

IMI Konnect

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Summer Special Issue

Green Practices in Business

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About IMI Konnect

IMI Konnect is an open access Scholarly Management Magazine published from International Management Institute Kolkata. It started its journey in December, 2012 and publishes original research articles by scholars in the field of management and firsthand perspectives from business thinkers and practitioners on contemporary issues. *IMI Konnect* provides an intellectual platform for the national and international scholars and the industry experts to discuss and debate their opinions and thus contribute to the knowledge of management. It also publishes interviews with eminent personalities in the field of business. The publication caters to academicians and practitioners in corporate and government organizations and departments.

The issues are themed on topics in Marketing, Finance, Organisational Behaviour & Human Resources (OB & HR), Information Technology & Operations (IT & Operations), Strategy, Economics and Management. There are six issues in a year. Students/scholars pursuing Masters, M.Phil or Ph.D. are also encouraged to send articles on the aforementioned areas. The articles will go through a review process before publication.

Editorial Team

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Manuscript Submission Guidelines

The article should be non-technical and within 1600 words. It should be typed in MS Word in Times New Roman 12 with paragraph spacing 1.5. Figures and simple, small tables can be incorporated. There should not be any notation or equation. Full forms of each abbreviation should be mentioned at first instance. Upto eight references can be included in the article. Limited number of short footnotes may also be included if necessary. Send your manuscript along with your name, designation, institutional affiliation, email ID and contact number to the editorial office at imikonnnect@imi-k.edu.in mentioning the area viz. Marketing, Finance, OB & HR, Economics, Strategy, IT & Operations, Management Education and Others.

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Green Business Practices: Is Awareness a Real Concern?

Sustainable development, by now, has become a quite familiar word. Concern for environment and rising awareness of the impact businesses can have on the environment have led to the concept of green practices in business. As a consequence, for quite some time now, there has been a trend of introduction of recycling programs and efforts to reduce carbon emissions by different organizations.

Some companies are also looking at product lifecycle and applying green supply chain management practices across the board. For example, Starbucks has been purchasing Fair Trade Certified organic coffee and by focusing on creating “green” stores, it has been able to reduce both operating costs and the environmental impact. Google also has come up with a number of initiatives such as powering its facilities with renewable energy sources, bringing in goats to trim the grass (instead of lawn-mowers) and sustainable-cooking seminars etc.

This special issue focuses on this important topic since not many people understand how and what kind of green practices in different sectors of businesses are in place or may be in place. **Mr. Tulsi Tanti**, Chairman, Suzlon Group, in his article is candid in explaining how an energy company may incorporate environment-friendly practices in the business process and reduce cost at the same time. He also is of the opinion that the SME sector should also be encouraged to undertake green practices.

Mr. Shyam Narayan, Manager, ACC Limited, has elaborated on the green practices currently being followed by the cement industry. Throughout the article his lucid explanations of technical terms related to the business process provides a clear picture to a layman about how the green practices are adopted in another energy-intensive sector. **Mr. Dibyajyoti Sinha**, Consultant, Ernst and Young LLP, has presented a detailed discussion on the different aspects of the global initiatives and policies related to climate change and the significant role of businesses in achieving the long term objectives like ‘carbon neutrality beyond 2050’.

Dr. Sapna A. Narula, Associate Professor, TERI University, in her conversation with *IMI Konnect*, speaks her mind on the current status, ways ahead and challenges related to green practices in Indian business. From the perspective of an academician, the interview may be considered as a primer to the topic for any interested reader. **Mr. Vinay Chauhan**, Director – Supply Chain, Hitachi, in another interaction with *IMI Konnect*, has not only elaborated the processes followed in his company, but also has spoken on some contemporary innovations in products and processes in the sector. He has also emphasized the importance of green marketing of industrial products.

It seems that the green initiatives taken are majorly by large companies and there exists a need for creating awareness about the benefits of green practices to the company, its people and society as a whole along with helping small companies in adopting such practices. I am optimistic that the articles and interviews will inspire researchers and practitioners to discuss and debate further on these issues. Articles on this topic in future for *IMI Konnect* are welcome.

Happy Reading!

Paramita Mukherjee
Editor, IMI Konnect

Powering Green Economic Development



Tulsi Tanti

Chairman and Managing Director
Suzlon Group

The Journey

Suzlon Energy Limited commenced operations in 1995 with the objective of providing energy efficiency and reliability to industries across India. Its establishment came at a time when renewable energy (RE) had little consideration as a viable source of energy in the nation.

Suzlon came into being when an earlier business in textile faced problems of power shortage, power cuts and high costs. The search for a long term solution for sustainable, available and affordable energy led to a move towards wind energy. The benefits of wind energy as seen in the textile business led to the consideration of its extended application and economic and environmental advantages as compared to traditional energy sources and the plight of businesses dependent on energy.

Suzlon came into being not only as a provider of clean energy, but as a company that works on the philosophy of sustainable social, economic and environmental development. It was established at a time when the domestic market was dominated by a few international players. Today, it holds approximately 36 per cent of the domestic market and has an international presence in 19 countries across Asia, Australia, Europe, Africa and North and South America.

Green Energy on the Global Front

COP21, held in Paris in December 2015, brought to the forefront the realities of climate change and the requirements to combat the same. 195 countries entered into an agreement to pledge their support in the stand against climate change and highlighted their specific plans to address this.

