



GREEN BUILDINGS MARKET INTELLIGENCE

INDIA COUNTRY PROFILE

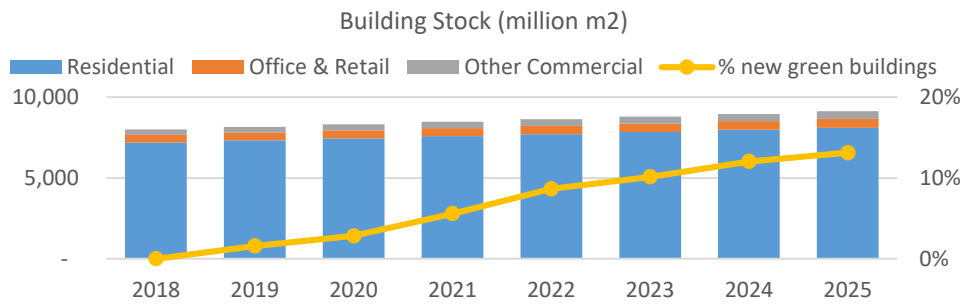


Creating Markets, Creating Opportunities

INDIA: COUNTRY SUMMARY



MARKET GROWTH



Market through 2025

Commercial

Total market

USD 91 B

Green market

USD 11 B

Residential

USD 455 B

USD 28 B

Residential units

13,000,000

810,000



CLIMATE POLICIES (NDCS)

Government push to have 200 million sq. meters of green certified buildings by 2022.

- States beginning to build awareness and provide tax incentives and subsidies to encourage investment in green buildings.
- Country wide green building policies have existed for many years but rate of adoption has been slow due to lack of a level playing field.



MARKET STATUS

Strong growth projected in the construction industry with focus on industry, residential and transport.

- 70% of buildings needed by 2030 yet to be constructed.
- Significant potential in residential construction with 'Housing For All' program requiring 20 million urban and 10 million rural homes.



OTHER FACTORS

- Real GDP growth expectations average 7.8% a year for 2018-2023.
- Pick-up in private consumption and gross fixed investment from 2018 as banks' balance sheets improve.
- Rapid urban growth with special initiatives for developing affordable housing.
- Push towards scaling up green bond issuances against backdrop of rapid urban growth with encouraged private sector participation.
- Stress on phasing out subsidies and government intervention to encourage private sector participation.



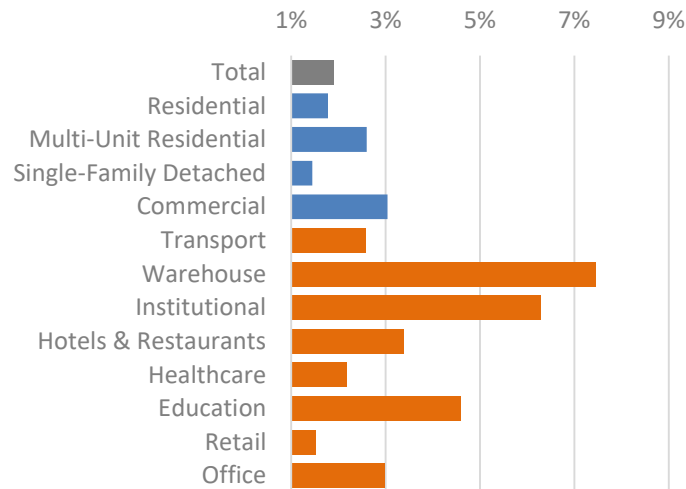
GREEN BUILDING PROGRAMS

- GRIHA: Indigenous rating system to promote and certify green buildings
- India Green Building Council: Implements certification services and training programs
- LEED: Partnerships with local developers like Tata Housing, etc. to provide certifications.
- IFC organizes the Sustainable Housing Leadership Consortium and promotes EDGE.



