



# SUSTAINABLE REAL ESTATE DEVELOPMENT IN INDIA

THE COST OF INDIFFERENCE

**T**erms such as sustainable development, corporate social responsibility and triple-bottom-line reporting are becoming more common in the property industry as both owners and occupiers seek to understand the increasing drive towards sustainability in Asia and around the world.

This paper looks at how this trend is growing in India, the reasons behind such a move and the level of adoption of sustainable building practices in the market. We also detail the process that owners and occupiers of buildings need to go through in order to begin reducing the environmental impact of real estate and realising the significant bottom-line savings that can be accomplished as a result.

## What are Sustainable Buildings?

Sustainable Buildings are defined as buildings that are designed, built and operated with low environmental, social and economic impacts while enhancing the health, welfare and quality of life of the people that live and work in them. (New Zealand Ministry for the Environment)

As international awareness of corporate responsibility has grown, sustainability has become a crucial factor in the assessment of the impact of real estate. Organisations, especially MNCs, are taking an increasing interest in the environmental credentials of the real estate that they occupy.

Although the demand for higher levels of compliance may initially appear a threat to owners of large assets, sustainable buildings do not represent a loss in building utility or level of profit. Rather, modern sustainable technologies possess proven ability to raise environmental efficiencies while simultaneously bringing real economic gains. However, to reap these benefits, sustainable development requires a change in mindset.

“ We can’t solve problems using the same kind of thinking we used when we created them. ”  
– Albert Einstein

In developed nations, there has been a steady increase in the development of sustainable buildings. It is our belief that it is only a matter of time before this market preference towards environmental buildings in developed markets will begin to impact heavily in India.

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FSG aims to provide strategic support services to the IFM and PM Operations teams which provides our clients with additional value. The functions supported by FSG include Critical Environment Management, Technological tools for client operations, operations training, risk management, procurement & vendor compliance management.

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Manisha leads a team of professionals that undertakes property valuations, real estate advisory and research of the pan India real estate markets.

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## Sustainability at Country Level

On a national basis, there are some leading global examples of countries that have been able to make considerable gains in sustainability, especially in Europe. For example, in 2000, Germany launched an environmental sustainability programme as per the country's commitments to the Kyoto Protocol. Through government initiatives, tax incentives and loans, the government has encouraged renewable energy use, higher energy efficiency and the reduction of carbon dioxide emissions. On a national basis, the effects were encouraging. The country saw carbon dioxide emissions fall by 19% compared to 1990 levels, and in 2003, the energy efficiency of every additional unit of GDP output showed an increase of nearly a quarter over 1990 levels. What is most encouraging is that this was achieved against a backdrop of healthy economic growth.

This compares to the two rising economic giants of the developing world.

- > According to the World Bank, India loses nearly USD 80 billion per annum (on a purchasing power parity basis) as a result of sickness and death from pollution and economic costs attributable to resource degradation. India is home to some of the 'sickest rivers' in the world, according to rainwaterharvesting.org—an Indian environmental organisation. This is largely due to the practice of ignoring environmental damage in return for economic gains.
- > China's State Environmental Protection Administration (SEPA) released a report in 2006 which stated that it would cost USD 84 billion to clean up the pollution produced in China in 2004 alone, or 3% of the GDP for that year. Additional estimates indicate that the overall impact of pollution is even greater, with cumulative environmental damage representing between 8% and 13% of China's GDP growth annually. SEPA notes that if these figures hold true, China has lost almost everything it has gained since the late 1970s due to pollution.

## The Growing Importance of Environmentalism in India

In the midst of a strong economic expansion cycle in India, both commercial and residential buildings are being constructed at a considerable pace. Despite this significant uplift in construction activity, awareness of sustainability in India has significantly lagged behind that in the West. Nevertheless, discussion and implementation of sustainable buildings have been gaining momentum in recent years due to the impending danger that continued unsustainable development poses.

