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INDIAN COMPANIES WITH SOLUTIONS THAT THE WORLD NEEDS

SUSTAINABILITY AS A DRIVER FOR INNOVATION AND PROFIT

Sachin Joshi
Seema Arora
Dennis Pamlin
Shirish Sinha

CII

Confederation of Indian Industry

CII-ITC Centre of Excellence for Sustainable Development

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Lead Author: Sachin Joshi, Deputy Director, CII-ITC CESD
Co-authors: Seema Arora, Head and Principal Counsellor, CII-ITC CESD
Dennis Pamlin, Global Policy Advisor, WWF-Sweden
Shirish Sinha, Head, Climate & Energy, WWF-India

This report is part of a series of studies by WWF's Trade and Investment Policy Programme, which aims to identify and cooperate with actors in the BRICS group of key emerging economies (Brazil, Russia, India, China and South Africa) to champion international sustainable trade and investment. The Programme examines the scope which exists for these countries to become leading exporters of, and investors in, sustainable goods and services, whilst emerging as key actors in promoting a proactive international sustainable development agenda.

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FOREWORD

I am pleased that CII-ITC Centre of Excellence for Sustainable Development (the Centre) and WWF are jointly bringing out the publication '*Indian Companies with the Solutions that the World Needs*'. Today, as we walk the thin line of managing climate change, along with continuing on the path of economic development, all of us must play our part. Sustainable business and social entrepreneurship will shape future economic growth for the world.

Finding solutions for the world's most pressing problems – in particular, poverty and climate change – is no longer the exclusive domain of governments, aid agencies and NGOs. Entrepreneurs and business leaders too are demonstrating that almost no problem is too big to be tackled through innovation.

Amidst the emerging trends in process and product innovation, mainly in response to sustainability drivers, the Centre and WWF came together to explore how businesses can use drivers such as innovation and profits to tackle the twin challenges of poverty and climate change. The resulting publication brings together case studies of how businesses have targeted sustainability without losing sight of core business objectives. It reaches a number of broad conclusions that we believe will assist other companies to formulate their own roadmaps for sustainable growth.

The businesses featured in this report reflect the incredible potential of the alignment of sustainable development needs and business values. The cases outlined are stories of great determination to achieve sustainable practices, but they also showcase the huge opportunities that emerge from such practices. Innovations in these companies have driven down costs and have proved to be crucial to successful corporate management.

Interestingly, India and other emerging regions are breeding grounds for such innovative businesses and enterprises. They have recognized the challenge early, and are responding creatively, thus pushing the envelope for their prosperity. Local firms and multinationals that have localized themselves are most likely to lead and master the change.

Going forward, India and other developing economies need to address poverty alleviation as well as sustainable routes to development. Resource-efficient solutions will help companies contribute to this task, as well as add to their global

competitiveness. Exploring the conclusions in this report would allow companies to work out strategies that make them winners in a low-carbon economy.

This report is the first product of the Centre-WWF partnership, and we hope business leaders, change agents and governments find it thought-provoking and practical. CII believes that sustainable development is the future of enterprise and that this report will act as a change agent to stimulate greater efforts towards this. We are delighted to partner with WWF to explore these opportunities.

Chandrajit Banerjee
Director General
Confederation of Indian Industry

FOREWORD

Sustaining global economic development will demand a substantial shift in the role of industry by bringing innovation to drive sustainability and profit. India's rapid emergence as a global economic player is being propelled in large substance by its business and industry sector, which is increasingly contributing innovative solutions for integration of development and environmental sustainability.

Through this report we are attempting to bring forward a special focus on climate change and the need for rapid global emission reductions as the driver for new thinking where leading companies are integrating low carbon development into their strategies. India must ensure resource efficient development in order to avoid an ecological crisis that would make the current financial crisis look pale in comparison.

This report is the first attempt to explore how companies can use sustainability as a driver for profit and innovation. It is the fruit of a global conservation organization, WWF, working together with one of India's leading industry associations, CII, to seek solutions to one of the most important challenges of our time. This report provides examples from Indian companies that can be used both by industry and governments to make strategic decisions from an economic, social and environmental perspective.

Ravi Singh
Secretary General & CEO
WWF-India

1. INTRODUCTION

ACKNOWLEDGEMENTS

This report is a product of collective effort of a group of exceptional people in business. Contents of the report built on their varied experiences and their firm belief in doing business differently. Our gratitude goes to these individuals for sharing their experiences and more importantly, to their companies for leading change.

We would like to thank the following people for their guidance and contribution to the report. Our sincere thanks go to members of companies featured as case studies in the report. These include: Ms Kaushiki Rao, BASIX; Mr Amit Chugh, Cosmos Ignite Innovations; Mr Subhash Rustagi and his team at ITC; Mr Anand Kurien and Mr Bikramjit Ray Chaudhuri at L&T; and Mr Pankaj Baliga and Mr Anthony Lobo at TCS. We also thank their colleagues who have participated in the study while being 'behind the scenes'.

This report is part of WWF's Trade & Investment Programme and has been made possible due to its financial support. We would like to thank Mr Ravi Singh, Dr Sejal Worah, Mr Alistair Schorn and Ms Aarti Khosla from WWF for reviewing and providing advice and comments on this report.

Our gratitude to Mr Arokia Raj for design and Ms Sharmila Chandra for editing. As always, all errors and unintended omission or misrepresentation are ours alone.

Finally, we hope that for companies featured in this report and many others globally, this report offers a validation of their approach and a starting point for new innovations in doing business.

The fact that rapid economic growth is the only realistic means to lift the poor out of extreme poverty and the fact that most economic activities depend on products and services provided by the ecosystems, necessitates the ushering of a new business paradigm which enables rapid economic growth without compromising the capacity of the ecosystem to sustain, nurture and fuel economic development and human well-being.

CII

In the 21st century, poverty and natural resource constraints will be two of the most important challenges humanity must come to grips with. Instead of seeing this as a problem, a new generation of companies across the developed and developing countries have already begun to transform these needs into opportunities. This report focuses on companies in India with innovative solutions as drivers for sustainability and profit. With a third of the population under the poverty line and natural resources below the global average, India in many ways is not only a miniature version of the global economy, but is already in a situation that the world will face in a not too distant future. So solutions that can be used in a sustainable way in India are likely to be extremely important for the world and also anticipated by it in the years to come.

The report acknowledges that while a number of interesting initiatives exist, but many of them focus on the short-term opportunities. After enjoying the benefits of low-hanging fruits - like switching to energy-saving lighting, buying recycled office supplies, printing double-sided and providing support through philanthropy- what is the next step? There is no doubt that the low hanging fruits are a good start, but more is needed to mainstream these measures.

If we are to meet the poverty and environmental challenge, mere add-on measures will not be enough, innovation regarding both production and

markets is required. Sustainability can, for example, drive cost savings through efficiencies, creating new markets and securing competitive advantage. However, companies must use the limits of the planet and needs of the people as the starting point to an even larger degree and ensure that the core business is delivering on these challenges. It is no longer only about compliance with regulations or securing positive press coverage, the next gereration companies that are leaders in the area of sustainability have already realised that what is good for the environment and the society, should also be good for business. These are the companies that will remain relevant for future and this report explores the various strategies such companies could use.

This report also investigates what the steps beyond the low-hanging fruits could be. Based on concrete examples, it outlines a variety of actionable ideas and some inspirations for more dramatic changes. In doing so, this report hopes to contribute to the current dynamic dialogue around business and sustainability, particularly the environment in a rapidly growing economy that must reduce poverty. Above all, the conclusions are meant to start a process of bringing best practices to light so that they can spread more rapidly.

The report is divided into five key parts. First is the goal and methodology where the scope and limits of the report are outlined. The second part sets the conceptual context. The third part presents five case studies and two special examples establishing the sustainability-innovation interface. In the fourth part, the conclusions are presented as a five step circular outline for companies that want to explore ways to use sustainability as driver for profit and innovation. Finally eight suggestions for possible ways forward are presented.

Goal

The goal of this report is to present a roadmap for how companies can use sustainability as a driver for innovation and profit. It does so by highlighting some of the most promising trends, best practices and innovative ideas that are ready for wider adoption and, if taken to scale, have the potential to generate significant sustainability benefits.

The roadmap provides a comprehensive framework to walk the sustainable innovation path. However, it does not necessarily reflect any specific company case presented in the report. The roadmap is based on the experience of CII-ITC CESD and WWF in helping companies in India and the world transit to sustainable businesses.

Methodology

To identify potential innovations for inclusion in this report, a wide range of sustainability innovations across business types, industries and corporate functional areas – such as operations, manufacturing, marketing, IT, supply chain management - were considered, and the types of benefits generated were looked at.

Over 50 companies (*see Annex*) were scanned through extensive literature search covering business and sustainability press, published action and academic research, library at CII-ITC CESD and relevant industry reports. Practitioners and consultants were also consulted for information.

This data collection was succeeded by a two-stage screening and evaluation process. Both qualitative and quantitative data were used to evaluate various innovations based on the criteria established for this report.

Stage 1: More than 100 innovations from 50 companies gathered through the data collection process were reviewed for sustainability benefits, business benefits and replicability. Those that failed to meet these basic criteria did not move to the next stage of final evaluation.

Stage 2: More information was collected on the innovations selected. They were closely reviewed for their replication and applicability to other companies and industries. More importantly, their 'innovativeness' was carefully studied.

Finally, 12 companies were identified to be approached, with a target to develop eight case studies in the specified time-line of the project. Ten companies were studied in-depth and approached to develop detailed case studies. Four more companies were found to be unfit for inclusion on grounds of benefits derived and their innovativeness. One company could not turn in its response within the time-line of this project due to schedules that could not match. In order to include two exciting examples that did not fit within the framework, the report added these as Specific Business Solutions to emissions reduction.

The new processes, products and technologies highlighted in this report were selected based on various criteria - sustainability for business, sustainability for the environment and society, readiness to be implemented, and innovation – along the four benefits of sustainable innovation (*see Box 1.1*). In some cases, innovations were selected that have already been fully tested and put into commercial use; in other cases, they were selected to highlight promising early-stage ideas.

The companies included in this report belong to different industry areas in which CII-ITC CESD has significant expertise or where there are substantial opportunities for innovation. However, case studies featured here

Box 1.1

Benefits of Sustainable Innovation

Environmental Benefits • Greenhouse gas emissions reduced • Energy use reduced or efficiency increased • Hazardous pollutants released in air, water or land reduced • Solid waste reductions, materials use reduced or efficiency increased • Supplier behaviour influenced, resulting in environmental benefits • Natural resources protected or restored	**Business Benefits** • Cost savings • Increased revenues or earnings • Reduced liability or risk • Return on investment/payback period • New market creation • Investment attractiveness • Benefits for customers • Brand/reputation enhancement
Social Benefits • Stakeholder consultation • Livelihood creation • Community relation enhancement/ benefit • Specific impact on social issues of direct relevance	**Innovativeness** • Is the innovation original or is it a significant improvement over an existing solution? • Is it still in scarce use? • Does it offer economic, social and/ or environmental benefits? • Is it applicable to other sectors/ areas? • Is it commercially viable?

are only to provide a convincing case and not necessarily to substitute more compelling cases of sustainability driving innovation.

Within these case studies, the report attempts to provide a range of ideas: from incremental changes to more radical business-model innovations; and from those that offer quick implementation and a short payback period to longer-term ones.

It is important to note that this report is not an inventory of all worthy innovations. There are simply too many good cases. Nor is it a portrayal of top sustainable and innovative companies. Companies studied to develop this report are coping with negative sustainability (including environmental) footprints. It is also not a review of cutting-edge technologies. However, the innovations they have developed represent a positive step in the right direction.

2. SUSTAINABILITY DRIVING INNOVATION

This report, *'Indian Companies with the Solutions that the World Needs'*, builds on the previous report *'Indian Companies in the 21st Century'* by WWF and explores in a more detailed manner how some companies in India are understanding and responding to changing sustainability trends through innovation and business strategy.[1]

The five in-depth case studies and two examples in this report include companies from diverse economic sectors that have varied economic, social and environmental concerns and impacts. Nevertheless, they contain some common threads and lessons that can be applied in different contexts. The case studies capture key initiatives and identify important ways in which sustainability has affected the drivers of business competitiveness and success: access to markets, operational efficiency, access to capital or superior reputation, and most importantly innovation.

The Corporate reality in the 21st century

Recent years have seen a growing range of economic, social, environmental and governance issues push into the mainstream of politics and business. The priorities for action emerging from a range of summit meetings - such as the G8 and the World Economic Forum - tend to share one common characteristic: they all relate to current market failures or dysfunctions.

While most sustainability challenges – such as income disparity, loss of biodiversity and assosiated impacts - are not new; globalisation has directly or indirectly exacerbated many problems to a degree where many of these questions are now dealt with as matters of global and national security, e.g. climate change and food prices. Information technology is propelling increased awareness about the scope of societal needs and the lack of progress to date by governments and traditional non-governmental organizations. Businesses, civil society and governments, once considered strange bed-fellows, are now working together to resolve some of the most chronic problems.

This trend was implicit in the 2008 agenda of the World Economic Forum annual meeting at Davos, which closed with a call by business, government and civil society leaders for a new brand of collaborative and innovative leaders to address the challenges of globalisation, particularly the pressing problems of conflict, terrorism, climate change and water conservation.[2]

Business, political and civil society leaders at the World Economic Forum's India Economic Summit 2007, called on India to focus on skills development, improving governance, upgrading of education, forging public-private partnerships in infrastructure and addressing environmental degradation and water scarcity to sustain the high growth the country

requires. The theme of the 23rd India Economic Summit, 'Building Centres of Excellence',[3] acknowledged India's remarkable achievements in creating highly competitive and innovative companies. But more importantly, it also underscored the challenge of extending that success beyond traditional industry, urban and academic centres to rural communities, where 70 per cent of the population still resides.

The discussions at the forum did not focus, as they usually did in the past, on how to achieve greater consensus among industry, state and national leaders around key growth challenges, but were directed instead at adopting and scaling grassroots innovations that are delivering faster and greater results on the ground. It was in this spirit of getting things done faster that the India Economic Summit 2007 was designed to tap into the collective intellect, on-the-ground experience and global insight from among its community of stakeholders. It was agreed that innovative ideas and processes can often be applied from one industry to another and that industries can learn from one another. The concept of innovation may by necessity mean that organizations need to develop new business models to remain relevant.[4]

"The world is getting better, but it is not getting better fast enough, and it is not getting better for everyone," argued Bill Gates at the World Economic Forum, Davos 2008.[5] He called for creative capitalism: "an approach where governments, businesses and nonprofits work together to stretch the reach of market forces so that more people can make a profit, or gain recognition, doing work that eases the world's inequities".

The inequities between the haves and the have-nots, most stark in India, need to be reduced if other key sustainability challenges are to be tackled. Traditional approach of development aid and philanthropy have had limited success. Poverty is most effectively reduced through engaging the poor and the excluded in the economic growth. The businesses, with their increasing contribution to economic growth with substantial social and enviromental impacts, are best placed to facilitate this enagement.

C K Prahalad, in 'The Fortune at the Bottom of the Pyramid', presented not just the 'hidden fortune' with the four billion people who live on less than $2 per day globally, but how businesses could identify, tap into, and expand this fortune by developing new models of doing business, often using new technology. Prahalad proposes that businesses, governments and donor agencies stop thinking of the poor as victims and instead start seeing them as resilient and creative entrepreneurs as well as value-demanding consumers. He proposes that tremendous benefits will accrue to businesses that choose to serve these markets in ways that are responsive to their needs. After all the poor of today can be the middle-class of tomorrow.[6]

Michael Porter and Mark Kramer sum up these new opportunities in their *Harvard Business Review* article on the links between competitive advantage and corporate social responsibility (CSR). They conclude that CSR offers "many of the greatest opportunities for companies to benefit society."[7] Further, "if…corporations were to analyse their prospects for social responsibility using the same frameworks that guide their core choices, they would discover that CSR can be much more than a cost, a constraint, or a charitable deed - it can be a source of opportunity, innovation, and competitive advantage."

What all this means is that corporations can derive sustainability value and increase business value at the same time, if they are able to identify opportunities within the array of risks and challenges. Success of microfinance in South Asia and parts of Africa, pricing and distribution of HIV-ARVs, extending stripped-down versions of FMCG products to the poor, community-based waste management, home-cleaning and waste disposal services in slums, are some of the many examples of where companies have begun to shift from risk and cost approach to opportunity and profit approach for sustainability.

India poses sustainability challeges of huge scales for businesses to tackle through innovative approaches. India has a third of its population still under the poverty line, is amongst the most vulnerable countries to climate change impacts, and also has one of the highest incidences of diseases such as HIV/AIDS, TB and diabetes. At the same time, India is among the fastest growing economies in the world, has the youngest population, and offers one of the largest markets for renewable energy. This interesting mix of strengths and weak areas makes the country a breeding ground for innovations. The bottom of the pyramid, the 800 million Indians, can become a major source of breakthrough innovations.[8]

Clayton Christensen and his colleagues spotlighted two different forms of innovation, *sustaining* and *disruptive*.[9] "Sustaining technologies…improve the performance of established products along the dimensions of performance that mainstream customers in major markets have historically valued." By contrast, "disruptive innovations don't, by traditional measures, meet existing customers' needs as well as currently available products or services. They may lack certain features or capabilities of the established goods. However, they are typically simpler, more convenient and less expensive, so they appeal to new or less-demanding customers."[10]

Christensen and Stuart Hart point out that disruptive innovations are suitable for developing markets - because "they offer a product or service to people who would otherwise be left out entirely or poorly served by existing products."[11] They also talk about a subset of disruptive innovations -

catalytic innovations - where social change is the primary objective.

In a situation where greenhouse gas (GHG) emissions, and in particular that of carbon di-oxide ($CO_{2)}$ emissions need to be dramatically reduced, efficient use of natural resources has to be encouraged and a better life has to be provided for billions of people, disruptive technologies are the most important. Obviously sustaining innovations can also help, but if too much focus is spent on them, the really sustainable ideas might get lost.

Sustainability-driven innovation

Innovation is critical for the future success of any business. Companies who do not innovate will sooner or later become unsustainable and irrelevant. However, for innovations to have sustainability impact and to add to business value, sustainability should be integrated with the core business.

With a strong corporate commitment to sustainable development, many of the standard tools of management can help to deliver sustainable innovation in both senses of the word.

Companies that have a pure sustainability approach provide interesting and inspiring examples, but many of them have their own set of problems. Often they try to create a niche and define themselves not as leaders but as companies catering to an exclusive minority. Thereby they contribute to a broader development where sustainability is seen as “alternative” instead of mainstream.

Other companies have attempted to align product and service innovation to sustainability objectives but with limited success. Interface, the floorings company, is perhaps the best known example. The company developed a service-based business model for corporate clients based on leasing out floor coverings and retaining the responsibility for replacing worn sections, avoiding the need to replace an entire carpet when a small section has worn through. The approach potentially could save Interface and its clients’ money and reduce resource use. But Interface has struggled to persuade clients that it won’t cost them more. According to Rebecca Willis and Jenny Oldham at Green Alliance, one of the major barriers the company faces is split budgets. “Typically the person who buys the carpets is different from the one who arranges for them to be cleaned. Neither is asked to think about the environmental consequences of their company’s flooring either, that’s left to the environment manager who probably has nothing to do with buying carpets”.[12]

Similar challenges exist in different parts of society. Energy efficient housing is probably one of the most serious challenges, but appliances like referigerators and even computers suffer from the same drawback. There is a

lack of life cycle perspective and ability to understand the total cost of ownership (TCO). Too often the person buying things only looks at the upfront cost, not at the cost over the lifetime. For IT solutions the challenge is even bigger as the service that the product provides is often considered the most important. A notebook computer can allow people to work without being in the office, something that can save travel time and cost and building space. The distance between a person looking at the upfront cost and a total cost perspective from the company is hard to bridge.

