

"The GRIHA Summit"

"Initiatives of the National Housing Bank to incorporate and promote green building / sustainable habitat design"

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Background



Projected Timeline	Demographic Changes
By 2050	World's population will reach 9 Billion
By 2050	70% of the world's population will live in urban areas, up from 50% today
By 2030	40.8% of India's population will be living in urban areas (current 28.4%), increasing to 50% by 2041

- Housing sector accounts for nearly 40% of energy consumption
- Populations in emerging markets are creating a huge demand for homes that need to be both affordable and green



Energy Efficiency in Housing

- Energy efficient housing balances all aspects of energy use in a building
 - Lighting
 - Space utilization
 - Ventilation
 - Use of energy efficient building materials
 - Use of energy efficient equipment
 - Use of alternative and renewable sources of energy
- Reducing energy demand at source
 - More sustainable in long run
 - Often with little incremental cost



Green Buildings: Benefits to Various Stakeholders

To Developers / Builders	To Landlords (in case of rental housing)	To Occupants / End users
Cost savings – capital & operational	Higher rentals	Low energy, waste disposal and water cost
Space saving because of no bulky ducting	Higher occupancy	Lower operational and maintenance costs
Reduced construction time schedule	Higher values	Lower emissions and environment costs
Improved marketability and enhanced value		Higher productivity levels
		Better health and satisfaction
		Demonstration of commitment to sustainability and environmental stewardship

Policy



National Urban Housing & Habitat Policy (NUHHP) 2007

- Appropriate ecological standards for healthy environment and better quality of life.
- Implementing the concept of 'green' and 'intelligent' buildings.

"Strong recognition of financial sector's crucial role in integrating climate considerations and sustainability into their operations"

About NHB



- Statutory body
 - National Housing Bank Act, 1987
- Regulator of Housing Finance Companies in India
- Promotion and development of housing and housing finance sector
- Financing provided to Primary Lending Institutions for retail housing finance



NHB's Financing Products

Refinance	Direct Finance	Equity Participation
Term Loans <ul style="list-style-type: none"> Commercial Banks Housing Finance Companies (HFCs) Cooperatives 	Term Loans <ul style="list-style-type: none"> Housing Corporations Societies PPPs Self Help Groups 	Equity stake <ul style="list-style-type: none"> Rural HFCs HFCs involved in housing finance to low income segments
for		
<ul style="list-style-type: none"> General Housing Rural Housing Special projects (in natural disaster affected areas) 		



NHB KfW Partnership

- Important step forward in promoting use of energy efficiency techniques in buildings
- Programme initiated jointly by NHB and KfW, German Development Bank in 2008 pursuant to Indo - German Government-to-Government negotiations
- Prime objective of the Programme - Promoting Energy Efficient Residential Housing
- First of its kind of programme in India



Partnership contd...

- Line of Credit of € 50 million on 31st Dec'2010.
- Technical assistance grant of €1.5 million.
- The Programme
 - Financial and technical assistance to stakeholders to promote EE residential housing
 - Financial assistance - housing loans to individual borrowers through retail lending institutions for purchase / construction of EE residential houses / flats
 - Technical assistance - Fraunhofer TERI Assessment Tool to calculate the level of energy savings of EE houses on the baseline (developed by TERI / Fraunhofer)



Partnership contd...

- Initial implementation - facilitator appointed to assist NHB
- Identification of EE building projects
- Identification of retail lending institutions
- Assessment of refinance potential for NHB
- Gathering of borrower information
- Assistance in energy calculation & certification
- Compliance with NHB's reporting requirements to KfW
- Launching of logo and website for the programme - ee-homes.com
- Signed MoU with IGBC and AdARSH

Partnership contd...

