

Asia's First EDGE-Certified Green Retrofit Residential Society

Tags: Climate change |

Nav Yuwan Housing Society is the first existing housing society in Asia to receive EDGE Advanced green building certification. This milestone highlights the transformative potential of energy-efficient retrofitting to reduce emissions in the building sector, and sets a benchmark aligned with international climate and sustainability standards.

India's rapid urbanization is driving up carbon emissions, with cities emerging as major contributors to the climate crisis. Residential buildings alone are responsible for 12.5% of global greenhouse gas emissions. In India, construction activities and the operational energy demands of buildings—especially for cooling and lighting—further intensify the city's carbon footprint.

With temperatures in parts of India soaring to nearly 50°C during peak summers, there is an increasing reliance on energy-intensive cooling systems like air conditioners. This is reflected in the 14 million AC units sold across India last year, according to *The Wire*. By 2050, residential air conditioner ownership is projected to increase ninefold, posing serious challenges to energy security and climate commitments.

In this context, upgrading existing housing through green retrofitting emerges as a crucial climate strategy. Aga Khan Agency for Habitat (AKAH) India is leading this shift through a model initiative in Nav Yuwan Housing Society, Mira Road, Mumbai. According to the Mira Bhayandar Climate Action Plan, residential buildings contribute to 40.5% of total emissions. This case study shows how AKAH's approach reduces emissions while improving comfort and affordability for households and communities at both household and society levels.

Nav Yuwan Housing Society Model

Nav Yuwan is a high-density residential society in Mira Road, Mumbai housing 280 families. Like many Indian residential societies, it faces rising energy demands, increasing heat stress, and limited awareness of sustainable practices. AKAH

leveraged this as an opportunity to demonstrate how existing housing societies can be transformed into models of sustainable, low-carbon living.

Securing community support is often a major challenge in residential sustainability projects, as residents are wary of changes to shared spaces or potential added expenses. To enable community-led action and ownership, AKAH facilitated dialogue through its **Aashiyana Awareness Program** and **Abhilasha Capacity-Building Program**. These capacity-building sessions enhance residents’ understanding of maintenance and repairs and focus on good governance and community-driven solutions. *“AKAH explained everything about the project to us in detail. It’s not easy to build consensus in a large housing society, but AKAH helped clarify all the residents’ doubts.”*– Aziz Fidai, Nav Yuwan Committee Member.



Figure 1: Aashiyana Awareness Program with residents of Nav Yuwan Housing Society

Cost-Effective Green Retrofitting Solutions

Action	Payback period	Impact
Installation of Solar Panels	3 years 9 months	Generates 11-15 million kWh, reducing grid dependency
BLDC fans	9 months	Lower electricity consumption and resulting in reduced electricity bills of the residents
Motion sensor dimmable lights	9 months	Uses electricity when in use, and ensures resident’s safety

Table 1: Green Retrofitting Solutions implemented at Nav Yuwan Housing Society

AKAH’s approach combined passive design principles with low-carbon technologies—ensuring maximum impact with minimum disruption to residents’ lives.

1. Harnessing Solar Power

A 44 kWp solar photovoltaic system installed across four blocks, covering 206 square meters. Projected to generate over 66,000 kWh annually, the system powers common lighting and sells surplus energy back to the grid—creating cost savings and a new revenue stream for the society.

2. Upgrading to BLDC Fans

Nearly 1,000 brushless DC (BLDC) fans installed across 280 housing units. Each fan consumes 28 watts—less than half the power of older models—leading to significant energy savings.

3. Smart Lighting in Common Areas

Motion-sensor dimmable LED tube lights (150 units) installed in staircases, lift lobbies, and corridors, while 14 high-efficiency floodlights replaced traditional lighting in parking areas. These interventions enhanced both safety and energy efficiency.

4. Kitchen Gardening for Climate and Community Health

Kitchen gardening is set up within the society premises to promote waste management and urban green spaces. Training sessions on soil and water management conducted for senior citizens residents to encourage community ownership and build knowledge. Residents now grow vegetables and herbs like cauliflower, chili, coriander, and lemongrass—strengthening participation of senior citizens and community ownership.



Figure 2: Rooftop solar panels installed at Nav Yuwan Housing Society

Performance Assessment: EDGE Advanced Certification

AKAH conducted an EDGE (Excellence in Design for Greater Efficiencies) green building assessment for Nav Yuwan. This assessment is a globally recognized green

building certification by the International Finance Corporation (IFC), World Bank.

Indicators	Achieved
Energy Savings	41%
Water Savings	35%
Material Efficiency	59%
Operational CO ₂ Reduction	232.78 tCO ₂ /year
Retrofit Cost	₹17,500 (\$200) per household
Payback Period (avg.)	Less than 1 year for key actions

Table 2: Result of the Edge Advanced Green Building Certificate for Nav Yuwan after green interventions

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Key Learnings and Takeaways

1. Building Trust Is Foundational

AKAH's community-centered approach along with technical expertise involving architects, engineers, and community mobilizers, helped build community consensus. Regular awareness sessions further aided this.

2. Data-Driven Decisions Maximize Impact

Intervention strategies and solutions are informed by household-level data, including appliance usage, electricity consumption, and behavioral patterns—ensuring that investments targeted the highest-impact areas.

3. Smart Cooling, Not More Cooling

By integrating passive design elements and efficient appliances, the project balanced comfort and sustainability, demonstrating that thermal comfort does not need to come at the cost of increased emissions.

A Scalable Blueprint for Urban Climate Action: Targeting the 40.5% Residential Emissions Footprint

The Nav Yuwan model proves that retrofitting is not just a technical upgrade, but a transformative opportunity to transition to low-carbon, climate-resilient living. The project showcases a structured, adaptable approach that can be replicated across thousands of similar housing societies nationwide.

The model is built on community-centric engagement, data-drive planning, accessible green technologies, that enables identification of interventions that offer maximum impact with minimal disruption. The project frames retrofitting benefits in relatable terms like lower electricity bills, turning climate action from an abstract idea into a tangible, personal gain for households. This approach fosters long-term behavioural change and encourages peer-to-peer adoption.

By embedding monitoring and third-party certification (e.g., EDGE Advanced), the model strengthens credibility and aligns with national and global sustainability benchmarks—making it attractive to government schemes, development finance institutions, and climate funds.

[Click to watch the project video](#)