Developed countries are focused on carbon emission reduction and renewable energy installation increase, while supporting other countries in renewable energy, carbon capture and energy efficiency. Countries committed to this include Malaysia, Bahrain, Uruguay and Australia, among others.

Developing countries are more committed to increasing renewable energy installation to support their industrial and consumption needs. Furthermore, they are also focused on reducing their carbon emissions at the outset so that their economies can be built on clean energy. Countries that are working with this aim include India, China, South Africa, Brazil and Sri Lanka, among others.

The global economy is expanding. Hence the production and consumption within it, are growing. As a result, the need and demand for energy is growing. But increasing energy generation through traditional

sources is putting the planet at great risk. The prospect of a healthy and normal future for our children seems unlikely unless urgent actions are taken to limit global warming to below 2°C and avoid the worst effects of climate change. Commitments made at COP21 by developing countries, such as India, focused on increasing renewable energy to support industrial and consumption needs. The idea is to build the economy on the foundation of renewable energy itself.

India has already committed itself to 175 GW of renewable energy installations by 2022. Furthering this commitment, the government is trying to reduce carbon emissions by 30 per cent to 35 per cent and increase renewables to 40 per cent of the energy mix by 2030. At the same time, the industrial development of the country is guided and furthered by the government's "Make in India" initiative. The resulting rise in domestic energy need has created massive opportunity for clean energy.

Benefits of Going Green

There is a growing awareness on the preservation of the environment and hence companies are looking for ways to become environment-friendly. Green practices, on the part of a business, help in protecting the environment while these also have an impact on consumer behaviour and result in gaining a competitive advantage. Companies may also gain through the reduction of their energy consumption cost.

Climate change threatens the very existence of our future – green practices give us the ability to change that. "Make in India" is focused on economic and industrial development, both of which translate into high energy demand. It has provided an environment that supports growth of every industry. Renewable energy, thus, is developing into a pivotal industry for the country while also facilitating the growth of other industries. This results in companies receiving the energy they need, while still ensuring that they do not contribute to carbon emission. At the same time, the increase in renewable energy is leading to the creation of numerous jobs and furthering economic growth. Companies are becoming more environment conscious and practices like adoption of green energy, are helping them to contribute to the national stand against climate change. From the perspective of cost, they are facing no additional costs as wind energy is almost at grid parity. In summary, the benefits of green practices for India include economic and industrial

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development while protecting the environment, mitigating the risks of climate change and becoming a beacon of positive practices globally.

Suzlon's Green Initiatives

With the vision to *Power a Greener Tomorrow*, Suzlon, at its foundation, addressed concerns that constitute global crises today.

As a leading renewable energy player of the Indian market, Suzlon is furthering the “Make in India” initiative in two ways: a) by establishing itself as the energy partner of captive industries with growing power demand. A stable energy architecture achieved through renewable energy provides an additional advantage to manufacturing units, containing rising conventional energy costs and thus, increasing their competitive strength in the global market; b) by transforming India into a manufacturing hub for wind energy technologies. It is quite clear that China is already leagues ahead in the solar game. India has the opportunity to take the position in wind sector and, if supported by proactive policies, can lead the global transition to renewable energy sources. Suzlon, with its 20 years' experience, is best positioned to capitalize on this opportunistic environment.

Through a focus on technology and R&D, the company has continued to bring about innovation in the industry since its inception. The 2.1 MW range wind turbine generators (WTGs), including the S97 and S111, mark the latest development of the organization. These wind turbines bring to the market the unique, all-steel, lattice hybrid tower which has been designed for greater cost efficiency. The design is also conducive to scaling new hub heights, resulting in WTGs that stand at 90 metres and 120 metres. As a result, the WTGs provide higher wind energy generation, even at low wind sites.

Furthermore, the design leads to a lower Levelized Cost of Energy (LCoE) and higher return on investment (RoI) for customers. Catering to Indian wind conditions, these WTGs are also available in a high temperature variant, up to 50°C, that offers smooth functioning in varying climates. These factors have contributed towards opening up of a host of sites that were previously unviable due to low wind conditions or torrid temperatures, and also towards increased interest and investment in the products.

Suzlon takes all necessary steps to minimize any changes brought by business operations to the society. Participatory development programmes are implemented in communities close to wind farms and manufacturing units to ensure inclusive growth and minimal disruption of lives of people affected by such initiatives.

Suzlon is also one of the few WTG manufacturers to have established an almost completely vertically integrated supply chain, enabling the organization to make headway in reducing the cost of energy and providing energy security for all. Providing job opportunities through its extensive supply chain, Suzlon also creates approximately 20 jobs for every MW of wind energy installed.

However, the company looks beyond just economic development. It incorporates corporate social responsibility at every stage of its operations. It has a dedicated body, the Suzlon Foundation, for its individual CSR activities. It also provides development at, and around, its various plant and project sites.

At the outset of projects, the company takes all necessary steps to minimize any changes brought by business operations to the society. Participatory development programmes are implemented in communities close to wind farms and manufacturing units to ensure inclusive growth and minimal disruption of lives of people affected by such initiatives.