The environmental impacts of India's 'progress' have long taken a back seat to economic gain. However, these impacts have now compounded to a point where they can no longer be ignored. According to the US's Energy Information Administration (EIA), the energy intensity (energy use per unit of GDP) of India's industrial output (25,460 BTU/USD) is more than double that of the US (9,521 BTU/USD), and four times that of the UK (6,247 BTU/USD). Down to Earth, an international ecological science magazine, noted that total deaths per annum from air and water pollution in India are in excess of 1 million. In India's cities, it is not uncommon to see power supply fall short of demand by as much as 20%. Water shortages along with energy shortages are now becoming chronic in the country. Given that 30% of all India's energy is consumed in commercial buildings, as much as a third of all water use occurs in commercial buildings, and a significant proportion of greenhouse gases are associated with commercial buildings. There are huge gains to be made by adopting sustainable practices in Indian real estate.



There are some encouraging signs that the Indian commercial sector has begun to increase its efforts to improve the negative impacts that result from India's built stock. There are currently more than 40 projects registered with the Leadership in Energy and Environmental Design (LEED) that are currently underway in India. However, Jones Lang LaSalle Meghraj notes that the majority of these projects are being driven by or built for international rather than domestic occupiers. The Indian government also introduced several schemes to encourage sustainability within the real estate sector.

These include the following:

- > An IREDA scheme for subsidising capital for installation of solar water heaters;
- > The encouragement of implementing energy audits and energy management schemes;
- > Mandatory use of fly ash-based construction material;
- > Better control over the use of groundwater and rain water harvesting;
- > Increased monitoring of air and water pollution in urban areas;
- > Enactment of legislation ensuring proper public consultation and transparency around the environmental impact of new developments.

Although the Indian government has made piecemeal attempts to address the issue in the form of schemes that encourage the adoption of sustainable practices, actual progress on the ground has been limited.

Rather, the majority of the initiatives have come not from the government but from the private sector, with both Indian and international corporates playing their parts.

There are several major Indian corporations that have demonstrated in recent years that they are prepared to take corporate social responsibility seriously. Key examples include HCC, one of India's largest construction companies. ACC Limited another large engineering and extraction firm recently won the National award for fly-ash utilisation, by incorporating recycling into their sustainable development oriented processes. This goes hand in hand with the implementation of CSR that is more commonplace amongst MNC's operating in the country.

As such there is evidence that in the corporate world issues around sustainable real estate development are beginning to gain momentum. It is now up to India's vast democratic system, to ensure that more robust legislation is brought into effect.

### The Largest Platinum Rated LEED Building in the World

Upon its completion in 2005, the 1.8 million-sq ft ITC Green Centre located in Gurgaon was christened the largest green building in the world. It was also the first platinum-rated building in India, achieving 53 out of a possible 69 points. Typical of the low-rise style of development that predominates in the 'IT' suburbs around India's main centres, this occupier-focused building aimed to demonstrate that sustainable real estate can be developed and occupied in an evolving and fast-paced market.

The building employs many cutting-edge sustainable features whilst retaining a competitive cost base. These include:

- > A water-efficient landscaping, with a 100% recycled water irrigation system and a 40% reduction in the use of potable water;
- > Treatment of grey water on site to tertiary standards;
- > A 51% saving in energy use over alternative 'non-sustainable' designs, which includes the installation of high-efficiency chillers.

### Implementing Sustainability in Real Estate

Although there is a growing base knowledge of sustainability and environmentalism in India, occupiers are still not able to easily lean on a collective body of knowledge or public awareness of sustainable development. This makes it difficult for owners to implement green policies within the properties that they own. Overall, at commercial, societal and governmental levels, training, funding and awareness remain low.

#### Education

Working together with building occupiers is one of the most important factors in successfully achieving improved sustainability performance. Occupiers can greatly assist in implementing a sustainability programme. However, if they are not properly educated and aware of the sustainable features of a property, the effectiveness of any sustainability measure can be severely curtailed.

Therefore, education of occupiers regarding the impact that their use of space will have on sustainability outcomes is integral to the success of a sustainability programme. To properly educate occupiers, their patterns of behaviour must be changed to accommodate and reinforce any sustainability features that have been implemented in a building. This can be a long process and as such, can best be achieved by working in partnership with occupiers from the outset.

