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Toilet for All in India is now a Possibility

By **Benedict Paramanand**

The Peepoo disposable latrine bag, designed by Peepoople, a Swedish company, is the most recent addition to a few affordable options now available for solving one of India's most daunting and disgraceful problems – more than half its population of 1.2 billion defecates in the open because of non-availability of toilets.

Inside

There are already two versions of bio-toilets that are now available in the market. They are based on defence technology and are already being tested in Indian Railways. The challenge, and therefore opportunity, is to innovate the price-point at which these options are made available.

Unlike earlier, it's not the technology or the cost that are critical factors in solving the problem. It's finally the will, execution excellence and governance that are paramount. If these are in place, a public-private partnership could produce them at affordable price. A pricing model which is a mix of subsidy and an agreed margin is what is currently being

A Community Bio-toilet

tried in a few African countries like Kenya.

The Peepoo bags could cost around Rs. 2 per bag and a bio-toilet Rs. 30,000/- per unit. Rs. 2 a day for a family of 5 works out to an expense of Rs. 10/-. The bio-toilet is a one- time investment and can be used by at least ten families. Also, the economic value of fertilizer from these toilets may offset a good part of the cost. In any case, the subsidy basket of India is huge. If used imaginatively, there is no reason why the public toilet problem cannot be solved in a jiffy.

The health, especially of children, and ecological benefits as well as saving of water could make these costs look silly. If human dignity is of any value, then there's no reason why India should not be a country which announces a grand plan of 'toilet for all' in two years. There is some half-baked government plan currently on but they use conventional methods.

Before public toilet becomes another scam, public pressure is needed to launch the plan in a mission mode.

Please see Case Study on page 13

The Very High Cost of Low Prices

The human rush to bargain stores resembles a swarm of bees. Shopping for bargain pricing has become addictive, destructive and unsustainable.
The direct impact of this phenomenon on the global eco-system is colossal. So, what's the solution?

People hate doom and gloom stories but the good news according to Michael Carolan, author of Cheaponomics – The High Cost of Low Prices (Routledge March 2014,) is that people are willing to listen if the message is driven through humor and relevant examples. Practical alternatives work even better.

For starters, he says, cheapness is an illusion. The real cost of low prices is alarmingly high. The price is usually paid somewhere else – usually by poorly-paid workers in poor countries. And environmental pollution may not be costed into goods and services, but is paid for indirectly by people living away from its source or by future generations. He says: "Even with private cars, when the total costs of this form of mobility are tallied it proves to be an astronomically expensive model of transportation. All of these costs need to be accounted for."

The author captures these issues by the concept of 'cheaponomics.' "The key point is that costs and risks are socialized: we all pay for cheapness, but not at the point of purchase. Instead, we need to refocus for a better sense of well-being, social justice and a balanced approach to prosperity."

Michael Carolan, Professor and Chair of Sociology at Colorado State University, USA, sees his book as a tool for change. It suggests an alternative economic life whose goal, if we willed it, could be human fulfillment. His other books are "The Real Cost of Cheap Food", "The Sociology of Food and Agriculture", "Reclaiming Food Security" and "Society and the Environment: Pragmatic Solutions to Ecological Issues".

The big question is – how original are Prof. Carolan's ideas in Cheaponomics when the sustainability movement around the world has made a beginning on ecological impact of manufacturing and consumption. And a good number of companies have already made a good beginning towards zero or minimal impact?

Despite these questions, making the bargain pricing business reality the central focus and target for change appears fresh. Moreover, it is a smarter way to start change of behavior. Also, the sustainability today is active at the corporate level, it is yet to sink into the retail behavior of consumers.

What Prof. Carolan wishes to achieve is overly ambitious. But he knows there's no other way.

Fishing Community Against Expansion of Tata Mundra Power Plant

The Tata Group, considered the most community friendly among Indian businesses, is facing its biggest credibility test. The community around its mega coal power plant in Mundra, in Gujarat, has gone vociferous and is demanding a stop to further expansion of the plant and "a concrete action plan for reparation and restoration."

Fishermen walking back home with their catch through the public road, which will be cut off by the outlet channel of Tata Mundra. *Picture courtesy BIC Trust India*

The community is using the social media to garner support. Its petition, in April 2014, to the President of the World Bank, has so far elicited more than 20,000 signatures in Change.org, a public petition platform. The petition states how the power plant has had a negative impact on the livelihood of the fishing community. "The power plant has blocked our traditional route between the shore and the market; lobster and turtle breeding grounds are flattened. Effluence from the power plant has depleted fish catch. Coal dust falling on fish out in the sun for drying makes it toxic and non-marketable. To make things worse, coal dust from the coal conveyer belt affects the health of our children, the elderly and even animals."

In 2013, based on a complaint from the community organization, the International Finance Corporation (IFC - private sector arm of World Bank Group)'s Compliance Advisor Ombudsman (CAO) found widespread impact and policy violations including serious violations of mandatory safeguards at the Mundra plant.

But IFC's Asia-Pacific Director for Infrastructure and Natural Resources and Director for Environment and Social Governance, respectively dismissed these findings. They rejected expert findings, defended their project decision and their client and issued no remedial action.