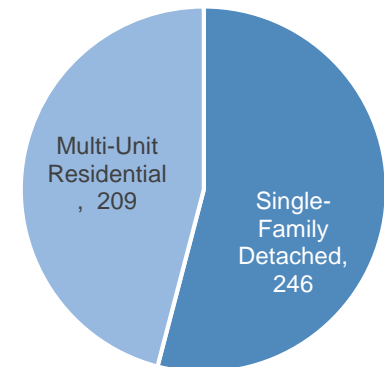
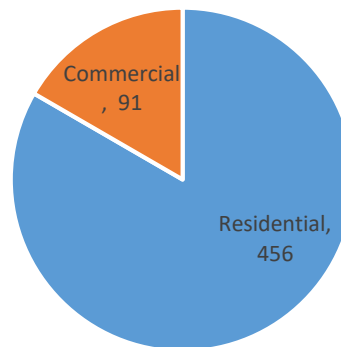
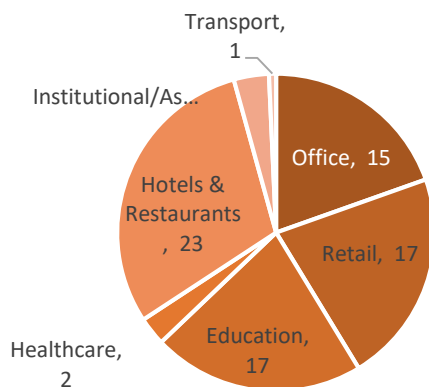
STRONG GROWTH PROJECTED IN ALL SECTORS WITH RESIDENTIAL AS A KEY GROWTH DRIVER

MARKET GROWTH BY SUB-SECTOR (CAGR)



- India is at the threshold of a commercial and residential construction boom.
- 700 million sq. meters of commercial building space built over the last 10 years with 40% of the building stock that will exist in India by 2037 yet to be built.
- Government's 'Housing for All by 2022' program can act as a catalyst to propel growth in residential building.
- Net Profit Margins in Real Estate higher than total Indian market: Real Estate (D) 15%, (G) 25%, and (O) 30%, Construction 7% after tax and adjusting for lease.

TOTAL MARKET SIZE, 2025 (USD BILLIONS)





5.30 Billion Sq Ft of
registered green
buildings

Project-level data not available

A map of South Asia showing the number of COVID-19 cases in various countries. The map includes labels for Pakistan, India, Bangladesh, Nepal, Bhutan, Sri Lanka, and the Bay of Bengal. Blue circles with numbers indicate the case counts: Pakistan (1), India (5, 144, 3, 12, 1, 185, 1, 32, 116, 73, 2), Bangladesh (19), Nepal (3), Bhutan (1), Sri Lanka (2).

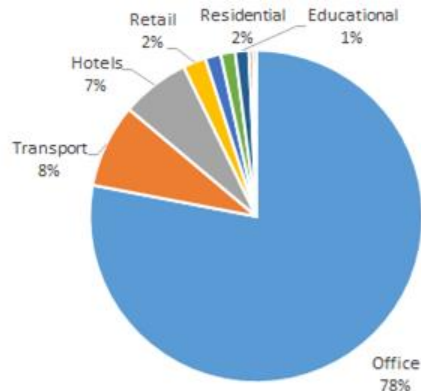
Year	Activity Count
2004	5
2005	5
2006	10
2007	20
2008	35
2009	70
2010	130
2011	200
2012	290
2013	380
2014	440
2015	510
2016	620

- Hotels:
 - Fairfield by Marriott
 - ITC Rajputana Sheraton Hotel
- Offices:
 - Quasitum Intelisoft India Pvt. Ltd.
 - Infinity Benchmark, Kolkata
- Residential:
 - Kolkata West International City
 - VBHC Bangalore

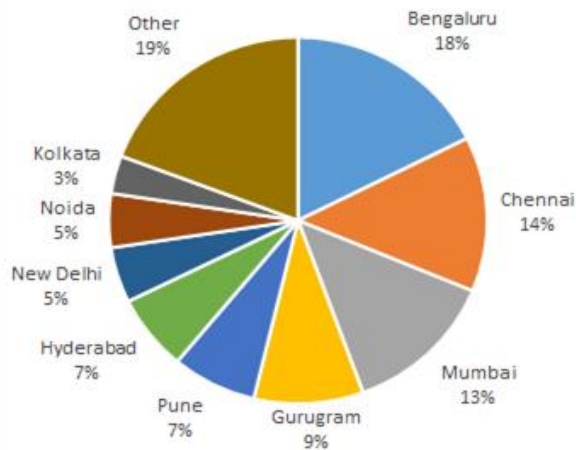


DISTRIBUTION OF EXISTING GREEN BUILDINGS IS CENTERED AROUND METROS IN THE OFFICE SECTOR

GREEN BUILDINGS BY TYPE (2013-16)



GREEN BUILDINGS BY CITY (2013-16)



Top sector for current projects:

Offices/Commercial

Top sector for new projects:

Offices/Commercial

Sectors with high potential:
Residential

Significant opportunity for expansion as only 5% buildings in India are green.