Examples of business opportunities

The challenges that India faces also present opportunities to tackle them. India's current Prime Minister, Manmohan Singh has repeatedly reminded the private sector of the need for inclusive growth across the country, while the 2007 budget provided for a 31 per cent rise in rural infrastructure expenditure and broadened the availability of farm credit.[13]

Much of this hope rests on the economic progress India has made, particularly in the past few years. India is among the fastest growing countries in the world and if estimates are to be believed, it will be the third largest economy in the world by 2050.[14] It would have expanded employment and entrepreneurial opportunities for the youngest population in the world and reduced poverty further.

Currently, 55 per cent of India's population is younger than 25 years.[15] By 2025, while 40 per cent of the population will be considered to be middle class [Rs 200,000-500,000 (US$ 4,440 – 11,110) Annual Household Income], those earning less than $2/day would be 18 per cent, down from current 45 per cent.[16] Consumption patterns are already changing and will increasingly show a trend for convenience and lifestyle products and services. These volumes provide scope for companies to develop sustainable consumer markets. At that scale, sustainable products would not have to be expensive. The innovation will be in pricing for mass affordability.

Growth sectors – such as telecom, infrastructure, transport, retail – are not only relevant for their double digit growth rates, but also for their significant sustainability footprint. In a business as usual scenario, these sectors could have a lopsided impact; impressive economic benefits at the cost of environmental degradation and social unrest.

Overall infrastructure investment is expected to increase from $201 billion in the 10th plan (FY02-07) to $492 billion in the 11th plan (FY07-12), which will be nine per cent of GDP.[17] Of this more than 30 per cent will come from private sector. The construction activity urgently needs eco-friendly material use and technology to minimise its sustainability damage.

The potential for cleaner methods and materials is reflected in growth numbers.

India's retail market - 5th largest retail destination globally - is estimated to grow from the US$ 330 billion in 2007 to US$ 427 billion by 2010 and US$ 637 billion by 2015. Simultaneously, modern retail is likely to increase its share in the total retail market to 22 per cent by 2010.[18] Retail outlets, shopping malls and hypermarts could become green buildings or energy positive buildings. The best of corporations in organised retail – Tata Group, Aditya Birla Group, Reliance Industries, RPG, Future Group, Bharti Group – have the resource potential to set targets and deliver on these energy positive centres.

The retail industry also helps bridge the rural-urban divide by means of sustainable livelihoods creation, integrating farmers and rural unemployed into processing industries and extending the FMCG markets to rural areas.

Media stories of India's mobile telecom revolution abound. The telecom industry is growing at the fastest pace in the world and India is expected to become the second largest telecom market globally by 2010. Almost 10 per cent of the population became mobile phone users in the first quarter of 2007.[19] India's overall tele-density stood at 26.89 per cent in June 2008, and the government has plans to raise the tele-density to 40-45 per cent by 2010.[20] Forthcoming services such as 3G and WiMax will further augment the growth rate.

Cheap mobile utility charges for consumers complemented by better technology use is attracting companies and social entrepreneurs to provide access to healthcare, financial services and market connectivity, to the marginalised. The Boston Consulting Group estimates $85 billion revenue by 2015 through mobile banking with those who are currently unbanked in China, India, and Brazil.[21] ZMQ Software Systems, a Gurgaon-based mobile gaming company, will soon start offering prenatal advice via text messages to women in rural areas.[22] Similarly, EnableM – a mobile-learning company - offers programmes ranging from basic English to test preparation and career counselling offered at Rs 25-30 (US$ 0.56-0.67) per month, all through mobile phones, has almost 250,000 subscribers, and expects to grow threefold by the end of 2009.[23]

Sustainability Innovation through New Business Models

In a way, social entrepreneurs are pursuing a prolonged endeavour of sustainability that better aligns societal and environmental needs with business values. By creating new business models, they are able to deliver new forms of value by helping meet sustainability challenges. Innovation,

apparently, runs right across the business model, delivery mechanisms, and resource mobility and utilisation.

Interestingly, and as showcased in this report, many social entrepreneurs are pursuing disruptive paths that, while focused on new markets, have potential implications for the mainstream. This applicability to the mainstream also creates the 'innovators' dilemma' - how to ensure that this disruptive innovation "is taken seriously within the company without putting at risk the needs of present customers who provide profit and growth."[24]

Social entrepreneurs tend to seek opportunity in situations of 'suboptimal equilibrium'. In these situations society is settling for a poor solution to a problem because no one has yet come up with an alternative.[25] These entrepreneurs are confronted by a suboptimal state in society that: "causes the exclusion, marginalisation, or suffering of a segment of humanity that lacks the financial means or political clout to achieve any transformative benefit on its own." Such disequilibrium presents "the opportunity to transform the situation by developing a social value proposition and bringing to bear inspiration, creativity, direct action, courage, and fortitude, forge a new, stable equilibrium that releases trapped potential."[26]

Social entrepreneurs such as Muhammad Yunus, founder of the Grameen Bank identified such suboptimal equilibrium which was limited or gave no access to formal financial services system for the poor in Bangladesh. The result is not only evident in the success of Grameen Bank and its various sister concerns but has also inspired other social entrepreneurs to look at similar and completely different but critical sustainability challenges. It went much beyond its brief to inspire the private sector to resolve sustainability challenges, not through philanthropy but through new business models.

The five case studies and two examples presented in this report attempt to unlock the spirit of innovation and generate different ideas to tackle some of the most chronic social and environmental ailments India is facing. Using the criteria along four dimensional benefits – environment, social, business and innovation – the five case studies are presented in the next section. Table 2.1 shows how they were filtered by looking at the approach and solution matrix for each of the companies.

Table 2.1:
Company-Approach-Solution Matrix

	APPROACH	SOLUTION
BASIX	New business model: Sustainable livelihoods promotion	Innovation to improve quality of life for the 'have-nots'
Cosmos Ignite Innovations	Social entrepreneurship: poor as the first customer	Disruptive innovation: Light Emitting Diode (LED)=based solar power lighting system
ITC	Scaled-up low-hanging fruits to create sustainability image	Sustainability benefits across SBUs due to integrated material & competence flows
L&T	Identifies sustainability=driven opportunities	Has technology, products & services delivery in place
TCS	Innovative solutions for sustainability challenges	Substantial success in leveraging IT-innovation capabilities

These case studies look at new business model of sustainable livelihood promotion to improve the quality of life for the have-nots (BASIX) and social entrepreneurship with poor as the first consumer to provide access to basic minimum lighting (Cosmos Ignite). The case studies also looks at expereince of scaling-up low-hanging fruits to create sustainability (ITC); sustainability driven oportunities through technology products and service delivery (L&T); and innovative solutions for challenges of sustainability by leveraging IT innovations (TCS). In addition to these case studies, this report covers two specific examples of emerging business solutions developed by Indian companies to reduce GHG emissions - telepresence services of Tata Communications to reduce companies' carbon footprint; and technology leapfrogging for providing clean energy solutions of Suzlong Energy.

3.
CASE STUDIES

BASIX

1.0 Organisational Set-up

BASIX is a livelihood promotion institution established in 1996, working with over a million and a half customers, over 90 per cent of them are rural poor households and about ten per cent are urban slum dwellers. It has cumulatively disbursed Rs 89.3 million (US$ 200 million) through nearly 578,000 cumulative number of loans. BASIX works with over one million households in 100 districts in the Indian states of Andhra Pradesh, Karnataka, Orissa, Jharkhand, Maharashtra, Madhya Pradesh, Rajasthan, Bihar, Chhattisgarh, West Bengal, Delhi, Sikkim and Assam.[27] BASIX is an intermediary between mainstream capital held by people unfamiliar with rural development on one side and low-income rural entrepreneurs in poor areas on the other. BASIX makes loans to rural businesses in poor areas and also provides assistance in solving business problems.

BASIX is known for its scale, innovation, commercial orientation and partnership approach. It has addressed risk mitigation and cost reduction to improve its access to mainstream capital markets. This has enabled improved rural sector lending, including agri-based lending in drought-prone areas. The loan outstandings are about Rs 23.4 million (US$ 52 million) for the Group with over 347,651 customers. As much as 41 per cent of the loans went to the farm sector (severely impaired for want of credit) and 59 per cent to women (who tend to be financially excluded) .[28]

Through its arm - Indian Grameen Services – BASIX conducts research and development in livelihood promotion, designs and develops financial products for extending credit, evolves distribution channels for delivery of its services, and develops necessary systems for service delivery such as accounting and Management Information System (MIS). The Livelihood School is promoted for knowledge building and training of livelihood professionals in NGOs, government agencies, banks, Micro-Finance Institutions (MFIs) and the staff at BASIX.

2.0 Strategy[29]

BASIX's strategy is to provide livelihood financial services, agriculture and business development services, and institutional development services, which together are known as the triad strategy (*see Figure 3.1.1*).[30]

The fund-based, fee-based and social businesses of the BASIX group have a synergy and contribute to each other's growth and prosperity (*Table 3.1.1*).

Figure 3.1.1:

Livelihood Triad

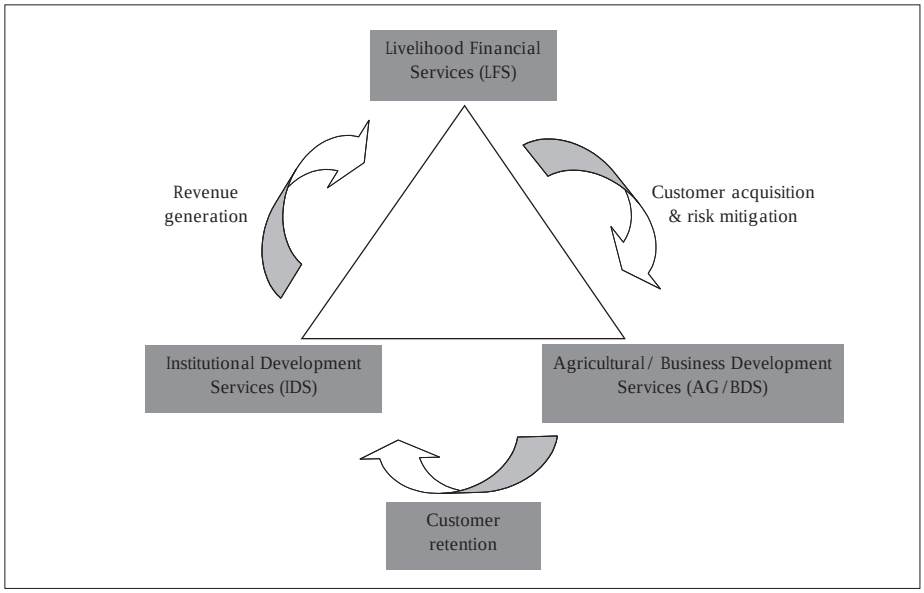


Table 3.1.1:

BASIX's Sustainable Services

Livelihood Financial Services (LFS)	Agricultural/Business Development Services (AG/BDS)	Institutional Development Services (IDS)
Savings (only in three districts where we have a banking licence)	Productivity enhancement	Formation of groups, federations, cooperatives, mutual benefits of producers
Credit: agricultural, allied and non-farm	Risk mitigation (non-insurance)	Accounting and management information systems, using IT
Insurance, for lives and livelihoods	Local value addition	Building collaborations to deliver a wide range of services
Financial orchestration (arranging funding from various sources)	Market linkages - Input supply, output sales	Sector and Policy work – analysis and advocacy for changes/reforms
In 2006-07, coverage extended to 473,932 asset owners. Over 10,000 cumulative claims have been settled amounting to Rs.36 million (US$ 800,000).	These services were extended to 72,000 producers. Fees collected towards providing such services amounted to Rs 16 million (US$ 36,000).	These services were extended to 25,110 groups, with over 683,000 members. Fees collected towards providing such services amounted to Rs. 24 million (US$ 53,300).

The credit business enables customer acquisition, while the insurance business mitigates customer and credit risk, and the AGBIDS business enables customer retention by enhancing their incomes. The consulting and IT business allows BASIX to earn revenues from offering services. The social businesses enable research and development, and knowledge building.

3.0 Sustainability Driving Innovation

BASIX is helping rural people build tangible assets, raise incomes, protect the environment and sustain community values. It is helping bring mainstream capital to rural communities and fostering rural people's innovative ideas about equity and economic development.

BASIX's rural product innovation is particularly interesting. It has created new insurance products for poor families in partnership with mainstream insurance companies. This is the kind of innovation for greater rural equality that attracts the investment capital of market institutions.

BASIX has established partnerships with insurance entities such as AVIVA Life Insurance Company (for life insurance products), Royal Sundaram Alliance General Insurance Company (for health, livestock and micro-enterprise insurance), and ICICI Lombard General Insurance Company (for weather insurance). In 2003, BASIX partnered with the World Bank and ICICI Lombard to pilot the first weather insurance product for farmers.

BASIX saw that poor, rural Indian households have no insurance, slender earnings with little cushion, and their income is exposed to all sorts of natural and human risks, so they need help. BASIX has worked with insurance companies to design insurance for very poor families' needs - for example, insurance on livestock holdings, against rainfall problems and against loss of income due to poor health. BASIX settles claims on life insurance in 15 days, livestock claims within a month and rainfall claims before the end of the harvest.[31] It delivers these products through its micro-credit outreach system. This ensures low transaction and operating costs, something mainstream insurance companies cannot achieve on their own.

The other significant innovation is leveraging IT-platform for financial inclusion of the poor. BASIX initiated Technology Assisted Financial Inclusion in a few low-income neighbourhoods in Delhi and Muzzafarpur, Bihar. This pilot covers an urban and a rural location, and can potentially be scaled across all BASIX locations. This is done as the Business Correspondent of Axis Bank, on the basis of a tripartite agreement between BASIX, Axis Bank and the technology provider, A Little World.[32]

In the first four months of the pilot, BASIX had enrolled over 4000

customers for no-frills saving bank accounts. After accounts were opened, customers were then issued biometric authentication based smart cards. These customers now have access to both savings and withdrawal services, in addition to other financial services – insurance, credit, remittances, pensions - at either a SPOT (Specified Point of Transaction) within five kilometres of their homes, or at their doorstep.

3.1 Scaling-up Innovation

In order to incubate fresh innovations and scale-up the Livelihood Triad Approach, BASIX set-up a three-year (2005-08) Livelihood Triad Fund (LTF) worth Rs 99 million (US$ 2.2 million) with the support of Swiss Agency for Development and Cooperation (SDC). This supports the Livelihood Triad strategy of BASIX discussed earlier.

Over 70 innovative projects took off from the ground [33] that included:

- Innovative grassroots work
- Grassroots work at scale
- Sector and policy work, and
- Knowledge building

These projects are in the areas of agriculture, livestock and diary, non-farm, co-operatives, financial services, technology, gender and natural resource management. Table 3.1.2 captures some of these projects.

Table 3.1.2:
BASIX's Innovative Projects

Sector	Sub-sector	Description
Agriculture	Farming techniques (paddy SRI, cotton, wheat, green fodder), seed multiplication (vegetables), lac, pressmud, oilseed	These projects, implemented in various BASIX locations, have enabled farmers to increase productivity, change cropping patterns, or engage with an alternative livelihood. Covers market linkages.
Livestock and Diary	Artificial insemination (milch cattle), integrated livestock development services, insurance	Experiments with low risk community goat insurance, through pilots of three different models of artificial insemination and integrated livestock products will be developed.
Non-Farm	Handicrafts (brass, leather, handloom embroidery), rag picking, rural tourism, rural employment exchange	Projects are in various BASIX locations, and usually employ all three verticals of the livelihood triad. They either create new livelihood opportunities (rural tourism, BPO, employment exchange) or improve current livelihood activities.

continued…

Table 3.1.2: continued…

BASIX's Innovative Projects

Sector	Sub-sector	Description
Financial Services	Poor-friendly savings products, remittances, warehouse receipts, commodity derivatives, educational loans	Includes both product development (savings, educational loans) and enabling better access to existing products
Technology	Technology assisted financial inclusion, security	Largely LFS-oriented projects, these use technology based services for increasing financial outreach of banks.
Natural Resource Management	Irrigation, groundwater management	Introduces new techniques or revives old ones for water management through collective action

Many LTF projects actively build knowledge from practice, through a process called accompaniment. These projects encourage project field teams to systematically reflect and learn from their work. Accompaniment helps systematically build knowledge throughout the life-cycle of the project.

4.0 Sustainability Impact

In a little over ten years of its existence, BASIX has expanded its services to over one million households in 100 districts across some 14 states in India. While its focus continues to remain on rural poor and the excluded sections, it is now reaching out to the urban poor also. According to Government of India estimates, in 2007 there were nearly 220.1 million people living below the poverty line. Nearly 21.1 per cent of the entire rural population and 15 per cent of the urban population of India do not have access to basic physical and social infrastructure.[34] About 25 per cent of the poor live in urban areas.[35] BASIX's venture into urban areas is to provide livelihood options to these urban poor.

Through its Livelihood Financial Services (LFS), 473,932 persons/asset owners were covered in 2006-07. Over 10,000 cumulative claims have been settled amounting to Rs 36 million (US$ 800,000). Not only does BASIX select districts with high poverty ratio, low HDI and low financial inclusion, within those districts also, it targets members of the socially backward communities, as can be seen from the caste-wise classification of its customers in Table 3.1.3.[36]

The Agricultural/Business Development Services (AG/BDS) were

Table 3.1.3:
Customer Classification

	Caste Classification				
	Scheduled Casts	Scheduled Tribes	Minority Customers	Other Backward Castes	Forward Castes
Per cent of Customers	18	6	11	48	17
Per cent Outstanding	17	5	10	49	18

extended to 72,000 producers raising fees collection of Rs 16 million (US$ 355,560). BASIX partners with private companies to provide a wide range of agri services. For instance, in its collaboration with Pepsico for Frito Lays chip grade potato farming in Jharkhand, it was initiated in 2005-06 with 216 farmers and grew to 1100 farmers in 2006-07. These farmers had an increase in crop yield, benefited from delivery of quality planting material , got pre-determined price (average price paid was Rs 7.60/Kg (US$ 0.17/Kg)), and had an access to credit and crop insurance.[37]

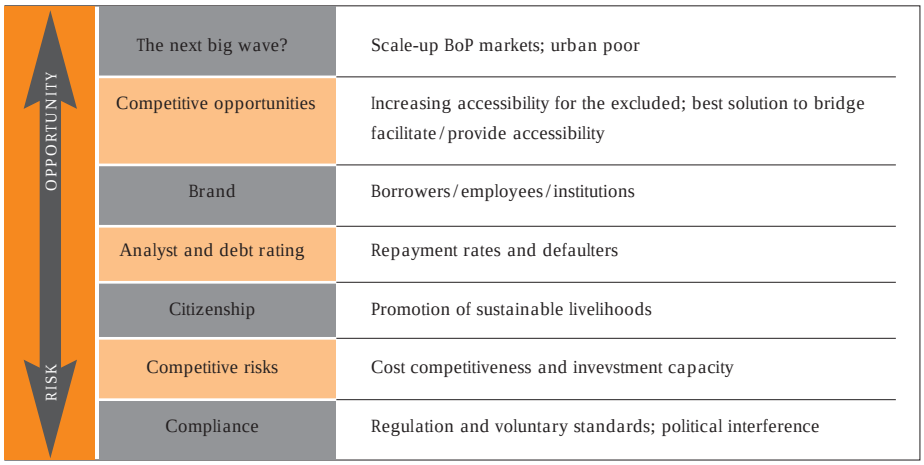
BASIX organises farmers, livestock rearers and non-farm sector producers like handloom weavers into informal and later formal producers' organisations. BASIX also works with other livelihood promotion organisations involved in the development of the disadvantaged and marginalised groups. It is currently working with 37 Non-governmental Organisations (NGOs) and Community Based MFIs, seven Panchayati Raj Institutions and several government poverty alleviation programmes in Madhya Pradesh, Andhra Pradesh, Rajasthan and Bihar. These organisations are engaged in various aspects of livelihood promotion including microfinance, handicrafts, promotion of watershed, dairy, natural resource management and fisheries, among others. These Institutional Development Services (IDS) were extended to 25,110 groups, with over 683,000 members generating fees of Rs 24 million (US$ 533,330).[38]

From Risk to Opportunity

Increased regulation and local political interference keeps compliance risks intact for BASIX. Cost competitiveness and building new investment capacity are key success factors. It has leveraged IT, achieved scale and maintained impressive repayment rates. While it has come up with innovative solutions for inclusion of poor in mainstream economic activities, the next tranformation for BASIX will be when it is able to scale its pilots and increase the size of urban poor as its clientele.