The Suzlon Foundation works towards building up the financial, natural, social, human and physical capital around all areas of operations for overall sustainability. Implemented through the three pronged strategy to engage, empower and sustain, the Foundation's programmes result in employee and society engagement in activities, and empowerment of neighbourhood villages such that they accept ownership for their development and sustainability over time.

Future Plans

Moving towards larger projects, Suzlon is now focused on setting up utility scale renewable projects, thereby moving closer to GW size projects. With a growth strategy that includes ramping up volumes, expanding focused markets, realizing business efficiencies, introducing new generation products and further optimizing capital structure, Suzlon is slowly, but surely, regaining its market leadership position. Furthermore, it actively contributes to India's energy security, aids in the delivery of the government's "Make in India" dream and powers green economic development.

The Way Ahead

An opportunity of \$200 billion exists in the renewable energy market. The 175 GW target has been set by the government for clean energy installations by 2022. Currently, India's clean energy installations stand at 33 GW. The potential is great and we are witnessing great momentum.

The renewable industry is taking conscious efforts to be in synchronization with the government's mission and supplement other industries by reducing the cost of energy and enabling the utilization of clear fuels. Renewable energy sectors will witness exponential growth as players aim towards making India a hub for renewable energy technology.

However multiple initiatives may be required to reach the stated objectives of the overall *Green Energy Mission*, including the level of investment in new engines, smart and efficient infrastructure, battery storage

and development of innovative financing schemes. The authorities need to react quickly to put the necessary energy infrastructure in place and work out financing solutions in the country to support renewable energy market. Push for strengthening the SME sector by encouraging them to invest into RE projects for their captive use, will help in freezing their energy costs and thereby making them competitive. Goods and Services Tax (GST) for RE projects should be set at zero rate to reduce cost of energy and make RE affordable to utility and consumers. To provide further stimulus for investment in captive renewable power by the manufacturing units, interest rebate should be given to ensure success of “Make in India”.

“The well-being of humanity, the environment and the functioning of the economy depend upon the responsible management of the planet's natural resources.” - *Tulsi Tanti*

Green Practices in Cement Manufacturing



Shyam Narayan

Manager
ACC Limited

Introduction

India is the second largest producer of cement in the world. Commencing with a capacity of 3.28 million tonnes in 1951, cement industry surged to a capacity of 390 million tonnes in 2014-15 and it is expected to reach about 550 million tonnes in 2020. Cement industry is playing a vital role in the economy of the country, providing employment to more than a million people, directly or indirectly.

The Product

Cement is a powdery material which gets set and become hard while coming into contact with water. It is widely used in constructions. Limestone (calcium carbonate) is one of the major raw materials, which is mined out from quarries and it is grinded and homogenized with other raw materials. Next step is calcination of calcium carbonate, followed by sintering the resulting calcium oxide with silica, alumina, and iron oxide at high temperatures to form clinker. The clinker is then ground or milled with gypsum and other constituents to produce cement.

The Process

Cement manufacturing is a material-intensive process. Producing one ton of clinker requires an average of 1.5 – 1.6 tonnes of raw materials. During the calcination reaction most of the raw materials is lost as carbon dioxide. Cement production also involves high energy requirement. Cement plants have an energy consumption of about 3,000-3,300 MJ per ton of clinker. Predominantly coal has been the primary fuel, but a wide range of other fuels are also used, including petroleum coke.

Scope of Green Practices

Given the nature of the product and the process, there is scope for imbibing green practices. However, it is a long term and continuous process. In India, following are few practices which enable cement industry to reduce its carbon and material footprints:

- *Energy Efficient Manufacturing Process:* Clinker production is the most energy-intensive step, accounting for about 80 per cent of the energy used in cement production. Clinker is made by one of the two production processes: wet or dry. The dry process is modern and more energy efficient as compared to the wet process. About 94 per cent of Indian cement plants were using wet process for cement production during 1960. In the last 56 years manufacturers have been installing state-of-the-art technology in dry manufacturing process coupled with preheater and precalciner in new plants

and retrofitting with energy efficient equipments where economically viable. Old kilns are phased out and are replaced by dry process.

- *Utilisation of Alternative Fuels:* Fuels are required to generate thermal energy during the process of calcination in preheater tower and during the clinkerisation process in kiln. Most of the materials contain some energy which can be utilised by the cement industries to meet the requirement of the thermal energy.

Few materials which are used as alternative fuels in cement manufacturing are: a) Pre-treated industrial and municipal solid wastes (domestic waste); b) Discarded tyres; c) Waste oil and solvents; d) Plastics, textiles and paper residues; e) Biomass and f) Agricultural residues like rice husk, sawdust.

This also helps in better and cost effective waste management. If these wastes are not co-processed in cement kilns then it will either be incinerated or will go to landfill. Both the activities will cost extra and are not good for environment. Co-processing of these materials leaves no residues left and gets intermingled with clinker, no leftover and no landfilling is required. Before using any material as alternate fuel in cement manufacturing, it goes for stringent quality test. It must be compatible with cement manufacturing process and leave no negative effect on cement quality. Major cement players in India are using alternate fuels and reducing the production cost and this is also beneficial to ecology.