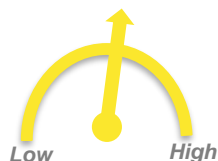


GROWTH WILL BE DRIVEN BY RESIDENTIAL AND OFFICE CONSTRUCTION

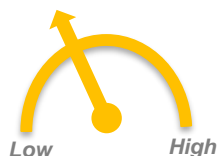
GREEN MARKET SUPPORT RATING



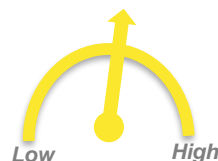
GOVERNMENT



ENVIRONMENT



FINANCING



CURRENT GREEN MARKET



GROWTH POTENTIAL



HOUSING

- High demand for green buildings due to rising consumer awareness
- Strong push by current government to implement 'Housing For All' program to provide affordable housing to lower income groups by 2022.
- This will require new construction of 20 million urban homes and 10 million rural homes



70% of the buildings required by 2030 have not been constructed yet.

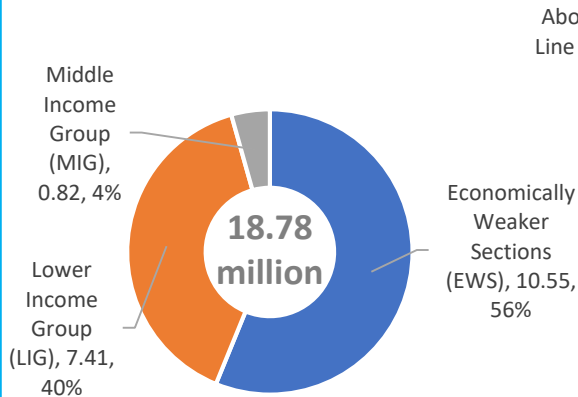
OFFICES

- India has the third highest green building growth rate in the world.
- Government has increased focus on increasing energy efficiency in industry.
- Environmental regulations introduced to set minimum energy standards for new commercial buildings.

