how climate-smart building solutions move from early development to market adoption. In India, these platforms form a diverse but fragmented ecosystem, offering varying combinations of mentorship, funding, validation support, and market access.

5.1. What the ecosystem offers today

India has a growing number of incubators, accelerators, and funds supporting climate and construction-related startups. These platforms provide combinations of:

- **Mentorship and technical guidance:** Most platforms provide advisory support on product development, business models, and go-to-market strategies, often drawing on experienced entrepreneurs or sector experts. While valuable for early-stage clarity, this support is rarely sustained through later stages of validation and scale-up.
- **Visibility and networking:** Platforms help startups gain exposure through demo days, exhibitions, and curated introductions to ecosystem actors. This visibility can open doors, but it does not consistently translate into commercial contracts or long-term customer relationships.



- **Limited grants or seed funding:** Some platforms offer small grants or facilitate access to seed capital, primarily to support prototyping and early pilots. However, funding levels are typically insufficient to cover certification costs, manufacturing scale-up, or extended deployment cycles common in building-sector innovations.
- **Access to investors or corporate partners:** Accelerators often act as connectors to investors, developers, or corporate partners interested in innovation. While these connections can enable pilots or strategic partnerships, follow-on investment and repeat adoption remain uncertain.

Some are sector-specific, while others are broad and climate-agnostic.

5.2. Fragmentation and overlap

A consistent pattern across the ecosystem is fragmentation. Startups often participate in multiple programmes to meet different needs: grants from one platform, pilots from another, and visibility from a third. This results in duplicated effort and long timelines without guaranteed scale-up.

There is limited coordination between platforms to create a clear pathway from early-stage innovation to market-wide deployment.

6 Persistent market gaps

Based on comparative analysis and startup feedback, several structural gaps continue to slow market transformation.

6.1. Certification and validation

Third-party testing, regulatory approval, and green product certification are critical for trust in the building sector. However, these processes are expensive, slow, and poorly integrated into startup support systems. Many startups delay certification due to cost, even though lack of validation later becomes a barrier to adoption.

6.2. Pilots that do not convert

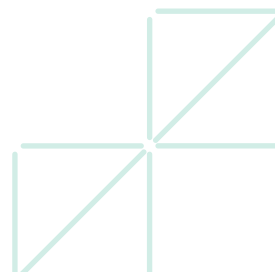
Pilots are widely recognised as essential, yet many remain unpaid or fail to convert into commercial orders. Without structured post-pilot pathways, pilots become learning exercises rather than market entry points.

6.3. Manufacturing and scale-up

Hardware-focused climate innovations face a sharp cliff after proof of concept. Manufacturing scale-up, quality control, and supply chain development are rarely supported by accelerators or investors.

6.4. Weak middle-market fit

Most solutions are not yet engineered for the price sensitivity and risk profile of the middle market. This limits adoption even when environmental benefits are clear.



7 Market signals from startups and stakeholders

Direct feedback from startups and ecosystem actors provides a grounded view of how the market is functioning in practice. These signals reflect recurring challenges faced during validation, market entry, and early scaling, cutting across technologies and business models. There are four consistent themes:

- Grants remain critical for survival during validation stages: Early-stage startups rely heavily on grants to fund pilots, testing, and compliance activities that generate limited or no immediate revenue.
- Access to real problem statements from developers is more valuable than generic mentorship: Startups benefit more from clear, real-world demand signals from developers than from broad advisory support that is not tied to deployment opportunities.
- Corporate and manufacturing partners are often easier to work with than real estate developers: Corporates and manufacturers tend to offer faster decision-making, clearer pilot pathways, and greater operational readiness compared to real estate developers.
- Government procurement and empanelment processes are poorly suited to innovation: Legacy standards, rigid qualification criteria, and long timelines make public procurement largely inaccessible to startups offering new or unproven solutions.

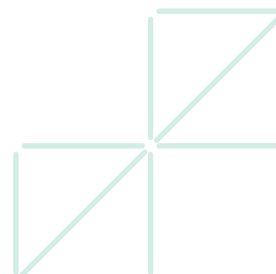
These signals point to a market that is interested but structurally unprepared to absorb new technologies at scale.

8 Findings

This status assessment suggests that the challenge in the buildings and climate space is no longer a lack of ideas or startups. Instead, the core constraints are structural and market-facing.

Key findings include:

- Innovation supply is growing, but adoption remains concentrated among a small group of early adopters.
- The middle market, which accounts for the majority of construction activity, remains highly cost-sensitive and risk-averse, with limited appetite for unproven solutions.
- Policy intent is strong, but enforcement and demand-side signals are too weak to drive widespread behavioural change.
- Certification, validation, and post-pilot scale-up remain critical bottlenecks across the ecosystem.
- Innovation platforms provide valuable support, but fragmented offerings and limited coordination slow market-wide impact.



The primary barriers are weak demand signals, high perceived risk, limited validation, and lack of pathways from pilots to scale.



Demand



Risk



Validation



Scale

9 Key questions emerging from the current market state

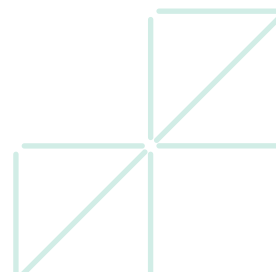
The current market conditions outlined in this report give rise to several unresolved questions that will shape the next phase of climate action in India's building sector.