Tata Power's response

In response to the petition Tata Power stated that it is: "Committed to the local community and continues to work with them on various platforms and multiple community development initiatives. The Company is also conscious of the natural resources in the vicinity of the plant and has taken appropriate steps to not just preserve them, but to also improve the flora and fauna in and around the project area.

Tata Power works towards building a sustainable future and would like to reiterate that the project is compliant with all Government (state and central) and IFC stipulated norms. Detailed SIA (Social Impact Assessment) and EIA (Environment Impact Assessment) were conducted in advance of setting up the project."

The company says it has undertaken a number of community based initiatives towards overall development of fishermen communities, and all activities are undertaken in a participatory mode with community representatives. Tata Power's Mundra UMPP has been appreciated time and again for its project excellence and commitment towards its consumers and community.

The company believes that the core issues raised by MASS (the Association for the Struggle for Fishworkers' Rights) are not specific to Mundra UMPP and relate to certain generic issues concerning the coastline of Gujarat. CGPL shares a very healthy relationship with the local communities and continues to work with them on various platforms and multiple community development initiatives.

New Earthworm Species to Free Brahmaputra Basin of Wild Plants

This will come as good news for the natives of Assam valley and those inhabiting the banks of the Brahmaputra. A new earthworm species has been developed by the Indian Veterinary Research Institute (IVRI) that can get rid of the wild aquatic plant Jal Kumbhi growing on the banks of river Brahmaputra.

The plant, whose scientific name is Pistia Stratiotes, is a big menace in the region since it spreads its tentacles right up to the river bed and impairs the movement of fishermen besides causing widespread pollution. IVRI has recently signed an MOU with IIT Guwahati.

Prof Ranvir Singh of IVRI, is quoted in The Times of India:
“The earthworm - Jai Gopal - has the ability to eat wild vegetation very fast and convert it into organic fertilizer that is suitable for use in farming.” Jai Gopal, which has been given the scientific name Perionyx ceylanesis, can also withstand different temperature variations and survive temperatures ranging from 0 degrees celsius to 43 degrees unlike foreign species such as Icina Fetida and Udilus Ujini which are used by scientists across the globe and can only remain alive at temperatures varying from 15 degrees to 30 degrees.

E-commerce Uses 30% Less Energy

Constant improvisation of technology is the biggest boon to folks who crave for a zero-waste economy. Cloud-based music storehouse is an obvious example. E-commerce accounted for more than $1.2 trillion of sales in 2013.

Studies published in http://www.greenbiz.com/blog/2014/02/06/how-digital-innovations-disrupt-wasteful-world show trends in connectivity and mobile penetration, the number of digital buyers is estimated to grow from around 900 million currently to 1.3 billion by 2016 globally. This is important for sustainable consumption. It's estimated that e-commerce uses 30 percent less energy in total than traditional shopping.

When you consider that sales of physical CDs have been cut in half over the last 10 years, while download sales continue to increase, you can see why. Similar trend is seen in the media space. Print media is disappearing at a fast phase and digital publishing is taking over. Imagine the saving on paper?

Producers, Not Consumers, Responsible for After Life of Products

Extended Producer Responsibility (EPR), also known as Product Stewardship, is a strategy to place a shared responsibility for end-of-life product management on the producers, and all entities involved in the product chain, instead of the general public. This encourages product design changes that can minimize a negative impact on human health and the environment at every stage of the product's lifecycle.

The EPR approach allows the costs of treatment and disposal to be incorporated into the total cost of a product. It places primary responsibility on the producer, or brand owner, who makes design and marketing decisions. It also creates a setting for markets to emerge that truly reflect the environmental impacts of a product, and to which producers and consumers respond.

Product stewardship program generally allocates responsibility to provincial or municipal governments. Costs can be internalized as a factor of production or may be passed on to consumers. In contrast, under a product stewardship program, legislated environmental fees and/or public funds are commonly used as a funding base. Product stewardship programs usually do not allocate financial responsibility to producers.

Levis makes Jeans from Plastic Bottles

In an attempt to use recycled waste in clothing, the jean giant Levi Strauss & Co. has launched the new Waste-Less Jeans. Available in variants for men and women, the jeans claim to use as much as 20 percent of recyclable material, mainly bottles. So, as many as eight plastic bottles could go into the manufacturing of one pair, the advertisements proudly claim.

The process involves collecting green soda bottles, brown beer bottles and black plastic food trays. These are broken down into small pellets at the manufacturing unit and spun into polyester yarns. The yarn is then woven in with the fabric of the jeans. The result is a lightweight, thin pair in a shade slightly darker than other denims. In light, the jeans reveal the underlying shades of the color of the bottles and trays used in making them rather.

The company claims to have reused over three million bottles and trays in the production of these jeans so far. This is not the first amongst eco-fashion initiatives by the jean brand. Earlier, Levi's produced and publicized reduction of water usage in the manufacture of its garments through the Water-Less jeans. The company was able reduce its water footprint by as much as 96 percent in the production of one such pair according to Petcore Europe, a Belgium-based association that deals with PET container recycling.