Figure 3.1.2:

Innovation in livelihood promotion spreads across business drivers

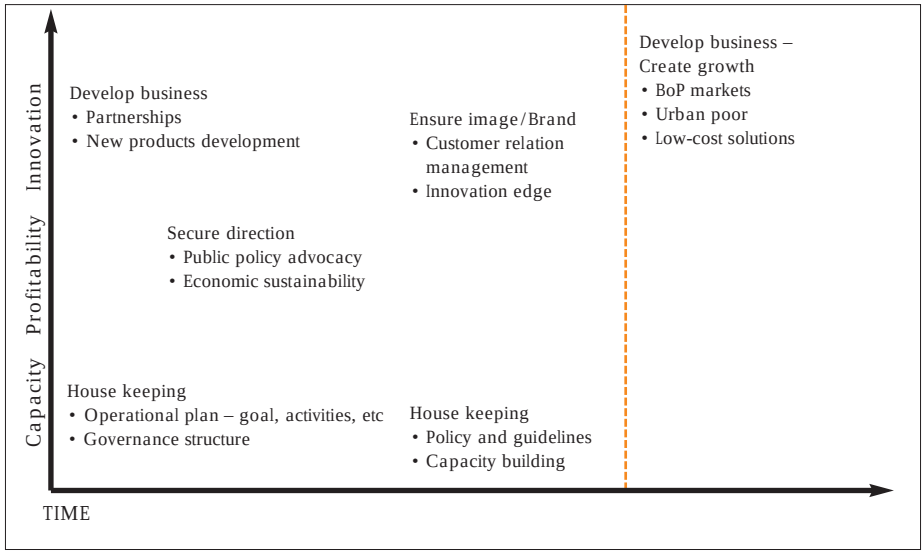


The Path towards Sustainable Profit & Innovation

BASIX leverages innovation and new approaches to create and provide sustainable livelihood opportunities to the poor (*see Figure 3.1.2*). It has also managed to leverage available IT platforms to maintain cost competitiveness and improve operational efficiencies. Alongside these, BASIX has created a trusted brand image, engaged in policy advocacy and worked towards creating good behaviour standards for the industry, particularly microfinance. These cumulatively have helped the institution convert certain sustainability challenges into opportunities.

Figure 3.1.3:

Sustainabilty path



BASIX has been able to do all this through building its own capacity and also that of the industry. However, as shown in figure 3.1.3, it needs to further strengthen this resolve to respond to newer challenges and target fresh markets such as the urban poor. Responding to problems of the urban poor is the next significant growth area that BASIX and others could tap.

Cosmos Ignite Innovations

1.0 Organisational Set-up

Cosmos Ignite Innovations is a social enterprise using a disruptive technology solution to resolve two key sustainability challenges at the same time. It was founded on an innovative business model as the first global company (as against an NGO or charity), to bring Solar Light Emitting Diode (LED) lighting and micro-energy for domestic use through a sustainable commercial model, focussed on the poor at the 'Bottom of the economic pyramid' in India and in parts of developing world across Africa, Asia and Latin America. It developed an innovative product - MightyLight – to help solve the lighting problems of millions of poor in these regions.

Building on the work of Stanford University and LUTW (Light Up The World) Foundation[39], MightyLight uses the LED technology combined with solar energy into a product designed as a multi-functional lamp that is water-resistant, break-resistant, and can be used as a room light, reading lamp or flashlight.

It believes this model pioneers a path to sustainability – both for the users and the producers through safe, affordable, easy-to-use solutions, that deliver social benefits; support economic development; as well as mitigate climate change impact, at the same time.

The Company follows the vision of "Empowering Lives through Innovative Products", beginning with the mission to help "Removal of Darkness" for millions without light at the "Bottom of the Pyramid". Its mission is to provide a cheaper alternative for the 1.6 billion people without electricity who are dependent on fuel-based lighting such as kerosene.[40] The MightyLight is used across India, Afghanistan and Pakistan through to Kenya, Nigeria, Guatemala and Panama, and many other regions, with almost 100,000 people being impacted by the end of the year 2008.[41]

Cosmos has its own design, development, and manufacturing and works in partnership with leaders from the development, government and commercial sectors to distribute its solutions.

2.0 Strategy

Cosmos Ignite's innovation is in the product and the financing model developed to make it a market-based sustainable social enterprise. Cosmos Ignite consciously chose to be a profit-oriented venture to make the project sustainable in its aim to effect social change. This philosophy is based on the

belief that markets, and not mere charity, leads to sustainable growth.

MightyLight is in use in India, Afghanistan, Pakistan, Cambodia, Nigeria, Kenya, Rwanda, Panama, Guyana, Colombia and has become integrated into numerous international projects by NGOs, the UN, the World Bank, with commercial distribution now underway.[42]

On account of it being a lean entrepreneurial venture, instead of a large corporate, it has chosen to design and learn from a large number of pilot programmes that support its own financial sustainability as well as provide it with readiness to rapidly scale in the coming stages.

Cosmos Ignite's delivery model is based on:

1. Problem or Market identification
2. Technology or Product development
3. Financing or Affordability
4. Distribution or Scale

Following a "design-based approach", the company studied consumer behaviour as well as the consumer need and tried to come up with a product that would fit these consumer needs. The need gap could best be met by disruptive change.

Consequently, Cosmos Ignite developed a product that was not technology- or state-dictated, but was driven by customer needs. MightyLight provides "off-the-grid" electricity using freely available solar power and is close to the customer. This also includes huge research and development costs, and intellectual property rights.

The key statistic to appreciate this innovation is the fact that even the poorest are already paying heavily for kerosene oil to the tune of Rs 80-150 per month that is US$ 1.78- 3.30 (@ Rs 9/ litre (US$ 0.2)from the PDS or the public distribution system); while the nation pays almost three times as much per litre amounting to Rs 30,000 crores per annum (US$ 6.7 billion) in kerosene subsidy. This amounts to a spend of up to Rs 2000 (US$ 44) per annum on kerosene alone, without considering the additional costs of black-marketed kerosene owing to leakages in the PDS, cost of batteries for torches, and cost of damage to health from polluting smoke and eyesight from dim kerosene oil lamps.

Starting with a price of Rs 1500 (US$ 33) for the lamp plus Rs 1000 (US$ 22) for the solar panel, (offering 30 per cent or Rs. 1000 (US$ 22) discount over the price of the government-supplied lamps[43]), Cosmos Ignite has managed to reduce the price to only Rs 1250 (US$ 28) for the lamp and Rs 750 (US$ 16.67) for the panel. This means that the cost reduction is being passed on to the users of almost 40 per cent in three years, which is providing a payback within just a year on actual spend for lighting by the poor.

It has done this while simultaneously increasing the brightness of light delivered to about four times of where it started from, being the first to deliver international standards of brightness of >300 Lux – the recommended safety standard for eyesight for any person – to the very poor users. This is almost 100 times that of the dim, polluting and fire-prone kerosene oil lamp.[44]

Given the very significant advances made, it is clear that even at this reduced price the poorest cannot afford the up-front acquisition cost, and it is imperative that Cosmos Ignite finds an alternative methodology to product financing for scalability. It is addressing this problem in two ways: micro-financing and carbon credits.

In order to realise minimal profits that Cosmos Ignite requires for sustainability as a social enterprise, and to cover maximum beneficiaries, scale is a key success factor for the company. It will achieve scale and wider distribution through institutional and market-based networks and partnerships.

The company achieves some sales through multilateral institutions such as the UN, the World Bank, other donor institutions and not-for-profit projects. In order to increase its rural penetration, Cosmos Ignite is now tying up with

- MFIs (Micro-Finance Institutions)
- SHGs (Self-Help Groups), and
- Co-operatives

The company is also looking to use the increasing importance of CSR (Corporate Social Responsibility) to partner delivery of its sustainable lighting solutions for the poor with the large corporations addresing their constituencies. In the next phase it aims to extend the distribution scale to urban markets through organised retail or chain stores, stand-alone or brand stores, direct marketing companies and net-based retailing options, to bring 'green' energy products to everyone.

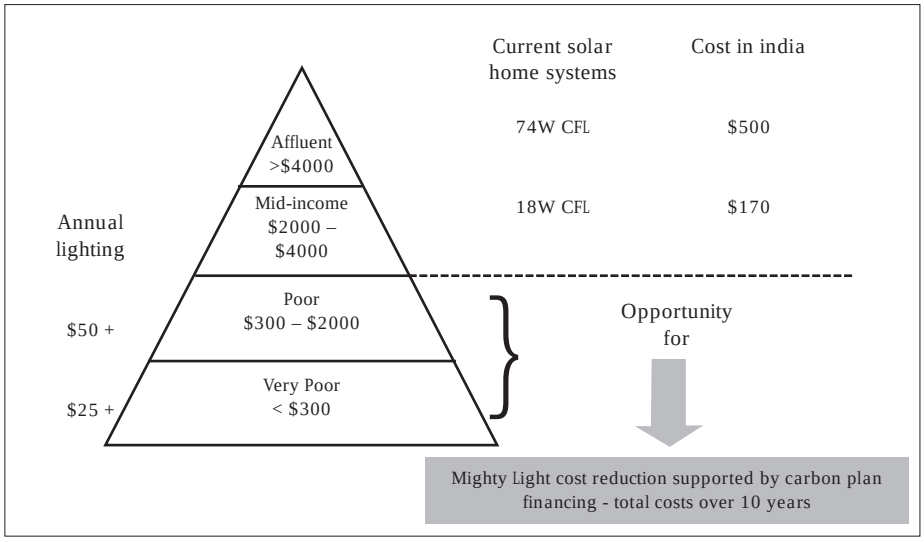
3.0 Sustainability Driving Innovation

MightyLight is a solar powered LED-based portable home lighting system configured to hang as a light fixture in multiple orientations. LED lamps are believed to produce nearly 200 times more useful light than a kerosene lamp and almost 50 times the amount of useful light of a conventional bulb.[45] These lamps also come with an economic payback period of 12 months or less. The light is rated to last for more than 50,000 hours (which is more than 30 years on usage of four hours daily or more than 15 years on usage of eight hours daily). The light is water- and break-resistant, low on cost, requires virtually

no maintenance and is environment-friendly.

The light can be delivered at a high-volume price point of Rs 1000 (US$ 25) including the lamp and solar panel, thus opening up a previously unserved segment of the market (*see Figure 3.2.1*).

Figure 3.2.1:
MightyLight's Market Segmentation



The business model is now being extended to include a carbon financing plan with breakthrough verification through technical remote monitoring and data centre, linked to 'Gold Standard' Voluntary Carbon Market.

MightyLight is a disruptive product targeted to meet a social need; at the same time, the company is modelled to function not as a charity, but like any other business organisation with focus on the bottom-line.

While solar energy and LED technology have been around for a long time, what is innovative is their use in combination in MightyLight, suddenly opening up a whole new market to more than 1.6 billion people without regular lighting around the world. Moreover, this is health friendly, environment-friendly and contributes to CO_2 reductions.

It could provide the foundations for the developing world to "leap frog" development to the next generation of lighting, even more efficient than both incandescent as well as CFL bulbs, while avoiding the pitfalls of dangerous mercury vapour in these bulbs. It could also be the start for a broader trend of decentralised energy solutions.

4.0 Sustainability Impact

Studies indicate the carbon emission of 134 kg per year per kerosene lamp.[46] Kerosene is not only expensive accounting for nearly 20 per cent of global lighting costs,[47] it is also hugely inefficient, generating only 0.2 per cent of global lighting output.[48] In addition to generating millions of tonnes of CO_2, the social costs of kerosene are enormous. Some social costs include respiratory illnesses, accidental fires and burns, high risk of crime, and virtually no opportunities for health and education in no or dim lights.

A single MightyLight saves over one tonne of CO_2 over ten years. Given that 83 million people in India are dependent on oil-based lamps,[49] Cosmos Ignite estimates its 'lighting India' programme would only cost about $2 billion, as against the annual kerosene subsidy of approximately $5 billion, as well as save one to two per cent of India's CO_2 emissions.[50] India's total CO_2 emissions are around 1400 million tonnes. MightyLight would therefore save 14-28 million tonnes of CO_2 only in India and among the poor. This compares with Sweden's total CO_2 emissions of approxematly 50 million tonnes. This has huge global CO_2 reduction potential if extended to other poor regions of the world as wells as the affluent populations.

The challenges of carbon aggregation in a distributed model have been specifically addressed through a specially-designed version of MightyLight to enable micro-chip-based assured measurement of usage and carbon displacement for transparent carbon financing.

Sustainability benefits of solar-powered LED light are significant compared to social, economic and environmental problems created by dependency on kerosene lamps. These are briefly captured in the table 3.2.1.

Table 3.2.1

Sustainability Impact of Solar-powered LED light versus Kerosene Lamps

	Problem: Kerosene Lamps	Solution: Solar powered LED light
Economic	• Kerosene expenditure up to Rs 100 (US$ 2) per month	• Annual savings of Rs 1200 (US$ 27) on kerosene expenditure • Allows money to be spent on food, clothing, school fees or livelihood building • Provides light for education and increased income generation through livelihoods such as sewing, weaving, handicrafts, fishing, food-carts, etc • Enables money saving on respiratory diseases, and increased income from productive, sickness-free days • Extra-ordinary savings to the exchequer due to break-through energy efficiency and reduction in subsidy

Continued…

Table 3.2.1 continued…

Sustainability Impact of Solar-powered LED light versus Kerosene Lamps

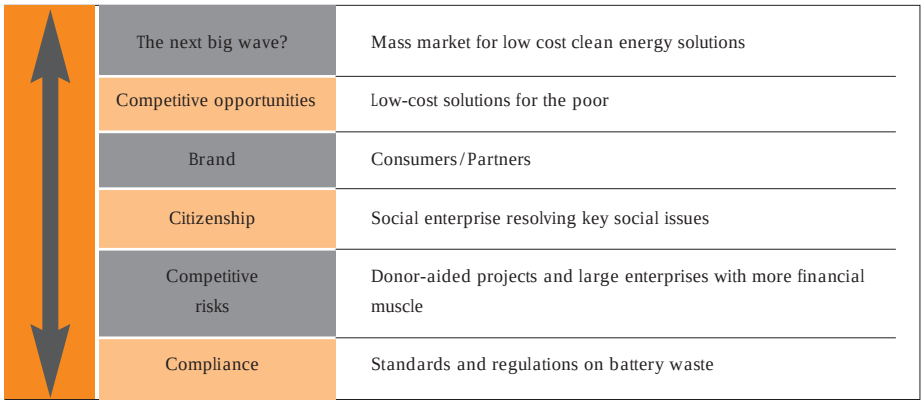
	Problem: Kerosene Lamps	Solution: Solar powered LED light
Social Health	• Kerosene is polluting leading to respiratory diseases • Poor quality light also damages eyesight • Leading to expenditure on medicines and loss of income due to sickness	• Eliminates dangerous naked flame and polluting smoke of kerosene lamps • Improve indoor air quality
Education	• Kerosene often 'rationed' reducing time for study	• Good quality light when children read and study in the evenings
Safety	• Kerosene is a fire hazard for village huts	• Provides social security in darkness
Environmental	• 30-250 kg of CO_2 emissions per year per lamp	• Reduces deforestation caused by dependence on wood or charcoal • Non-polluting and environment-friendly • Reduced CO_2 emissions

From Risk to Opportunity

Cosmos has been able to demonstrate how mechanisms (carbon financing) created to tackle a global issue (climate change) could be leveraged to effectively resolve a socio-economic problem (access to sustained lighting) faced by the poor (*see Figure 3.2.2*). While climate-friendliness of the product helps derisk business to a great extent, one could assume future risks, for

Figure 3.2.2:

Climate change and solutions for the poor underpins entire business spectrum

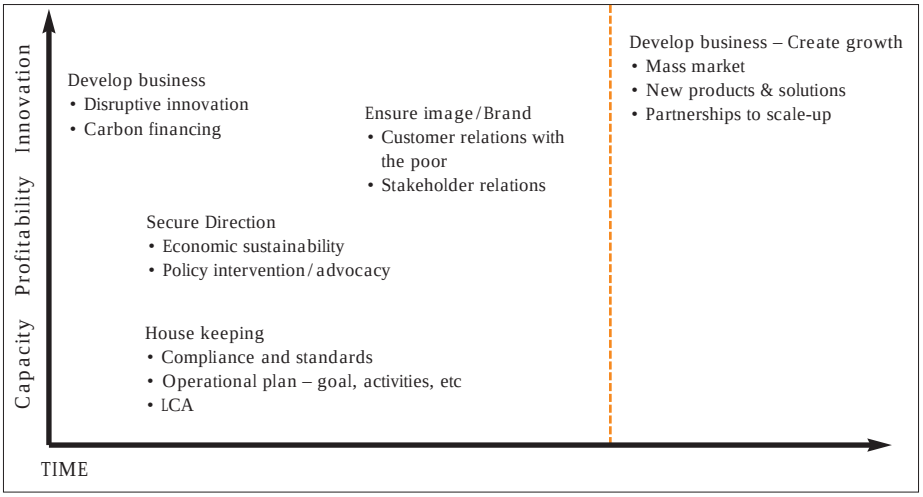


instance pile-up of batteries. The 'next big wave' for Cosmos would be to pioneer yet another product/solution success story and create a mass-market for these products. Competition for its lighting solutions already comes from large lighting companies and similar products distributed by NGOs through donor-aided funds.

The Path towards Sustainable Profit & Innovation

Cosmos began with product, delivery and financing innovation. However, as it progresses in business, securing direction for future growth through establishing economic sustainability and policy intervention will become vital (*see Figure 3.2.3*). In order to further reduce prices so as to make it financially more attractive to the poor, Cosmos needs to achieve certain economies of scale. Such a scale cannot be achieved without proper policy framework that facilitates growth of decentralised home-based energy systems. At the same time, setting plans and compliance with standards and regulations will mean building organisational capacity and supply chain network. For instance, collection and safe disposal of battery and product waste. The next big leap will be to extend its product-solution to urban poor as well as the not-so-poor, with differentiated design, pricing and distribution strategy. Also vital to its growth will be to not remain a one-product success story, but to develop more product-solutions on similar product-business model.

Figure 3.2.3:
Sustainabilty path

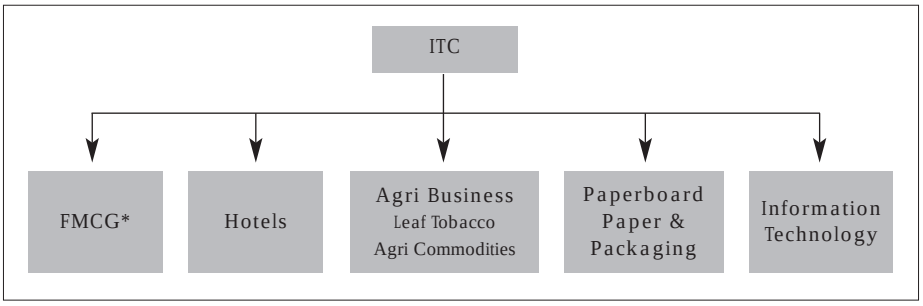


ITC Limited

1.0 Organisational set-up

ITC is one of India's largest private sector companies with a market capitalisation of over US$ 19 billion and a turnover of nearly US$ 5.1 billion.[51] It was ranked 14th among the top 40 firms listed by Forbes in 2006.[52] The group has a diversified presence in cigarettes, hotels, paperboards and specialty papers, packaging, agri-business, packaged foods and confectionery, information technology, branded apparel, personal care, stationery, safety matches and other FMCG products *(see Figure 3.3.1)*.