- How can the middle market be engaged without relying solely on subsidies?
- What role should developers, manufacturers, and financiers play in de-risking adoption?
- How can certification and validation be made faster and more affordable?
- What would a coordinated innovation pipeline for the building sector look like in practice?

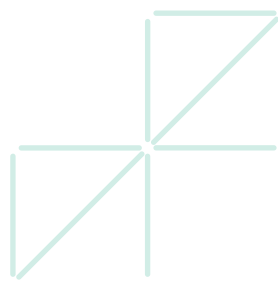
These questions reflect underlying uncertainties around demand creation, risk-sharing, and the pathways required to move from isolated adoption to market-wide change. Addressing these is central to moving from isolated innovation to genuine market transformation in India's building sector.

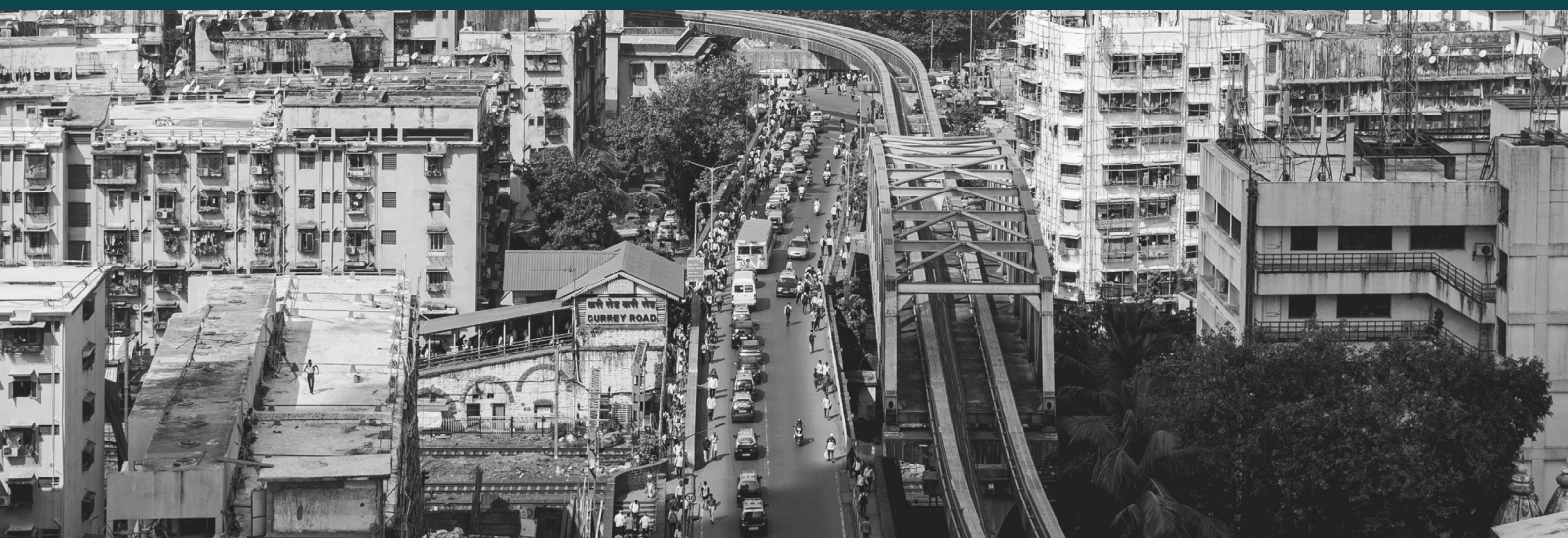
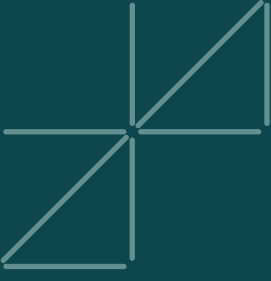
10 References

- [1] Bureau of Energy Efficiency, *Energy Conservation Building Code (ECBC) 2017*. New Delhi: Ministry of Power, Government of India, 2017.
- [2] McKinsey Global Institute, 'India's Urban Awakening: Building Inclusive Cities, Sustaining Economic Growth', McKinsey & Company, 2010.
- [3] USGBC, 'India Green Building Council Performance Report', United States Green Building Council, 2021.
- [4] S. Shukla, P. Mishra, and S. Sharma, 'India Climate Tech Startup Landscape', IIMA Ventures and MUFG, 2024. [Online]. Available: https://www.bk.mufg.jp/global/globalnetwork/asiaoceania/pdf/India_Climate_Tech_Startup_Landscape.pdf
- [5] A. Joshi, 'Driving Sustainability through innovation in the Indian Startup Ecosystem', IIMB - NSRCEL. [Online]. Available: <https://nsrcel.org/driving-sustainability-through-innovation-in-the-indian-startup-ecosystem/>
- [6] G. A. Moore, *Crossing the Chasm: Marketing and Selling High-Tech Products to Mainstream Customers*, 3rd ed. New York, NY, USA: HarperBusiness, 2014.



This page intentionally left blank.





For more information, visit
sdichallenge.in

©2026, Indian Institute for Human Settlements and
Alliance for an Energy Efficient Economy