- *Clinker Substitution:* The types of cement produced in India have increased over the years with advancements in research and development and technology. Ordinary Portland Cement (OPC), Portland Pozzolana Cement (PPC) and Portland Blast Furnace Slag Cement (PBFC) are the most important and they account for around 99 per cent of the total cement production. PPC and PBFC are blended cement. Energy requirement is significantly lower in the production of blended cement because a portion of the clinker is replaced by other materials such as fly ash from power plants and blast furnace slag from steel industry. Since clinker production is the most energy-intensive step, accounting for about 80 per cent of the energy used in cement production, replacement of clinker by these materials reduces energy requirement to a large extent.
- *Waste Heat Recovery System:* State-of-the-art new suspension process kilns include multi-stage preheaters and precalciners to preprocess raw materials before they enter the kiln, and an air-quench system to cool the clinker product. Kiln exhaust streams, from the clinker cooler and the kiln preheater system, contain useful thermal energy. Typically, the clinker coolers release large amounts of heated air at 250 to 340°C (480 to 645°F) directly into the atmosphere. Waste heat from the preheater exhausts and clinker coolers can be recovered and used to provide low temperature heating needs in the plant, or used to generate power. Typically most waste heat recovery projects have been for power generation. The amount of waste heat available for recovery depends on kiln system design and production, the moisture content of the raw materials, and the amount of heat required for

drying in the raw mill system, solid fuel system and cement mill. Waste heat recovery can provide up to 30 per cent of a cement plant's overall electricity needs.

Conclusion

Cement industry produces approximately 5 per cent of current global manmade carbon dioxide emissions. The key challenges facing the industry are a necessity to reduce the CO₂ emissions and improve energy efficiency. Environmentally and economically sustainable cement of superior quality can be produced using alternative, low carbon fuels and developing innovative formulations and production techniques. The green practices in cement manufacturing help the industry in reducing its carbon and material footprints thereby adding value to the journey of sustainable development.

Further Readings

Cement Technology Roadmap 2009, Cement Sustainability Initiatives (CSI), WBCSD

Guidelines on Co-processing Waste Materials in Cement Production, Holcim Group Support Ltd and Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, 2006

Impact of Alternative Fuels on the Cement Manufacturing Plant Performance: An Overview, *Procedia Engineering* 56 (2013)

Heat Recovery from a Cement Plant with a Marnoch Heat Engine, *Applied Thermal Engineering*, 2011

Commitments on Combating Climate Change: A Compliance or Opportunity?



Dibyajyoti Sinha

Consultant, Climate Change and Sustainability Services
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Environment is a public good and the climate change externalities are essentially threatening both the public and private stakeholders at par. Even though the private stakeholders realize the possible threats, their myopic vision often inhibits contribution towards the expected consequences. The greatest problem arising is the free riding problem of such individuals who do not wish to participate in the larger forum to mitigate externalities until it directly affects their own stake. In this context, there is a need to devise robust and applicable public incentive mechanism which inculcates the intangible benefits of the environmental safeguarding as a direct cost at the industrial as well as household levels. Such perceptions have been the core point of discussion at international meets/summits which look forward to bring these concepts to applicability.

The international climate change actions consider mitigation and adaptation as the main issue. They introduce scope for dialogue on building up nations' adaptive capacity, strengthening resilience and reducing vulnerability through the north-south flow of technical and financial support in strategizing activities. In this scope, Rio Earth Summit (Earth Summit, 1992) was an important milestone in international climate negotiations. The primary goals of the Earth Summit were to come to an understanding of "development" that would support socio-economic development and prevent the continued deterioration of the environment, based on mutual needs and common interests. Further the Cancun Conference (2010) enabled countries to make the plans effective through the creation of dedicated institutions taking responsibility of the key decisions and also marked the introduction of Green Climate Fund and other funding mechanism imperative for taking international green development goals to the fore.

The erstwhile climate change initiatives were further strengthened by the 21st Session of the Conference of the Parties (COP-21) hosted and presided over by France. The 21st Conference of Parties (COP) in Paris has laid down new avenues for international diplomacy. Agreement to a bottom-up approach, with countries presenting their national commitments, in the form of Intended Nationally Determined Contribution (INDC), contributing to the overarching objectives of the global climate change plans, has been the first of its kind. The agreement sets ambitious, yet imperative targets for taking charge of global climate change impacts, mitigating temperature rise to 'well below 2^o Celsius'. Although the INDCs portray well-structured development plans, the international stakeholders also need to focus on certain institutional lacunas and devise suitable options to achieve pragmatism. The INDC obliges countries to have voluntary submissions of national commitments every five years which will represent a progress beyond their previous

commitments along with a periodic peer-reviewed assessment, on the implementation of their plans and their achievements which cumulates to the 'Global Stocktake'.

Certain specific targets adopted in the COP-21 like 'carbon neutrality beyond 2050', is difficult in countries where energy requirements are being met by traded or domestic fossil fuel repositories. Not only does this call for a planned phase-out of fossil fuel usage but also developments in infrastructure, technical improvements and behavioural shifts towards the usage of non-fossil fuel based commodities and services, indicating an opportunity for development of a low carbon economy. Behaviour turns out to be one of major barriers to this shift. Our experience in Bhutan has accosted us to believe that behavioural changes bear a heavy burden on the technical shift towards new technologies even if the alternative presents a technical and financial superiority. It has exposed us to the heavy reliance on a highly polluting and health-wise derogatory dependence on wood in the rural areas of the subcontinent for cooking and heating, amounting to nearly 36 per cent of the total energy usage from fuels in 2014. Beyond financial and technical support, the lesser developed economies and similar economic pockets in different countries would need sufficient sensitization and capacity building, not only at the grassroot level but also for the implementers, to imbibe the impact of the shifts and likewise the government can undertake the plans and enhance their contributions over time. Taking these initiatives internationally, committees formed at the international level like G-20, will identify capacity gaps and needs, foster international cooperation and identify opportunities to strengthen capacity for climate action wherever deemed necessary.