The waste-less collection is intended to use up 3.5 million recycled bottles. The line comes in both skinny and straight fit options with a tag that says 'made of garbage'. The idea is to make clothing more sustainable and fashionable at the same time. The company is looking at other forms of sustainable clothing to add to their line of eco-fashion.

Besides using sustainable means themselves, Levi's also recently introduced A Care Tag that urges its customers to be eco-friendly. The tag gives out information on cleaning your pair efficiently while reducing environmental impact. They also suggest old jeans be given away for goodwill over being thrown after appropriate use.

Put Value to Nature to Reduce its Depletion

Ranjit Barthakur runs the Balipara Tract and Frontier Foundation in Guwahati. He released a thoughtful compilation titled *Natureconomics: Nature and Economics Nurturing Interdependence*. He runs a series of green initiatives through his Mumbai based company, Globally Managed Services.

Since he hails from Assam, Barthakur is concerned about the future of the North East, which he describes as "the last carbon sink". With his commitment to 'Natureconomics', a term that he has coined, he advocates that the proper value ought to be applied to natural resources.

Here's an excerpt of his brief chat with **Benedict Paramanand**

You spoke of Natureconomics in 2008. What has changed since then?

The concept of Nature and Economics is how we make it a combined delivery item because people need Nature and without Nature there is no Economics. So how do we say that the economic element is equal to that of Nature where as today Economics seems to be more valuable?

In order to do that we set up Naturenomics to examine elements of Nature that are conversion oriented or that get converted for value. For example, take land, energy, waste, water, air or a byproduct like carbon. The question is how you take all these elements, LEWAC as we call it, and give it a value which then if there is a depletion, the company gets a depletion mark and if it is positive, then they get a positive mark like water positive, waste positive.

Unless you value it you will not get a LEWAC. The reality is economists don't like to do this. Therefore the fish in the river has no value but when you put

the fish in the market it has value. The wood in a plantation has no value, so any biodiversity in Arunachal has no value because it hasn't been put on the table; if it is furniture it has value.

So how do we bring about this dichotomous relationship to say as basic as fish or wood, we deliver a better proposition. So Naturenomics is trying to work out a valuation model on each one of these elements.

Is it different from what Adidas and Puma do?
Adidas and Puma have only touched the surface. It's different to the extent that if this is the value chain in Naturenomics, which is land, energy, waste, water. They are handling the elements of logistics, in their buying, procuring, and manufacturing. They haven't handled all of it, and it's just the beginning. At least they have started. Their cost to ecology doesn't give it weightage but at least they are starting to value it.

So yours is one step ahead?
I don't know if it is a step ahead, ours is still very utopian because the fact that they get valued is already calculating Nature because they have to buy leather, rubber etc all that is Nature. So when they say they are valuing Nature I don't know how that element actually translates. But in Naturenomics what we are trying to do is ask what is the true cost of depletion? If it is Nature negative how do you put value to water, waste etc.?

Somewhere down the line, Nike shoes are thrown away, they don't put a value and that contributes to waste. What they are doing is making it biodegradable and accountable. That is not true because the aluminum they use is accountable, it depends on how far you want to take it. They have made a great beginning. Everything in the world including the services business is about Nature conversion. So everything we wear, buy, eat is about natural resource conversion. When people say that they are valuing Nature, I don't understand because they are already valuing and making money.

How advanced is it compared to the Circular Economy concept?
I don't think it is comparable because Natureconomics is still being conceptualized. We don't have a robust theory. Circular economy is more advanced, more definable, they have moved ahead. We don't have a value.

Who spearheaded this concept?
I founded it, I founded a company called NatureFirst, it got bought by Tata Consultancy.

What was the objective of NatureFirst?
Naturenomics was the concept, NatureFirst was the organization that helped deliver the concept, GEMS green ecologically managed services was organizing outsourcing ecological services.

Circular economy is very aligned with the concept of cradle to cradle. If you take 100 liters of water into a factory the water that comes out should be equal to and pure, you cannot waste water. It's very unnatural as the real world is different.

Sustainability consulting is still nascent; will it be a big opportunity for companies like TCS?
It's not just about consulting, it's about implementing.

We have Dow Jones index on sustainability and how do you think Indian companies should focus in a much more aggressive way? What's your view on the indexing part of sustainability? Is it adequate?
I don't understand it fully to be honest. I don't know if it has helped any company to be undervalued or overvalued, the Naturenomics index will do that.

900 Million Cell Phones but No Drinking Water

Arun Maira, Member of the Planning Commission, on absolutely key questions India has to answer

I came back to India after 10 years, 1989 to 2000. We couldn't get a place to live in Bombay and so we were staying in the Taj Mahal hotel for many months. Vindy Banga who had come back with his wife after many years to be the chairman of HUL, was also staying there, we had never met before. We got to know each other and in one conversation we asked ourselves what had we noticed that was different in India for the 10 years we were away.

We both spontaneously mentioned the same two things. We had lived in the Taj and been to the Taj 10 years before in the 80s and 70s. We were now seeing young Guajarati girls in miniskirts dropped off by nice big cars and this never used to be so, we never had so much show off. Grand dresses and big cars that was not what you showed off when we were young. We both noticed the difference in values.

