Rs. 100

sustainabilitynext
conserve • profit

Volume 1 • Issue 3 • May 2013

sustainabilitynext.in

Indian Telecom is Going Green

The Indian telecom sector is a miracle and a dream come true especially for the poor. But miracles don't come cheap. For example, the environment cost of telecom towers is huge, not taking into account the handsets/batteries, and will rise further with migration to 4G. The good news is that significant work is already under way to smartly mix various energy systems to reduce this cost, both financial and ecological.

According to a white paper by Intelligent-Energy (www.intelligent-energy.com), a global power technology company 'specializing in the development of modular, low carbon fuel cell systems,' the growing cost of energy due to increasing diesel prices and concerns over rising greenhouse emissions have caused tower infrastructure companies to focus on better power management methods. Excerpts from the white paper

India has approximately 4,25,000 telecom towers which form the backbone of its telecom market. These towers require about 16.5 billion kWh of electrical energy and contribute up to 70% to the total operating costs in rural areas and anywhere between 15-30% to the total operating costs in urban areas.

Due to an unreliable electrical power grid, tower infrastructure companies use diesel generators, batteries and a variety of power management equipment to back-up the grid and ensure network availability. The growing cost of energy due to increasing diesel prices and concerns over rising greenhouse emissions

Inside

have caused tower infrastructure companies to focus on better power management methods. Various methods in the categories of demand management, supply management and/or renewable energies are being adopted.

The current trial deployments of renewable energy technology (RET) solutions like solar photovoltaic, wind power, biomass and fuel cells across India are proving that each RET has its own challenges and that no single RET provides a silver bullet solution.

Telecom infrastructure companies are turning to 'green' power management solutions which can be broadly classified into three categories:

Demand management (reducing consumption)
Activities like passive infrastructure sharing, replacement of old base transceiver stations (BTS) with new generation BTS, usage of outdoor BTS, optimized cooling at shelter, usage of intelligent transceivers (TRXs), reduction of air conditioner load by using cold ambient air for shelter cooling and operating air conditioners using stored energy in the batteries to reduce diesel consumption and carbon emission are some of the initiatives that have been implemented so far.

In the last four years with the evolution of technology, the typical power consumption of BTS has dropped by about 60%.

As per Bharti Infratel, introduction of Free Cooling Units (FCU) used in place of air conditioners will contribute to reduction of 4.1 million liters of diesel usage annually after deployment across 6,318 of its 34,220 tower sites.

Supply management (increasing efficiency of the power source)
Technologies like 'Integrated Power Management Systems (IPMS)', variable speed DC diesel generators (DC-DG) and fuel catalysts are a few of the solutions that have been implemented to increase power source efficiency.

As per Bharti Infratel's project, fuel consumption for similar load applications in case of DC-DGs is approximately 30% lesser than AC DGs. By adopting DC-DGs at 2,000 sites, the consumption of diesel was reduced by 10.18 million liters annually.

The telecom industry's emphasis on moving away from diesel generators and towards efficient energy management is reflected through the Tower and Infrastructure Providers Association's (TAIPA) invitation for 'Power Purchase Agreement' (PPA) through a request for proposal (RFP).

Renewable energy adoption
Technologies like solar photovoltaic, wind power, fuel cell and other renewable or clean energy sources have been deployed in about 4,021 telecom sites in India. Approximately 1,000 Indus Towers sites use solar photovoltaic to augment the grid and diesel generated power.

The Energy and Resources Institute, a research based institute in Delhi and commonly known as TERI, is focusing its activities in the fields of energy, environment and sustainable development. TERI has been engaged by the Cellular Operators Association of India (COAI) since 2010 to lead efforts in creating a sustainability roadmap for tower companies.

TERI will evaluate estimates and guidelines on implementation laid down by the Department of Telecommunications (DoT) to identify issues related to execution and will also provide guidance on technology adoption and rules of execution.

The table below showcases a snapshot of the possible diesel savings and corresponding reduction in CO2 emissions at a telecom tower site using some of the solutions that are currently under trial by the tower infrastructure companies.

Birth of Renewable Energy Service Companies (RESCOs)

The telecom industry's need to achieve economical and scalable solutions for energy management has resulted in the formation of an additional entity in the value chain, called the RESCOs. The RESCOs are expected to design, deploy and manage optimal renewable energy solutions that will help the telecom industry to overcome the energy management challenge.

In the RESCO landscape there are several companies who are working closely with the telecom operators, tower infrastructure companies and tower service providers to jointly develop the best possible solutions that can be deployed economically on a large scale. Single RET companies are either becoming vendors to RESCOs or are transitioning to become RESCOs themselves.

The telecom industry's emphasis on moving away from diesel generators and towards efficient energy management is reflected through the Tower and Infrastructure Providers Association's (TAIPA) invitation for 'Power Purchase Agreement' (PPA) through a request for proposal (RFP).

The Green Power for Mobile (GPM), a Groupe Speciale Mobile Association (GSMA) Development Fund's program, includes several initiatives such as awareness creation

TERI has been engaged by the Cellular Operators Association of India (COAI) since 2010 to lead efforts in creating a sustainability roadmap for tower companies.

about the renewable technologies for telecom applications, CAPEX and OPEX analysis, vendor mapping and renewable energy market size. Below are a few snapshots of current developments:

- Through the RFP process TAIPA is deploying 500 green pilot sites using Bio-CNG (compressed natural gas). After completion of implementing the first 500 sites, TAIPA intends a large scale deployment
- Bharti Airtel is deploying around 250 sites using biomass gasification, additionally, an RFP for deploying 3000 solar photovoltaic sites is also being evaluated
- Indus Towers' green city project is in progress to reduce dependency on diesel generators and air conditioners
- Idea Cellular's initiative for green energy aimed to deploy 1,000 sites by the end of 2012. 200 sites were planned for solar hybrid installation where diesel generators would run less than 5 hours a day as compared to earlier 15 to 16 hours, thus reducing fuel consumption. Idea Cellular worked with GSMA to develop biofuel solutions for back-up power and have also placed a purchase order for thirty fuel cells
- Vodafone is deploying 150 hybrid solar photovoltaic sites, in addition to the 390 sites that are currently deployed

As a new era of RET solutions for telecom arises, it is essential to take a closer look at renewable energy technologies.