Considering the oil market fluctuations and other economic instabilities worldwide, opportunity for development of new markets and focus on energy securities will gain preponderance. Investment, from both public and private stakeholders, needs to support this 'planned phase-out' away from fossil fuel dominance towards providing an impetus to circulate stranded assets and push economic activity in the market for new and alternate forms of energy.

Development of Renewable Energy (RE) in the developing countries has been witnessed over the last few decades. However, the growth in this sector has not been as smooth as it had been in the developed countries of Europe and America for several financial and institutional drawbacks. It is here that the availability and access to risk-free funds, gain concern. International development financing institutions had already agreed to align and enhance their financing portfolios dedicated to the climate change action plans. Financing these initiatives with a benchmark figure of '\$100 billion, agreed up to 2020' in COP-21 will strengthen support to vulnerable, emerging and developing countries to deliver these necessary economic and governance reforms. Green Bonds were identified as one of the key financial instruments that can provide RE project developers with access to scalable, long-term, low-cost debt capital from institutional investors. International development forums like G-20 have established taskforce, which will look into the implications of climate policy on financial stability.

India's INDC reflects the issues of national policies and programmes on promotion of clean energy, development of less carbon intensive and resilient urban centres. These overarching programmes delves into a multidimensional approach with the use of renewable energy resources such as solar, wind, waste-to-

energy, small hydro power plants and biogas systems, diversifying the fuel mix and aid in the national quest to achieve carbon neutrality. The government aims to dramatically increase the amount of installed RE, and has set a target of 175 GW of additional RE capacity installation by 2022. The focus is currently on methods of arranging and facilitating the needed capital investment to achieve this target, which is estimated at US\$ 200 billion. Given the large population, increase in mass rapid transport and penetration of electric vehicles are expected to bring about a considerable change in the energy balance scenario in future.

However, even with the variety of project financing mechanisms for RE that are prevalent in India, there had been some fundamental challenges for RE developers in the financial marketplace due to the price competitiveness with conventional sources of power considering the net value of offtake¹. This is essentially because renewable energy had been categorized under the power sector by the banks leading to increased competition for RE projects to access capital vis-à-vis thermal power projects. Moreover, the other key inhibiting issue has been the asset-liability mismatch, which limits project financing tenure to 5-7 years except in cases of institutions such as Indian Renewable Energy Development Agency (IREDA), PTC Financial Services, etc., which have access to lines of credit from multilateral and bilateral agencies with longer tenures. Further, higher interest rates and inferior terms of debt prevailing in India had raised the cost of renewable energy by 24-32 per cent compared to similar projects financed in the developed nations.

To support the above efforts, many other national strategies and policies have been devised. Policies to promote actions that address climate concerns also include fiscal instruments like coal cess, cuts in subsidies and increase in taxes vis-à-vis removal from subsidies on utilization of fossil fuels forms of energy. It is imperative that supporting climate change developments should be backed by stricter industrial and business laws, taxes and compliances. Yet the industries have the opportunities, given the flexibility to adopt the compliances and demonstrate social responsibility and integrity. Presence of market-based mechanisms like Clean Development Mechanisms (CDM) supported through initiatives like Perform Achieve and Trade (PAT), Renewable Energy Certificates (REC) and a regulatory regime of Renewable Purchase Obligation (RPO) have critical benefits for industrial uptake of energy efficiency and renewable developments. Under these situations, it is critical to ensure that the businesses fully understand and are prepared to be flexible and to adapt to the potential impacts of climate change on the supply chain and look forward to demand side management. Further, companies have taken up voluntary measures to report not

Policies to promote actions that address climate concerns include fiscal instruments like coal cess, cuts in subsidies and increase in taxes vis-à-vis removal from subsidies on utilization of fossil fuels forms of energy. It is imperative that supporting climate change developments should be backed by stricter industrial and business laws, taxes and compliances.

¹Net transmission pricing, capacity cost for off hours, reactive compensation and balancing cost

only financial issues but also on the social and environmental aspects which govern the overall indicators of corporate performance and long-run sustainability. Sustainability reports are verified by the GRI² and it works out as a critical technique to improve brand value consequently increase attractiveness with respect to investment. Amalgamations of individual initiatives towards the larger goal can help achieve the objectives of the international climate change actions.

However, the focus for developing and less-developed nations should be towards a convergence in public and private initiatives. Convergence is needed not only among institutes and panels but among the various approaches of the different operating groups to work hand-in-hand in developing better infrastructure and research on innovative techniques to curb pollution and global warming from a micro-level. For both the public and private stakeholders, it is essential to be proactive rather than reactive to the imminent changes in the near future, realizing the implications of the INDC and integrating them into their business planning and risk management.

²The Global Reporting Initiative (known as GRI) is an international independent standards organization that helps businesses, governments and other organizations understand and communicate their impacts on issues such as climate change, human rights and corruption.

