



Green Building – Path to Urban Development

A Brief

“Green Building Conference, Pune, India”

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Our Opinion and Understanding of

- What has Triggered Sustainability in Construction Industry and Mechanisms to Institutionalize Green?
- Benefits of Adopting Green Concepts?
- Why Barriers are Developers Facing in Implementing Green Concepts?
- Govt. of India's Stand to Promote Green Concepts
- What Govt. of India Need to Do More to Encourage Financers to "Go Green"?
- What Developers Need to Do at Their End to Enhance Sustainability in their Business and Contribute to Society?

What Thoughts Provoked Adoption of Green Concepts in Construction Industry and Designing of Frameworks to Measure the Same?

Why Thoughts on Sustainability?

Growth of Construction Industry in India is @ 10% as compared to world average of 5.2% - leading to an awareness on:

- Increase in environment burden, in terms of high natural resource usage
- Release of undesirable environmental pollutants on total built area

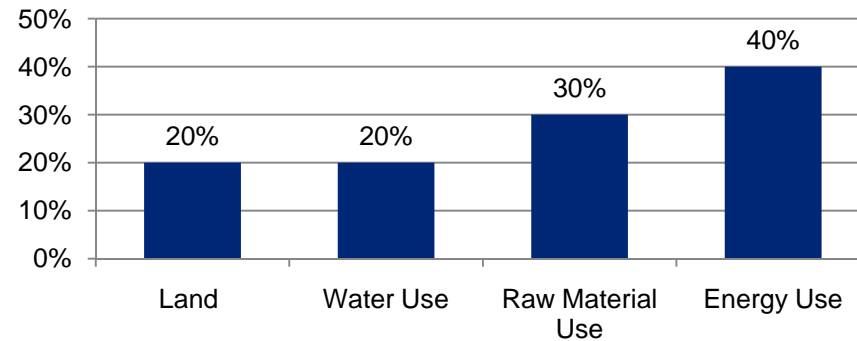
Design and construction constitutes just 2 to 4% of the overall cost, whereas the balance 96 to 98% comprises of cost across the operational stage.

Showcasing to the Society that the Organization is a Responsible Corporate Citizen, is also one such factor which has led to a surge in Green Buildings.

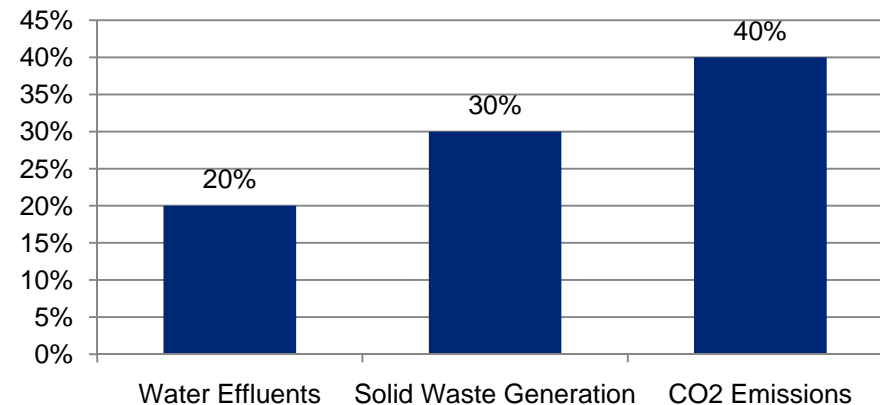
Frameworks to Measure Green?

Birth of a lot of Green Rating Mechanisms – the most prominent amongst them, in India being:

- LEED
- GRIHA



Resource Usage (Source 1)



Release of Environmental Pollutants (Source 2)

What Benefits Does Such Framework/Adoption of Green Concepts Potentially Offer?

Benefits During Operational Stage:

- Higher Energy Savings, which could go upto 80%
- Lower Carbon Emissions by approx. 40 to 50%
- Water Savings of approx. 25 to 40%
- Conservation of Virgin Materials, due to Usage of Recycled Materials, inclusive of Construction and Debris Recycling, of approx. 30 to 50%
- Opportunity to Earn Carbon Credits, approx. Rs. 70 to 80 lakhs pa. for 10 years, for an approximate of every 2 lakhs sq. ft. of conditioned area
- Trend in Green Building indicates - Enhancement in Employee Productivity; Increased Health and Comfort Benefits; Increase in Income Rent; Low Vacancy Rate, Improved Indoor Air Quality, etc.