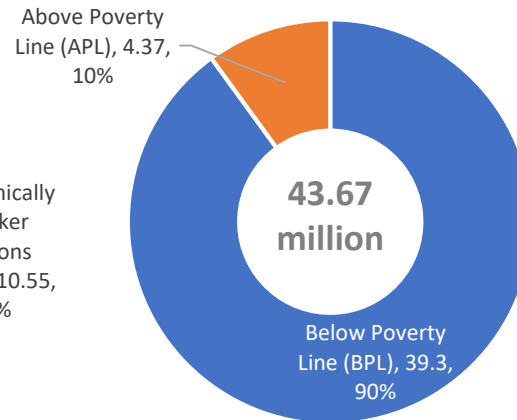


HOUSING SHORTAGE IS LARGE AND HIGHLIGHTS THE NEED FOR AFFORDABLE HOUSING

URBAN HOUSING SHORTAGE



RURAL HOUSING SHORTAGE



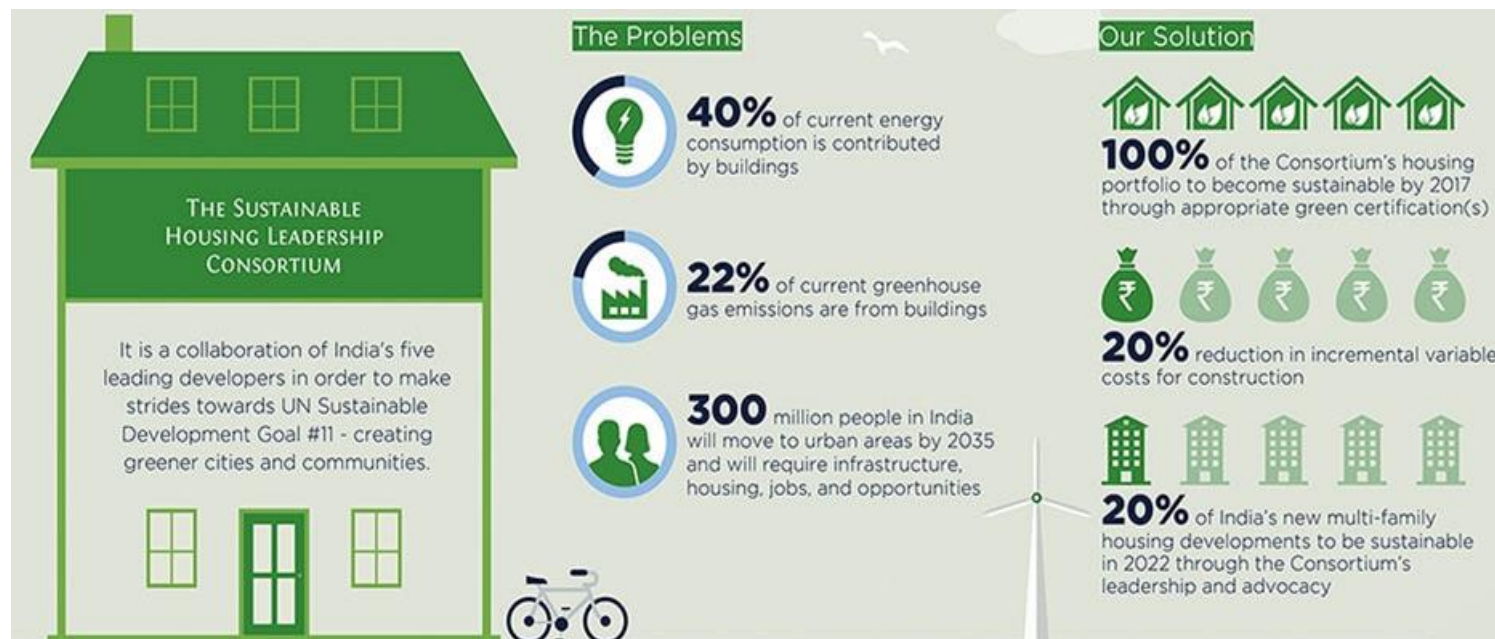
Factors taken for assessing housing shortages	Urban Housing Shortage (million)	Rural Housing Shortage (million)
No. of nondurable houses	3	10
Shortage due to congestion	15.09	10.86
Shortage due to obsolescence	2.84	7.18
Homeless population	0.94	0.83
Total	21.87	28.87

- Shortage of **20-70m units** - housing **370m people**.
- Housing market forecast to grow over **\$100 billion by 2017**.
- 40% households have monthly income from Rs. 5,000 – Rs. 11,000 but **no access to housing finance** and home-ownership (20-25% of income for rent).
- Mounting **congestion costs**: More than 10m people in 5 cities, and over 1m in 52 cities.

Rural demand estimates 2X urban needs but rural is less attractive target for private sector developers in current environment.



SUSTAINABLE HOUSING LEADERSHIP CONSORTIUM IS LEADING THE WAY ON GREEN HOUSING



- Commitment to make green homes mainstream.
- Convened by IFC under the EU's Eco-cities program.

Members include:

Mahindra
Lifespaces

Shapoorji
Pallonji

REAL
ESTATE

TATA
HOUSING

Godrej

PROPERTIES

VBHC
BUILDING HAPPY WORLDS!

pnb Housing
Finance Limited
Ghar Ki Baat

HDFC
WITH YOU, RIGHT THROUGH



GREEN FINANCE PROVIDES MASSIVE INVESTMENT OPPORTUNITY

- IFC estimates investment opportunity of **\$1.4T in green buildings**, with \$1.25T in the residential and \$228 billion in the commercial sector.
- Green Bonds: Key tool for Climate finance; India has **\$3 billion Green Bond market** as of 2016, 7th largest in the world.
- PNB Housing Finance, raised INR 5Bn from IFC, becoming first Indian housing finance company to issue green bonds.
- **High current cost of borrowing**: Indian companies borrow at 220 basis points higher than China.