Green Practices in Business



Sapna A. Narula

Associate Professor
TERI University

IMI Konnect: *What is the significance of sustainability in business operations? How do you establish the link between business, environment and society?*

SN: Businesses are competing in the global landscape and the survival of businesses now-a-days does not only mean survival only in financial terms i.e. to earn profit but also to serve people and planet. Businesses are the prime drivers of any economy and society and unless they care about the two important resources i.e. natural environment and people, they would fail in fulfilling their responsibilities and at one point their existence would be at stake. Sustainability means assuring that there is an equitable distribution of resources; with no overexploitation, in order to pass on a better planet to our future generations. Businesses can play a significant role here as they use many of our resources to make our lives better. Sustainable business means the businesses which care for the triple bottom line i.e. people, planet and profit.

IMI Konnect: *In your view, what are the motivations for Indian firms to go green? How does it pay back to corporates going green?*

SN: Firms across the globe have realized the importance of adopting green practices and Indian firms are also frontrunners in this arena. I feel a few Indian conglomerates have been quite proactive. The first and foremost reason to embrace sustainability is that it yields more profits by cost reduction measures adopted through judicious use of resources i.e. water reuse and recycling, installation of environmental friendly technologies etc. Other reasons include gaining competitive edge in the marketplace, catching hold of new consumer segments by launching green products and services etc. Besides this, the recent trend shows that foreign investment is coming to those firms which are more sustainable and enjoy a green reputation amongst their stakeholders. The rise of green indexes across the world such as Dow-Jones, FTSE and in India such as Greenex and ESG bears testimony to this fact. Many Indian companies such as ITC, Mahindra, Wipro, Infosys, Tata, ONGC, HP, BPCL, HCL have embraced sustainability and carved a niche for themselves in their respective industries.

In fact, customers are also an important driver for firms as the demand for safer and environment-friendly products is increasing. The regulatory requirements also made it mandatory for the companies to shift towards adopting sustainability. Our research on luxury hotels in Delhi found that most of the hotels became proactive when DPCC (Delhi Pollution Control Committee) made a change in guidelines for luxury hotels in 2013.

IMI Konnect: *In a supply chain, there are various stakeholders besides the company and carbon emissions do not only happen at company's end. Could you explain the various avenues where firms can adopt green practices across the supply chain?*

SN: In order to understand the concept of a sustainable business, it is very important to revisit the entire supply chain right from the procurement to recycling. The emissions happen not only at the manufacturing firm but at the firms supplying raw materials and also during logistics, operations, manufacturing and at the customer end. While a big firm can adopt the sustainable initiatives very conveniently, it is extremely challenging for small firms in the supply chain to adopt such initiatives owing to lack of financial resources, technical expertise and lack of awareness about environment-friendly techniques and services. Here, the role of the big firm is extremely important as they have to handhold the smaller firms in terms of provision of desired resources. For example, a company may have manufactured a product through a sustainable process using lesser amount of energy but if the product has been designed in such a manner that more energy was used in distribution and logistics, the product cannot be termed as sustainable. That's why companies are now adopting sustainable supply chain management. Most of the international sustainability standards and reporting practices now follow an approach to trace the unsustainable activities across the supply chain through scope 1, scope 2 and scope 3 emissions.

IMI Konnect: *What are the current green practices followed by various sectors in the context of Indian businesses? Are these also important in service sector?*

SN: A firm has many choices for going green and it can adopt one or more of such activities across the supply chain. Some companies as mentioned earlier will only be doing a small modification in existing product whereas the others may adopt very rigorous processes related to energy, waste and air pollution management and hence are able to save costs. A few companies may have a green business model which means that they sell only environment-friendly products in an environment-friendly manner. Companies also go for having efficient logistics and operations by employing new transportation models, techniques and vehicles. Marketing and distribution activities including packaging can contribute a lot towards being sustainable. Actually, for a firm, the green opportunities range from design and development stage till the consumption and recycling stage. Yes, service sectors viz. hotels, travel and logistics industry also have a lot of scope to adopt sustainable practices as they contribute to a vast amount of emissions.

IMI Konnect: *What is the level of awareness among the stakeholders towards green practices followed by the corporates?*

SN: If we talk about customers and other stakeholders across the globe, they are very much aware and demand for sustainable products is on the rise in the US and European countries. That is the prime reason behind the rise in number of sustainability standards across the globe, viz. Rosch (Chemicals), BEE (Bureau of Energy Efficiency), MSC (Marine Stewardship Council), FSC (Forest Stewardship Council), Fairtrade (Tea/Coffee) etc. As far as India is considered, the sustainability conundrum is slowly catching up. Here again, I feel that if we all want to work towards sustainability, we have to make our masses aware about

the harmful impacts on our planet and how public can adopt sustainable practices in day-to-day life to lessen this impact. I strongly believe that business houses and media both can play a very important role in spreading the awareness. One of the best examples is that of odd-even experiment of Government of Delhi where Government has reached masses to make it successful.