Despite of Awareness on Benefits, Where Lies the Hitch to Adopt Green Concepts?

Cost

- Additional Cost of 2 to 4% for Institutionalizing Green Concepts can actually Dampen the Spirit of Developers/Financers, in present Competitive Market
- Additional costs incurred by Developers and Accrued During Operational stage cannot be easily passed on to Occupiers

Lack of Information on Green Products

- Scarce and poor accessibility to information available on green products and high-performance building systems.
- Risk costly call-backs, if not a proven technology or don't perform well.

Too Much of Dependency on External Stakeholders

- Too much of Dependency on Limited number of Skilled/Specialized Consultants for information about performance.
- Skepticism of limited product information from local regulatory authorities

Lack of Database to Enhance Knowledge

- Lack of concrete research work on the impact of green building design and construction techniques on occupant's productivity
- Developer's Knowledge in the Increasing Complex Building Codes and Regulations, Leading to Difficulty in Assessment of Costs and Requirements for Compliance, thereby causing Costly Delays.

What Is There at Policy Level to Remove Such Barriers?

Tangible Incentives

- Joint Initiative of TERI and MNRE offers the following Incentives, for adopting GRIHA framework to:
 - ✧ Building-Owners
 - ✧ Architects/Design Consultants
 - ✧ Municipal Corporations
 - ✧ Government / Public Sector
- To promote the IGBC Green Home Projects in India, State Bank of India, is offering concessions to developers & owners, which include:
 - Up front margin to be lower at 15% of the loan amount, instead of the normal 20%
 - Interest rate on the loan to be 25 basis points - lower than the card rate
 - No processing fee to be charged

What Else are there in the Pipeline at Policy Level?

National Action Plan on Climate Change and Green Funds – Key Features

- **Energy Code for Building Construction (ECBC)** - For new and large commercial buildings, exceeding 1000 sq.m., ECBC to become legally mandatory
- **Promoting Energy Efficiency Measures in Buildings** with a view to **Scale Down Substantial Volume of Carbon Emissions**
- **Focus on Recycling and Efficient Resource Usage** - Includes in it a major R&D programme;
 - Focusing on 20% water savings through regulatory mechanisms, with differential pricing
 - Exploring Sewage Utilization and Recycling Options wherever possible
 - Better Urban Planning/Public Transport, with a view to curb **CO2 Emissions**.

Application of Kyoto Protocol in Commercial Buildings

- Gol has already committed to reduction of 20 to 25% of its emission below 2005 level.
- Very Likely New Legislation to Mandatorily Report Annual Carbon Emissions

Unfortunately, Implementation of Most of the Aforesaid could mean More Upfront Cost Implications rather than Immediate Return.

What Policy Makers Need to Do More to Encourage Developers to “Go Green” ...

Dissemination of Adequate Information Through a Centralized Mechanism

- Facilitate Developers/Financers Obtain All Local Building Codes and other Legal related Information, through a Centralized Mechanism
- Develop a Centralized Mechanism to Enhance Knowledge on Product Choice, which would Allow Developers to Make Choices among Efficiency, Aesthetics, Product Choice, and Cost that would Satisfy Regulators without Costly Delays and Changes.
- Improved communication of local building codes and their implications for green process and product choices would allow developers avoid costly delays and changes.
- Market/Create Awareness through Research Activities to Demonstrate Benefits such as:
 - Lifecycle Cost Savings of Green Buildings (Energy Savings and Employee Productivity Benefits)
 - Health Benefits of Green Buildings

Smoothing Legal Hurdles and Conferring Recognition

- Accelerated Processing of Building Permissions and Approval of Plans by Legal Authorities
- Recognition in the Form of National Level Green related Awards to Enhance Brand/Image and Marketability.