The second was the knocking on the window. When we were here earlier in the 80s there were beggars. Because in those 10 years the cars had become air conditioned, you could ignore the poverty around. So we saw signs of wealth and ignoring poverty. Two years after that I wrote a book called Remaking India, one country, one Destiny; it is a heavy intellectual subject, laden with heart and values.

To make it little lighter I thought I will ask R.K. Laxman if I could use some of his cartoons to illustrate various things in the book. One of the cartoons then in 2002, aam aadmi along with several villagers are standing in front of a politician who has come for an election campaign and he is saying to them very angrily when we have given you cell phones why do you keep asking for drinking water. It is still the story of our times, we are still saying look how much we progressed we have got 900 million cell phones, see how much we progressed. We have given them the ability to talk to each other but they are still asking for drinking water.

Who shall lead?

Philanthropy is close to charity, it's about money that you have to address the needs of the others. Philanthropy and charity are driven by similar emotion. How do you get the money to do that, business can generate a lot of money. The question is what means do you use to raise that money. If you run the business with the idea that lets find out things that people need and are not getting and let me

- The point is not philanthropy; the point is how you made the money
- Risk management is tied to business responsibility
- The case has been sold, including by Michael Porter, that business responsibility can produce more value in your business

find a way to give them what they need, that's how you design your business.

People crave for hard drugs and I will find ways to get them that and in that process I make a lot of money. That's a smart businessman, found a way to make large sums of money, found a way to help people out. Then I feel like doing charity so I set up a hospital, rehabilitating drug addicts. The point is not philanthropy; the point is how you made the money. Business responsibility is an exercise in responsible citizenship.

Corporate governance is how you should be accountable and transparent. Responsibility towards customers, suppliers, community is paramount. All these are part of your value chain. If you are going to have a short term attitude towards your employees or customers, you may be profitable but the system will bite back. This is about internalities of your institution. Externalities like the environment, effect that we are having, you can make lot more profit and pay less attention to the environment, your share holders may be very happy.

Lack of respect for communities, you can make a case for economic advantage if you could ignore these externalities. But then it's been pointed out that the license to operate comes from these externalities. But people are standing against some corporations and are saying we will not let you do it. So if we were to pay attention to these externalities, banks are saying we will not give you loans if you don't pay attention to externalities. The idea of risk is therefore introduced, there is a risk in effecting these externalities, there is a risk, may be it might not reduce your immediate profits but might prevent you to grow bigger in the longer run. So risk management is tied to business responsibility.

Who is responsible for good institutions in the country?

The most difficult thing is: 'who is responsible for the quality of the institutions by which we are governed'. Business needs these institutions to ensure stability in the government but business can also destroy these institutions by grabbing things out of them which it should not do. But thinking about fiduciary responsibility it's my job to do those smart things that will make the most for my share holders. If I infect and corrupt the business institutions I have done more for my share holders by Milton Freidman's definition. But this becomes insidious, when I corrupt and get away and the share holders of the other institutions say you are not so smart.

What should be my role as a business leader, as a leading citizen of society? Something's cannot be gauged by the utilitarian value. They have to be gauged by their ethical, moral value and so far the idea about business responsibility, the case has been sold, including by Michael Porter, on the basis that it can produce more value in your business.

Value is measurable but values aren't

We want to be good human beings; we want to be a happy, caring and a compassionate society. We will

as leaders of the institutions ensure that our institutions are run by is what's going to make the difference. By living by these values we can also increase the value but that's not the reason why I am going to do it. I get worried sometimes that people are waiting for a proof that you make money for me and then I will do it. I will do it even if it doesn't make money for me because it's the right thing to do.

I have written a book called Redesigning the Airplane While Flying; it's taken me 20 years to write it. We have to make sure that our institution survives and progresses faster than others, it's about flying the plane but we want to re-design it. It's a risky thing because if I were to re –design it and it stops flying then I am not being responsible. But I have values that I want to live by and I want to design this plane to be a very different plane.
How does one do this? What are the challenges?

Leadership is about taking the first steps towards that you deeply care about and in ways that you don't cause harm to anybody else. You will take the risk to do that first. It's a movement of leaders it's not about a single leader.

Latrine Bag that Becomes Fertiliser

By **Tania Ellis,** The Social Business Company

Just imagine for a moment that you don't have a toilet. Scary, isn't it? This is the reality for over 2.6 billion people on the planet, who lack access to even the simplest latrine. Not only would this make your life inconvenient, it is dangerous.

Every 20th second, a child dies due to contaminated water from human excreta, and up to 50% of all deaths in emergency, refugee and IDP camp situations are caused by diarrhoeal diseases, such as cholera.

This is undoubtedly a huge problem, and on first sight it seems an insurmountable one as well. How are we supposed to install toilets in all slums and refugee camps when most of them do not even have sewage systems? The answer is… we don't!

Bag turns into fertiliser

Peepoople is a Swedish company that addresses one of the United Nations Millennium Development Goals: to halve the proportion of people without sustainable access to drinking water and sanitation by 2015. Its contribution is the single use, biodegradable and self-sanitising Peepoo plastic bag which serves as a personal, portable and low-cost latrine.