Understanding Renewable Energy Technologies

RET solutions like solar photovoltaic, wind power, biomass and fuel cells are the technologies of choice for alternative solutions at telecom towers today. Hybrid solutions that combine diesel generators with RETs and batteries are being customized. Fuel cells are being installed as a standalone solution replacing the existing diesel generator.

In a limited number of cases where electrical grid availability is close to 20 hours a day or more, the diesel generator at the tower site has been replaced completely by enhancing the existing battery capacity leading to improvement in economics and reduction of carbon emissions on site. Batteries are and will continue to be a key part of any backup power solution but a detailed discussion on batteries has been excluded in this discussion.

Customization of the RET solution for a particular site requires a thorough understanding of each technology and its relevant economics.

http://www.intelligent-energy.com/

www.mantri.in

mantri

ONE COMPANY. ONE MISSION. ONE AWARD THAT SUMS IT ALL UP!

Mr. Sushil Mantri receives the award on January 14th, 2013 at New Delhi from the Honourable President of India - Mr. Pranab Mukherjee.

MANTRI DEVELOPERS has been bestowed upon with the prestigious CII Sustainability Award for "STRONG COMMITMENT TO EXCEL" on the journey towards Sustainable Development.

AWARD CRITERIA: SOCIAL, ECONOMIC & ENVIRONMENT

We are a company that has made a positive impact on the livelihood of people.

We are a company that acts towards the betterment of our environment.

We are a company that empowers today's youth through excellence in education.

We are a company that has redefined the way we look at living spaces.

We are a company that is today, one of the leading real estate developers in the country.

WE WOULD LIKE TO THANK AND CONGRATULATE EACH AND EVERYONE WHO HAS HELPED US ACHIEVE THIS PRESTIGIOUS AWARD.

Mantri Developers

Bangalore | Chennai | Hyderabad | Pune

First developer in India to be certified on "World Class Management Systems

ISO 9001:2008, ISO 14001:2004, OHSAS 18001:2007 & SA 8000:2008"

CREDAI

Wear kurtha pyjama to office

Indians may have a lot to crib about their politicians but they deserve credit for doing at least one thing right – they dress appropriate to Indian weather conditions. In contrast, Indian business executives still seem to suffer from colonial hang over. Even in sweltering heat, they wear black suits and jackets to the office and to conferences. The middle and junior executives are forced to wear tie, belt and tight shoes and socks. Imagine the air quality in the office in summer!

Now that the Indian businesses are a self-confident lot and are taken seriously globally, can they now have the confidence to say 'we wear what suits us' and say goodbye to western dress code? Isn't India's formal dress smart enough? It sure is. For Indian sartorial makeover to happen at good speed, a few star Indian business leaders should volunteer.

Now there's another compelling reason to switch to Indian dress code to office – they would need at least 3 degree less air conditioning, which is a 12 to 14 percent average saving of energy – enough to light a thousand villages and significantly cut greenhouse effect.

There's an HR angle to it as well. Fortunately, more than 99 percent of Indian women executives wear Indian dress to office. Now, because of the gender disparity in dress code, the air conditioning is kept right for male executives while their female colleagues are left to shiver, especially in winter. Switching to Indian dress code for all could ensure gender equality at least in the way offices are air conditioned.

It's high time Indians start dropping the consumption intense western habits like owning an SUV if we are to avoid going the western way. Shedding western clothing is symbolic as well as an energy-friendly beginning. It's almost like how Gandhiji burnt western clothes as a symbol of his protest during the freedom struggle.

Benedict Paramanand
benedict@sustainabilitynext.in

CII launches Rating System for Buildings

Indian Green Building Council (IGBC), part of Confederation of Indian Industry (CII), launched a first-of-its-kind rating system to address sustainability aspects in existing buildings in April 2013.

Building owners and facility managers will have to adhere to stringent green building standards, measure their impacts and sustain the performance in the long run. Green existing buildings have the potential to bring about operational savings in energy and water consumption to a tune of 15-30%.

CII said the rating has begun to receive good response from stakeholders with projects amounting to 3.6 million sq.ft expressing their interest to participate in the pilot rating program.

CREDAI, the builders' body spokesperson said is committed to the Green building initiatives. Many of the their members are closely working with IGBC in constructing Green buildings. With increasing urbanization, the requirement for affordable housing has become the need of hour. Their demand was that concerned ministry should provide a single window NOCs to reduce the project cost for the builders.

India has added a population of about 20 crore within a decade i.e., 2 crore per annum. The population in 2001 was 101 crore which increased to 121 crore by 2011. There were 5,000 cities in 2001 and the number grew to 7,300 cities by 2011. India needs integrated, self-sustainable large townships. As on date, more than 30 pilot townships across India are going green with IGBC's Green Township Rating program.

Builders are realizing that Green buildings make business sense. Creating the energy and water resources within the buildings improve the profitability for the sellers and buyers of the homes alike.

Please send your news to editor@sustainabilitynext.in

Mahindra Group adds 1.75 million trees

The $15.9 billion Mahindra Group, one of India's leading business houses, has announced planting of 17,46,418 trees during financial year 2012-2013 adding significantly to India's green cover, surpassing its target of one million trees. Launched in 2007 Mahindra Hariyali aims to plant a million trees every year across the country.