The central construct of any education and internal communications programme should be to encourage the following:

- Energy conservation
- Water conservation
- Waste management
- Improving indoor air quality

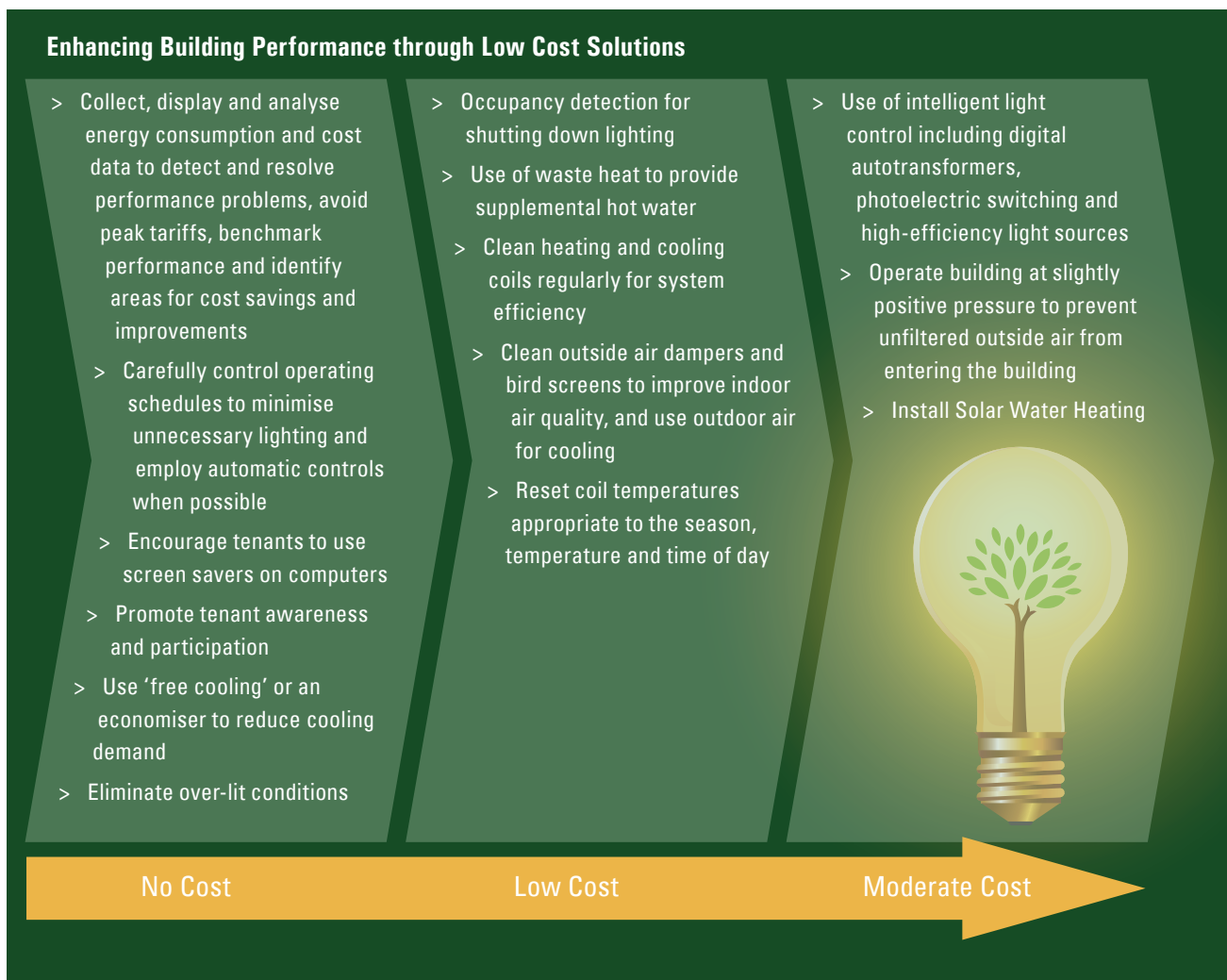
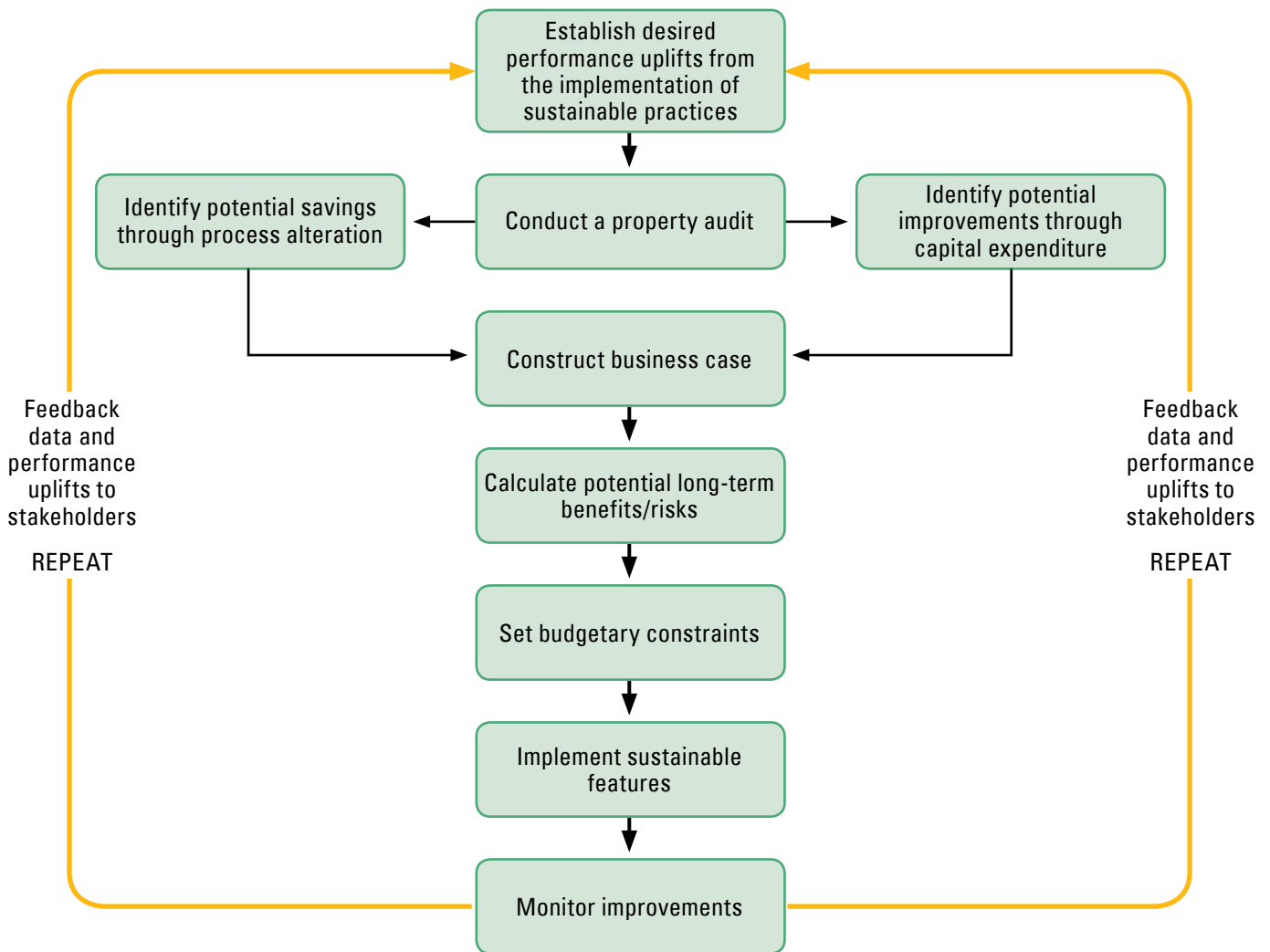