The bag is lined with a coating that disinfects the waste, it is odour-free for at least 24 hours and within two to four weeks after use the bag content constitutes high quality fertilizer a usually expensive and scarce commodity in developing countries.

The fertilized Peepoo bags turn contaminants into a local resource which improves the soil's structure and water-holding capacity and which, in the long term, will improve the potential harvest from the fields and enable simple economic systems to develop.

So, in one package Peepoople manages to provide not only an environmentally friendly solution to a public health problem, but an environmentally beneficial one as well. This is a great example of bottom-up innovation that starts with the "consumer" of the product and the specific situation they are in.

Affordable

Peepoo is employing simple and accessible technology to solve a problem that has been around as long as people have been pooping, and they are doing so affordably and with an easy-to-use product.

Peepoople currently sell Peepoos at price of about 0.1 Euro per unit. (Peepoos come in packs of 28 units for one person for one months at about 3 Euro exworks, when sold to UN, NGOs or developing countries). To end users in urban slums Peepoo is currently sold at a subsidized price with either the donor, NGO or governments financing the difference. It can also become financial self-sustainabile in urban slums in Kenya we project that will take another 5-7 years.

The ammonia-based sanitation technology applied in the Peepoo was scientifically proven initially back in 2008. I would say breakthrough of the Peepoo solution on the market was achieved during 2013, as we were able to start delivering large volumes to the market when our high-capacity production line became operational.

In urban slums we currently have about 20,000 regular users in Kibera slum in Nairobi, including 10,000 school children in 72 informal schools, and about 2,000 users in two schools in slums in Kisumu in Kenya. During 2014 Peepoo will also be introduced in slum in Goma in Congo. Our most recent deployments include Philippines, Syria and Pakistan.

It must make us wonder what other solutions to global challenges there are just waiting to be discovered. Perhaps you have one right in front of you?

Tania Ellis is a Danish-British prize-winning author, speaker and business advisor, specialized in social business trends and strategies. Her book The New Pioneers was listed on Cambridge's Top 40 Sustainability Books.

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Redesigning a Plane While Flying

Dr. Aniruddha Agnihotri, Head-Health Safety Environment, TCS, gives a glimpse into how TCS is managing to align fast growth strategy with sustainability strategy

Panel discussion on Responsible Growth a Business Imperative, Dr. Aniruddha Agnihotri (extreme right)

TCS has grown multifold in the last decade – from a small IT company to offices in almost 60 countries with around 300,000 employees globally. We have 200,000 plus employees only in India, about 120 offices across India and out of those a lot of them are large campuses spanning from over 25 acres to 100 acres.

When we got down to the task of mapping our sustainability strategy we felt like we were re-designing the plane while we were flying. There was large growth and rapid growth and we were trying to see how we could manage it sustainably.

Looking at the growth strategy, this is where business strategy has to be integrated with sustainability strategy. We were planning to re-design 10 large campuses covering 50 to 100 acres and almost 25 million sq.ft. This was the opportunity that was presented to us and it was at that point of time different strategies merged.

First thing we did was to identify our material issues in terms of impact on the environment. It was water, energy, carbon, and waste like most companies. We looked at all the campuses and the growth that we were planning. Our sustainability strategy was to make all our campuses green. So we opted for designing of these campuses to LEED Gold Standard (Leadership in Energy and Environmental Design). We had specific outcomes designed into this strategy. All our campuses were designed on an average to be 20 to 25% more energy efficient.

Part of the strategy was to decouple business growth with carbon footprint and other footprints like water and waste by reducing our specific footprints. We reduced water consumption by 50%, we had new plumbing systems, new water use mechanisms. All the campuses were designed for a zero liquid discharge, recycling of previous sewage to 100 % levels.

For a commercial building we wanted to have zero solid waste discharge. For this we designed bio digesters, designed vermin-

Highlighting the approach and how you have to re-design the plane when you are flying, there are no second chances as investment would have already been made and shouldn't lose the opportunity. It is very important and crucial that we start re-thinking, re–imagining while you are at it and identify opportunities in a smart manner.

composting units, organic waste converters, all these are used to convert wet waste into manure and this will be used in the facility. Luckily since we have large campuses we have large amounts of vegetation so the entire waste is recycled and used in the campus.

Aligning Design & Equipment

This is not an easy task, when you talk about design; this is where collaboration between design teams, sustainability teams and management has to happen at a fine level. When companies struggle with sustainability issues they have a silo approach where strategies don't go hand-in-hand.

The second important aspect is the IT component. We are an IT company so we have huge assets in terms of servers, laptops, computers, routers which is IT intensive set up and that consumes significant amount of power. If you do an analysis of the power consumption in a typical IT campus, almost 20 to 25% of power will be consumed by IT equipment. This is another area which we identified, IT equipment was evolving, we were automatically getting the benefits of this efficiency but given a much focused approach in trying to ensure whatever phase out of old IT equipment was happening was regularly monitored and replaced by more and more energy efficient equipment.