Mahindra Hariyali is a testament to the spirit of our commitment to the triple bottom line, which is an integral part of the culture at Mahindra" said Rajeev Dubey, Chairman – CSR Council and President (Group HR, After-Market and Corporate Services) & Member of the Group Executive Board, Mahindra & Mahindra Ltd.

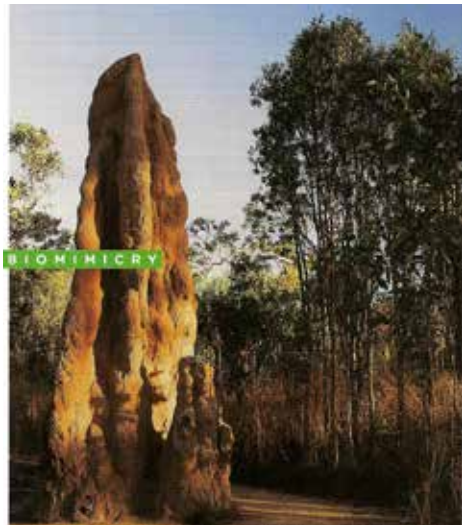
In order to address the problem of limited space to plant saplings, plantation drives also took place in schools, colleges and other community venues apart from wastelands. The company also monitors survival rates and undertakes replacement of saplings as and when required.

Mahindra has partnered with the Naandi Foundation and Danone to plant 6 million trees in the Araku region of Andhra Pradesh. In partnership with the Adivasi community, the project helps them create their own fruit and forest trees that will sustain a healthy carbon rich ecosystem. This horticulture project will affect the lives of over 60,000 people in 300 villages. Six million trees (three million fruit and spice trees and three million coffee saplings) will be planted across a terrain of 6,000 hectares by 2015. This extra green cover, in addition to providing livelihood and nutritional security, will also enhance the wildlife habitat value and biodiversity of the region. The Araku project not only aims to provide sustainable growth, but is also a way of addressing health and nutrition related issues, as the villagers did not have access to their traditional forests.

Through this initiative, team members and volunteers have got an opportunity to make a huge impact on the environment, as well as society.

Nature Inspired Products

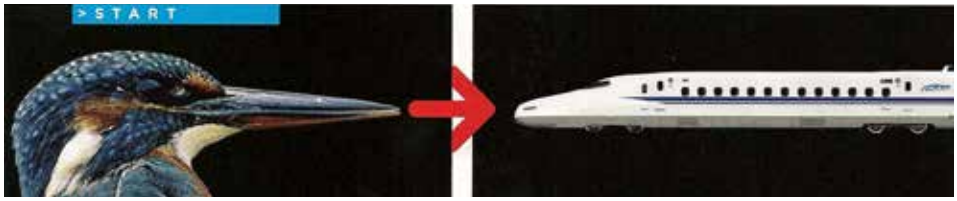
As science is doing a lot to take on the sustainability challenges head on, there's now a trend to take a sharp look at Nature's practices to reshape how we live and work. Scientists and engineers at Sharklet (www.sharklet.com) are pushing the boundary and have come up with three remarkable products:



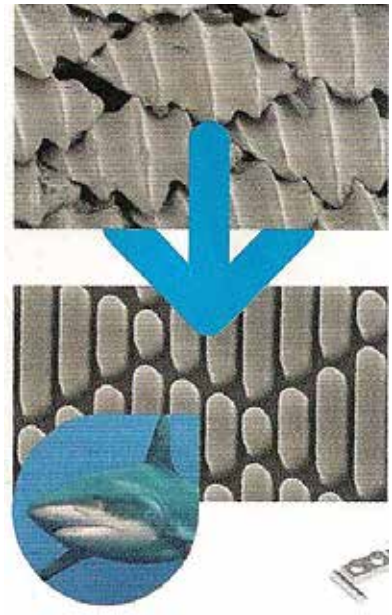
A shopping centre that draws on termite mounds

The Eastgate Centre, a shopping and office complex in Harare, Zimbabwe, doesn't have an air-conditioning system. Instead it is one – the building is modeled on self-cooling termite mounds which can maintain a constant 31 C, while the outside temperature varies from 4 C at night to 40 C at night to 40 C during the day. Like termite mounds, the building is aligned north to south, which means that one side is always in shadow. Cool air is drawn from this side in to the base of the building as warm air is expelled through chimneys on top. Architect Mick Pearce had the idea after watching David Attenborough climb inside a termite mound in a BBC wildlife programe.

A Japanese bullet train with a kingfisher's nose.



Making a Shinkansen train run faster wasn't a great challenge; making it run more quietly was. The "claps" created by the train entering tunnels (caused by a sudden change in air resistance) were so loud that residents 400 meters away would complain. Engineer Eiji Nakatsu noticed that kingfishers were able to dive smoothly from air (a low-resistance medium) into water (a high-resistance medium), and wondered if this was due to the bird's streamlined beak. Computer simulations proved him right. "Data analysis showed that the ideal nose shape is almost identical to the kingfisher's beak," he says. The new shape has also cut the train's energy use by 15 per cent, and increased its speed by ten per cent.



A hygienic surface thanks to shark skin

Dr. Anthony Brennan, a founder of Sharklet Technologies, was interested in why Galapagos sharks have clean skin, despite moving slowly, unlike whales and tortoises, whose exteriors become fouled. Working with the US Navy, he took impressions of the sharks' skin and discovered that its physical properties made it difficult for microbes to colonise. By mimicking this pattern, Brennan has created a synthetic film for hygienic surfaces (such as in hospitals) which cuts the incidence of microorganisms such as bacteria and so reduces the chance of infection. Moreover, because the design is purely physical, there's no need for harmful chemical treatments.

Source: http://www.sharklet.com/wp-content/themes/sharklet/pdfs/archive/Wired0001.pdf

Employee Scorecard to Include Sustainability Performance

Infosys has been a pioneer in institutionalizing best practices. It is on its way to adopting Next practices in Sustainability as well.
Rohan Parikh, *Head of Green Initiatives and Infrastructure, shares his challenges with* **SustainabilityNext**

What does your role as a sustainability head entail?