IMI Konnect: *How do various supply chain partners view companies' greening process?*

SN: In my view, not all the stakeholders are fully aware of their prospective role and benefits in the sustainability process of a firm. It's the firms' responsibility to make people aware how such small initiatives can pay back as a whole to the organization. Besides this, companies also need to make their supply chain partners aware about it and persuade them to join hands in this processes. Our research shows Indian manufacturing and service companies are now engaging in awareness programmes, CSR drives, managerial training, quizzes, events and celebrations, contests etc. For example Mahindra & Mahindra conducts sustainability quiz among all its group companies and Maruti Suzuki is involved in employee training programmes; one luxury hotel in Delhi has been found to be engaging in contests involving Best Sustainability Idea, Best CSR initiative, Earth Day Celebration. There are some very good examples from IT industry involved in generating employee interest and awareness about sustainability. In fact, one IT company has gone ahead in making sustainability part of their recruitment process.

IMI Konnect: *What role may the businesses play in influencing the consumers towards sustainable consumption practices?*

SN: Many firms now-a-days are engaged with their customers through product stewardship and extended producer responsibility such as Canon, Walmart, Bayer, Pepsi, Coca-Cola, Nestle etc. The goal of these initiatives is to make consumers aware about the judicious use of their products and also how they can save the natural resources and reap benefit financially. In a way these initiatives also help the consumers to do their bit. A few corporates are organizing events in schools and colleges for many years now to spread the word "sustainability", like, the use of tetrapacks (sustainable waste management) in collaboration with EEA group of TERI. Children can be a guiding force at home and play the role of key change agents and parents seem to be also willing to take action for the sake of their kids.

IMI Konnect: *Does size of the company matter when it comes to embracing sustainability?*

SN: Yes, this is a very important question. Integrating sustainability is a challenging task as it involves convincing top management and substantial resources along with raising awareness and interest of employees and customers in these initiatives. While big companies possess the resources and technologies to adopt and implement sustainability, small companies are constrained in resources and expertise. MSMEs (micro, small and medium enterprises) in India are contributing to around 70 per cent of the pollution and they face financial and technical resource constraints. I feel Government and International funding agencies should come forward to support the initiatives of small companies. Big firms can also help. Indian automotive industry has been involved in raising the capacities of such MSMEs engaged in manufacturing their components.

IMI Konnect: *How do you see top leadership setting direction for the firm's journey towards sustainability by greening both inside and outside the organization?*

SN: It has been noticed that a more committed top management are better placed in implementing sustainability across the organization. It is also the job of the top management to integrate sustainability in the strategic plan of the organization and work upon raising awareness amongst stakeholders and commit the resources. Regarding awareness, round the year awareness programmes at all management levels would help any organization in embracing sustainability. The formation of interdisciplinary teams and groups involving both external and internal stakeholders help stimulate discussions related to sustainability problems and hence ensuring solutions for a better tomorrow.

IMI Konnect: *What are the challenges experienced by the management during the implementation of green initiatives?*

SN: Sustainability takes years for an organization to be completely integrated into business operations. The biggest challenge firms face is data measurement and what cannot be measured can never be managed! Collection of data with respect to air pollution, waste emissions and carbon emissions is a daunting task and one must design proper standards and procedures at the organization level to collect data from various departments. Another challenge is convincing the top management regarding the importance of green processes and their commitment to make financial and human resources available.

IMI Konnect: *What is your message to the managers starting their journey of implementing green initiatives at their firms?*

SN: Unless sustainability is not embedded into a company's vision, mission and strategy, it would not make any sense for its stakeholders. Organizations must set goals in the context of sustainability. In the first few years, a company may not achieve great success but it reaps benefits in the long term. Another recommendation would be to collaborate with the competitors and partners in industry and adopt a collective learning process. Training of human resources is also important and firms must engage themselves with industry associations and academic institutes. Communication regarding sustainability is also important and in the absence of effective and proper communication with all the stakeholders in the chain involving regulators, scientists, supply chain partners, customers and employees, these goals cannot be met. A collaborative approach by all these stakeholders would ensure to make this planet sustainable and this society a happier place to live in.

It is the job of the top management to integrate sustainability in the strategic plan of the organization and work upon raising awareness amongst stakeholders and commit the resources.

Achieving a Sustainable Society through Green Initiatives

Vinay Chauhan

Director, Supply Chain

Hitachi Home & Life Solutions Ltd.

IMI Konnect: *In the context of the growing awareness about sustainable business practices, what is your take on the green initiatives taken by companies in India?*

VC: Companies in India at present adopt green practices as an important strategy with respect to their obligation to act for the benefit of the society. The corporates are taking various such initiatives for environmental sustainability under the Corporate Social Responsibility agenda. There has been a growing awareness about this in recent times.

In promoting green business, India has made some definitive strides. With more awareness about the economic benefits and greater government push, the initiatives will surely bear more fruit in the days to come. But green business needs to move beyond a fad!

The “greenwash” is the most common sin being committed! Organizations across industry are taking ‘Green and Sustainability’ as market differentiator with just a single attribute or a few attributes of green which has to include product, process and end of life management, i.e., in a nutshell not taking in to consideration LCA (Life Cycle Assessment). There is a need for the transparent system for credibility of the green claims.