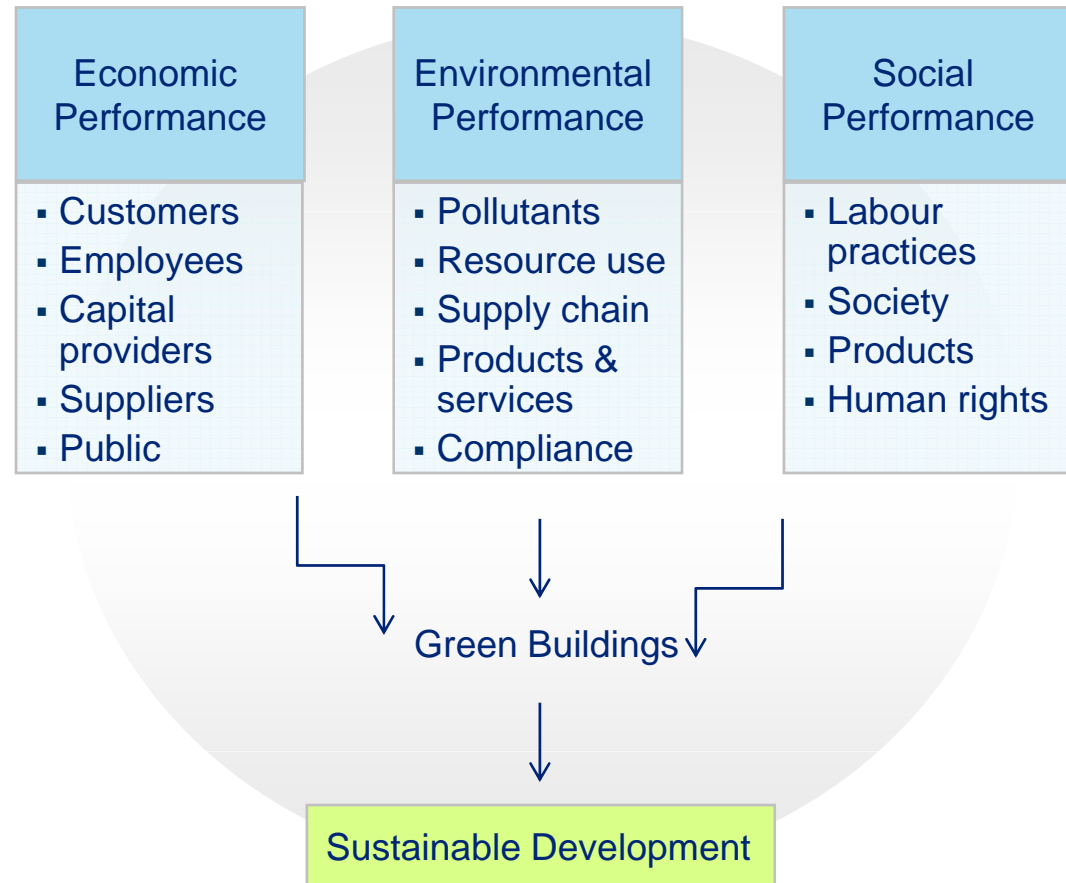
What Policy Makers Need to Do More to Cheer Developers to “Go Green” ...

- **Financial Incentives** in the form of the following:
 - Create a Mechanism that would Allow Some of the Values of the Long-Term Benefits to be Transferred to the Builder to Offset First-Time Costs.
 - Reduction of Processing and Developmental Fee for Developers Adopting the Most Prominent and Recognized Green Rating Mechanisms
 - Two to Three Years of Property Tax Credit or Abatement
 - Better Access to Attractive Loans Both for the Developers as well as Occupants
- **Tax Benefits** in the form of the following, could be offered to buildings, subject to Endorsement by a Competent Third Party wrt. some initiatives, such as:
 - Usage of Substantial Quantity of Post Consumer Recycled Material or at Least One Primary Building Material, such as Recycled Roof Material/Debris of Old Building
 - Institutionalization of Rain Water Harvesting Technology
 - Substantial Savings of Water, Through Recycling or Installation of Efficient Technologies/Appliances
 - Installation of Costly Energy Efficient Technologies, Resulting in Substantial Energy Savings
 - Demonstrating Performance of Reduction of Environmental & Social Burden (and to the extent possible in Financial terms), through Annual Sustainable Development Report
 - Installing Clean/Renewable Energy Technology/Drawing Energy Derived from Renewable Sources, since Cost of Renewable Energy by itself is Much Higher than that of Energy Drawn from Conventional Sources, to Reduce Carbon Emissions

What Developers Can Do Their Bit At their End?