So today all our laptops and computers comply with a standard called EPEAT (Electronic Product Environment Assessment Tool), is the definitive global rating system for greener electronics. All our IT equipment is moving towards EPEAT gold standard. Business-to-business is also leveraging on existing process and also building into a focused approach with replacing IT equipment.

Green Data Centres

Data centers are huge consumers of energy. This is another area which has huge potential, we have taken a specific target which is data center energy efficiency, the metric for that is PUE that is Power Usage Efficiency and we are trying to match global standards. Google and Microsoft have highly efficient data centers. The PUE is the ratio of total power and IT power, the ratios range anywhere between 1.2 and above and the most energy efficient data centers are around 1.2 PUE, the cooling power has to be nil. We are targeting 1.65 because of the climatic conditions.

Data center efficiency, IT efficiency and combined with infrastructure efficiency, I think we have taken steps to ensure that with our focused approach and rapid growth, dove-tailed with sustainability approach and integrating all this has long term targets till 2020.

Highlighting the approach and how you have to re-design the plane when you are flying, there are no second chances as investment would have already been made and shouldn't lose the opportunity. It is very important and crucial that we start re-thinking, re –imagining while you are at it and identify opportunities in a smart manner.

Edited Excerpts of the talk at the CII Conference on Responsible Growth recently, in Mumbai

Where's the Money?

Darpan Jain, IAS, MD of KUIDFC discusses various challenges facing urban water resources management in India and offers possible solutions

Studies have shown that there is a very high correlation between parameters such as education, income and poverty. If you want to achieve human development indicators and improve quality of life we have to focus on improving our urban water supply.

India Behind Other Developing Countries

The average coverage in India is 60-70 per cent. Other developing countries have reached almost 90 per cent coverage. The water supply in India varies from one hour to six hours in a day, some places it is once in three or five days. In contrast, Brazil, China and Vietnam give their citizens 24/7 water supply.

For quantity of water the norm is 125 lpcd (liters per capita per day). It ranges from 37 to 300 lpcd. Our supply is intermittent and we have not been able to give continuous water. Other cities are near the water supply benchmarks. Developed cities are sometimes higher with 150- 200 lpcd. Bangkok, Colombo, Kuala Lumpur, Phnom Penh are not highly developed cities but they supply good quality water 24/7.

We cannot ensure continuous water supply, we are not able to reduce leakages, we are not able to maintain quality of water and because of all these things it is difficult to collect user charges.

There is a wide gap between India and other countries in terms of development and in all the parameters we are far behind. What are the reasons for this?

For example, Karnataka is quite urbanized with 219 urban local

The Way Ahead

- Performance based approach
- Increase in employee capacity
- Outcome-based contracts
- Financial sustainability

bodies. Our water needs are met by surface water. Most of our local bodies are dependent on the seven river systems out of which most important are Krishna and Cauvery. Almost 80 per cent of our needs are met by Krishna and Cauvery. We have not provided 24-hour water supply in any city although we have done some demonstration projects.

Reasons for Poor Supply

It's a vicious cycle, most of our local bodies; authorities who are implementing water supply are not financially strong. Because local bodies are not financially strong, they are not able to undertake the required investment and development. Whatever investment is done; it is more in asset creation rather than outcome-based approach. So less investment is also not effective, services aren't good. We cannot ensure continuous water supply, we are not able to reduce leakages, we are not able to maintain quality of water and because of all these things it is difficult to collect user charges.

'Since the supply is so deficient, why should I pay, is a common question. Because the recoveries are bad and the institution level is not strong in terms of capacity and funds, it results in financial instability. The cycle keeps on repeating itself and we are stuck.

Karnataka needs an investment of Rs. 3.2 lakh crore. That is the capital investment that they have been forecast for 20 years in 2009-2010. Now, we have to double these figures because of inflation. Operational expenditure which the committee estimated was Rs. 5.4 lakh crore.

Edited Excerpts from Mr. Jain's talk at the Water Conference organized by CII in Bangalore recently

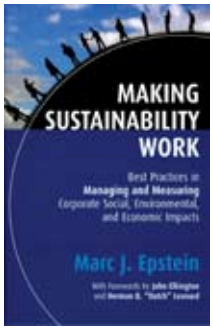
Innovation for Sustainable Development

By **Jean-Yves Grosclaude, Rajendra K. Pachauri, and Laurence Tubiana**

Teri, 2014

Innovation has become the new buzzword across the globe. International organizations, governments, corporates, academia and society see it as the answer to the major economic, social and environmental transformations challenging the models of the 20th century.

A Planet for Life 2014 aims to answer these questions and explore innovation in all its aspects, through a series of texts written by international experts. The objective of this book is to analyze experiences from across the world and the role of innovation in a variety of areas of development such as urbanization, agriculture and food, the mobility of people and freight, education and the provision of water and energy to all.



Making Sustainability Work: Best Practices in Managing and Measuring Corporate Social, Environmental, and Economic Impacts

By **John Elkington (Foreword), Herman B. Leonard (Foreword), Marc J. Epstein (Author), Adriana Rejc (Author)**

Greenleaf Publishing; 2014

The best practices in corporate sustainability performance are no longer the exclusive domain of companies like Ben & Jerry's or The Body Shop, as they were a decade ago; now, large, multinational companies like G.E. and Wal-Mart are leading the way with significant financial and organizational commitments to social and environmental issues. However, good intentions aren't enough.