Figure 3.3.1:
ITC's Business Areas



*FMCG includes cigarettes, lifestyle retailing, branded packaged foods, personal care products, matches, incense sticks

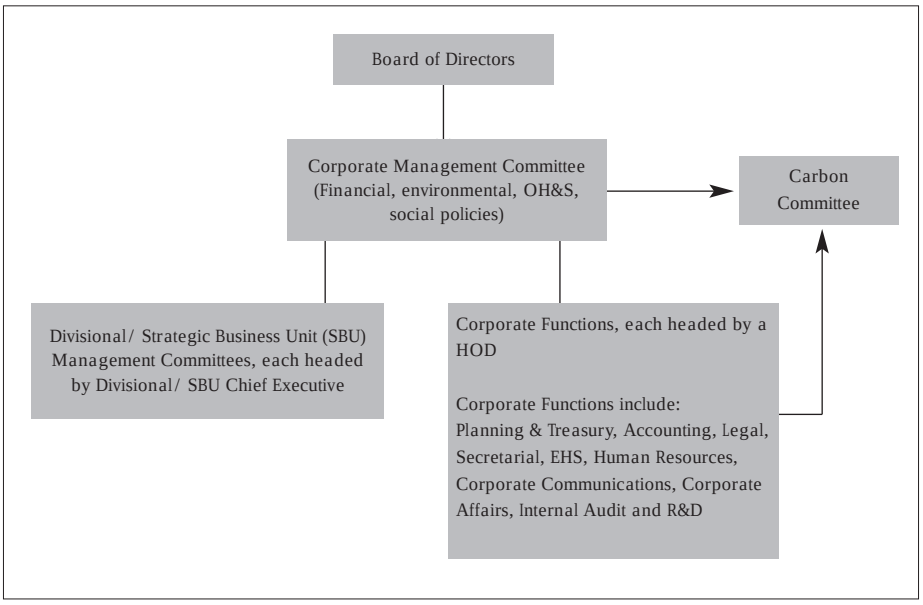
ITC's diversified status originates from its corporate strategy of creating multiple drivers of growth leveraging its core competencies: wide distribution reach, brand-building capabilities, effective supply chain management and service delivery. The group employs over 25,000 people at more than 60 locations across India.[53]

ITC has a sustainability management structure to develop and review policies, targets, progress, and then report *(see Figure 3.3.2)*. This structure overlaps with the governance structure and business structure of the company, which helps mainstream sustainability into business strategy and processes.[54]

Every Business Division/ SBU at ITC is run by a Chief Executive also responsible for the sustainability performance of the business unit. Each Division/ SBU is also responsible for its innovation and creativity for the competitive edge. This decentralised structure with central oversight and accountability provides scope for sustainability and innovation to interface at ITC. This is reflected, for instance, through company-level targets on energy

Figure 3.3.2:

ITC's Sustainability Management Structure



efficiency and emission and waste reduction, whereas innovation in new business models such as the e-choupal happens within the agri business unit.

ITC's 'Carbon Committee' looks after the company strategies to reduce its climate footprint. It comprises Executive Vice Presidents from Finance and Environment, Health & Safety and three Senior Managers from Finance and Legal functions.

2.0 Strategy

ITC's strategy to invest in developing societal capital and address environmental challenges through large-scale implementation of socially-relevant business models entails costs that constitute a drag on the financial bottom-line in the short term. However, the company believes that shareholders and other stakeholders would greatly benefit over the long term as a result of these investments, by creating a more sustainable organisation capable of creating sustainable value. The company has leveraged its core strengths by investing in cutting-edge technology, talent and research and development, to create several brands that enhance lifestyles of consumers. ITC's non-cigarette portfolio – that grew by 48.6 per cent in 2007-08 - accounts for 52.4 per cent of the company's net turnover. ITC is also able to leverage its businesses to create and sustain value-chains

that provide livelihood opportunities to over five million people, many of whom represent the poorest, particularly in rural India.[55]

The company understands the need for innovative measures that bring a quantum sustainability impact. ITC has structured innovative business models that leverage its brands, technological capability, agri-sourcing strengths and an extensive trade distribution network to create opportunities for sustainable livelihoods.

ITC has also provided leadership in promoting a belief that markets can play a greater role in facilitating meaningful CSR (corporate social responsibility). According to the company, the key to corporates sustainaing a meaningful strategy for constructive social action lies in the ability to create strong market drivers that incentivise CSR. An enlightened consumer, by exercising a choice in favour of 'socially responsible' enterprises, can unleash a powerful force of incentives. A positive vote for socially responsible companies, exercised through preference for a company's products and services,would change the context and dimension of meaningful CSR, create strong economic multipliers and enhance shareholder value. Civil regulation, including pressure groups, act as strong drivers to ensure socially responsible action.[56]

3.0 Sustainability driving innovation

Having integrated sustainability into its core business processes, ITC's business models, crafted innovatively, have not only embedded societal contribution, but have also resulted in significant benefits for the company. From low-hanging fruits such as changing to energy conserving lighting systems and reusing paper, ITC's sustainability practices have also resulted in access to newer markets, access to necessary raw materials on a long-term basis, with an opportunity to create sustainable livelihood options for a large number of people living on the margins. Its sustainability philosophy and practice not only reduces its environmental impact but also augments social and environmental capital.

ITC's raw materials are significantly agri-based. It also uses substantial quantities of waste paper in its paper business and this is sourced locally as well as internationally. The initiatives in large-scale development of social and farm forestry plantations, watershed projects and empowerment of marginal farmers through e-choupals provide ITC with significant advantage in raw material sustainability. Vertical and horizontal integration of ITC's businesses provides it with significant opportunity and synergy in eliminating and reducing its environmental footprint through optimal utilisation of materials, opportunity to recycle and reuse waste and

optimising logistics and transportation.

These measures coupled with technology upgradation, extensive R&D and waste minimisation through product and process improvements enables improvement in long-term availability of necessary raw materials at optimum and competitive prices.

Other than the positive impact on environment through various measures discussed in previous sections, a substantial contribution to sustainability has been ITC's e-choupal business model. Already much talked about, analysed and studied several times over, the e-choupal is the world's largest rural digital infrastructure empowering over four million farmers in 40,000 villages.

While the e-choupal initiative enables Indian agriculture significantly enhance its competitiveness by empowering the farmers through the wide reach of the internet, it progressively creates for ITC a huge rural distribution infrastructure, significantly enhancing its marketing reach *(see Box 3.3.1)*.

Box 3.3.1

E-choupal Strategic Thrust

Procurement: cost & quality optimisation

- strategic sourcing support to the foods business (support creation of verticals in wheat, soya, corn, potato etc.)
- cost-effective sourcing for exports/domestic external business

Rural distribution

- 'last mile connectivity': 100 partnering companies
- diverse range of goods/services: FMCG, consumer durables, agri-inputs, paid extension services etc.

Financial services

- insurance (focus: weather)
- credit (focus: Kisan credit card scheme)

Rural retail

- 24 Choupal Saagars operational
- Rapid expansion planned in identified rural markets and Tier 3 & 4 towns (population of 0.25 million to 1.0 million)

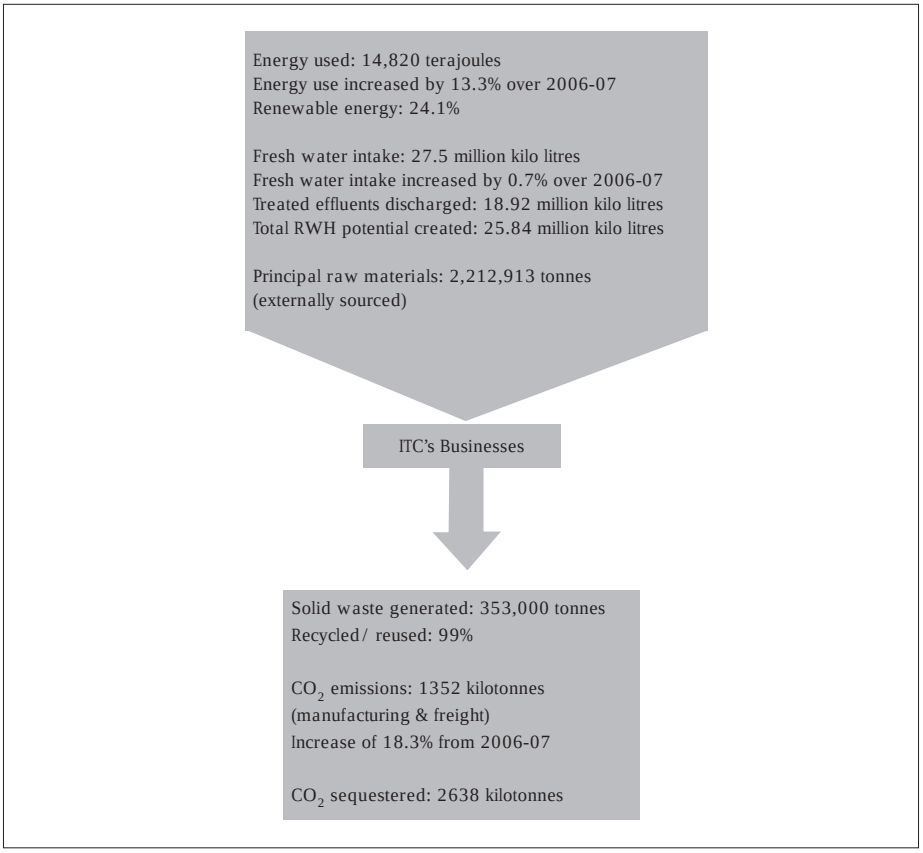
Some *sanchalaks* (host farmers) track future prices on the Chicago Board of Trade as well as local wholesale trading market prices, and village children have used the computers for schoolwork, games and to obtain and print out their academic test results. The result is a significant step towards rural development.[57]

4.0 Sustainability Impact

ITC's business operations impact the environment in three areas:[58] release of greenhouse gases, water use and effluent disposal, and generation of solid waste.

Figure 3.3.3, shows the input-output of external resource use by ITC with regard to demonstrating its status as carbon-positive and water-positive, as well as standards for solid waste management.

Figure 3.3.3:
ITC's external resource input-output



4.1 Greenhouse Gas Emissions

The Company minimises its carbon footprint through:

- Conserving energy through audit, benchmarking and use of 'next' practices to achieve the lowest specific energy consumption (energy required per unit of production)
- Using renewable sources of energy

- Creating a positive carbon footprint through forestry initiatives that enable carbon dioxide sequestration
- Implementing Clean Development Mechanism (CDM) projects under the Kyoto protocol to mitigate the adverse effects of climate change

By greening 80,000 hectares of land through total farm and social forestry plantations, ITC has sequestered more CO_2 than its emissions. The total CO_2 sequestered in 2007-08 was 2638 kilotonnes – 195 per cent of emissions – making the company a 'carbon positive' corporation for three years in a row.[59] By 2012, ITC plans to cover a total of 100,000 hectares. Additionally, this also provides ITC with sustainable sources of raw materials for its paperboards business, while providing employment to marginalised farmers.[60]

ITC's operations consumed 14,820 Terra Joules of energy in 2007-08, an increase of 13.3 per cent over the previous year. For the same period, apart from a number of large scale project activities, Paperboards & Specialty Papers' production went up by 6.6 per cent, Cigarettes by 6.9 per cent, Leaf production by 11.3 per cent, and Packaging & Printing business grew by 20.4 per cent.[61] ITC conserves energy through improvements in processes, adoption of energy efficient systems and efficient electronic and electrical gadgets and equipment.

ITC draws 24.1 per cent of its energy requirements from renewable sources produced internally. The major sources of renewable energy in ITC include:[62]

- Black liquor; waste from pulping process in the Bhadrachalam Paperboards unit
- Locally sourced wood chips/sawdust and deoiled bran in the Kovai Unit
- Solar thermal systems for preheating boiler feed water and canteen hot water at various locations
- Wind energy for ITC's Hotel Kakatiya

ITC has registered seven CDM projects - three large scale and four small scale - accounting for nearly one million CERs (certified emission returns).[63] A number of additional projects are in the process of registration – including a project on social forestry. Once the carbon sink project has been registered as a CDM, profits from selling carbon to overseas clients will be ploughed back into village communities, without any financial gain accruing to ITC from the trade.[64]

4.2 Water Management

ITC's water management practices are based on:

- Water conservation through audits, benchmarking and use of 'next'

practices to achieve the lowest specific water consumption (water per unit of production)
- Zero Wastewater Discharge treating and recycling all wastewater, thereby not only reducing fresh water intake but also preventing pollution of fresh water resources.
- Creating a Positive Footprint through rainwater harvesting, both on the company's premises and socially relevant watershed projects.

Water intake in its units increased by about 0.7 per cent in 2007-08 over the previous year. Rainwater harvesting potential created within its units is 0.42 MKL.[65] In addition, the company has invested in creating additional rainwater harvesting capacity through external watershed development projects in water stressed areas.

ITC's watershed development seeks to achieve two critical objectives: water conservation and soil enrichment. It is a key intervention to reverse moisture stress in some of the more acutely affected, drought-prone districts of the country. Currently, 2178 small and large water harvesting structures built by ITC provide irrigation in Andhra Pradesh, Karnataka, Madhya Pradesh, Tamil Nadu and Rajasthan. Plans to extend the programme to Bihar are on the anvil. ITC's Soil and Moisture Conservation Programme has covered over 30,000 hectares of rain-fed agricultural land, thus generating employment during lean season periods.[66]

From five projects covering 100 villages during 2004-05, the activity was extended to 23 districts covering a total of 450 villages. Total of 35,000 hectares of land has been covered through watershed projects., with targets to cover a total of 50,000 hectares by 2012.[67]

As a result of these measures, ITC has sustained its status as 'water positive' company for the past six consecutive years. Compared to the net fresh water consumption of 8.54 MKL in 2007-08, the company has created potential storage of 25.84 MKL through its rainwater harvesting efforts, three times that of its net consumption.

4.3 Solid Waste Management

ITC aims to achieve a 'zero solid waste' status through:
- Reduction of waste per unit of output
- Recycling of all wastes generated by operations
- Maximum reuse of the wastes as raw material

Total solid wastes increased by 14 per cent to 353,000 tonnes in 2007-08, of which 99 per cent was recycled. ITC also used 163,245 tonnes of waste paper, sourced locally as well as internationally, as raw materials.

ITC-Bhadrachalam unit is recognised for leapfrogging into a new technology and becoming the first plant in the Indian paper industry to eliminate the use of chlorine. Chlorine is used to bleach pulp and impart brightness to paper. This extremely polluting process generates toxic organochlorines that end up polluting the water that they are discharged into. By eliminating chlorine use, ITC can now make food-grade paper.[68]

Engagement in key areas and with key stakeholders

ITC has achieved considerable success in key environment areas within its 'boundaries'. The company's carbon-positive and water-positive status, and waste management standards reflect its environmental performance within its immediate business concerns. However, there are environmental concerns in its supply chain and retail chain that need attention, action and reporting *(see Figure 3.3.4)*.

Figure 3.3.4:

Engagement in key areas and with key stakeholders

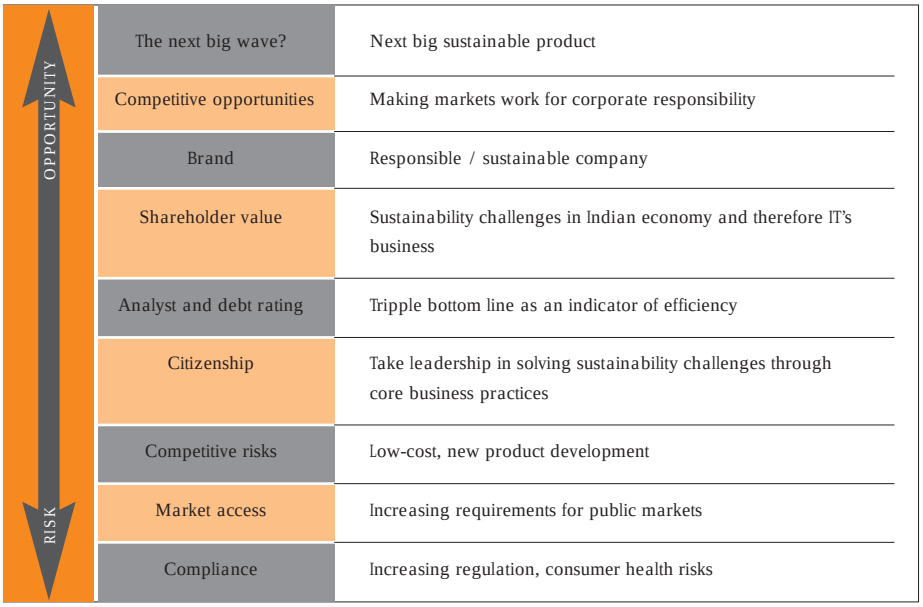
				Extended Circle of Influence			
Area (e.g)	Objective (e.g)	In-house	Employees	Suppliers	Partner Network	Customers	Advocacy
Water	Reduce	●	●	◔	◔	◔	◔
	Recycle and Reuse	●	●	◔	◔	◔	◔
	Preserve Aquifers	●		◔	◔	◔	◔
Energy	Reduce	●	●	◔	◔	◔	◔
	Switch to Renewable Resources	●	●	◔	◔	◔	◔
Water & By-Products	Reduce	●	●	◔	◔	◔	◔
	Recycle and absorb	●	●	◔	◔	◔	◔
	Render Harmless by eco-friendly decomposition	●		◔	◔	◔	◔
Carbon Footprint	Reduce	◕	◔	◔	◔	◔	◔
	Measure	◕		◔	◔		◔
Biodiversity	Preserve	◕		◔	◔	◔	◔
	Regenerate	◕		◔	◔	◔	◔

From Risk to Opportunity

ITC takes best-practice and leadership approach to address key sustainability risks. Through better compliance to not only statutory requirements, but also voluntary standards improves its corporate citizenship profile and investor attractiveness. However, high risks continue to prevail in its business domain, particularly when it reaches out to consumers. Consumer health issues prevail in its tobacco and food products *(see Figure 3.3.5)*.

Figure 3.3.5:

Environment and social issues touch the who spectrum of business drivers



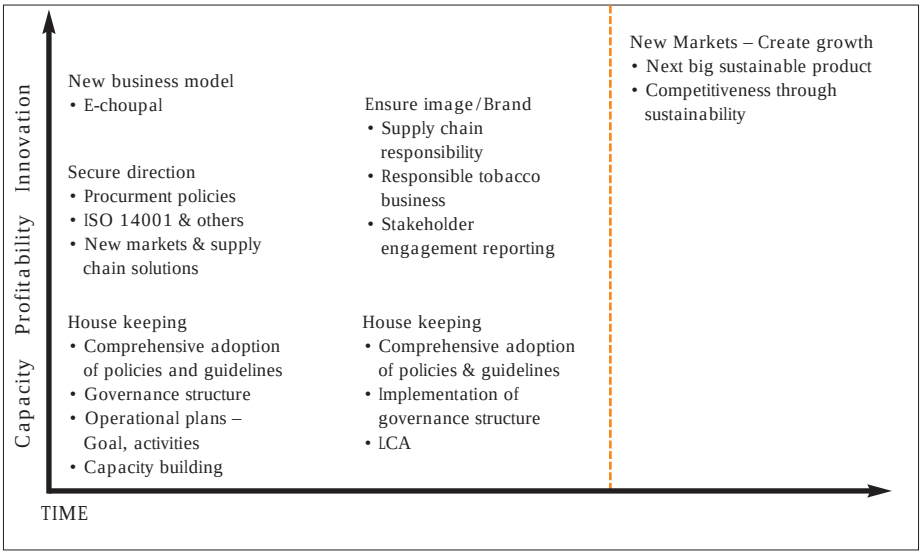
ITC promotes some of its brands (Aashirvad and Classmate) with philanthropic measures. Whether this results in increased sales and better brand value attributed to philanthropic attachments is yet to be established. In addition, it has taken the business approach to areas like farm forestry and e-choupal – that provide sustainable livelihoods to those dependent on agriculture.