IMI Konnect: *Elaborate the principal green practices successfully implemented by your company?*

VC: In general, our day to day practices involve achieving technological innovation using our strengths such as manufacturing capabilities and the ability to develop wide range of products. The theme of ‘climate change and conservation of resources’ is at the very center of our Technology strategy and is converted into simple activities. There is a well-built framework to achieve sustainability, so that everybody contributes to the common goal. For this we employ a few Green Practices, based on the 4P Model:

- **Process Sustainability:** The different processes to be carried out on the raw material to make it a semi-finished product (which will be used on Assembly Line) are either inside factory (like molding) or within 13 kms of the factory. This minimizes the man and material travel and ultimately the fuel consumption for the same. Harmful chemicals are not used, and an on-site Effluent Treatment Plant makes our factory a zero emissions zone.
- **Plant:** The factory is naturally ventilated with thermally insulated roof tops. We use evaporative coolers (which take advantage of the less humidity levels at our region) to maintain the working

temperature. Also, the factory is illuminated with good amount of solar radiation and to augment that (in case of its non-availability) we have energy saving LED lights installed for the night shifts. The green refrigerants we use at plant are well controlled and we minimize the loss to the atmosphere by good safe practices.

- **Product Sustainability:** We engage ourselves in innovating and producing sustainable products such as those with higher energy efficiency like inverter air-conditioners (ACs), green refrigerants like R410A, R134a and R32, recyclable material, recycled content, parts reduction, standardization etc.
- **People:** We strive to bring down the resources required to produce the product. Also, we work towards the environment in which our people work. For example, minimal night time activity to minimize employees' fatigue levels and better health. We encourage simple actions that minimize the man and material travel and ultimately the fuel consumption for the same.

IMI Konnect: *What have been the outcomes of such practices?*

VC: With our Green Plant initiatives as elaborated above, we are saving year on year on our energy costs by over 10 per cent, even though our production is growing at over 15 per cent. The increased energy efficiency technology of Hitachi products also contributes to overall reduction of India's power consumption due to air-conditioners and CO₂ emissions of the nation.

IMI Konnect: *What small innovations have you made in your products and process in recent times in terms of green business practices and reduction of the environmental impact?*

VC: A few notable innovations in products and processes in the recent times are:

- The Annual Power Consumption of our products are improved by adopting the usage of high-efficiency DC motor compressor with optimized refrigerating cycle.
- Reduction in heat loss in the ventilation path and increasing the heat exchange efficiency of heat exchangers; special design or automatic maintenance of the different parts of an air-conditioner which ultimately minimizes the losses in airflow and increases the efficiency of the heat exchange.
- Improved power saving features by adding sensors in the AC (Follow Me feature) to track human activities and directing and controlling the cooling to that area.
- Individual operation control of multiple indoor AC units with optimized settings with single outdoor unit preset timers and max set temperatures to reduce power consumption.
- Free-cooling (cooling without involving refrigeration cycle and using low ambient air during nights and winter) concepts in Spacemaker (Telecom AC).
- Adapting 100 per cent green refrigerants in many range of products like Chiller (R134a), Ductables (R410A), Setfree/Telecom AC (R410A), Inverter AC (R410A).

IMI Konnect: *What are the concerns and challenges involved in green initiatives or making such products available in India?*

VC: As Mr. Jamshyd Godrej says, "There are no major challenges for companies that want to go green. It is a mindset issue." Today, in India, majority of electronic components are imported and manufacturing electronics products in India results in adding up of high carbon footprint. Hence continuous innovation is required to minimize the carbon footprint. Green products are generally costlier due to the incorporation of high-end technology. Acceptability of green products in market is therefore a challenge as higher costs are involved and there is low awareness of people about green products. Consumers are not ready to pay extra for green products!

IMI Konnect: *Have you experienced any impact due to such innovations with respect to the improved participation of all involved in the value chain?*

VC: Yes, to be associated with green products makes the value chain participants proud and this has an advantage in terms of pushing better products in the market. This also involves better participation. Our green products help us to qualify, as brand, in regulatory norms like IGBC (Indian Green Building Council), BEE (Bureau of Energy Efficiency), Carbon Credits etc. This helps us to set better targets for our value chain at par with the international standards.

IMI Konnect: *What other green strategies Hitachi would like to adopt in future?*

VC: Hitachi is the technology leader in Energy Efficient Products and designing Green Solutions. We are working on the ideas like Micro-cooling, which involves making products concentrate on air-conditioning of those parts of any equipment/system which actually require cooling and not the total enclosure or room.

IMI Konnect: *How do you perceive the future of green marketing in your industrial sector?*

VC: As observed, we have complied with the Industry norms and regulations in terms of the Quality and Safety standards (which was the primary requirement) and are now converging towards the green and sustainable Product Standards. Thus, marketing products eligible for green certifications (like 5 Star rated products or products that help buildings qualify for higher green ratings) place them at a better level. Customers, day-by-day are becoming aware about the benefits of going green. Most of the MNCs and IT companies in India have made Green Products as a minimum specification in their Purchase Standards.

IMI Konnect: *Do you think green marketing has the potential of providing you sustainable competitive advantage?*

VC: Of course, applying green processes to the workplace creates a healthy environment for employees, reduces unnecessary waste and recognizes the role that businesses play in leading the way for social change. For any business thinking about going green, a variety of reasons exist to take the plunge. The term Green is meant to define the concept of renewable, sustainable and eco-friendly processes and products along with energy efficient products. Today, Hitachi tops the list of most energy efficient products, thus enjoying a higher market share.



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