Fig. 1 &gt;&gt; Sustainable Buildings: An Implementation Process



### Process of Implementing Sustainable Development

The process of making commercial buildings more sustainable is akin therefore to embarking on a journey. There is no prescribed solution or quick fix to be applied. Rather, owners and occupiers of buildings must work together to establish goals, undertake audits and establish where savings and improvements can be made. However, the foundation of achieving sustainable outcomes is the adoption of sound design and management principles, and performance enhancements can be achieved by focusing first on high-impact, low-cost solutions that can be implemented within a realistic time frame.

Once the appropriate solutions are identified and a business case is established for various improvements, the process of physical works, education and internal communication begins.

### Sustainable Buildings: An Implementation Process

The effectiveness of these measures then needs to be tracked, with the results of improvement fed back to the owners and occupiers of the building, and to any other parties involved including contractors and design teams. From there, further improvement can be made with outcome goals being redefined as information and analysis of the improvement measures build up over time.

What is clear from this process is that you not only need time to implement it, but also that it is not a process with a start and a finish. Rather, it is an ongoing process of improvement, feedback and further enhancement.

### Earn INR 75 lakh a Year in Foreign Exchange by Exporting Nothing

Jones Lang LaSalle Meghraj was recently appointed to manage Technopolis, a new platinum-rated green building in Kolkata. The property consists of 675,000 sq ft of space, built in accordance with US Green Building Council guidelines. The building is also eligible to be certified as a clean development mechanism under the Kyoto Protocol. This means that the carbon offset by its efficient operation actually creates carbon credits, which can then be traded in international markets. Hence, by doing nothing other than being a sustainable building, Technopolis has the potential to generate as much as INR 75 lakh per annum through carbon trading.

Other building features include:

- > Efficiency gains and energy savings technologies that will amount to electricity savings of 87.5 lakh kwh of savings per annum;
- > Installation of insulating glass and thermal façade that will reduce energy loss by 2 mw per annum;
- > Water recycling and conservation that will reduce daily usage by 43%;
- > Improved indoor air quality through better filtering and more advance air reticulation systems;
- > An overall operating cost reduction of 30%.



The developer, although noting that there was a marginal increase in the cost of construction, notes that the pay back period is moderate especially in light of the expected increase in quality of tenants likely to take space in green buildings over the long term.

### Business Advantages for Sustainability

Sustainable buildings use design techniques, materials and technologies that minimise a building's impact on the environment in their design, construction and operational systems, while adequately servicing and supporting the activities within. In India, sustainable buildings in Tier I cities are at best limited to a handful of top-quality Grade A properties with very few examples of sustainable buildings in Tier II and III cities.

What is encouraging to owners and occupiers, however, is that the number of sustainable buildings is growing and in the long term, they are cheaper to run and make for a better workplace.

### Operating Cost Reductions

#### Energy Savings

Electricity and gas, particularly electricity, are the major forms of energy supply in commercial buildings. In India, electricity is the largest operating expense, averaging about 35% of an office building's operating costs, of which heating ventilation and air-conditioning (HVAC) is typically the largest component, comprising 48% of an office building's total energy usage.

Once buildings have implemented an energy audit and undertaken both process improvements as well as capital expenditure to upgrade efficiency, the result is invariably significant decreases in energy use. Buildings with sustainable elements can save up to 20% in total electricity costs. In addition, the long-term benefits of sustainable building and management practices will enhance long-term building value and returns.

From a property management perspective, introducing energy-efficient technologies that improve the performance of existing equipment can achieve significant benefits, with attractive financial returns.

### Water Savings

Although the costs associated with water conservation are not high, there is a corresponding positive impact on other cost centres such as energy costs for hot water, plant and equipment maintenance and sewage treatment and disposal costs. In addition, there is the positive environmental impact of reduced water use, which is a message that can be fed back to building users.

Water saving techniques that can be employed includes:

- > Adjusting water levels and water-flow levels in all common area amenities;
- > Employing automatic flush sensors in all toilets and auto shut off taps;
- > Collection of rain water for use on site;
- > Instigating a signage and education campaign to enforce behavioural change.