ITC's leadership identifies market-based structures to reward brands and companies that are good corporate citizens. Nevertheless, there is lot of space for the next big sustainable product from ITC.

The path towards sustainable profit and innovation

ITC has been one of the front-runners in corporate responsibility in India. Also noteworthy is its efforts towards integrating sustainability to business strategies and operations through new business models, such as farm forestry and e-choupal. Much of its house appears well equipped to handle its own operations and its direct impact on various aspects of society and environment. However increasing FMCG businesses bring additional challenges regarding issues concerning consumers, and environmental impact of the company's retail supply chain, including the point-of-sale. Taking up responsibility in the extended supply chain will bring additional economic benefits to ITC. This requires acquiring new learning and educating channel partners *(see Figure 3.3.6)*.

Figure 3.3.6:
Sustainabilty path



As Indian niche markets grow to reward sustainable companies, ITC could be in a position to benefit by increased sustainable competitiveness. But real sustained leadership will come through innovating the next big sustainable product or solution.

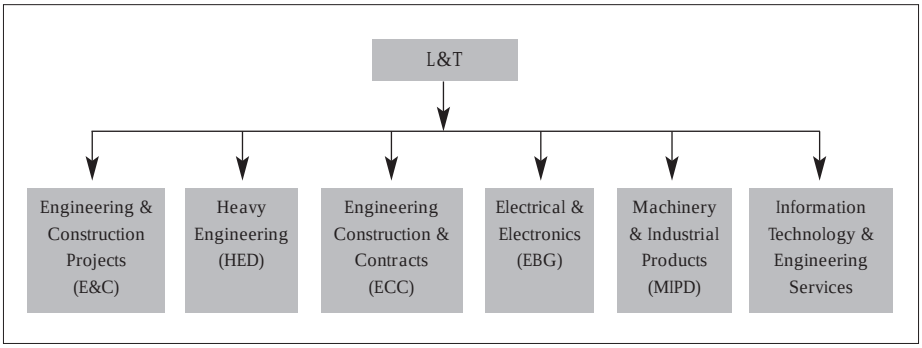
L&T

1.0 Organisational Set-up

Founded in 1938 as an engineering and construction firm, Larsen & Toubro (L&T) is a $7 billion technology, engineering, construction and manufacturing company. It offers a wide range of advanced solutions, services and products through its operating divisions[69] *(see Figure 3.4.1)*.

Figure 3.4.1

L&T's Operating Divisions



L&T has established manufacturing and engineering facilities in China, Oman and Saudi Arabia, with exports to more than 40 countries. The international sector amounts to about 20 per cent of its revenues.[70]

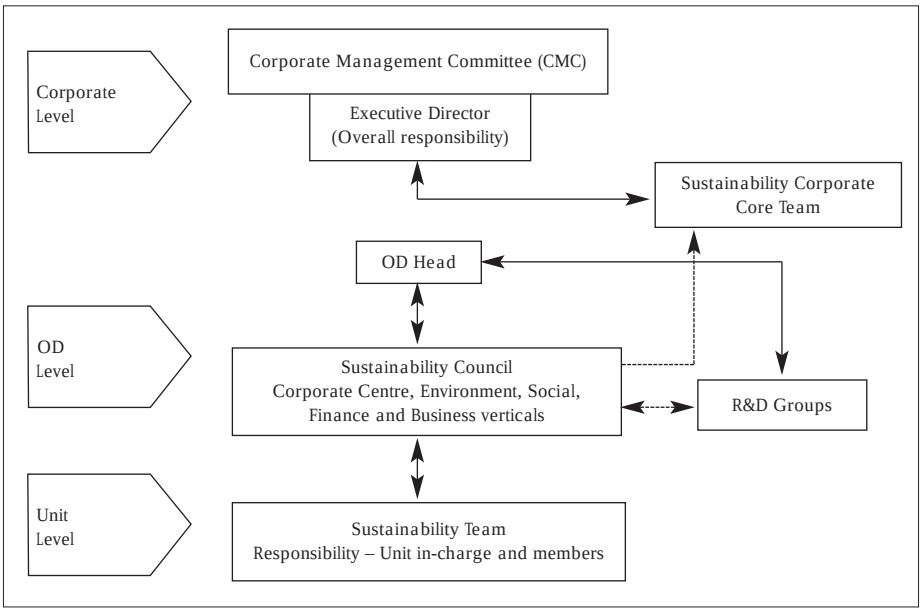
Employing over 32,000 people, L&T believes that progress must be achieved in harmony with the environment. A commitment to community welfare and environmental protection is an integral part of the corporate vision.[71] L&T addresses the needs of communities residing in the vicinity of its facilities, taking sustainable initiatives in the areas of health, education, environment conservation, infrastructure and community development. [72]

L&T is building structures and procedures to embed sustainability within business strategies and research & development operations. In an attempt to understand how innovation interacts with sustainability at L&T, the process of innovation is super-imposed on the sustainability organisational structure (*see Figure 3.4.2).*[73]

The Corporate Management Committee (CMC), is the primary custodian of all sustainability initiatives. Initiatives of every divisional board are monitored by the CMC through Sustainability Council. Sustainability activities are aligned with corporate policies and various codes of conduct. The initiatives are implemented through the local units in conjunction with

Figure 3.4.2:

Sustainability & Innovation Structure[73]



the local HR and all applicable rules and regulations are complied with in discharging sustainability projects.

L&T is in the process of formalising the interface between Sustainability Council and R&D Groups within the company. Every division at L&T has R&D groups responsible for absorption and adoption of latest technology, development, improvement of new products/ processes, value engineering in products/ processes, reliability evaluation of products/ components and failure analysis of products/ components.

To retain market leadership position as a major innovation-based organisation, two major focus areas that have been emphasised upon are Intellectual Property Rights (IPR) and New Product Intensity (NPI).[74] The current NPI for electrical products is 33 per cent, and for electronics products it is 89 per cent. The electrical business has so far filed 348 patents and 342 design registrations, out of which 101 patents and 33 design registrations have been filed in 2007-08 itself.

The divisions use 'EBG's New Product Development System' (EPDS) as a systematic approach to innovate products starting from analysis of market inputs and requirements to manufacturing of a final product and getting market feedback. This process is complemented by development of EBG's Technology and Product Portfolio Planning (ETPP) process that aligns the Product Development System (PDS) to business goals.

2.0 Strategy

L&T's technology road-map looks at emerging technologies and processes like innovation to support it. All innovation initiatives are focused on two aspects – maintaining the competitive advantage and proactively improvising to changing customer needs. Through these two aspects, the sustainability of businesses is underlined.

In many cases, sustainability does drive innovation and stimulates alternative ways to develop products, processes and services. In the process, it creates new opportunities ahead of competition.

Opportunities from sustainability enable the company to project a socially responsible and environment conscious image. At the same time it equips the organisation to proactively develop environment friendly products through innovative design that gives competitive edge and enhanced profitability.

With the leadership commitment and vision to transform to a sustainable business, L&T is taking a strategic approach.[75] In an effort to mainstream sustainability into the organisation and connect it well with the innovation process, L&T plans to do the following by 2010-11.

- Widen the scope of environmental policy, procedures and accountability across all locations (offices, projects and plants)
- Continuously assess the impact on environment and neighbouring community during operation at plant and project locations
- Set organisation-wide specific targets for important sustainability indicators such as energy, water, health & safety, human rights
- Establish monitoring and review mechanism to assess sustainability performance against set targets and initiatives
- Institutionalise stakeholder engagement process at different organisation levels
- Promote best sustainability practices in supply chain for key partners
- Structure and systematise community development work
- Develop code of communication for anti-competitive behaviour
- Assess carbon footprint for all locations
- Separate environmental protection account code and budgets

3.0 Sustainability driving innovation

The sustainability trends driving core business decisions are the importance of being technologically competitive and the need for reduction of energy and material consumption. These trends influence strategic decisions to enter in any new business or while establishing new manufacturing facility at any

new location. Apart from reducing the environmental footprint, the focus is on understanding and addressing societal challenges – starting from employees and local communities to as far a reach as possible with the help of its supply chain.

The company is at a stage where innovation of products is reactive and driven by cost and customer requirements. This is not always driven by sustainability requirements. But the company feels that as the level of awareness amongst customers increases, innovation of products and processes will be driven by sustainability. For example, reduction in the use of silver per watt of product is driven by cost. However, focus on reduction of energy consumption helps its customers actually reduce energy consumption. L&T offers products like variable frequency drives and fuse which is 20 per cent energy efficient that enable customers to reduce their energy consumption.

Customers, especially in developed countries, are sensitive to environmental impact of the products they are using. Many of L&T's products are RoHS (restriction of the use of hazardous substances in electrical and electronic equipments) compliant.

Another innovative process is the training programmes for local electricians, youths and school drop outs on technical know how of electrical equipments and energy savings. Training institutions in Pune (since 1986) Lucknow and Conoor are imparting training to the target group. The Chairman of the company thinks that because of the fast technology up-gradation, there is a need to train 40,000 people.[76]

Contactors up to 110A have demonstrated significant reductions in the usage of copper from 60 grams per ampere in earlier MK range to 22.1 grams per ampere in current M-Line range. Similarly in moulded case circuit breaker, design engineers have achieved over 50 per cent reduction in weight while improving the breaking capacity by 40 per cent. The HN fuse-links are designed to have watt-losses that are lower than industry standards. Over 0.5 million fuse-links sold on average in a year, help save about 1.5MWh of energy compared to industry accepted standard. Consistent efforts over the years have resulted in reducing the use of cadmium in products. These features have made these products leverage greater acceptability by the users and subsequently generate higher profits.

3.1 Innovation Edge

Initial investment for development of innovative products and services leads to higher initial costs. For instance, achieving RoHS compliance requires usage of different raw materials and components. It also requires setting up different testing facilities and certification processes. All of these have

slightly negative impact on the price of the products. However, it also helps L&T enhance its reputation as a technology-driven engineering company. It also helps the company comply with stringent European standards while exporting the products to EU, thereby increasing its market reach.

R&D departments in each business work systematically to develop innovative solutions. All the new initiatives are reviewed continuously by the top management to provide necessary directions. Monetary and non-monetary rewards are provided for filing patents. Continuous focus of the employees to develop innovative solutions helps the workplace to become more exciting and creative. This also builds up healthy competition between the employees to outshine one another, thus further encouraging innovation.

In-house research and product development help L&T achieve an advantageous position while offering solutions as compared with the multi-national companies (MNCs). For example, its products are designed to perform reliably in conditions unique to India – conditions like heat, high humidity and dust, compared to similar products manufactured by MNCs. Also use of aluminium terminals instead of copper terminals used by MNCs is preferred by users as busbars in India are made mainly of aluminium.

L&T achieves excellence through thoughtful repetition of the right methods, to make innovation a consistent output. EBG's innovation efforts are driven by a desire to meet the needs of the market. It puts to use domain experience and knowledge of emerging technologies to produce patented designs which result in products which are marketable, but at the same time cannot be duplicated by competitors.

L&T promotes energy efficient technologies to build business and has taken many initiatives such as:

- Supplying energy-efficient equipments and technology that reduce the impact on climate, subject to client/licensor specifications
- Collaborating with Mitsubishi Heavy Industries for manufacturing Super-critical Boilers
- Adopting Clean Fuel Development Technologies like Motor Spirit Quality (MSQ) Upgradation projects in India for major Petroleum Oil Refineries viz. Mangalore Refineries & Petrochemicals, Indian Oil Corporation's Panipat & Mathura plants and Chennai Petroleum Corporation
- Aligning research and development efforts to reduce the thermal energy consumption in cogeneration/combined cycle power plants, energy conservation in columns in the Process Industry, and increasing thermal efficiency of fired heaters and boilers

L&T has also aligned the R&D efforts to develop technologies that will also help their clients to reduce the GHG emissions during operation phases of the plants. The initiatives for reducing GHG emissions include:

- Reducing the thermal energy consumption in fired heaters, cogeneration/combined cycle power plants
- Energy conservation in columns in the process industry
- Enabling improved thermal efficiency of fired heaters & boilers in cement, minerals and allied projects
- Over 500,000 fuse-links sold have helped save about 1.5MW of energy
- Use of Variable Frequency Drives (VFD) widely used in industry helping to further reduce energy consumption
- Reactive power compensation solutions from EBG reduce KVA demand on the distribution system

4.0 Sustainability Impact[77]

L&T's primary sources of environmental impact are through consumption of raw materials, waste generated through processes at its plants and project sites and GHG emissions.

- Consumption of raw materials: Major raw materials consumed by L&T are steel, sand, cement, water and energy. The consumption of raw materials is bound to increase due to growth in business. L&T uses alternate materials and conserves natural resources, for instance through rainwater harvesting and ground water recharge, at its plants and project sites.

- Waste generation: L&T's business operation leads to generation of hazardous as well as non-hazardous waste. L&T has a waste management system in place which complies with regulatory requirements.

- Climate Change: L&T has taken several initiatives to reduce its GHG emissions
  - The company is using wastes like fly ash, Ground Granulated Blast Furnace Slag (GGBS), and other additives to reduce the consumption of cements. Also R&D (research & development) wing is experimenting with alternate materials to reduce the consumption of cement.
  - Travel is a major overhead, after staff expenses, which indirectly consumes a large part of primary energy resource. The organisation encourages usage of video conferencing for internal meetings

connecting various locations which will be extended to external meetings in future.

- L&T leverages technology to deliver to customers enhanced products that conserve energy and consume less natural resources. Also there is continuous improvement in the process plants to reduce the energy consumption during the life-cycle stage of processes.
- L&T's construction division identifies green buildings as a major growth area. Some of the green initiatives by L&T of ECC Division include EDRC Office at ECC campus in Chennai, L&T Construction Training Institute, Chennai and Andhra Pradesh Secretariat Building at Hyderabad. When L&T took up the construction of its ECC (Engineering Construction & Contracts) building, it adopted nearly ten per cent of green concept into its building. The ten per cent included energy saving equipments, double glazed glass to reduce heat, sun shading roof and automotive switching off of light among others. Now L&T is planning to construct EDRC-II building, which would be 100 per cent green.
- Renewable Energy Sources: Solar & Wind energy is being tapped at some of its locations like Powai & Hazira which will be expanded to other locations.
- Biodiversity: As a developer of large infrastructure projects, some of the company's projects may be in the areas which have an impact on biodiversity. Environmental Impact Assessments are carried out in these projects to assess the impact and identify mitigation & alternate measures.

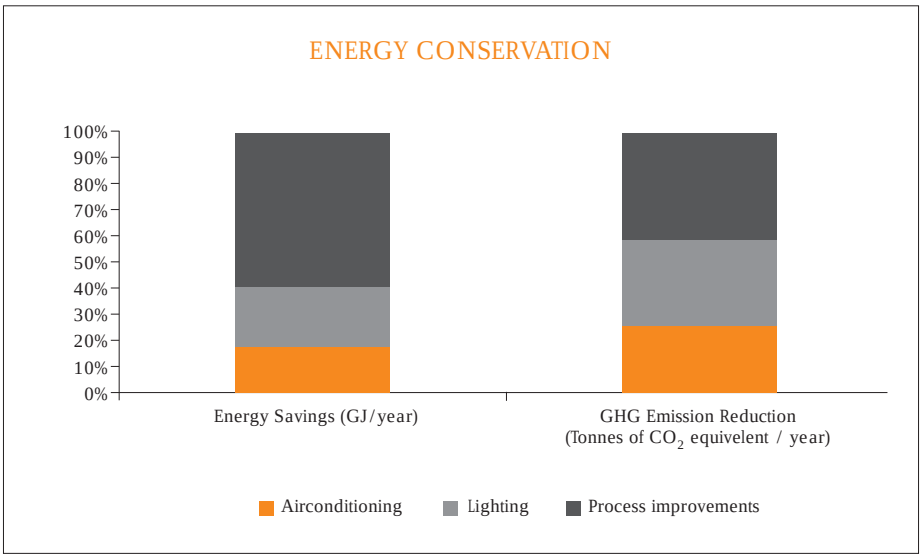
L&T's Energy Consumption

The company monitors its direct and indirect energy consumption and has put in efforts to improve – through process and operational changes – energy use to reduce costs and minimise environmental impact. Direct energy consumed from non-renewable energy sources includes consumption of fuels like HSD, PNG, LPG and CNG. HSD (high-speec diesel) is the main fuel consumed at about 10,000 million GJ/year emitting 74227698 CO_2 tonnes/year. L&T has energy policies designed to meet needs of specific operations. Considering the pollution load emitted to air by use of HSD L&T has planned to slowly phase out HSD and replace it by natural gas, wherever possible, which is a more environmentally benign option.

L&T meets nearly eight per cent of its electricity requirement through use of renewable energy sources like wind and solar power.

Energy conservation takes place through improvements in processes, air conditioning and lighting. The company has saved about 3745 giga joules of

Figure 3.4.3:
Engagement in key areas and with key stakeholders



energy equivalent to approximately 617 tonnes of CO_2 in the same period (*see Figure 3.4.3*).

GHG Emissions

Electricity consumption is the main source of GHG emissions and is monitored at all manufacturing locations. Out of the 92 per cent of indirect energy consumption, 75,909 tonnes of CO_2 were emitted. Against that about 616 tonnes of CO_2 emissions were reduced in the same period, whereas 6237 tonnes of emission reduction was achieved through renewable energy sources. However, L&T intends to set systems in place for monitoring the same at project locations and also to quantify and estimated indirect emissions from activities like business related travel and transporting employees etc.

Waste Management

Waste generated in operations is used as input material in some other operations after treatment, hazardous wastes like spent/ used oil are sent to approved-recyclers. Other hazardous wastes which cannot be reused, are either incinerated or disposed of at secured landfills. Waste segregation at source is done to avoid contamination of non-hazardous waste with hazardous waste.

L&T identifies opportunities to recycle and reuse material to minimise environmental impacts and reduce demand for virgin materials thereby conserving natural resources. Waste materials like Bitumen from refineries are used in road construction, and fly-ash from power plants is used for mixing with cement. L&T is managing waste through:

- Crushed sand from waste aggregates of quarry
- Recycling of aggregates & asphalt from existing road layer
- Change in concrete design mix like adding varying amounts of fly ash, Ground Granulated Blast-furnace Slag (GGBS), admixture to cement
- A process has been put in place to measure and reduce wastage to be within a target of three per cent through rigorous reconciliation for each of these bulk materials at each project site

The Zero Discharge approach of the Powai Campus in Mumbai saves over 350,000 litres of water everyday through water treatment and recycling *(see Figure 3.4.4)*.

Figure 3.4.4:

Engagement in key areas and with key stakeholders

				Extended Circle of Influence			
Area (e.g)	Objective (e.g)	In-house	Employees	Suppliers	Partner Network	Customers	Advocacy
Water	Reduce	◕	◕	◔	◔	◔	◔
	Recycle and Reuse	◕	◕	◔	◔	◔	◔
	Preserve Aquifers	◔		◔	◔	◔	◔
Energy	Reduce	◕	◕	◔	◔	◔	◔
	Switch to Renewable Resources	◕	◕	◔	◔	◔	◔
Water & By-Products	Reduce	◕	◕	◔	◔	◔	◔
	Recycle and absorb	◕	◕	◔	◔	◔	◔
	Render Harmless by eco-friendly decomposition	◔		◔	◔	◔	◔
Carbon Footprint	Reduce	◔	◔	◔	◔	◔	◔
	Measure	◔		◔	◔		◔
Biodiversity	Preserve	◔		◔	◔	◔	◔
	Regenerate	◔		◔	◔	◔	◔

L&T realises it has yet to make considerable efforts and report on its engagement on key environment issues. These are critical areas of intervention considering the nature of its business. Next in line for sustainability achievement could be to look beyond low-hanging fruits to tap

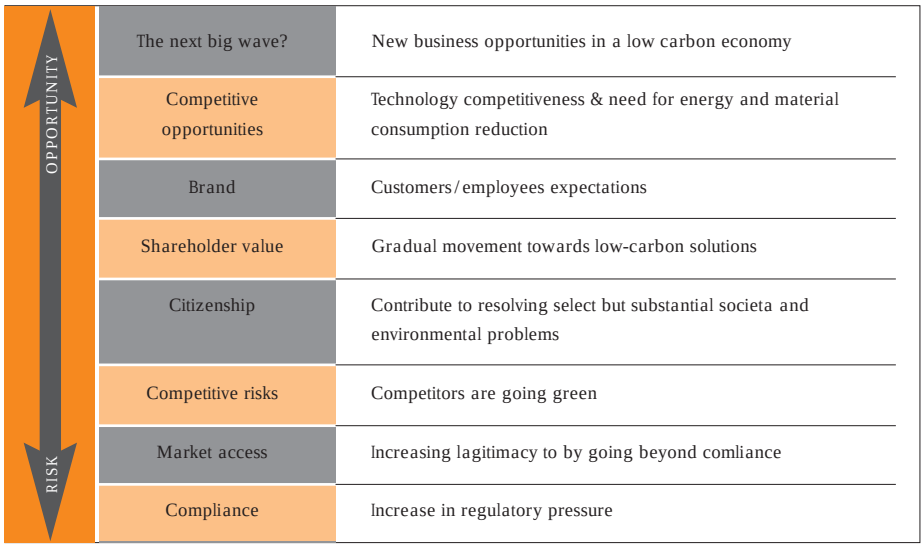
clean-tech space. Any electrical and infrastructure major like L&T would have significant direct and indirect sustainability footprint. Measuring, goal setting and achieving them is the next step for L&T in engaging with key stakeholders and delivering on key indicators.