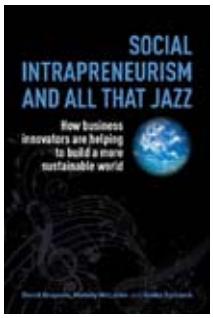
Whether motivated by concern for society and the environment, government regulation, stakeholder pressures, or economic profit, managers and strategists need to continue making significant changes to more effectively manage their social, economic, and environmental impacts - and to remain competitive. With a growing number of corporate leaders asking for urgent help in "getting this done," the timing of the updated edition of this landmark book could not be better.

Carbon Footprint: Reducing it for a Better Tomorrow

By **Ramesh Menon**

Teri, 2014

Most of us lead careless lifestyles that keep adding to environmental pollution. Carbon Footprint: Reducing it for a Better Tomorrow takes an in-depth and critical look at our day-to-day activities: food habits, lifestyle, or mode of transport. It offers solutions and measures to reduce our carbon footprint to make our homes energy-efficient, recycle waste, reduce greenhouse gases, or gain from the benefits of using renewable energy. Follow 101 easy ways to refashion our lifestyles and emerge as “green” citizens.

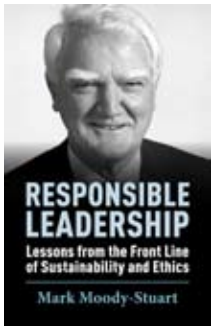


Social Intrapreneurism and All That Jazz: How Business Innovators are helping to build a More Sustainable World

By **David Grayson, Melody McLaren and Heiko Spitzeck**

Greenleaf, 2014

- Identifies the mind-sets and skills that have helped social intrapreneurs to be successful
- Reveals how creative social innovators are improvising alliances
- The first book to focus on how intrapreneurs are changing business for the good from the inside of large organizations

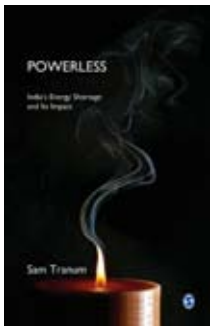


Responsible Leadership: Lessons from the Front Line of Sustainability and Ethics

By **Mark Moody Stuart**

Greenleaf, 2014

- The ultimate insider’s view of corporate responsibility and ethics from the boardrooms of some of the world’s largest corporations
- New ideas on how to seek collaborative solutions to the market failures of climate change and corruption
- How Shell dealt with the Brent Spar and Ken Saro-Wiwa controversies and what they learnt
- A manifesto for responsible leadership
- Dilemmas and lessons from the front line of corporate responsibility



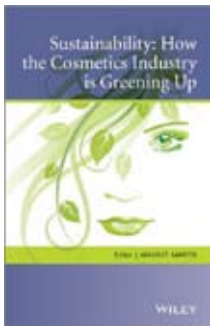
Product-Service System Design for Sustainability

By **Carlo Vezzoli, Cindy Kohtala and Amrit Srinivasan, with Liu Xin, Moi Fusakul, Deepta Sateesh and J.C. Diehl**

Greenleaf, 2014

A state-of-the-art examination of the theory and practice of system innovation through Product-Service System (PSS) design for sustainability.

- Introduces the concept of PSS innovation and outlines the characteristics
- Examines a wide range of potential research directions on sustainable PSS design
- Valuable resource for design students, teachers and practicing designers

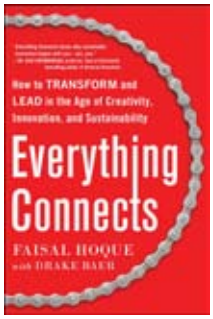


Sustainability: How the Cosmetics Industry is Greening Up

By **Amarjit Sahota**

Wiley, 2014

Sustainability has come to the fore in the cosmetics and personal care industry. Rising ethical consumerism and the need for resource efficiency are making cosmetic companies small, independent firms to global giants take steps towards sustainable development. Sustainability: How the Cosmetics Industry is Greening Up discusses the growing importance of sustainability in the cosmetics industry, highlighting the various ways organizations can address the economic, environmental and social aspects.



Everything Connects: How to Transform and Lead in the Age of Creativity, Innovation, and Sustainability

By **Faisal Hoque, Drake Baer**

McGraw-Hill Professional, 2014

The constant cascade of new technologies and social changes is creating a more empowered population. Workforces are increasingly dispersed, demanding of self-expression, and quite possibly disengaged. Within this topsy-turvy context, leaders must spark creativity, drive innovation, and ensure sustainability.

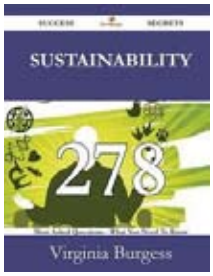
What are the remedies? The newest problems of the world find solutions in the oldest and time-less practices such as mindfulness, authenticity, and perseverance because Everything Connects.