- NHB has utilised the entire sanctioned amount of ₹ 50 million i.e. equivalent to INR 381.53 crore
- 12 Projects comprising of 162 towers have been certified in the cities of Lucknow, Nagpur, Mumbai, Bangalore and NCR
- 2065 individual loans have been refinanced by NHB
- LICHL, Axis Bank, ICICI Bank, HDFC, DHFL, and Tata Capital have availed Refinance from NHB under the Programme
- Full time TA consultant appointed to assist NHB in programme implementation

Snapshot of some Certificates

EnEff.ResBuild India
Toolkit for energy efficient residential buildings in India

Project: Sahara City Homes –Type C

Building:
Address of project: Sahapur Haridri By Pass Road, Near RM Lucknow, Uttar Pradesh 226002

Table of results: Electrical energy in kWh/m ² yr		
	This building	Reference building
Internal lighting	12.81	12.81
Common lighting	1.54	1.54
Parking lighting	0.90	0.90
Cooling	20.27	26.60
Heating	3.25	3.25
Hot water	4.87	11.14
Cooling fans	1.14	1.14
Appliances	26.00	26.00

Occupant/Owner:

Building parameters:
Building type: Residential building
Total building area: 6,174.00 m²
Climatic zone: New Delhi
Created with: EnEffResBuild India Version 0.9.1.0

Consumption of electrical energy in kWh/m²yr:
This building: 42 kWh/m²yr
Reference: 61 kWh/m²yr
Savings: 32%

Qualitative parameters (0 out of 6 measures are applied in this building):
☐ Daylight area in the core area is 20% to 40%
☐ Solar street lights
☐ Efficient transformers
☐ Presence detection or photo sensors for outdoor and
☐ Efficient water pumps
☐ Tailored user manual

Issue: The Energy And Resource Institute (TERI)
04.07.2011
Date: _____
Signature: _____

EnEff.ResBuild India
Toolkit for energy efficient residential buildings in India

Project: Lotus Boulevard-Tower 18

Building:
Address of project: G-03, Sector 100, Noida, Gautam Buddha Nagar District Uttar Pradesh, 201301

Table of results: Electrical energy in kWh/m ² yr		
	This building	Reference building
Internal lighting	14.00	14.00
Common lighting	1.00	1.00
Parking lighting	0.90	0.90
Cooling	24.39	22.77
Heating	1.68	1.68
Hot water	10.24	10.24
Cooling fans	0.90	0.90
Appliances	26.23	26.23

Occupant/Owner:

Building parameters:
Building type: Residential building
Total building area: 14,136.00 m²
Climatic zone: New Delhi
Created with: EnEffResBuild India Version 0.9.1.0

Consumption of electrical energy in kWh/m²yr:
This building: 50 kWh/m²yr
Reference: 58 kWh/m²yr
Savings: 14%

Qualitative parameters (0 out of 6 measures are applied in this building):
☐ Daylight area in the core area is 20% to 40%
☐ Solar street lights
☐ Efficient transformers
☐ Presence detection or photo sensors for outdoor and
☐ Efficient water pumps
☐ Tailored user manual

Issue: The Energy And Resource Institute (TERI)
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NHB issues certificate to the Developer

Benefits from the Programme

- Reduction in energy usage without compromise on comfort
- Building of sustainable housing and habitat to positively impact society and environment
- Availability of funds - source for encouragement
 - Lenders
 - Borrowers
- Availability of assessment tool - help to developers

Barriers in Energy Efficient Housing Projects



- Lack of awareness
- Perception
 - Energy efficiency is expensive requiring huge upfront investments
 - Marketing gimmick of developers
 - High maintenance cost
- Lack of awareness and information about Government schemes promoting use of solar energy, etc.

Next Steps



- Absorption capacity / consumption of EE products / market for EE residential housing in India to be enhanced / encouraged
- Scalability important due to challenges
 - Cost aspects
 - Huge housing shortage
 - Existing housing
 - Present product for niche market segments
- Programme to be expanded to include existing housing units



To Summarize

- Energy efficiency - priority area for Government and policy makers
- NHB-KfW partnership - new initiative with huge scope
- Finance - an important tool for promoting energy efficiency in buildings
- Scalability - an important factor
- Multi-pronged approach to overcome barriers

A snap shot of few certified projects under the Program



Sahara City Homes, Nagpur

**Sahara City Homes
Nagpur**

Savings – 26%

Number of Units – 2,646