From Risk to Opportunity

L&T's SBUs operate in industries with stringent environment and social regulations, compliance with which cannot be undermined. While compliance helps increase its market access, proactiveness in other sustainability areas coupled with its cost advantage could help improve its competitiveness. L&T has identified areas of energy and material reduction, and green/ sustainable buildings and infrastructure, as opportunities *(see Figure 3.4.5)*.

Figure 3.4.5:

Competitiveness moves from cost based to sustainability driven



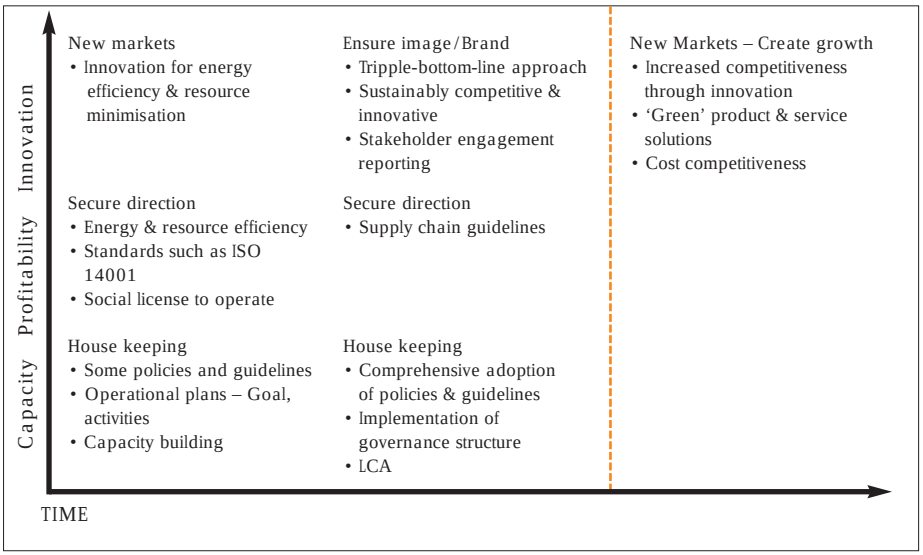
The space of low-carbon products and solutions is as fiercely competitive as it is dynamic. Due to the nature of its business portfolio, L&T is highly exposed to the rapidly changing low-carbon regime. It could be significantly impacted with any voluntary or mandatory carbon cuts adopted in its markets of operation. Forsightedness here should offer the engineering and construction group with the next big opportunity.

The Path towards Sustainable Profit and Innovation

L&T is at different stages of its sustainability path, though clearly moving towards integrating sustainability to the centre of all business strategy and

Figure 3.4.6:

Sustainabilty path



operations. Some of the sustainability issues such as energy and resource efficiency, and social license to operate are already looked at from a business sustainability point of view with positive results on environment and society. However, in terms of strategic direction, it is setting its house in order through adopting policies and guidelines and putting in place the sustainability governance structure that interacts with new product development *(see Figure 3.4.6)*.

Given the nature of its businesses, L&T could have huge business potential in turning 'green' and gaining a competitive edge. It is likely that innovation will play a critical role in providing that competitive edge to L&T. The challenge though, is to create new markets and enhanced growth through transformative innovation.

Tata Consultancy Services

1.0 Organisational Set-up

Established in 1968, TCS made revenues of $4.3 billion in 2006-07, an increase of 41 per cent on the previous year's performance. Over 55 per cent of its revenues come from the Americas, close to 30 per cent from Europe, and about ten per cent from India. It employs over 85,000 people, covering 67 nationalities, across its operations in 47 countries and 148 offices (*see Figure 3.5.1*). [78]

Figure 3.5.1:
Corporate Sustainability Ownership by Leadership Team

Leadership	CS Responsibility
CEO & Managing Director	Community and environment issues
Chief Operating Officer and Head, Global Sales and Operations	Customer relationships
Chief Financial Officer and Head, Global Finance	Supplier relationships
Head, Global Corporate Affairs	Occupational Health & Safety
Head, Global Human Resource Development	Human rights policy, processes & procedures linked with employees in the workplace

Remuneration of the Vice President and Global Head of Corporate Sustainability, and the Head-Health, Safety and Environment, is a mix of fixed and variable components, linked with the organisation's performance in the area of corporate sustainability.

The business plans of various business units - drawn in the light of overall TCS strategy and corporate goals - require identifying the goals, customer/ stakeholder objectives, the constraints and risks to be overcome, and also the TCS's Corporate Social Responsibility to various stakeholders depending upon the applicability. These plans are finalised by the Executive Leadership team of TCS and are followed through by monthly/quarterly reviews. TCS also operates on the Tata Business Excellence Model (TBEM)[79] which ensures the strategic fit of its sustainability efforts to business operations.

2.0 Strategy

The nature of TCS business does not contain highly polluting processes. However, the industry does have an environmental footprint that is worthy of reducing. Also, it can help other industries and governments with technology-based solutions to tackle sustainability challenges. TCS identifies this as its greatest contribution to the environment in the potential its services and solutions in IT have to offer, in order to help its clients contribute to sustainable development.

TCS has set a target to reduce its carbon footprint by 25-30 per cent in five years upto 2012 through a number of programmes worldwide.[80] Some of the specific targets for its entire operations for the year 2008-09 are:

- Environment-friendly disposal of 100 per cent e-waste according to the Indian policy on e-waste
- Environment-friendly disposal of 100 per cent printer cartridges
- Ten per cent increase in recycled water
- Ten per cent increase in rainwater harvesting or ground water recharging
- Ten per cent increase in solar hot water capacity
- Five per cent decrease in power consumption
- Two per cent decrease in paper consumption
- 25 per cent increase in renewable cooking gas (methane gas) through bio-digestor plant
- 25 per cent increase in manure generation through vermi-culture or bio-digestor plant
- Two per cent reduction in water consumption

In its effort to promote innovation in companies with respect to addressing their sustainability impact, TCS sponsors the Marketplace Innovation Award in collaboration with BITC.[81] Previous winners include ScotAsh, a joint venture between Scottish Power and Lafarge for creating sustainable construction products, Barclays Bank for their microfinance initiative in Ghana, Redrow for the development of affordable housing and Enviro-fresh for the creation of SaniSleeve – a water saving invention for men's urinals. Since winning the Marketplace Innovation Award, Enviro-Fresh has been bought by Rentokil Initial and the SaniSleeve (now known as eco-clear urinal solution) is being taken to the global market.

3.0 Sustainability driving innovation

The TCS Innovation Labs[82] provide an experience centre where new domain solutions can be developed, incubated and piloted using the latest technologies in a cost-effective environment before being used for enterprise-wide deployment. They give TCS customers 'on-demand' access to innovation and creativity, with a team comprising of domain experts, business process analysts, technology specialists and a R&D team. It has created the TCS Co-Innovation Network (COIN), to foster a collaborative ecosystem that leverages intellectual capacity across multiple entities to create all new co-innovation standards. These partner entities include global academic institutes, venture capital funds, Silicon Valley start-up companies, TCS alliance partners and TCS innovation labs. This section covers four innovative products that address rural market connectivity, governance and sustainability management.

3.1 Farmer's Application: Project 'mKrishi'

TCS demonstrated that mKRISHI (Mobile Based Agro Advisory System), winner of Qualcomm Wireless Reach Funding Programme in the Mission 2007,[83] provides up-to-date weather and pricing information through text-messaging on cell phones. The application can be prompted by text in farmers' local languages or via voice functions, which is particularly helpful for those who are not literate in the agricultural community, which is the most important sector of India's economy.

Through mKRISHI, TCS is using various applications including sensors, camera phones, India's cellular network and GPS technologies to serve environmental information to agriculture experts, who in turn provide tailored advice to farmers.[84]

mKRISHI has been deployed in several Indian villages including Borgaon, Waifad, Ganori (in the western part of Maharashtra) and Bichaula (in the northern part of Uttar Pradesh) for grape, cotton, soybean and potato farmers, respectively. In Borgaon village, the service is fully operational. Currently the pilot supports about 20,000 farmers, each holding an average of three to four hectares of land. However, the total number of farmers who would be reached in another few months through M S Swaminathan Research Foundation (MSSRF), Grape Grower Association and Agro Business Model of Tata Chemicals (Tata Kisan Kendra) would be about 200,000.[85]

In the pilot phase, the service is offered free of cost. Tata is evolving a business model involving operators, local franchisees and subject matter experts. Different services would be bundled into categories, such as free,

vanilla and premium, and charged accordingly. Pricing would be subsidised through ad revenues generated on cell phone.

Service providers will play an important role in scaling up the operation and reaching out to millions of farmers. TCS has identified demand for need-based voice and data services within the farming community. Service providers would make margins not only on services but also on a cell phone if it can be branded for farmers by bundling mKRISHI-like applications into a cell phone.

According to Dr Arun Pande of TCS, this is a significant opportunity given there are about 110 million farmers in India. "If one expects on an average $1 fee per month, the potential would be $110 million per month of revenue from this market segment," he said. "Handset sale potential is about $11 billion for GPS-enabled 2 megapixel handsets with a price tag of $100 per handset. If upfront subsidy is provided for sale of handset[s], an appropriate EMI component would be charged from customers or recovered through enhanced monthly payment. Additionally, payment charge back would have to be dovetailed with seasonal income patterns of farmers so that there is no hardship of payments on monthly basis."[86]

3.2 Andhra Pradesh (AP) Online[87]

TCS developed an online portal in partnership with the Government of Andhra Pradesh to provide multiple services through multiple channels to the people, government departments and businesses within the state. AP Online's innovativeness is its delivery model, through kiosks and other automated devices. AP Online franchisees have been given a hand-held device with internet connectivity to connect to various government departments. With over 600,000 users, the portal provides a range of services to the citizens.[88] Services offered for a nominal fee include payment of utility bills, telephone bills, requisition for birth certificates and for purchasing pin numbers for pre-paid mobile phone cards.

3.3 National Rural Employment Guarantee Scheme (NREGS) Solution[89]

TCS developed an online system for the Andhra Pradesh Government's Rural Employment Guarantee Scheme, providing all required data about the rural unemployed, to facilitate a speedy and error free implementation of the scheme.

The solution enables the collection, storing, sorting and search of large volumes of data on people, jobs and wages. It simplifies the issuance of job cards to rural households, identification of work to be undertaken, generation of work estimates, progress of work execution and details of wage payment. It reduces the time taken to generate work estimates from 15-20 days to a

few minutes. The system enables crediting of wages directly into banks/postal accounts of wage seekers thus minimising errors and frauds. The payment cycle has been significantly reduced to less than one week. As all vital information is available online and both in English and Telugu, irrespective of location, beneficiaries can browse information about their villages, progress of work, details of wage payments and more. Officials can monitor the programme more effectively as the system can generate reports and analyse data.

It benefits rural unemployed in Andhra Pradesh, in 658 *mandals* across 13 districts in the state. It is estimated that nearly 3.5 million rural households will register for wage employment under the scheme. In addition to making the employment scheme transparent and efficient, it reduces scope for corruption.[90]

3.4 Strategic Investment Planning System[91]

The Strategic Investment Planning System (SIPS) is a vehicle to introduce a paradigm shift in the planning approach for any asset intensive organisation, such as the utilities industry, changing focus from managing assets towards managing service to customers and environment (issues like flooding and pollution).

Public utilities providers are obliged to invest in a way that conserves the environment (set environmental standards) and delivers the best service affordable. To address this key challenge, SIPS provides a framework which enables the utility industries to embed a robust planning methodology as a business-as-usual process obviating the need of acquiring and analysing data in an ad-hoc way and incurring substantial one-time costs.

For instance, water companies in the UK struggle to link investment to environmental outcomes such as pollution and reduction in their carbon footprint. SIPS has made it possible to target investment towards the objectives set out in the European Environmental and Habitats directives. Money saved through investment efficiency will generate funds to meet the ever toughening environmental standards.

SIPS transparently funds projects based on their benefits to customers and the environment. The benefits are monetised to assess value for money and eventually drive investment. Most importantly, it identifies risks before they occur rather than directing investment to control them afterwards. This not only lowers the cost of failure substantially, but prevents damage to the environment.

4.0 Sustainability Impact

TCS believes that fundamentally its products, services and operations do not have any significantly adverse impact on the environment and society. However, to minimise any direct or indirect impact, TCS is taking measures to ensure that the company, and its suppliers and vendors use environment-friendly components, and abide by regulations in the use of labour, pollution control, and so on.

Following are some of TCS' own attempts at minimising its environmental footprint.

- Reduced electricity consumption by five per cent over 2006-07 through better methods of energy consumption within its Indian operations
- Six per cent of total water usage comes from recycling waste water
- All new facilities do rainwater harvesting and older facilities will also have such harvesting systems in place to further reduce strain on fresh water supplies
- E-waste: Buyback by authorised vendors. All obsolete computers in TCS India are being fed to e-waste vendors for recycling. In Hungary, obsolete computers are returned to the suppliers who then dispose them of appropriately. In India, all obsolete cartridges are returned to HP and all obsolete batteries are being sent to vendors authorised by the Pollution Control Board for disposal.
- Donated 100 per cent of all suitable PCs through charitable channels to NGOs. It ensures that these PCs are disposed of through e-waste vendors by working with the NGOs.
- In India 14 centres on company owned land occupy approximately 40 acres and on leased land they occupy 76 acres. Of all the centres in India, Banyan Park in suburban Mumbai, with an area of 0.62 acres has been classified as a centre on land with high terrestrial biodiversity value
- Food waste: 850 tonnes of vermi-composting was done, the balance waste being sent to secured landfill sites of local municipalities.
- GHG emissions: Sources of emissions due to TCS' operations are energy consumption (43 per cent), domestic (six per cent) and international (41 per cent) travels and transporting members of the workforce (three per cent).To reduce greenhouse gas emissions due to consultants travelling to client locations for meetings, TCS promotes the use of video conferencing to its clients. In 2006-07, TCS saved ten per cent of its total emissions by using video conferencing to conduct meetings instead of flying. TCS' per capita carbon footprint has come down by two per cent in 2007-08 over the previous year (*see Figure 3.5.2*). [92]

Figure 3.5.2:

Engagement in key areas and with key stakeholders

				Extended Circle of Influence			
Area (e.g)	Objective (e.g)	In-house	Employees	Suppliers	Partner Network	Customers	Advocacy
Water	Reduce	◕	◕	◔	◔	◔	◔
	Recycle and Reuse	◕	◕	◔	◔	◔	◔
	Preserve Aquifers	◕		◔	◔	◔	◔
Energy	Reduce	◕	◕	◔	◔	◔	◔
	Switch to Renewable Resources	◕	◕	◔	◔	◔	◔
Water & By-Products	Reduce	◕	◕	◔	◔	◔	◔
	Recycle and absorb	◕	◕	◔	◔	◔	◔
	Render Harmless by eco-friendly decomposition	◕		◔	◔	◔	◔
Carbon Footprint	Reduce	◕	◕	◔	◔	◔	◔
	Measure	◕		◔	◔		◔
Biodiversity	Preserve	◕		◔	◔	◔	◔
	Regenerate	◕		◔	◔	◔	◔

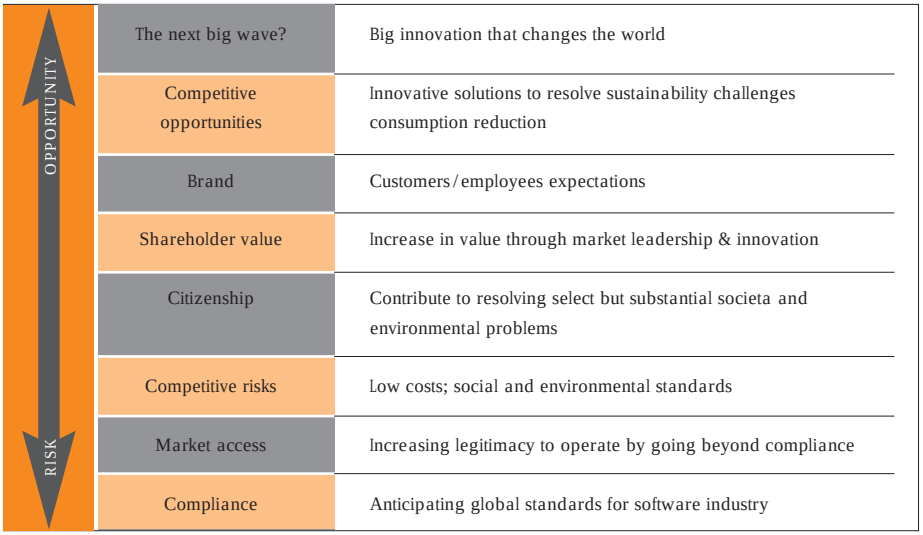
TCS has the potential to do a lot more in its sphere of influence by combining its philanthropic activities, innovation capabilities and stakeholder engagement. Stakeholders expect a leading IT company like TCS to be ambitious in its environmental and resource-efficiency goals. At the same time, it is expected to work with its value-chain members to achieve similar targets. There is tremendous potential for direct and indirect impacts by working with governments and civil society to create an enabling policy environment.

From Risk to Opportunity

TCS has demonstrated voluntary measures to tackle some key sustainability challenges confronting the IT industry. This provides it with a leadership advantage in situations of increased regulation and global standards for services. Competitors are moving towards greening their operations and developing solutions to counter certain social and environmental challenges. TCS is also engaged in this space though it is felt that competition in this

Figure 3.5.3:

Leveraging innovation strength helps identify the next big opportunity



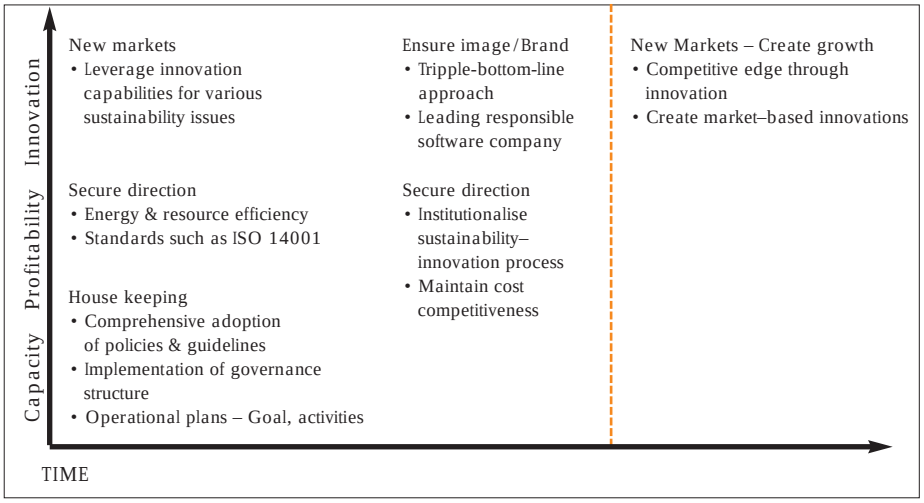
space will only increase. Growth is expected as demand for IT-enabled solutions facilitating resource efficiency and movement towards low-carbon economy gathers momentum *(see Figure 3.5.3)*.