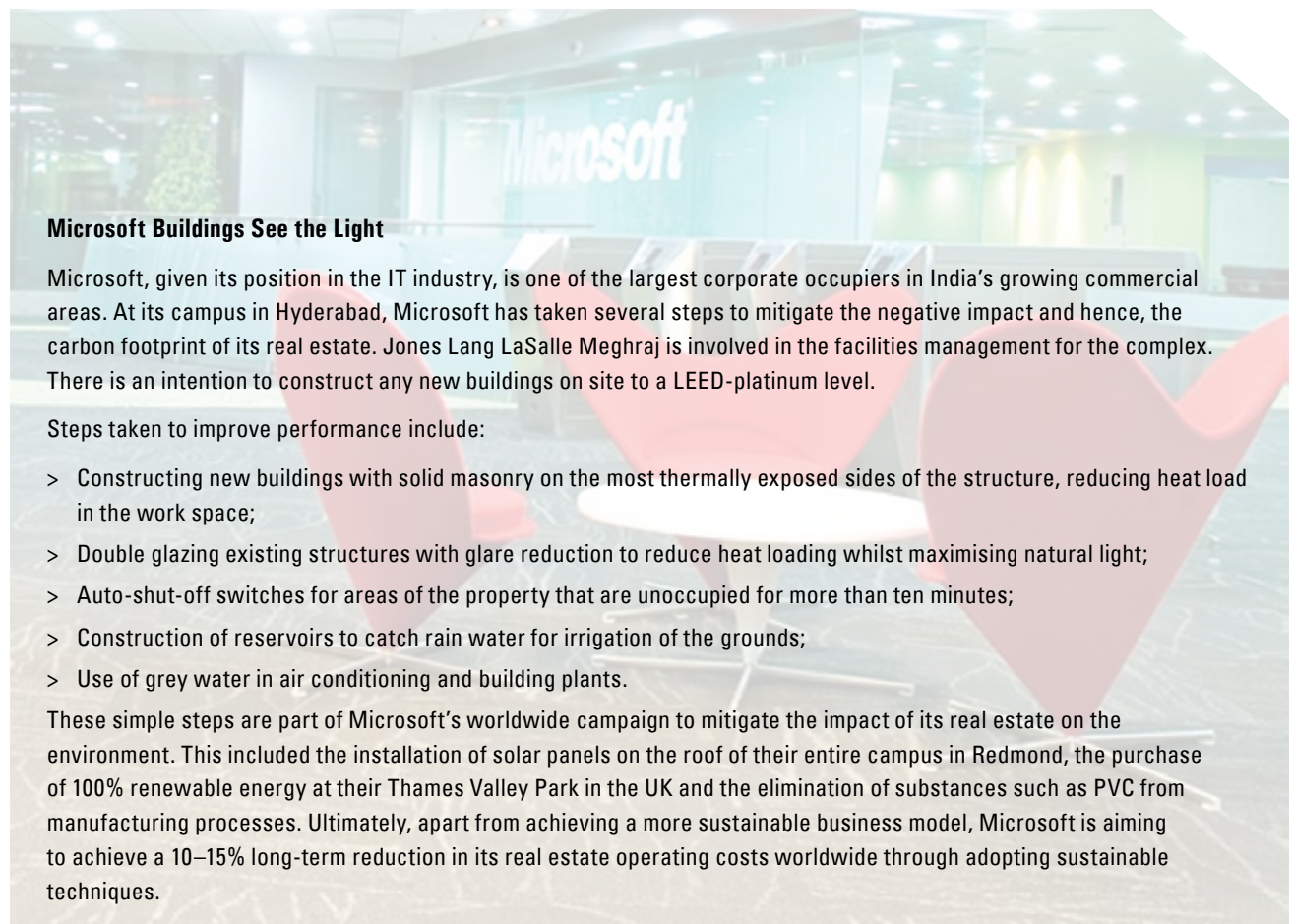
### Waste Reduction Savings

Waste management in commercial buildings is targeted at recycling of papers, batteries, plastic bottles, aluminium cans and CDs. Recycling programmes are relatively easy to implement and can involve providing recycling bins in public areas, improving waste separation processes and educating tenants on environmental benefits. In terms of cost benefits, less waste will need to be sent to landfills, and additional income is generated from the sale of the recycled materials.

By reducing waste, building owners and occupiers are able to make savings three times over:

- > Savings are made on the cost of the materials that are no longer wasted;
- > Savings are made on disposal costs, although in India, these costs are often offset by the resale and reuse of salvageable refuse;
- > The social and environmental consequences of resource use are reduced.

### Valuation Improvements



#### Microsoft Buildings See the Light

Microsoft, given its position in the IT industry, is one of the largest corporate occupiers in India's growing commercial areas. At its campus in Hyderabad, Microsoft has taken several steps to mitigate the negative impact and hence, the carbon footprint of its real estate. Jones Lang LaSalle Meghraj is involved in the facilities management for the complex. There is an intention to construct any new buildings on site to a LEED-platinum level.