Sebi finalises norms for listing of green bonds

PTI | Updated: Apr 30, 2017, 02:59 PM IST



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Comments

A+



Sebi had decided on the new norms after taking into account public comments to a draft paper issued by the regulator in this regard in December 2015.

NEW DELHI: Regulator **Sebi** has finalised norms for issuance and listing of **green bonds**, which will help in raising funds from capital markets for investment in the renewable energy space.

The rules have been finalised by the Securities and Exchange Board of India (Sebi) after taking into account inputs from the finance and **environment** ministries, as also from the Ministry of New and Renewable Energy (MNRE), a top official said.

Only 14% of total green bond financing in India utilized towards low carbon buildings, leaving significant untapped potential.



GREEN MARKET IS SUPPORTED BY INDIGENOUS RATING SYSTEMS

GRIHA

- Independent rating system called [Green Rating for Integrated Habitat Assessment](#), GRIHA.
- [31 rating criteria](#) on a 100-point system with each criterion assigned certain points.
- Buildings, in design stage with built up area more than 2,500 m², eligible.
- 3 stages for evaluation.
- [Fast track](#) environmental clearance available through [pre-certification](#).
- [1,000 registered projects](#) covering approx. [40 million sq. meters](#).



GRIHA V 2015 Rating Thresholds	GRIHA Rating
25-40	★
41-55	★★
56-70	★★★
71-85	★★★★
86 or more	★★★★★

IGBC

- Offers a wide array of services including developing new green building [rating programs](#), [certification services](#) and green building [training programs](#).
- Rating systems are based on the five elements of nature and are applicable to all five climactic zones in India
- Organizes [Green Building Congress](#), an annual flagship event on green buildings.
- [4,363 registered projects](#) with a footprint of over 4.71 Billion sq. feet and [1,257 certified](#) and fully functional existing projects.
- Long term goal of [positioning India as a global leader](#) in the green building movement by 2025.





NATIONAL GREEN BUILDING CODE IS NOT WELL ENFORCED, BUT **LOCAL INCENTIVES** GROW THE MARKET

NATIONAL CODE

- Originally **introduced in May 2007** BY Bureau of Energy Efficiency (BEE).
- Revised in June 2017 because of **slow adoption of old code** due to different jurisdictions at state and municipal levels and lack of stakeholder awareness.
- **Varied approaches exist at state level** - Haryana offers up to 25% additional FAR while Pimpri Chinchwad Municipal Corporation offers up to 50% discount on premium building permission charges.
- **ECBC cells to be set up** to coordinate State and Center level initiatives and establish level playing field.

LOCAL INCENTIVES

- Punjab
- Rajasthan
- West Bengal
- Uttar Pradesh
- Maharashtra
- Andhra Pradesh
- Jharkhand
- Himachal Pradesh
- Pune
- Harayana

List from [IGBC website](#)





LEARN MORE ABOUT EDGE CERTIFIED PROJECTS IN INDIA



KESAR CITY

Location: **Ahmedabad, India**

Architect **Aroma Realities**

Sector: **Residential**

No. of Units: **> 1,000**

Resource-efficient 2-bedroom apartments that rely on practical strategies such as reducing the window size and using reflective paint to increase efficiency. The developer is placing green at the center of their market strategy.

Predicted Savings of EDGE Certification:



23% Energy Savings



24% Water Savings



71% Less Embodied Energy in Materials



QUASITUM INTELISOFT INDIA PVT. LTD.

Location: **Bangalore, India**

Architect **Fluid Space Architects**

Sector: **Commercial - Offices**

Size: **5,000 m²**

The project is projected to achieve 43% reduction in total energy consumption. It also includes a water conservation system with rain water harvesting.