The Path towards Sustainable Profit and Innovation

TCS seeks to better benefit from its innovation work by integrating it with core business strategy and institutionalising the sustainability-innovation process. Successful innovations need to move beyond the pilot phase to scale-up

Figure 3.5.4:

Sustainabilty path



according to a pre-determined business model. Taking a business approach is vital to sustainability of its projects. It increases the probability of success, scale-up, higher stakeholder value including shareholder value (*see Figure 3.5.4)*. Future growth market for TCS would need to consider - competitiveness through innovation and market based innovation.

4. SPECIFIC BUSINESS SOLUTIONS TO EMISSIONS REDUCTION

The case studies as presented in the earlier sections have shown how these companies have developed solutions that have allowed them to walk on the sustainability path as a driver for profit and innovation. While each of these companies have approached sustainability from a different perspective, such as voluntary measures to achieve sustainability and as a core business strategy; there are emerging business solutions being developed by the Indian companies which focus on GHG emissions reductions. In this section, we present two such examples. One, of Tata Communications, which provides TelePresence services to reduce carbon footprint. The second is Suzlon Energy, which demonstrates the example of technology leapfrogging for providing renewable energy solutions.

Tata Communications TelePresence services provide benefits of carbon footprint reduction

Tata Communications launched its TelePresence services, the first ever offering to deliver both private and public Cisco TelePresence rooms to businesses across the world. This innovative service will enable a broader ecosystem of connected rooms for enterprises and their partners.[93]

Tata Communications is also making available Cisco TelePresence services at public rooms that businesses can rent on an hourly basis. This unique public and private room model offering will create a larger network effect of interconnected rooms to make it easily accessible to small and mid-sized businesses. The public rooms located at the Taj Hotels and in major business centres such as Mumbai, Bangalore, New York, Boston and London, are being offered at Rs. 20,000 ($500) an hour. Tata Communications is also collaborating with the Confederation of Indian Industry (CII) to provide Cisco TelePresence services to Indian businesses with four public rooms at CII offices in New Delhi, Chennai, Bangalore and Hyderabad.

Tata Communications' global network and carrier relationships will allow it to enhance its TelePresence interconnections. The company lowers costs of implementation of its TelePresence Exchange Services for customers by offering managed infrastructure in the network. The TelePresence managed service includes a concierge service that takes care of reservations, scheduling, customer support, monitoring, management, reporting and billing capabilities, making it easy for customers to deploy and manage a highly effective collaboration tool.[94]

Tata Communications distinguishes itself from other TelePresence providers by the hosting element of the proposition, reducing the complexity on site and the cost to manage these applications. Equipment costs may still be prohibitive for some enterprises, but Tata Communications is bringing a

different business case to the table by introducing a hosted service, representing a new option for a more affordable managed TelePresence solution.[95]

A good TelePresence strategy puts the human factors first, focusing on visual collaboration solutions that closely replicate the brain's innate preferences for interpersonal communications. These cues include life-size participants, fluid motion, accurate flesh tones and the appearance of true eye contact.[96] TelePresence provides life-like, high definition conferencing facilities with superior audio, video and environmental qualities to provide a viable alternative to traditional face-to-face meetings. Businesses can achieve substantial cost savings through reducing travel while accelerating productivity, and improving long-distance collaboration and decision making. In addition, they can significantly increase employee satisfaction by enabling executives to have meetings in the comfort of their own offices.

TelePresence also promotes environmental benefits, such as decreased CO_2 emission from reduction in travel. For instance, each traveller from Delhi to Mumbai produces 137 kgs of CO_2[97] and there are 53 flights daily on this corridor.[98] A single aisle aircraft has a capacity of 150 people and double aisle aircraft has a capacity of 350 people. That means if all flights are single aisle aircrafts then 1089.15 tonnes of CO_2 is produced daily. A reduction of ten per cent of these flights can potentially save more than a 100 tonnes of CO_2 every day or 36,500 tonnes a year just on this specific corridor.

Blending strategies creatively to leapfrog innovation to enter new technology markets

Suzlon, an Indian-owned company, emerged on the global scene over the past decade, and is proving itself to be a worthy competitor among more established wind turbine manufacturers. Operating in 20 countries, Suzlon is ranked fifth leading wind turbine supplier in the world, with over 10.5 per cent of global market share in 2007.[99] Its success has made India a leader among developing countries in advanced wind turbine technology.

Suzlon decided to pursue multiple licensing arrangements with established, yet second-tier, companies. Licensing arrangements with Sudwind, Aerpac and Enron Wind provided it with the necessary base of technical knowledge needed to enter the wind turbine manufacturing business. Building on the knowledge gained through these licenses, Suzlon also formed many overseas subsidiaries. Some overseas partnerships were formed with foreign-owned companies, either to manufacturer a specific component, such as its gearbox company in Austria, or to undertake collaborative research and development, such as its Netherlands-based blade

design centre and its gearbox research centre in Germany. Suzlon also situated its international headquarters in Denmark, which is a major industrial centre for the wind turbine industry.[100]

Suzlon has expanded beyond the license model, and has purchased majority control of several wind turbine technology and components suppliers. These acquisitions include leading gearbox manufacturer, Hansen, as well as REpower. This combination of licensing arrangements with foreign firms and internationally based research-and-development and other facilities, complemented by the hiring of skilled personnel from around the world, has created a global learning network for Suzlon, customised to fill in the gaps in its technical knowledge base. Suzlon has been able to draw upon this self-designed learning network to take advantage of regional expertise located around the world, such as in the early wind turbine technology development centres of Denmark and the Netherlands.[101]

Suzlon's growth model, in particular, highlights an increasingly popular strategy of innovation for transnational firms, which is based on globally dispersed operations and utilises regional variation in technical expertise and low input costs to its advantage. Expansive international innovation networks allow it to stay abreast of wind technology innovations around the world, which it can then incorporate into its own designs through extensive research-and-development facilities. It has developed this network of global innovation subsidiaries while maintaining control of enough intellectual property rights to remain at the forefront of wind turbine manufacturing and sales around the world.[102]

Suzlon's case of energy leapfrogging demonstrates how a firm from a developing country used a creative blend of strategies to enter new technology markets. A combination of licensing intellectual property, creating strategic technology partnerships, accessing regional and global learning networks and taking advantage of regional advantages like lower labour costs, were all important components of this company's successful business model. As technology development becomes increasingly global, firms from developing countries can and should take advantage of their increasing access to technological know-how, which was previously developed primarily by and for the developed world.

The lessons of Suzlon's success in harnessing global technology for local – and potentially global use and Tata Telecommunications approach for providing low carbon business solutions for companies across developing and developed world illustrate new models of technology development in the developing world. It also brings in perspective the solutions that a developing country such as India can export to the world for attaining a low carbon development path.

5.
ROAD TO SUSTAINABILITY-DRIVEN INNOVATION

The companies presented in this report have shown that linking sustainability with innovation is possible. There are also an increasing number of companies engaged in achieving sustainability at a strategic level that can be used as a constant driver in the innovation process.

There are several ways in which strategies can be built around a product or service that delivers sustainability benefits. Some strategies centre on differentiation, aiming to offer a superior product or service with a distinctive brand. Other companies offer low-cost, no-frills products. Some seek to win by pre-emptive moves, gaining first mover advantages such as customer loyalty. Others focus their product on a specific segment or geography, while some look for synergies, enhancing value for the customer while reducing costs to the producer.

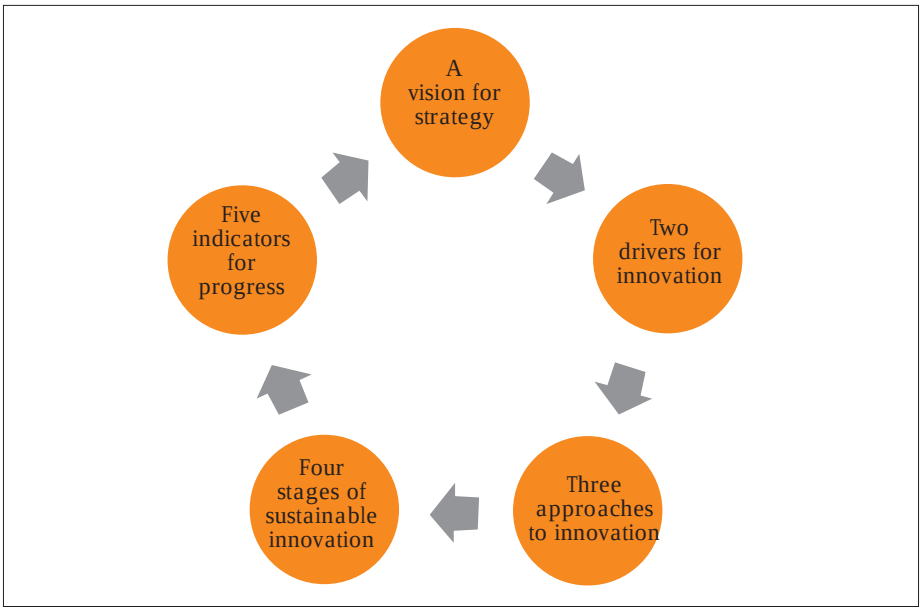
Part of the management's task at this stage is to engage with all those who have an interest in business strategy, including investors, employees and governments, to explain why business is being oriented to tackle a social, environmental or economic problem.

In some instances there is no business case for measures dealing with such issues unless company action is matched by government action. Companies seeking to incorporate socially beneficial work into their strategy may therefore engage in advocating particular policies, pushing the boundaries in search of the best way forward.

There is no set road, but based on the cases and earlier work of CESD

Figure 5.1:

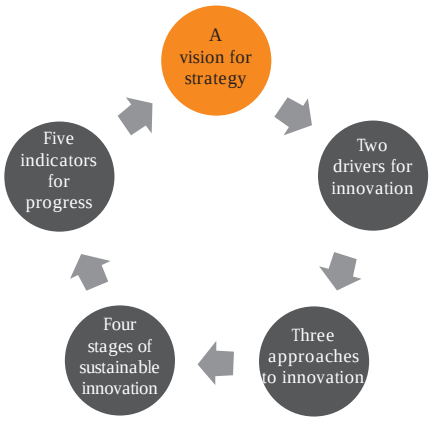
5 steps on the road to sustainability-driven innovation



and WWF, the following five steps have been identified as important for a company that wants to explore sustainability as a driver for innovation and profit. The five steps are represented in the shape of circular strategy in order to illustrate that an ongoing process is necessary with the company constantly trying to improve its sustainability performance: (*see Figure 5.1)*

1. A vision for strategy
2. Two drivers for innovation
3. Three approaches to innovation
4. Four stages of sustainable innovation
5. Five indicators for progress

1. A vision for strategy



In order for companies to be sustainably innovative and derive profits therefrom, they need to prepare for basic conditions. There are five necessary conditions to integrate a sustainability vision into the business strategy.

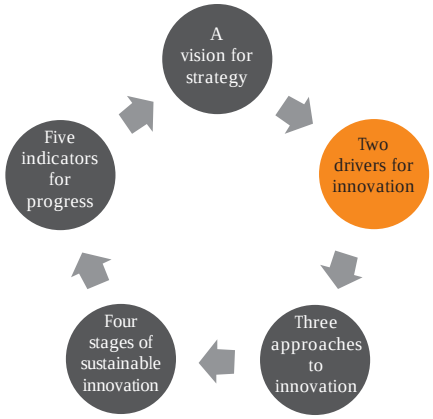
1. Companies have to recognise sustainability as a driver rather than a barrier for innovation. This will enable them to see opportunities and growth areas where others apprehend risks and increased costs.
2. Companies need to acknowledge that sustainability is multi-dimensional and includes economic, social and environmental footprints.
3. Companies must be able to engage with relevant stakeholder constituencies within their innovation process. This engagement should be followed by action for their future operations.
4. Measurable targets must be set to ensure that sustainability efforts of the company add value in economic, social and environmental terms.
5. Company's efforts towards sustainable innovation need to be driven by leadership and supported by the rest of the organisation force.

Having conditioned the organisation, companies should also look at the level of innovation capability that results in business and sustainable value. Innovation is as much necessary for internal low-hanging fruits as it is for offering new products and solutions.

A key outcome of the case studies is that though successes in incremental

steps provide critical foundation for changing mindsets, radical shift is necessary to realise higher business value as well as sustainability value, and provides sound basis for the big transformation.

2. Two drivers for innovation



Two major drivers – poverty and natural resource depletion – will continue to put pressure on all institutions in society such as, government, companies and NGOs. All companies aiming for sustainable innovation should in a transparent way present how they help reduce poverty and increase resource efficiency, and provide products and solutions that meet sustainability challenges.

Take the Indian case. The economic, social and environmental challenges that India faces are profound. Uneven distribution of its economic growth is known to contribute to increase in social unrest and fuelling terror activities. Although India's Gini coefficient is a reasonable 36.2, its rich have experienced faster growth in consumption expenditure than the poor since market reforms were initiated in early 1990s.[103] While the overall gap between rural and urban incomes has been closing steadily since 1991, much of India's increasing rural wealth is a trickle-down result from neighbouring cities. More remote areas, accounting for 75 per cent of the rural population, have been left behind.

Basic infrastructure deficit is obviously alarming. About 63 per cent of households do not have piped water connections,[104] compared to 46 per cent globally;[105] 22.1 per cent do not have access to drinking water,[106] compared to 16 per cent globally.[107] About 35 per cent remain illiterate; primary school drop-out rate is 56 per cent.[108]

India also has some of the highest incidences of chronic diseases – HIV/AIDS, tuberculosis, malaria – and infant mortality rate is very high at 32.31 deaths/1,000 live births.[109] Some 300 women die every day due to pregnancy and childbirth complications. India spends 0.9 per cent of its GDP on health in the public sector. Only four out of 176 countries of the world spend less than India.[110]

Severe power shortage is a major obstacle to India's development. 40 per

cent of companies in India have their own captive power generation because of unstable power supply. More than 40 per cent of the population, mostly in rural areas, lacks access to electricity.[111]

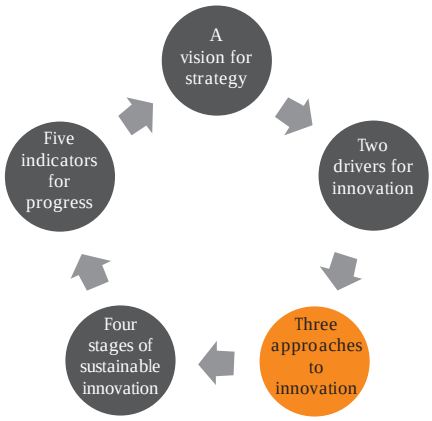
Nevertheless, in the last few years, the central and state governments, non-profit ventures and corporations have made moves to address the urban-rural income gap and other disparities by implementing policies and programmes designed to promote all-inclusive development.

Empowerment of the poor of India by providing basic necessities such as shelter, education, health and jobs is a market worth $173 billion.[112] It is just a small, but significant percentage of what could become a transformative opportunity.

Exploring how poverty and resource efficiency can become two common platforms for innovation that can help spread sustainable solutions through society is an area where leading companies could engage.

3. Three approaches to innovation

Based on the case studies, there are three different kinds of approaches that companies can use to embrace sustainability as driver for innovation where identified. These three can exist together within the same company, and within big companies they usually do.



The Clean slate approach

This approach can be used by a company, or part of a company, that can start fresh from sustainability need and look for services needed. Integrated light system with solar PV, batteries and LED lamps is one example where the need for poverty reduction and sustainable energy solutions are needs that are met. Grameen Bank and Grameen Solar are two other similar examples, where financial needs among the poor and smart energy solutions are met with smart innovation.

This approach is often technology-driven and it is important to include mechanisms within the company that explore if there are other technologies that can provide the same service in a better way. If a company only focuses on improvements in one technology, it can contribute to a technology lock-in even if the original intention was meant to deliver a sustainable solution. The

car dependence and coal dependence are two examples of solutions that have created a technology lock-in over time and where many companies involved do not look beyond the technology they provide. Similar mistakes should be avoided in new areas that are today seen as sustainable.

The Springboard approach

This approach can be used by a company that realises that at least a part of its business is not currently sustainable. This realisation often happens due to external pressure. Instead of only defending their business, they can look for new business areas that build on their current strengths using the outside pressure to find new business paths, and thereby use the outside pressure as a springboard for a new and more sustainable business strategy.

IKEA is a good example where initial outside pressure, related to toxic materials in part of their product line, resulted in a dialogue with environmental NGOs and an increased focus on strategic environmental work way beyond the initial work with toxic chemicals. Using the outside pressure, IKEA developed a strategy that resulted in a proactive approach.

Electrolux and other providers of whitegoods is another sector that has applied a springboard approach. Many of them got the impetus to rethink their old business approaches during the CFC discussions in the 1980's. It was also after this that many of the companies started to explore a service-based approach (they realised that in order to be sustainable they need to move away from a perspective where they sell products, as their incentive is not sustainable then, to a business model based on service). As the outside pressure was reduced, the appliance providers have lost some momentum and are more focused on incremental improvements in existing products.

An interesting case demonstrating the difficulties of the springboard approach is the oil sector. Companies like Shell and BP are examples of companies that, after heavy criticism, opened up new lines of business and invested in renewable energy and energy efficiency. Lately however, partly due to investor pressure but also the companies' inability to make sustainability fit in the core business, they are increasing investments in unsustainable practices. In some cases their new areas are worse off than earlier work, such as exploration of tar sand.[113] Still the work of Shell and BP has to be put into the context of their competitors. It is worth noticing that as late as June 2002 ExxonMobil's chairman, Lee Raymond, said: "We in ExxonMobil do not believe that the science required to establish this linkage between fossil fuels and warming has been demonstrated".[114]

As is true in the case of a person using a springboard, a company using a springboard approach must ensure that the direction is right, because if it is not, it might bounce back to the old way of doing business or even shift its

business in a less sustainable direction.

One major challenge for companies driven by outside pressure and applying a springboard approach is to ensure that basic structures in the companies are reformed so that the energy that is turned against the company's unsustainable part is directed in a sustainable direction without coming back again due to lack of supporting structure and links to the company's core strategy, KPIs (Key Performance Indicators) and future revenue flows. The company needs to engage with stakeholders that are sceptical of a new sustainable direction . It is especially important to discuss with investors and be transparent about the needs for innovation to ensure that the sustainable direction is profitable.

The Quantum leap approach

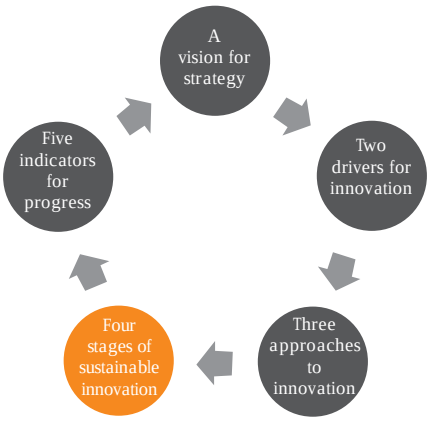
The quantum leap approach is for companies that don't have any outside pressure to deliver sustainable solutions but have products and services that are part of a sustainable development. These companies have either new or existing solutions that can help society become more sustainable.

The IT sector is a good example that is often not seen as significant in the climate perspective as they are not a big emitter. On the other hand a number of reports show that low carbon IT-solutions could provide one of the most important contributions to a low carbon society.[115] To ensure delivery on the potential positive contribution requires a quantum leap strategy.