As head of environmental sustainability at Infosys, my aspiration is to redefine corporate environmental sustainability benchmarks. At Infosys we have taken goals to become carbon neutral, water positive and to ensure that we don't send any unprocessed waste to landfills by 2017. Additionally we are focusing on

preserving and promoting biodiversity on our campuses and engaging employees in all of the above goals.

How would you articulate Infosys' leadership in sustainability movement in India?

Infosys has always been an environmentally conscious company. In 2007, we stepped up our environmental sustainability efforts to reduce the ecological footprint of our operations. In the last five years we have been able to reduce our per capita electricity consumption by 40% and 20% of our electricity is obtained from renewable sources. Infosys has 5 LEED Platinum certified buildings and two GRIHA Five Star rated buildings, across 2 million sq. ft. The energy intensity of our new buildings is 80 KWh/sq meter per annum, which is among the lowest in an IT office building in the country.

Infosys has adopted a number of innovative building technologies, and published the case studies and results, so others can adopt the successful ideas. And all along, we have stayed true to our original goal of creating innovations that are financially viable and can be replicated in the outside world.

We have reduced our per capita fresh water consumption by over 34% in the last five years, through focused efforts on rain water harvesting, water conservation and recycling. We currently sequester more fresh water into the ground through rain water harvesting strategies, than we consume.

How important is sustainability to an IT company with thousands of employees

The IT industry is leading the sustainability efforts in the country. In 2008, Infosys was the first IT Company in India to publish its sustainability report. We believe that no corporate action can be successful without the whole hearted participation of its employees. We have created eco clubs across all our development centers to harness the passion of the environmentally conscious employees. Our efforts seem to be paying off, as Infosys is recognized as a sustainability champion and that helps us in retaining and attracting talent. Sustainability performance is now part of our business unit score card and very soon it is going to be part of the employee scorecard.

Sustainability performance is now part of our business unit score card and very soon it is going to be part of the employee score card

How does Infosys ensure every employee practices sustainability?

Infosys advocates positive sustainability actions with employees to inculcate good citizenship behavior. Employee-engagement, educational sessions and awareness programs are conducted across all our campuses through training sessions and eco-clubs, to sensitize employees on environment issues and sustainable practices. We sponsor and support employee volunteer groups to set up eco-clubs across our campuses.

The eco groups have taken up projects to address the conservation of electricity and water, recycling of waste, reducing carbon emissions, and aforestation measures. They also partner with local communities on actions for a cleaner, greener planet.

What according to you are the top issues India needs to address so that it balances the aspirations of its people at the same time does not adversely impact the eco-system? What action plan would you suggest?

One fourth of Indians don't have access to electricity and clean drinking water and yet India's energy consumption per unit of GDP measured at purchasing power parity is higher than the US and Europe. India does not have energy security and is a net importer of coal and oil.

As our economy grows, we need to focus on becoming energy independent, by promoting the use of distributed renewable energy sources, instead of subsidizing fossil fuels. Our focus should be on building an efficient country with optimal use of resources. Our codes and laws should incentivize efficiency and penalize wastage of resources. We need to focus on closed looped new technologies which will reduce our per capita resource consumption by a factor of 10.

The New Purpose of Business is Co-creating Sustainable Value

by **Anant G. Nadkarni,** VP, Group Corporate Sustainability, Tata Council for Community Initiatives (TCCI)

When I was a little boy I remember my grandfather bringing gifts for us at the end of each month. Typically they would be some toy I had noticed, stationery for my sister, perhaps a book for my father and something for my mother. As his retirement approached, my mother once asked him as to why he did all this over and over again. My grandfather's reply was stunningly profound, "Because, the pleasure of earning lies in its distribution." In the years that passed, my father has narrated this to many relatives on different occasions and I do it whenever I get an opportunity, like this one.

Purpose is personal and begins with oneself

At an individual level, everyone has some kind of an aim or goal in life. It could start with being a policeman, a pilot and it can go on through other ideologies and aspirations until one is gripped with the responsibilities of earning and other realities of life. From fulfilling 'needs' one can be gradually driven to make more and more money, find ways to justify high-end life styles and so on. However, that sense of satisfaction in doing something for others could get lost somewhere on the way and may not be a part of the constantly renewing baskets of aims or goals. This is the sensitive point for creating meaning and purpose. In this space, an individual also sows the seeds for creating sustainable value at professional and corporate levels.

Recent work on Leadership lays immense importance on the ability of chief executives and those in authority to be able to get the essence of the problems in the broader contexts of the situation. Ratan Tata, former chairman of the Tata group, saw an entire family perched on a scooter snaking dangerously through the traffic in Mumbai on a rainy day!

This story is now famous on how it led to developing the Nano which is perhaps the world's most affordable car. The important thing here is not the technological marvel that the Nano also is, it is not sheer empathy surrounding an observation (we all see such images every day); but in this case,it is an ability to see a higher 'purpose' of providing safety and comfort to a family in the low-income group, making personal purpose work for others!

I conducted a session on sustainable value with a group of about thirty high-caliber management recruits. They were asked to spend some serious time to write out personal aims and goals; the money they want to make, the positions they would hold, and the way they would shape their careers. And they did this with remarkable sincerity and obedience! Some of them passionately shared their wish-lists. In the end I asked them to imagine what if these wishes are instantly granted!

Then, we did the other part of this exercise. Assumed that all that was just given now is only the means, and they had to put down what meaning and purpose they would further put to life's remaining years. Apart from other great stuff a significant number expressed on why life in general and earning in specific should have a 'higher purpose'. This would bring to them a sense of worth and enduring pleasure to everything!