Predicted Savings of EDGE Certification:



33% Energy Savings



68% Water Savings



32% Less Embodied Energy in Materials

Case studies from other countries: www.edgebuildings.com/projects/



PROJECTS CAN GET CERTIFIED THROUGH FAST, EASY, AND AFFORDABLE CERTIFICATION

Individual Homes/Single Family Dwelling Unit Pricing

BUILT-UP AREA (SQM), EXCLUDING PARKING	0-200 (SQM)	201-350 (SQM)	351-500 (SQM)	501-750 (SQM)	751-1000 (SQM)	>1,000 (SQM)
REGISTRATION	₹ 10,000	₹ 10,000	₹ 15,000	₹ 15,000	₹ 20,000	₹ 20,000
CERTIFICATION	₹ 20,000	₹ 25,000	₹ 30,000	₹ 35,000	₹ 50,000	₹ 80,000

Group Housing/Multi-Dwelling Units/Commercial Buildings Pricing

BUILT-UP AREA (SQM), EXCLUDING PARKING	0-5,000 (SQM)	5,001-50,000 (SQM)	50,001 (SQM) and Above
PRE-CERTIFICATION (DESIGN)	₹ 80,000	₹ 80,000	₹ 1,00,000
FINAL EDGE CERTIFICATION (CONSTRUCTION)	₹ 40,000	₹ 40,000 + ₹ 9/ per each additional SQM above 5,000 SQM	₹ 4,50,000
TOTAL CERTIFICATION FEE	₹ 1,20,000	₹ 1,20,000 + ₹ 9/ per each additional SQM above 5,000 SQM	₹ 5,50,000

Details and registration forms can be found on the EDGE program website: www.edgebuildings.com/certify/india/



EDGE EXPERTS CAN HELP PROJECTS NAVIGATE THE CERTIFICATION PROCESS

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Full list available at : www.edgebuildings.com/edge-experts/edge-experts-around-the-world



RESEARCH METHODOLOGY

COUNTRY LIST

- IFC chose countries that correspond to the [Climate Investment Opportunity Report](#) (CIO Report) as well as countries of strategic interest for IFC.
- IFC plans to release additional country analysis, pending resources.

TOTAL MARKET OVERVIEW

- Building stock was sourced from the [Global Building Stock Database](#) and confirmed by country experts, if possible.
- The research team found local prices for capital construction expenses, or used global proxies otherwise.
- Market sizing was executed for new construction and did not focus on retrofits.

SNAPSHOT OF THE CURRENT GREEN MARKET

- Main source of information was the [Green Building Information Gateway](#), confirmed by local green building council reports, if such existed.
- The research team focused on properties certified as green.

GOVERNMENT POLICIES

- Main information was sourced from [IFC's Climate Investment Opportunities Report – South Asia](#).
- Additional information was found using various searches as well as government websites.

PROJECTIONS FOR GREEN PENETRATION

- Based on the total market growth, snapshot of the current green market, and the enabling environment of government policies, the research team projected green penetration per each of the sub-sectors.
- Weighted average of combined sector data produced the final penetration number.
- The analysis focused only on new construction, and focused only on certified properties.
- As tools for retrofits take off in the market (including IFC's EDGE product), analysis may be amended to include the retrofit market.
- Market potential may be different from numbers reported in the CIO Report, as a more conservative estimate was used for business planning purposes.

OTHER

- Information for green building councils was sourced from [World GBC website](#).
- Case studies were presented only for IFC's EDGE green building software and certification system.
- However, lists of all green certified projects in a given country can be found through the [Green Building Information Gateway](#).
- Finally, pricing for EDGE certification was included to illustrate that green certification is affordable and achievable in emerging markets.



ACKNOWLEDGEMENTS

DONOR ACKNOWLEDGEMENT

IFC thanks the following national donors for their generous support of the EDGE program: the State Secretariat for Economic Affairs of Switzerland (SECO); the European Union; the Ministry of Finance of Japan; the Hungarian Export Import Bank; the Canada Climate Change Program and the Department of Foreign Affairs, Trade and Development Canada; the Royal Ministry of Foreign Affairs of Denmark and the Danish Green Growth Fund; the Federal Ministry of Finance of Austria; and the Ministry of Foreign Affairs of Finland.

In addition, IFC thanks contributors to the GEF-IFC Earth Fund Platform, and the Energy Sector Management Assistance Program (ESMAP) of the World Bank whose support helped seed EDGE.

COLLABORATION ACKNOWLEDGEMENT

IFC thanks the Georgetown University McDonough School of Business for collaborating on developing the market intelligence reports.

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