The Green Edge: How Sustainability Can Help Exhibit and Meeting Planners Save Money and Build Stronger Brands

By **Tom Bowman**

Tom Bowman, 2014

Successful businesses are learning that "going green" creates stronger brands by inspiring innovation, building trust with customers, reducing costs and increasing shareholder value. Green initiatives that start at the top with corporate wide goals often break down when the goals must be translated into everyday decisions. Where can managers turn for advice on implementing sustainability in their work? The Green Edge targets this challenge by delivering high quality information about environmental performance to the choices managers are already making. The Green Edge delivers advice where the rubber meets the road to help companies get moving and improve the triple bottom line.



Sustainability 278 Success Secrets - 278 Most Asked Questions on Sustainability - What You Need to Know

By **Virginia Burgess**

Emereo, 2014

There has never been a Sustainability Guide like this. It contains 278 answers, much more than you can imagine; comprehensive answers and extensive details and references, with insights that have never before been offered in print. Get the information you need fast! This all embracing guide offers a thorough view of key knowledge and detailed insight. This Guide introduces what you want to know about Sustainability.

2nd India Smart Grid Summit 2014
24th to 25th April, 2014 | New Delhi
www.eai.in/360/events/pages/414#sthash.8jKOwMUr.dpuf

Green Landscape Summit 2014
25th to 26th April, 2014 | Suzlon One Earth, Pune Suzlon
www.cii.in

International Conference on Mitigation of Climate Change: Law, Policy and Governance
25th to 26th April, 2014 | Suzlon One Earth, Pune Suzlon
www.clc.du.ac.in/full-Event.aspx?id=10

Solar & Wind Power: Destination Rajasthan
01 May, 2014 | Jai Mahal Palace, Civil Lines, Jaipur, Rajasthan
www.assocham.org/events/showevent.php?id=1000

HydroVision India
05th to 07th May, 2014 | New Delhi
www.renewableenergyworld.com/rea/companies/hydro-group/events/hydrovision-india-2012

Power-Gen India & Central Asia
05th to 07th May, 2014 | New Delhi
www.power-genindia.com/index.html#pgica_3

Aquatech India 2014
06th to 08th May, 2014 | New Delhi
www.aquatechtrade.com/india/Pages/homepage.aspx

Workshop on Green Product Market Transformation
May 06, 2014 | CII-Godrej GBC
www.cii.in

10th Green Cementech
15 to 16th May, 2014 | HICC Novotel Complex
www.cii.in

Greenco Summit 2014
26th to Jun 27, 2014 | ITC Grand Chola, Chennai
www.cii.in

Solar South 2014
18th to 20th July, 2014 | Chennai trade center
www.solarsouth.in

Green Power 2014
17th to 18th July 2014 | ITC Grand Chola, Chennai
www.cii.in

Solartech Expo India
2nd to 23rd July, 2014 | New Delhi
www.10times.com/solartech-expo-india

5th World Renewable Energy Technology Congress & Expo - 2014
21st to 23rd August, 2014 | New Delhi
www.wretc.in

Green Building Congress 2014
02 to 06 September, 2014 HICC, Hyderabad
www.cii.in

Energy Efficiency Summit 2014
29th October to November 01, 2014 | HICC, Hyderabad
www.cii.in

Advanced Training Programme on Green Building Rating System

08th to 09th May, 2014 | Mumbai

www.eai.in/360/events/pages/465#sthash.1m5Il1aC.dpuf

Advanced Course on Sustainable Lighting Practices

18th to 20th June, 2014 | Pune

www.eai.in/360/events/pages/463#sthash.gJ0urrsH.dpuf

Post-Graduate Diploma Course in Sustainable Development (PGDM-SD)

www.bimtech.ac.in

M.Sc. in Sustainable Development-Distance learning Course + information

The Global Open University

www.nagaland.net.in

Post-Graduate Certificate in Sustainable Enterprise

Indian Institute for Sustainable Enterprise

www.theiise.net/pgcertinse.html

Post-graduate in Sustainability Management

Silver Bright Institute of Management

www.htcampus.com/college/silver-bright-institute-management-sbim

Post-Graduate Diploma in Sustainability (Distance learning)

Chhattisgarh University

www.cguniversity.com

Post-Graduate Diploma

IGNOU-Indira Gandhi National Open University

www.ignou.ac.in

Master of Architecture (Sustainable Architecture)

Bharati Vidyapeeth Deemed University

www.bharatividyapeeth.edu/Campuses/Pune/default.aspx

MBA and MA in Sustainability Management

TERI University

www.teriuniversity.ac.in

M.Tech, M.Sc Environmental Science

Thapar University

www.thapar.edu

Post-Graduate Diploma

Entrepreneurship Development Institute of India

www.ediindia.org

M.Tech in Environmental Engineering

The National Institute of Technology, Tiruchirappalli

www.nitt.edu/home

Advanced Diploma in Bio Degradable & Solid Waste

Vellalar College for Women

www.vellalar.com/Arts/carrer-oriented-programmes.php

Ph.D in Environmental Science

Gauhati University

www.gauhati.ac.in