Personal search for higher meaning impacts corporate values

The session went so well that I wondered whether there is anything more to tell them about other things like how to create 'purpose for profit'? Would there be any difficulty of getting a buy-in if some of them – as future CEOs – had to take a presentation on 'Sustainable Value'? Frankly, I don't know. But I can say for sure that a search had begun in every one of them and they reflected a bit more on how much to run after the means (incomes or profits) and to recognize the vast opportunity to focus on bettering the reason, more than external pressures,that drove their careers.

The latest and most outstanding work on sustainability reporting happening under the International Integrated Reporting Council (IIRC) is precisely about restoring the 'pleasure of earning which lies in its fair distribution'.

For a process on how companies can co-create value please click: http://www.sustainabilitynext.in/inputs/Toolkit%20-%20Value%20Co-creation.pdf

Tata Chemicals' Recipe for Creating Sustainable Value

Business innovation that has significant social impact and is profitable at the same time is a dream blend very few companies are able to achieve. There are some exceptional companies that even do it repeatedly as if it is a habit. Tata Chemicals is one of them.

The list is long. It began with iodized salt to address iodine deficiency. It recently introduced fortified iron in Tata Salt to reduce anaemia. Tata Chemicals also invented a nano-technology-driven water purifier, an affordable and EPA-certified safe drinking water. The once dry, barren, and poverty stricken Mithapur village in Gujarat where the company started its operations, is now a vibrant ecosystem with the company's strategic business interventions.

Dr. Aarti Sharma *caught up with* **Dr. Arup Basu,** *president of Tata Chemicals' new businesses and innovation centre, to further understand how the company's innovation culture has been built around social issues. Dr. Basu said Tata Chemicals' sustainability consciousness towards communities has led to its dynamic innovation culture.*

Today, Tata Chemicals is the world's second largest producer of soda ash with manufacturing facilities in Asia, Europe, North America and Africa, with a turnover of Rs 13,800 crores.

Dr. Arup Basu
President of Tata Chemicals' new business and innovation centre

Please tell us about the Tata Chemicals' Innovation Centre

The Innovation Centre was set up during the 2005-2006 period acknowledging that the future would require us to focus on sustainability, and use resources in a calibrated manner. We have to address resource scarcity as more and more people move up the prosperity curve. So, we set up the innovation centre based on themes of sustainability and green chemistry. We recognized business potential in two domains -first on the natural resources side, it was nanotechnology that lies at the intersection of physics and chemistry. The second, biotechnology, is at the intersection of chemistry and biology.

How is nanotechnology adding value to your sustainability theme?

We view nanotechnology as a platform to magnify and sometimes even modify product attributes. We want to use it to improve product attributes such that one can do more with less. For example, how can we use smaller sized Titanium Dioxide or Zinc Oxide particles in industrial formulations such that the material requirement is far lower and yet the corresponding properties are far superior? This doing more with less stems from the reality that natural resources are scarce, not abundant.

Are concerns around resource constraints driving your sustainable business innovation model?

Well, our choices are driven by this view. When you look at Mithapur, we have created a chemical complex which does not create stress on fresh water which is scarce there. We don't use ground water. We want our community to use fresh water to meet their needs rather than for our industrial use. We have introduced rainwater harvesting in the community.

And to meet our business needs, we take sea water, reuse and recycle it, and reduce its usage. That way, we earn the right to co-exist.

When did sustainability consciousness arise within Tata Chemicals?

It existed since inception. We intuitively understand sustainability. We have a cement plant whose raw material is a solid waste of our soda ash process. We are not a cement company, but we run the cement plant. We take a holistic, life cycle view of operations and products, and work towards zero waste. Our first instinct is to evaluate potential of any by-product as a raw material for another product.

We don't chase reputation. We chase what we believe is the right and proper thing to do. If we have a good reputation, that's a happy by-product.

But why invest corporate resources on a waste? Why diversify in an area which is not the core focus of your business?

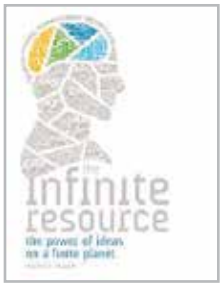
Many people looked at our strategy and said you should not be in cement when you are a chemical company. After all, we are known as Tata Chemicals! It's perfectly fair thinking from a blinkered strategy perspective. However, on adopting a sustainability lens, a different view emerges. For us, the cement plant is a vehicle to run a cleaner ship and so it matters.

Is Tata Chemicals investing in such practices to attain higher reputation?

We don't chase reputation. We chase what we believe is the right and proper thing to do. If we have a good reputation, that's a happy by-product. For us, it is about value. What do we stand for? When a consumer is buying something from us, it's important that the consumer knows what we stand for. So, if you will take our salt, you will have no issue with our Iodine content. Our product value proposition is linked to our company value proposition and what we stand for. This relationship has to endure for any business to be sustainable.

We want our community to use fresh water to meet their needs rather than for our industrial use. We have introduced rainwater harvesting in the community.

Dr. Aarti Sharma *is an international corporate sustainability and sustainable development strategist. She is the founder of Sustainable Value Alliance*
sustainablevaluealliance.org
aarti@sustainablevaluealliance.org



The Infinite Resource: The Power of Ideas on a Finite Planet

by **Ramez Naam** | UPNE , 2013

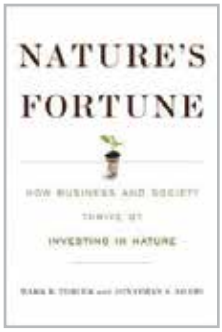
This book contains a plan - probably the only plan - to save the world." - Steven Pinker

Climate change. Finite fossil fuels. Fresh water depletion. Rising commodity prices. Ocean acidification. Overpopulation. Deforestation. Feeding the world's billions.

We're beset by an array of natural resource and environmental challenges. They pose a tremendous risk to human prosperity, to world peace, and to the planet itself.