Structuring an Approach to Reduce Stress on Environment and Demonstrate Its Benefits to Interested Parties

- Construction companies across the globe are establishing a system to assess their degree of performance, as per Global Reporting Initiative (GRI G3) Guideline on environmental and social parameters, which demonstrates on-going savings and reduction in environmental and social burden, to their occupants and the other interested and impacted stakeholders.
- Such a model could also be structured and adopted by Indian Industries

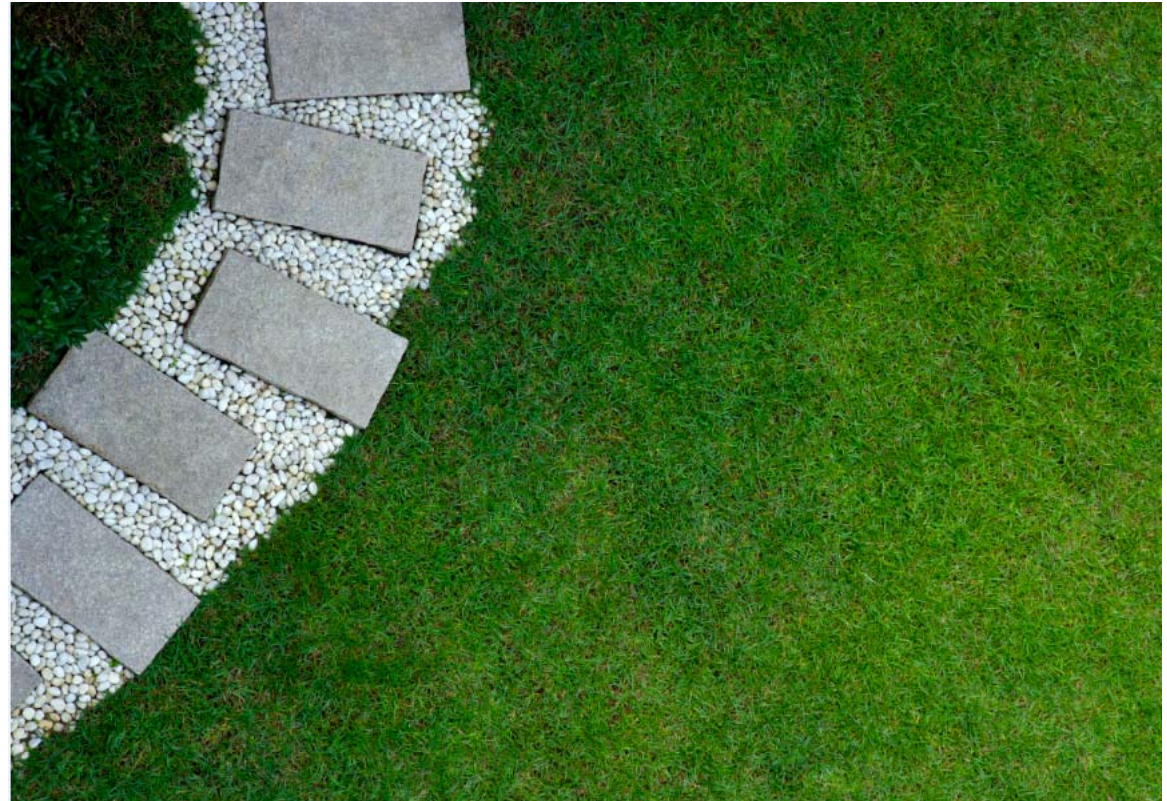


How Developers Initiative at Micro Level, Leads to Contribution to the Society

Considering a 10 million sq. ft. of built up area in any city, following could result into tangible benefits to the society, through effective utilization of resources by Developers

Building Performance Parameters	Conventional Building	Green Building	Savings*	Benefits
Power consumption <i>(billion units per year)</i>	345	242	105 <i>(approx. 30%)</i>	Power Savings for 14 lakh rural households
Water Consumption <i>(billion litres per year)</i>	1.2	0.7	0.5 <i>(approx. 40%)</i>	Water savings for an average 2,300 households
Carbon Emission <i>(billion metric tonnes of CO₂ eq. per year)</i>	0.3	0.2	0.1 <i>(approx. 33%)</i>	Reduced Carbon Footprint (considering 0.9 kg. CO ₂ eq. is generated per unit of electricity consumed)

Green Building : Path to Sustainable Urban Development



Sources, used for Preparation of the Presentation Material:

- 1. Capacity Building Series (2008-2009), June 2009, Tara Nirman Kendra, New Delhi*
- 2. Nicolas Svenningsen, Manager, UNEP Sustainable Buildings and Construction Initiative*
- 3. Green Buildings in India as per IGBC*

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