Steps taken to improve performance include:

- > Constructing new buildings with solid masonry on the most thermally exposed sides of the structure, reducing heat load in the work space;
- > Double glazing existing structures with glare reduction to reduce heat loading whilst maximising natural light;
- > Auto-shut-off switches for areas of the property that are unoccupied for more than ten minutes;
- > Construction of reservoirs to catch rain water for irrigation of the grounds;
- > Use of grey water in air conditioning and building plants.

These simple steps are part of Microsoft's worldwide campaign to mitigate the impact of its real estate on the environment. This included the installation of solar panels on the roof of their entire campus in Redmond, the purchase of 100% renewable energy at their Thames Valley Park in the UK and the elimination of substances such as PVC from manufacturing processes. Ultimately, apart from achieving a more sustainable business model, Microsoft is aiming to achieve a 10–15% long-term reduction in its real estate operating costs worldwide through adopting sustainable techniques.

There is emerging evidence that sustainable buildings can deliver superior financial returns and market performance. Whilst meeting sustainable standards can add up to about 10% to the cost of a commercial project, the long-term financial benefit will, in most cases, outweigh the initial investment, if such investment is carefully planned. Depending on the specific improvement, the payback period can range from one and a half to ten years, after which, savings increase dramatically.

In 2007, Jones Lang LaSalle Meghraj, in accordance with CoreNet, surveyed corporate occupiers across Asia Pacific and found that by 2007, 64% would consider paying more to occupy a sustainable building. This is a considerable increase on results from previous surveys, showing that there is now an appetite for developing sustainable real estate, and a rental premium can be charged as a result.

Although there was a positive sentiment towards sustainable real estate, only 18% felt that the provision was adequate in the markets where they operate. This presents an opportunity for developers and investors that are ready to deliver these services and equally points to an obvious gap in sustainability deliverables.

### Retrofitting

Retrofitting is the implementation of sustainable measures on an already existing building. By retrofitting existing properties, the same benefits as that in new, sustainable properties can be achieved.

However, there are a number of additional considerations that should be included in any prospective retrofitting. First, landlords and owners must consider where the property is in its life cycle. It makes little sense increasing capital expenditure on facilities that still have many years to run before they will need replacing.

A 'whole-building approach' should be adopted when implementing any sustainable building programme. Greater benefits can be obtained when sustainable measures mutually reinforce one another. For example, well-placed landscaping and proper building orientation and shape cannot only increase natural light but also reduce cooling loads. There may be a tendency when retrofitting focuses only on specific individual aspects and not taking into account the entire project. This can be avoided through proper planning and consultation between parties including owners, occupiers and builders.

### Sustainability Considerations for Occupiers

Corporate and government occupiers are becoming more discerning in their office space requirements, and the provision of sustainable standards is important to corporations' office space selection process. Typical considerations relating to sustainability elements by these multinational corporate occupiers are:

- > environmental impact from building operations;
- > energy consumption;
- > energy efficiency of lighting and air conditioning;
- > choice of building materials and system;
- > a healthy environment for employees;
- > a source of drinking water;
- > hazardous gas or chemical emission from building operation or building materials;
- > history of site usage and potential toxic waste;
- > noise pollution.

In spite of the potential added costs of sustainable buildings, this can be relatively insignificant when compared with the potential gains in worker productivity. As salaries typically account for the biggest portion of overheads, even a minor gain in productivity will often generate savings that exceed a company's entire energy bill. Studies suggest that energy-efficient work environments can create productivity gains as high as 15%, which benefits the company's performance. This is achieved through increased ventilation, temperature and lighting control and increased natural light.

## Conclusion

The shift towards sustainability is gaining momentum in India. Whether it is adopted through a genuine concern for the planet, fear of future government enforcement or because of positive financial impacts, the basic message is that environmentalism and sustainable buildings are becoming an important part of doing business in this part of the world.

In addition, although India lags behind in the implementation of sustainable techniques, many of the technologies and practices necessary to make significant savings have already been developed in the West. India therefore has the opportunity to leap frog ahead in its progress, as it has in so many other areas of technology and the economy. That is not to say that the implementation of these processes can be done in a shorter time. Rather, India is able to take advantage of what has been achieved elsewhere in the world, such that India's first steps into this realm will ultimately be done standing on the shoulders of giants.

Whether done quickly or slowly, the process of implementing sustainable building practices in the real estate sector can and will make a significant contribution to the reduction of waste and to efforts to clean up urban environments. However, the process is not a simple one and neither can it be imposed singularly upon building users or owners. Instead, the process is a partnership where the interests of all stakeholders need to be taken into account.