Yet, if we act, these problems are addressable. Throughout history we've overcome similar problems, but only when we've focused our energies on innovation. For the most valuable resource we have isn't oil, water, gold, or land - it's our stockpile of useful ideas, and our continually growing capacity to expand them.

In this remarkable book, Ramez Naam charts a course to supercharge innovation - by changing the rules of our economy - that can lead the whole world to greater wealth and human well-being, even as we dodge looming resource crunches and environmental disasters and reduce our impact on the planet.



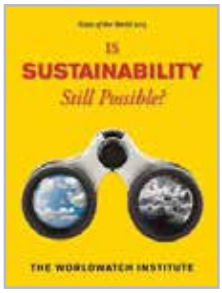
Nature's Fortune: How Business and Society Thrive by Investing in Nature

by **Mark R. Tercek, Jonathan S. Adams** | Basic Books, 2013

In Nature's Fortune, Mark Tercek, CEO of The Nature Conservancy and former investment banker, and science writer Jonathan Adams argue that nature is not only the foundation of human well-being, but also the smartest commercial investment any business or government can make. The forests, floodplains, and oyster reefs often seen simply as raw materials or as obstacles to be cleared in the name of progress are, in fact as important to our future prosperity as technology or law or business innovation.

With stories from the South Pacific to the California coast, from the Andes to the Gulf of Mexico and even to New York City, Nature's Fortune shows how viewing nature as green infrastructure allows for breakthroughs not only in conservation—protecting water supplies; enhancing the health of fisheries; making cities more sustainable, livable and safe; and dealing with unavoidable climate change—but in economic progress, as well. Organizations obviously depend on the environment for key resources—water, trees, and land. But they can also reap substantial commercial benefits in the form of risk mitigation, cost reduction, new investment opportunities, and the protection of assets. Once leaders learn how to account for nature in financial terms, they can incorporate that value into the organization's decisions and activities, just as habitually as they consider cost, revenue, and ROI.

A must-read for business leaders, CEOs, investors, and environmentalists alike, Nature's Fortune offers an essential guide to the world's economic—and environmental—well-being.

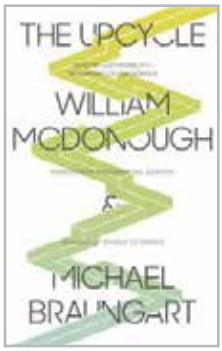


State of the World 2013: Is Sustainability Still Possible?

The Worldwatch Institute | Island Press, 2013

Every day, we are presented with a range of "sustainable" products and activities—from "green" cleaning supplies to carbon offsets—but with so much labeled as "sustainable," the term has become essentially sustainababble, at best indicating a practice or product slightly less damaging than the conventional alternative. Is it time to abandon the concept altogether, or can we find an accurate way to measure sustainability? If so, how can we achieve it? And if not, how can we best prepare for the coming ecological decline?

In State of the World 2013: Is Sustainability Still Possible? Experts define clear sustainability metrics and examine various policies and perspectives, including geoengineering, corporate transformation, and changes in agricultural policy, that could put us on the path to prosperity without diminishing the well-being of future generations. If these approaches fall short, the final chapters explore ways to prepare for drastic environmental change and resource depletion, such as strengthening democracy and societal resilience, protecting cultural heritage, and dealing with increased conflict and migration flows.



The Upcycle: Beyond Sustainability-Designing for Abundance

by **William McDonough, Michael Braungart, President Bill Clinton (Foreword)**
North Point Press, 2013

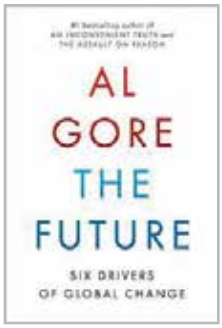
The Upcycle is the eagerly awaited follow-up to Cradle to Cradle, one of the most consequential ecological manifestoes of our time. Now, drawing on the lessons gained from 10 years of putting the Cradle to Cradle concept into practice with businesses, governments, and ordinary people, William McDonough and Michael Braungart envision the next step in the solution to our ecological crisis: We don't just use or reuse resources with greater effectiveness, we actually improve the world as we live, create, and build.

For McDonough and Braungart, the questions of resource scarcity and sustainability are questions of design. They are practical-minded visionaries: They envision beneficial designs of products, buildings, and business practices—and they show us these ideas being put to use around the world as everyday objects like chairs, cars, and factories are being re-imagined not just to sustain life on the planet but to grow it. It is an eye-opening, inspiring tour of our future as it unfolds in front of us.

Alternative Energy in the Middle East (Energy, Climate and the Environment)

by **Gawdat Bahgat** | Palgrave Macmillan, 2013

The Middle East region holds the world's largest oil and natural gas proven reserves. Several Middle Eastern States are major oil producers and consumers. Given price fluctuations and environmental concerns many countries have sought to diversify their energy mix. The Middle East is no exception. Gawdat Bahgat analyzes the geopolitical, economic and strategic forces behind this diversification in the Middle East. He highlights the main advantages and disadvantages of each source of energy.



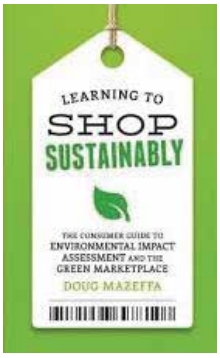
The Future: Six Drivers of Global Change

by **Al Gore** | Random House, 2013

From the former vice president and #1 New York Times bestselling author comes An Inconvenient Truth for everything—a frank and clear-eyed assessment of six critical drivers of global change in the decades to come.

Ours is a time of revolutionary change that has no precedent in history. With the same passion he brought to the challenge of climate change, and with his decades of experience on the front lines of global policy, Al Gore surveys our planet's beclouded horizon and offers a sober, learned, and ultimately hopeful forecast in the visionary tradition of Alvin Toffler's Future Shock and John Naisbitt's Megatrends. In The Future, Gore identifies the emerging forces that are reshaping our world.