One of the challenges for a company applying a quantum leap strategy is that they might have outside pressure in an area that is not that important, but it may shift the focus away from the proactive strategy. The internal energy use by IT companies is an example of this. It is not irrelevant, but it represents approximately two per cent of the global emissions and IT companies can provide low carbon IT solutions that provide a significant reduction of the other 98 per cent emissions. In such a situation, it is not very strategic to spend most of the resources addressing the two per cent internal emissions while ignoring the 98 per cent they can help reduce overall emissions to a considerable degree.

Biotechnology is another sector where focus so far has been on their internal environmental performance, or risk with certain technologies. These are important areas, but there are also significant opportunities with smart biotech solutions using biomimicry. For serious biotech companies that stay away from high risk technologies, there will be significant opportunities for a quantum leap approach.[116]

4. Four stages of sustainable innovation



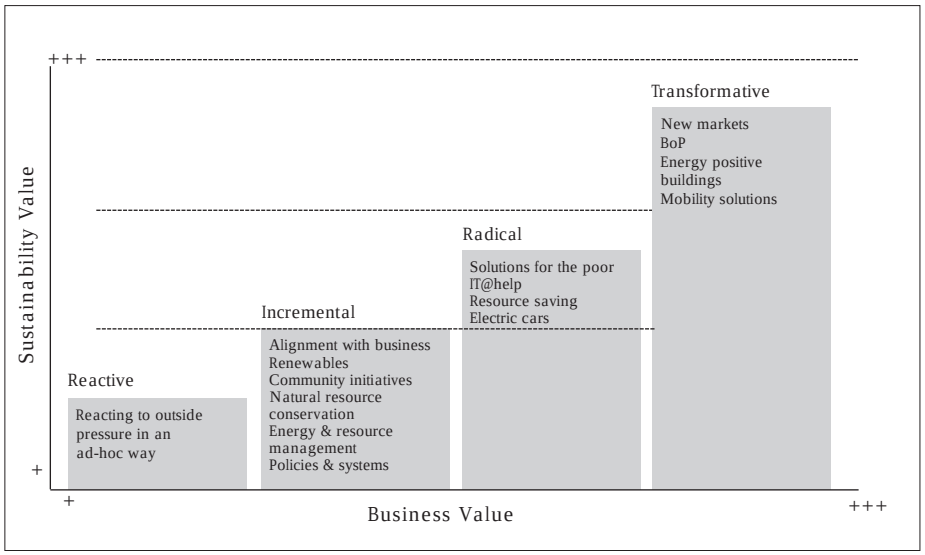
It is important to establish the ambition for innovation within the company. In many cases different kinds of innovations are needed on different stages at the same time. The EHS department might need 'innovation' to comply with new legislaton, at the same time the product development division may want incremental innovation to keep up with competitors's enhanced performance, and at the same time the CEO and the senior management team might decide that they want to support transformative innovation to move into new business areas.

Below is a short overview of four stages of sustainable innovation *(see Figure 5.2)*.

Reactive

This is probably still the most common stage and usually treated as innovation in relation to sustainability today. Due to new legislation, changing customer preferences, buyer demands, competitor moves, media

Figure 5.2:
Four stages of sustainable innovation



attention and others, companies find that they are under preassure to change. There is a tendency to resist change or adapt to secure existing business deals. Increasingly however companies try to comply with legislation and improve their performance. The incremental innovation is an important part of strategies of most companies to ensure that resource efficency and environmental improvments are constantly improving.

Incremental

Leaving an ad-hoc approach to sustainable innovation behind, many companies now try to build in systems for constant improvement using ISO systems and other management systems. The case studies have demonstrated that incremental steps, beyond-compliance processes – addressing current issues of cost, risk and footprint reduction – have been an important step towards a better understanding of what sustainability means. Indeed, pollution prevention and product stewardship have succeeded in reducing waste, emissions and impact, while simultaneously reducing cost risk and stakeholder resistance. The incremental gains are generally inadequate to change the course fundamentally.

The first step towards sustainable innovation is often focused on reducing risks and cutting costs. This means reductions in waste, air emissions and energy use. Companies come to understand that their sustainability efforts will end if they don't demonstrate a viable commitment to cutting their environmental footprint and reducing risks today.

Demonstrating significant progress on reducing waste and emissions is crucial for external credibility. But keeping an eye on the bottom line is equally important inside the company. Cost reductions can often go straight to the bottom line, improving competitiveness and reducing risks.

Reaching out beyond internal borders to engage outside stakeholders, including powerful community groups, NGOs and regulators, is unusual for most companies. This nature of engagement can often be defensive and combative. Listening to many people with whom they do not usually interact and taking their input seriously are crucial to the process of sustainable innovation.

For innovation to be successfully introduced into the marketplace and accepted by society, it must be based on many forms of partnerships and continuous dialogue with stakeholders, including government, NGOs and academia. Innovation that does not address pressing human needs will not advance sustainability. Likewise, a vision of sustainability detached from science and technology will not succeed.

Something fundamental must change if we are to accommodate a burgeoning population of eigth to ten billion globally and 1.5 billion in India.

Looking at the overall trend and the need to bring billions out of povery, it is obvious that incremental innovation is not enough. The transport system, energy system and urban development today make buildings and energy part of the problem rather than part of the solutions. Moving beyond incremental improvments to transformative solutions will allow this trend to be reversed.

Radical

A company's growth trajectory is what will propel it to create sustainable value and provide it with the ability to make a significant positive difference in the world.

It is at this stage that companies ask questions like:

- How are we going to bring our products and services to a larger world and shift our way of thinking about global social and environmental issues?
- How are we going to reach people who want and need to improve their quality of life and standard of living?

Many of the advancements pertaining to sustainability initiatives to date have been achieved within manufacturing plants. But as companies reach out to new markets, they may realise that their products have far greater impact than their manufacturing facilities. For instance, setting revenue targets from products that help customers create energy efficiency and/or significant GHG reduction.

Driven by an accelerating rate of technological change, radical innovation is a vital stage in transition to sustainable business and low-carbon economy. In doing so, the corporate sector becomes a primary driving force for sustainable development. This is the advantage that social enterprises presumably begin with.

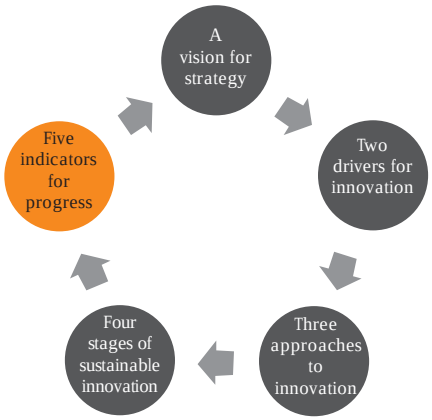
Transformative

When a company begins to look towards the future, the shift in focus is transformational. Many companies, for example, are reinventing themselves. The first-half of the 21st Century will witness many companies embracing this approach and will involve a focus on the combination of bio-mimicry, natural material use and its recycling and others, in a most environment friendly and coservation oriented manner.

In addition, companies need to be focussed on few 'mega sustainability trends' that will shape the markets of the future: the drive for renewable energy and materials, the demand for greater safety and security and the need for increased food production. Also vital is how some of the unmet needs could be met by rethinking delivery processes and methods.

Leapfrogging to inherently clean technologies through disruptive business models, for instance, at the base of the pyramid, enables companies to confront directly the sustainable development challenges. These also provide the basis for the repositioning and growth that will be needed for companies – and society – to thrive in the future.

5. Five indicators for progress



A long-term approach requires business leaders to make judgments that incorporate long-term measures into definition of success.

First, create a sustainability vision
Many companies cannot survive without a great vision. Especially in the current climate, how can an organisation survive without a well-defined vision? It's not just about the vision-statement alone. But a real vision – a vivid enough picture of the future that has no boundaries, it is larger then the organisation itself and it is lofty enough to want to work hard for. If a company has a great vision, everyone can see a clear direction and a focused path to the future. Good organisations have a vision. Great organisations redraw the vision for the entire society. Traditionally it has been said, without a vision, the company will fail. Now, without a sustainability vision, the company is bound to fail.

Second, ensure leadership conviction
A comprehensive sustainability strategy can only be implemented with support from the top by leaders who have strong convictions. Long-term, sustainable profitability is the key measure of success and such profitability comes through creating the right products and services for the right customers over time. Such convictions should be reflected in the way leaders identify opportunities that are radically different from those prevailing in current times.

New opportunities and challenges emerge and it is important that a company spends resources to stay ahead as a leader. The world needs companies that produce tough leadership material and explore new ways to deliver sustainable results. These leadership initiatives must be clearly linked to the key challenges, or open up a discussion for potential new challenges and opportunities that have not been acknowledged so far in society.

Third, check if there is a strategy pay-off

Is the sustainability-driven innovation and profit-making strategy paying-off? Transformations are not trivial. Implementing a sustainable innovation strategy requires internalising sustainability notions in profound ways. Sustainability-based thinking, perspectives and behaviours are integrated into everyday operating procedures and the culture of the organisation. When these migrations happen, the metamorphosis is underway. The payoff is tapping into the revenue, innovation and productivity side of the sustainability business case rather than just the risk mitigation and cost-savings side.

Fourth, work with stakeholders

No company can achieve transformative change alone. To work with other companies is therefore necessary. To present results from these collaborations is also important. As many companies focus more on communication than actual results, it is important for serious companies to use independent verification of the results and ensure that collaboration is encouraged with those groups that can help keep the focus on actual results and not mere communication. To actively be a part of creating new networks that focus on concrete reductions, it is also important that the companies help to develop tools to calculate the savings from the networks that they participate in.

Fifth, Measure value-add

Annual or quarterly financial results tell only a part of the story. Social and environmental factors also play a part in any holistic process of performance measurement because a company with a good record in these areas will attract employees, and build trust among current and potential employees, customers and governments, while a company with a poor record will suffer increasing isolation.

Companies need to design such long-term measures and metrics, explaining to the external world why these are valid as indicators of sustainable value creation. How many people have they helped to move out of poverty and how have they provided solutions that reduce use of natural resources and improve quality of life?

For innovation to work, as argued earlier, employees must be fully engaged – more often, everyday, in every project they are contributing to - more creative in their work, more passionate, more meaningful, less stressful, collaborative etc.

6. POSSIBLE WAYS FORWARD

Below are eight possible ways forward that could develop key ideas in this report further. They are based on discussions and suggestions that have emerged during the joint collaboration between WWF and CII-ITC CESD that resulted in this report. As these are ways that are meant to inspire the future players, WWF and CII-ITC CESD will explore the possibility to implement these, hopefully in collaboration with other stakeholders.

1. Supply and demand dynamics for transformational innovation

One of the most important challenges is to ensure that there is a dynamic interaction between supply and demand. This project would explore ways to link companies with each other and companies with governments to implement work programmes where new solutions to major challenges, such as urban poverty and buildings, are delivered. The projects should be ambitious and have the potential to become examples for the world.

Two possible cases could be:

- The world's first integrated light/cooling and electricity system that allow households to become net producers of electricity. The focus would be urban poor and urban rich to see how innovation could be driven by investment from the rich to ensure provision for the poor.
- The world's first e-governance system that calculates the CO_2 and oil savings as citizens use different services. The savings should then be invested in integrated land use solutions that provide food, bio-based material and energy.

Outcome: Two demonstration projects implemented by a network of Indian stakeholders that can be communicated globally and position India as a home for sustainable innovation that links high-technology, poverty alleviation and environmental sustainability.

2. Indian innovations providing global solutions

The opportunity for Indian solutions to give a significant global contribution is enormous. This report only scratched the surface. As a follow-up, an initiative would be launched that lists 52 different solutions for the world. About a third of these would focus on the over-consumption of rich people, a third would focus on the poverty among the poor and the final third projects would focus on the direct links between smart resource consumption among the rich and poverty alleviation. These solutions would then be put on display in at least 36 cities around the world using large displays in public places. For

each week during 2010, a new solution would be displayed and people could vote for their favourite innovation.
Outcome: A general overview that would showcase many of the interesting projects that exist in India to the world. The format could be akin to the joint CII-WWF version of Climate Solver, but with slightly broader scope where resource efficiency would be the main theme.
See http://www.wwf.se/climatesolver/ for inspiration.

3. Urban poverty and climate positive infrastructure

A rapidly growing challenge is urban poverty and the need for sustainable energy solutions. This challenge could be turned into an opportunity by creating an innovation platform that encourages companies to increase their focus on solutions for urban poverty and climate positive infrastructure solutions, e.g. houses that are net producers and electric vehicles that are sold with solar PV that produce more energy than the vehicle uses. The project would also develop a tool that could measure the contribution from companies and would rank the world's 300 largest companies depending on how much they have contributed to low carbon infrastructure solutions and how much (urban) poverty reduction they have helped to achieve. The focus on urban poverty is due to the fact that most focus today is on rural poverty and also because decentralised smart solutions for urban poverty in many cases can be used in rural areas too. There are also larger sums being invested in urban areas, and if these can be directed towards the urban poor a more general poverty and resource efficient perspective can be integrated into companies' core business.

Outcome: An interactive web-application that companies can use to encourage innovation for urban poverty alleviation and climate positive infrastructure. A global competition would ensue, where those companies that have provided sustainable solutions in these two areas are rewarded.

4. A clean slate innovation approach for SMEs with focus on urban poverty and low carbon solutions

A large number of businesses are started every day all around the world, and more so in the emerging economies. To help micro, small & medium enterprises to find applications for sustainable innovations, a competition could be set up and a small micro finance fund could be created. A collection of best practises and web/sms-help-line set up to support people in setting up and developing their ideas, can be established. If successful, a small fee for

sms could help finance the support function and successful businesses could pay back a small fee to cover the costs for the function.

Outcome: A self-help system and collection of micro-best practices that otherwise would not be available for micro entrepreneurs to pick up ideas and information from.

5. A springboard innovation approach for long-term sustainability

With pressure increasing on companies to become more resource efficient and explore innovative ways to provide their services, many companies will face a situation where the outside pressure increases and can no longer be ignored. To ensure that this pressure can be turned into a positive long-term development, this initiative would explore what kind of structures are needed for companies to turn this pressure into genuine transformation, and shift towards a service approach instead of incremental improvements of the current business models.

Outcome: A handbook for sustainable crisis management that encourages transformative change when dealing with outside pressure.

6. A quantum leap approach delivering needs in the 21st century

This approach is for those companies that do not feel enough pressure to develop and sell resource efficient solutions. To encourage companies that are interested in transforming themselves without much outside pressure is also very important as many of these companies have the potential to provide important solutions that can improve quality of life while reducing the need for natural resources. To identify new markets, to create new markets and to explore new business models based on current strength would be key parts of this initiative.

Outcome: A working group with leading companies that are not involved in the environmental discussions to a great degree, but have a lot to contribute with their solutions if developed in the right way. Recommendations for how governments can support leadership and give impetus to the quantum leap approach. First “quantum leap” strategy for sustainable business development in the world has been implemented by the Indian government (or at least a state in India).

7. Winners in a low carbon economy

India already has a number of companies that provide low carbon solutions that can help the world. Identifying companies that provide solutions in important sectors such as construction, transportation/communication, energy provision and food is important. A collection of these solutions would serve as inspiration for the world as well as other Indian companies. How the markets for these solutions could increase, both in India and abroad, will be explored.

Outcome: A report with six to eight Indian companies from different sectors and with different solutions. Presentation of these at key events around the world with concrete suggestions on how the markets for these solutions could increase.

8. High or low carbon and positive or negative carbon impact of new innovations

One area that emerged during the project to explore sustainability as a driver for profit and innovation was the need to be able to differentiate between different innovations. Some investments that might look good from a short term perspective might create a carbon lock-in that makes it harder to reduce emissions in the future. Different technologies will also support and undermine each other in different ways depending on the physical infrastructure they require, the legislation that supports them, the stakeholder groups that are formed, etc. To understand how different technologies relate to each other and how synergies can be supported, a framework to analyse different technologies will be developed.

Outcome: An analytical tool that can be used by governments and businesses to explore different innovations and investments from a low carbon perspective. The tool can be used to analyse the main technical options for low carbon development in India that also would result in significant export opportunities.

ANNEX. LIST OF COMPANIES AND INNOVATIONS

Company	Business Area / Innovation
ABT Bioproducts	Products for organic farming, including bio-fertiliser, plant growth promoters, bio-pesticides and soil fertility enhancers
Akshaya	An initiative of Kerala State Information Technology Mission for e-governance
AMUL	Community-based dairy industry
Ankur Scientific	Converting biomasses to usable forms of energy - cheaply and efficiently
Arogya	Kiosk-based Clinic for Masses, is focused on computerising medical (diagnostic and treatment) knowledge and creating a mobile rural clinic
BASIX	Sustainable livelihoods promotion
Bhilai Steel Plant	Various kinds of steel and their application with resource efficiency
BILT	Farm forestry initiatives, wood free paper
BK Edible Innovations	Range of edible cutlery to counter the environmental detriments of the traditional plastic, disposable cutlery
CleanStar Energy	Grows non-edible plants and trees on marginal lands and processes them to produce substitutes for diesel and coal
Conserve HRP	Fashion handbags and accessories from recycled plastic bags
Cosmos Ignite	Solar-powered LED lighting solutions for poor
DESI Power	Decentralised power plants, micro-enterprises and energy services in villages
Fab India	Craft-persons & artisan supplier-based urban handicraft retail chain
Field Fresh Foods	Farm produce, research & development
Godrej Agrovet	Agri-processes, farming technologies and education
Hindustan Unilever	Project Shakti: creating bottom-of-the-pyramid markets by engagement of consumers as producers/sellers
HMX Sumaya	Produces innovative, environment-friendly HVAC solutions

Company	Business Area / Innovation
ICICI Bank	Microfinance: weather insurance and others
Infosys	Software solutions for social and environmental issues
ITC Ltd.	e-choupal: connecting farmers directly to markets through internet
Jindal Steel	Cost reduction, resource efficiency in steel production
Jubilant Organosys	Pharmaceutical: process innovation for environmental benefits
Kakatiya Energy Systems	Manufactures energy saving devices based on innovative patented technology of infrared sensing
Larsen & Toubro	Resource-efficient electrical products, construction technology
Maharani Paints	Paint sludge recycling
Maruti India	Fuel-efficiency; resource reduction
Midas Communication Technologies	Telecommunication solutions: communication solutions for social issues
Natura Fibretech	Produces coir (coconut-fibre) composites and other innovative materials that serve as an alternative for timber in the construction sector
NIIT	'Hole in wall' – primary education
NTPC	R&D in power generation, renewable energy
Nuetech Solar Systems	Solar water heaters for both domestic users and institutional/industrial users
Reva	Electric cars
SBA Hydro Systems	Total service provider in small hydro power development sector
Scojo India	Affordable reading glasses in Andhra Pradesh
SELCO	Conversion of solid waste to electricity in rural areas
SKS Finance	Microfinance
Sona Koyo	Environment-friendly manufacturing processes

Company	Business Area / Innovation
Suminter India Organics	Producer and exporter of organic products
Suzlon	Wind energy
Tata International	Leather process; energy from waste
Tata Motors	Nano – cheapest car in the world yet
Tata Steel	Water efficiency and least cost steel
TCS	Software solutions for social and environmental issues
Telcon	Construction equipment: sustainable construction
Tinplate Company of India	Tinplate packaging solutions
Victor Gaskets	Non-asbestos gaskets
Vijaya Value Electric	Electric scooters
Wipro	Green energy, low carbon IT solutions, EcoEye
Yes Bank	Green financing

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Sustainability Driving Innovation

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WWF-India

WWF-India is one of India's largest and most respected independent conservation organizations. Its mission is to stop the degradation of the planet's natural environment, which it addresses through its work in biodiversity conservation and reduction of humanity's ecological footprint.

CII-ITC Centre of Excellence for Sustainable Development

The CII-ITC Centre of Excellence for Sustainable Development is an institution that creates a conducive, enabling climate for Indian businesses to pursue sustainability goals. It creates awareness, promotes thought leadership and builds capacity to achieve sustainability across a broad spectrum of issues.

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WWF India

172B, Lodi Estate
New Delhi-110003

www.wwfindia.org