In developing, maintaining, owning and occupying sustainable buildings, individuals can help make a positive impact on the environment. However, as this paper demonstrates, there is also a considerable financial upside to this process that should convince all involved that such moves are not a passing trend but a new way of doing business in real estate.

As the leading property and facility manager, Jones Lang LaSalle Meghraj is a strong advocate of creating a more sustainable environment for current and future generations.

- > Issued guidelines on environmental management for buildings, energy savings and sustainable office management in many local markets;
- > Released 'Environmental Fit-Out Guide' in 2003 for contractors;
- > Conducted training sessions on sustainable property management for key clients in selected local markets;
- > Launched 'Green Office', a campaign to raise staff awareness in environmental conservation;
- > Launched [mygreenmanager.com](http://mygreenmanager.com), a web platform in Hong Kong, to share sustainable management issues, trends, environmental policy and regulations;
- > Implemented staff training for better operation and management of the existing systems.

## Definitions

### **Sustainable Real Estate**

Buildings that are designed, built and operated with low environmental, social and economic impacts, while enhancing the health, welfare and quality of life of the people that live and work in them

### **Sustainable Workplace**

A workplace that has a positive impact on the environment through its reduced consumption of natural resources; it is a healthy and productive environment for employees to work in.

### **Triple-Bottom-Line Reporting**

The term used as a framework for measuring and reporting corporate performance against economic, social and environmental parameters. Thus, it is an expansion of the scope of traditional corporate reporting.

### **Carbon Footprint**

A measure of the amount of carbon dioxide emitted through the combustion of fossil fuels. A carbon footprint is often expressed as tons of carbon dioxide or tons of carbon emitted, usually on a yearly basis. There are calculators available to measure carbon footprint.

### **Carbon Neutral**

This refers to an entity or organisation that has netted out its carbon (predominantly CO<sub>2</sub>) emissions by ensuring the total carbon emissions that the entity is responsible for is offset by some other activity that has a positive emission impact. For instance, using paper or paper products can be offset by planting and nurturing trees.

### **Green Buildings**

A common term used to describe a building that is designed, built or operated in a way that is more sustainable, minimising its negative impact on the natural environment.

## About Jones Lang LaSalle Meghraj

Jones Lang LaSalle Meghraj is the Indian operations of Jones Lang LaSalle (NYSE: JLL), the only real estate money management and services firm named to FORTUNE magazine's '100 Best Companies to Work For' and Forbes magazine's '400 Best Big Companies'. With an extensive geographic footprint across ten cities (Delhi, Mumbai, Bangalore, Pune, Chennai, Hyderabad, Kolkata, Kochi, Chandigarh and Coimbatore) and staff strength of over 2,800 employees, it is the premiere and largest real estate services company in India. Jones Lang LaSalle Meghraj provides investors, developers, local corporates and multinational companies with a comprehensive suite of services, including research, consultancy, transactions, project and development, integrated facility management, property management, capital markets, residential, hotels and retail advisory.

For further information, please visit [www.jllm.co.in](http://www.jllm.co.in)

Globally, Jones Lang LaSalle has approximately 160 offices worldwide and operates in more than 450 cities in over

50 countries. With 2006 revenue of over USD 2 billion, the company provides comprehensive integrated real estate and investment management expertise on a local, regional and global level to owner, occupier and investor clients. Jones Lang LaSalle is an industry leader in property and corporate facility management services, with a portfolio of over 1 billion square feet worldwide. In 2006, the Firm completed Capital Market sales and acquisitions, debt financing, and equity placements on assets and portfolios valued at USD 70.9 billion. LaSalle Investment Management, the company's investment management business, is one of the world's largest and most diverse real estate money management firms, with approximately USD 44.3 billion of assets under its management.

Jones Lang LaSalle has over 45 years of experience in the Asia Pacific region. With over 12,500 employees operating in more than 60 offices in 13 countries, the company is well positioned to partner with clients to provide the Quality Advice needed for making Quality Decisions.

For more information on sustainability and how Jones Lang LaSalle Meghraj can assist companies in making high quality real estate decisions in India, please contact:

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