From his earliest days in public life, Al Gore has been warning us of the promise and peril of emergent truths—no matter how "inconvenient" they may seem to be. As absorbing as it is visionary, The Future is a map of the world to come, from a man who has looked ahead before and been proven all too right.



Learning to Shop Sustainably: The Consumer Guide to Environmental Impact Assessment and the Green Marketplace

by **Doug Mazeffa**

This guide, written by one of the leading experts in life cycle analysis and environmental impact assessment, is designed to teach readers useful approaches, thought processes, and tips to help determine the environmental impact of a product or service. Topics covered in the book include life cycle assessment, tradeoffs, eco-labels, certifications, carbon offsets, renewable energy certificates, and the current status of the green marketplace.

This text is written for any level of green education and its goal is to provide a solid foundation so that you can be more confident when looking for green products and services in the marketplace.

World Congress on Business, Finance, Marketing and Industrial Management for Sustainable Development (BFMIMSD - 2013) 25 to 26th May 2013 New Delhi, Delhi, India http://globalconferences.bravesites.com/	**IEEE International Conference on Microelectronics, Communications and Renewable Energy (AICERA 2013- ICMiCR)** 4 to 6th June 2013 Kanjirapally, Kerala, India http://ajce.in/aicera2013/	**International Conference on Green Technology** 26 to 27th July 2013 Thanjavur, Tamilnadu, India http://www.sastra.edu/icget13/
Eco-Productive Cities 5 to 7th September 2013 Auroville, Tamil Nadu, India http://www.agpworkshops.com	**International Conference on Green Computing and Technology ICGCT 2013** 5 to 6th September 2013 Navi Mumbai, Maharashtra, India http://www.icgct-siesgst.org	**3rd International Conference on Biotechnolgy and Environment Management** 14 to 15th September 2013 New Delhi, India http://www.icbem.org/
International Conference and Exhibition on Solar Energy & Power Generation Technologies 26 to 28th September 2013 Hyderabad, India, India http://www.omicsgroup.com/conferences/solar-power-generation-technologies-2013/index.php	**Earth Sciences in India: Challenges and Emerging Trends** 7 to 9th November 2013 Roorkee, India, Uttarakhand, India http://www.iitr.ac.in/departments/ES/pages/Activities+National_Conference_on_Earth_Sciences_in_India_Challenges_and_Emerging_Trends_ESICET.html	**International Summit on Water Cooperation for Inclusive Growth 2013** 15 to 16th November 2013 Yashada, Pune, Maharashtra, India http://www.seeram.org
International Conference on Sustainable Development India 4 to 6th December 2013 Chandigarh, Punjab, India http://www.ontariointernational.org/India2013/ICSD-India.htm	**IEEE International Conference on Green Computing, Communication and Conservation of Energy** 12 to 14th December 2013 CHENNAI, TAMILNADU, India http://www.rmd.ac.in/ICGCE2013/contact.html	**6th International Congress of Environmental Research (ICER-13)** 19 to 21st December 2013 Aurangabad, Maharastra, India http://www.icer13.jerad.org

M.Sc. in Sustainable Development (Distance Learning)
The Global Open University
http://nagaland.net.in/

Post-Graduate in Sustainability Management
Silver Bright Institute of Management
http://www.htcampus.com/college/silver-bright-institute-management-sbim

M.Sc. in Environmental Science
Dr. Babasaheb Ambedkar Marathawada University
http://www.bamu.net/dept/environment

Advanced Diploma in Energy
Vidya Prasarak Mandals Polytechnic
http://www.vpmthane.org/polywebnew/courses.html

MBA and MA in Sustainability Management
TERI University
http://www.teriuniversity.ac.in

M.Tech in Environmental Engineering
The National Institute Of Technology, Tiruchirappalli
http://www.nitt.edu/home

Master of Architecture (Sustainable Architecture)
Bharati Vidyapeeth Deemed University
http://www.bharatividyapeeth.edu/Campuses/Pune/default.aspx

MA in Environmental Economics (Distance Learning)
Annamalai University
http://www.annamalaiuniversity.ac.in

M.Tech, M.Sc. Environmental Science
Thapar University
http://www.thapar.edu

PhD in Environmental Science
Gauhati University
http://www.gauhati.ac.in

Post-Graduate Certificate in Sustainable Enterprise
Indian Institute for Sustainable Enterprise
http://theiise.net/pgcertinse.html

Post-Graduate Diploma in Sustainability (Distance learning)
Chhattisgarh University
http://www.cguniversity.com

B.Sc. in Environmental Science
University of Calicut
http://www.universityofcalicut.info

PhD in Environmental Science
Panjab University
http://puchd.ac.in

M.Sc. in Environmental Science
Bharathiar University
http://www.b-u.ac.in

MBA in Environmental Science
School of Management and Infrastructure & Development Studies
http://www.minds-india.org

Advanced Diploma in Bio Degradable & Solid Waste
Vellalar College for Women
http://www.vellalar.com/Arts/carrer-oriented-programmes.php

MBA in Energy & Environmental Science
Symbiosis Institute of International Business
http://www.siib.ac.in/programmes.aspx

PhD in Environmental Bio-Technology & Solid Waste Management
School of Environmental Sciences
Jawaharlal Nehru University
http://www.jnu.ac.in/main.asp?sendval=SchoolOfEnvironmentalSciences

Why shape matters

Learning from Mother Nature will help to better value and take better care of our greatest assets - ourselves. A sliced carrot looks like the human eye. The pupil, iris and radiating lines look just like the human eye. Carrots are known to greatly enhance blood flow to and function of the eyes. A Tomato has four chambers and is red. The heart has four chambers and is red. Research shows tomatoes are loaded with lycopine and are indeed pure heart and blood food.

