Background

<table>
<thead>
<tr>
<th>Projected Timeline</th>
<th>Demographic Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>By 2050</td>
<td>World’s population will reach 9 Billion</td>
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<tr>
<td>By 2050</td>
<td>70% of the world’s population will live in urban areas, up from 50% today</td>
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<tr>
<td>By 2030</td>
<td>40.8% of India’s population will be living in urban areas (current 28.4%), increasing to 50% by 2041</td>
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</tbody>
</table>

- 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.

<table>
<thead>
<tr>
<th>To Developers/Builders</th>
<th>To Landlords (in case of rental housing)</th>
<th>To Occupants/End users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital cost savings</td>
<td>Higher rentals</td>
<td>Low energy, waste disposal and water cost</td>
</tr>
<tr>
<td>Space saving because of no bulky ducting</td>
<td>Higher occupancy</td>
<td>Lower operational and maintenance costs</td>
</tr>
<tr>
<td>Operational cost savings</td>
<td>Higher values</td>
<td>Lower emission and environment costs</td>
</tr>
<tr>
<td>Reduced construction time schedule</td>
<td></td>
<td>Higher productivity levels</td>
</tr>
<tr>
<td>Improved marketability and enhanced value</td>
<td></td>
<td>Better health and satisfaction</td>
</tr>
<tr>
<td>Higher future value of property</td>
<td></td>
<td>Demonstration of commitment to sustainability and environmental stewardship</td>
</tr>
<tr>
<td>Reduced liability and risk</td>
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</tbody>
</table>
National Urban Housing & Habitat Policy 2007

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

Finance as a Lever

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 retail institutions for housing finance
- Several new initiatives
- KfW partnership to promote energy efficiency in housing - new initiative with good scope

NHB’s Financing Products

<table>
<thead>
<tr>
<th>Refinance</th>
<th>Direct Finance</th>
<th>Equity Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term Loans</td>
<td>Term Loans</td>
<td>Equity stake</td>
</tr>
<tr>
<td>Commercial Banks</td>
<td>Housing Corporations</td>
<td>Rural HFCs</td>
</tr>
<tr>
<td>Housing Finance Companies (HFCs)</td>
<td>Societies</td>
<td>HFCs involved in housing finance to low income segments</td>
</tr>
<tr>
<td>Cooperatives</td>
<td>PPPs</td>
<td></td>
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<td></td>
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<td>Self Help Groups</td>
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<tr>
<td>for</td>
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<td>for</td>
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<tr>
<td>General Housing</td>
<td>Housing Finance Companies (HFCs)</td>
<td></td>
</tr>
<tr>
<td>Rural Housing</td>
<td>Cooperatives</td>
<td></td>
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<tr>
<td>Special projects (in natural disaster affected areas)</td>
<td>Society</td>
<td></td>
</tr>
</tbody>
</table>
NHB KfW Partnership

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

Partnership contd.

- Till date, NHB has submitted claims for €26.73 million to KfW.
- 08 Projects have been certified in the cities of Lucknow, Nagpur, Mumbai, Bangalore and NCR.
- 1,222 individual loans have been refinanced by NHB.
- LICHFL, Axis 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 during the remaining period of the Programme
Snapshot of some Certificates.

Benefits from the Programme

- Reduction in energy usage without compromise on comfort
- Building of sustainable housing and habitat to 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 concern
  - Not my problem
- 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 in India to be enhanced
- 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
Energy efficiency as a concept can become popular only if cost effective.

Measures needed to incorporate energy efficiency in affordable housing projects at the planning stage itself.

Use of traditional building materials and architectural techniques needs to be promoted.

Cost effective energy efficiency measures would bring down the payback period and increase acceptance of the concept.

Awareness building measures needed to boost awareness of and interest in energy efficient affordable housing projects among:
- Developers
- Buyers
- Policy makers
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

Thank You