Grapes hang in a cluster that has the shape of the heart. Each grape looks like a blood cell and research today shows grapes are also profound heart and blood vitalizing food. A walnut looks like a little brain, a left and right hemisphere, upper cerebrums and lower cerebellums. Even the wrinkles or folds on the nut are just like the neo-cortex. We now know walnuts help develop more than three dozen neuron-transmitters for brain function.

Kidney beans actually heal and help maintain kidney function and yes, they look exactly like the human kidneys. Celery looks like bones. These foods specifically target bone strength. Bones are 23% sodium and these foods are 23% sodium. If you don't have enough sodium in your diet, the body pulls it from the bones, thus making them weak. These foods replenish the skeletal needs of the body.

Avocadoes, eggplant and pears target the health and function of the womb and cervix of the female - they look

So don't go by looks, just eat all fruits and vegetables and they do their job for you.

just like these organs. Research shows that when a woman eats one avocado a week, it balances hormones, sheds unwanted birth weight, and prevents cervical cancers. And how profound is this? It takes exactly nine months to grow an avocado from blossom to ripened fruit. There are over 14,000 photolytic chemical constituents of nutrition in each one of these foods (modern science has only studied and named about 141 of them). Figs are full of seeds and hang in two's when they grow. Figs increase the mobility of male sperm and increase the numbers of sperm as well to overcome male sterility.

Sweet potatoes look like the pancreas and actually balance the glycemic index of diabetics. Olives assist the health and function of the ovaries. Oranges, grapefruits and other citrus fruits look just like the mammary glands of the female and actually assist the health of the breasts and the movement of lymph in and out of the breasts. Onions look like the body's cells. Research shows onions help clear waste material from all of the body cells. They even produce tears which wash the epithelial layers of the eyes. Garlic also helps eliminate waste materials and dangerous free radicals from the body. The list is endless. So don't go by looks, just eat all fruits and vegetables and they do their job for you.

Conservation through Heavy Metal

by **Rishabh P. Mansur**

Gojira is a French metal band, and performed in Bangalore in December, 2012. Deviating from the traditional gore and toilet-humor-inspired lyrics used by most death metal bands, Gojira's lyrics are inspired by the environment and are cause-related. The lyrics portray the band members' ecology concerns and also their spiritual beliefs.

The members of Gojira are from Bayonne, a city on the rugged coastline in south-west France. This landscape and coastline are the source of inspiration for most of the band's lyrics.

The band cooperates with 'Sea Shepherd', a marine wildlife organization, to protect mainly dolphins, whales and sharks. Many of the lyrical themes of Gojira's album From Mars to Sirius focus on this cause. Further, Sea Shepherd is allowed to run a merchandise booth at Gojira shows. Joseph Duplantier, vocalist/guitarist of Gojira, is part of the organization.

In a blog, Joseph Duplantier posted: "They (Sea Shepherd) are a non-violent organization, and yet they efficiently and directly take action to defend and protect the oceans wildlife worldwide. The best way to help them is to make a donation on their website: www.seashepherd.org."

Also, the French quartet is working on a music project with well known musicians from the metal scene, like Devin Townsend, and all proceeds from that project would go to Sea Shepherd.

In addition, drummer Mario Duplantier (Joseph's brother) is a painter, and while on tour with Gojira, he comes up with art inspired by the trip. He creates surreal paintings of hybrid forms and animals each telling a different story.

Here's a sample of Gojira's album *'Toxic Garbage Island'*
"Take this pestilent destruction out of my way
The great Pacific garbage patch is exhausting
And the world is sliding away
In a vortex of floating refuse
With the sacred one you have lost"

ADMISSION ANNOUNCEMENT 2013-15

BIMTECH
BIRLA INSTITUTE OF MANAGEMENT TECHNOLOGY

Excellence with Values

Post Graduate Diploma in Management
Sustainable Development Practices
(PGDM - SDP)

Approved & Recognised by AICTE, Ministry of HRD, Govt. of India
In partnership with MDP Global Network, The Earth Institute, Columbia University.

The programme is robustly designed to address current and the potential future needs of corporate and the development sector. The programme offers highly focused courses in health economics, environment science, energy management, social science consulting & business modelling, project management, corporate social responsibility, sustainability measurement tools, and green supply chain management.

Programme Highlights

Global Classroom: The Global Network of 22 world's leading universities offer Web class room to share knowledge, and the best practices.

Immersion Programme: The 10 days field exposure cum class room training to understand the complex issues and challenges of sustainable development.

Grameen Creative Lab: In collaboration with 'Grameen Creative Lab' (founded by Nobel Laureate Prof. Mohammed Yunus), the programme promotes the idea of social business.

Students' Exchange Programme: The institute is having strong tie-up with around 50 international Universities across the continents to encourage students for exchange programme and internships.

Eligibility criteria and selection procedure

Selection Procedure: CAT/MAT/XAT/GMAT and other prominent national / international level management exams, GD+PI+Write-up

Eligibility Criteria: Any Graduate with 50% marks, professionals from development area will get an additional consideration

Equivalence with MBA by AIU

Alliance with B-schools of USA,Europe & Asia

100% Placement Assistance in Indian & Multinational Companies

Founded by B.K. Birla Group

Landscaped Green Residential Wi-Fi Campus

All India **7th Rank** Among Top Private B-Schools

Source: CNBC-TV18 Cfore B-School Survey 2012

PGDM- SDP Final Placement and Internship Companies and Organisations:

For admission related queries, please contact to:
Mr. Anshuman Srivastava, Program Manager, PGDM (SDP)
Email: anshuman.srivastava@bimtech.ac.in
Contact: +91-0-9873788681, 0120- 3243638
For programme information: www.bimtech.ac.in/pgdm-Sustainable-Development-Practices.html