

Sustainability Outlook

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Gearing India towards Sustainability

Green
technology

Powering
India through
renewables

NVGs are aligned globally,
yet are very Indian in their character



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GREEN TECHNOLOGY - A TOOL TO POWER INDIA'S SUSTAINABLE GROWTH

India, boasting about the world's second largest population is not only poised to develop itself in the next decade, but is also challenged on a continuous basis to sustain its growth. Developed nations have a distinct edge over India as they have crossed several major hurdles of accommodating sustainability and green initiatives during the development phase. The main challenge for India is to transform itself from a developing nation to a developed nation taking sustainability and Green technologies in its stride.

Green technology has become an important catalyst to help sustain growth. In every walk of life, countries and corporations are trying to build their growth story around the Green concepts. Construction, transport, water, electricity and food produce have always relied on natural resources and today the challenge that developing countries have is to help sustain these natural resources for consumption today and for the future.

Per India Vision 2020 report of the Planning Commission, India is projected to require 1221 TW of power and 781 billion cubic meters of water for an estimated population of over 1.3 billion in the year 2020.

So how is India gearing to this challenge in its everyday life while maintaining the momentum on the transformation? Let's start with addressing the area of power requirement, which is one of the key focus areas that this scribe works on.

The current demand of power and corresponding supply is already imbalanced and there is an acute shortage in every sector, be it agricultural, commercial, industrial or residential demands. The prediction for 2020 is quite alarming where the total capacity demand- according to the Planning commission report- has suggested that over 2/3rd of the demand would have to be from thermal sources. Alternative sources of energy will still be gasping to catch up with the demand unless a few radical steps are initiated. This has a direct implication on the requirement of fuel and

gases to generate the required capacity of power using thermal methods and clearly poses a huge threat to the environment.

Alternative sources of energy generation using solar and wind power are picking up on the Indian front (India ranks 5th in Wind power generation across the globe). However, to substitute oil based power generation, biomass based power generation and use of biofuels for power generation has to be adopted across a wider spectrum. These options are not only eco-friendly and help in sustaining the growth, but also have a strategic economic advantage in generating new employment at the grass-roots.

The plug to stop the colossal waste of power is important for India and the globe as a whole. It is possible to reduce the demand for power by adopting methods and technologies that can reduce the consumption; it does take a lot of discipline and this is where technology can play an important role with automation.

Information Technology has been a front runner in this automation concept. Organizations are quickly adopting leaner data centers, virtualization and cloud computing. The concept here is to get the best of productivity and reduce the use (and in turn the overall cost) of power hungry equipments. The Indian small and medium business sector is poised for a big leap forward given the market opportunity in the country. Asking them to adopt and follow the IT practices of yesteryears (typically large servers and huge IT infrastructure) is not only heavy on the purse for them, but is a waste of equipment and power. Cloud computing has shown the way for these enterprises and today these organizations can run their business with a minimal IT infrastructure, resting the burden of maintenance and huge power costs which are apportioned across multiple users.

Though the debate on whether cloud computing is green or to what extent is still ongoing, one thing agreed in general is the need for reducing the number of people using individual hardware

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equipments and powering them all the time. This is akin to the use of public transport over private transport, which not only has a cost implication, but is also environment friendly.

While the demand for power and other resources keep increasing, one thing is clear: Reduction in wastage of power in every walk of life is an absolute necessity. There are many technology organizations like ourselves, who build software, equipments and devices that bring in automation

catalyst for greening and improving productivity, but the technological advancement is so fast that the chain of reduce, reuse and recycle within this segment doesn't seem to be picking up. On one hand, the current day technology is surely helping the go green initiatives but the pace of the technology change is poised to create a different problem for the environment, and this aspect needs to be plugged. This should be the focus for the top technology researchers and their need to collaborate and align their goals for the future.

Nano technology looks to be a very promising future for the areas of information technology, energy and environment. As this concept works closely with the way nature has nurtured itself scientifically, discovery and innovation in this area is likely to significantly influence the sustainability quotient. Researchers in the areas of nano-technology are striving hard to find ways to leverage our understanding of photosynthesis (ability of trees and plants to harness the natural sunlight and

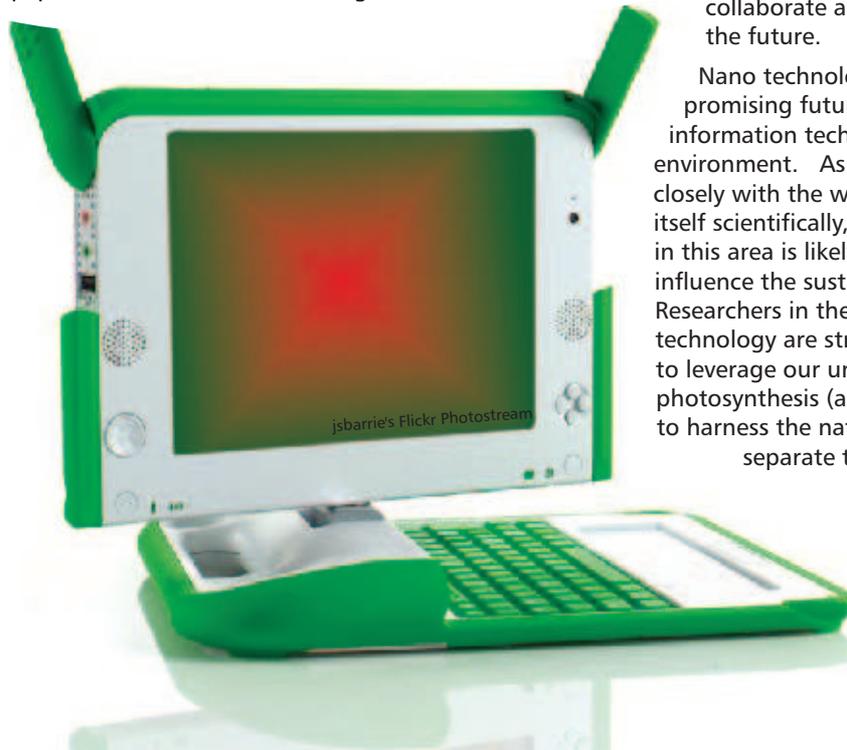
separate the hydrogen and oxygen from water) to shape close-loop feedback systems. There is also ongoing research to find a replacement to the conventional silicon memory chip based on molecules and nano-particles. Researchers are working hard to

leverage the photosynthesis phenomenon to identify ways for generating energy without any impact whatsoever on the environment.

Information technology is surely helping this research and in the very near future, probably we will complete the quest that we have on hand. This decade is crucial; the answers to such questions will put the technological innovations on track with the established mission of creating a secure and a balanced environment for the generations to come. This might sound straight out of a science fiction but I am sure there will be a day electronic devices are powered by nano-particles.

The adoption of technology for reduction in power consumption and clean development mechanisms can bring down the demand for power by approximately 15%. Coupled with the promise of nano technology to help in the areas of energy and environment, the environmental

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to reduce energy drain from desktop computers, lighting, and air conditioning for various industry verticals: solutions that help organizations manage their building infrastructure with a mission to limit the wasted power, presence sensors that turn off and turn on air-conditioners, lamps and other energy utilities

Every technological innovation has a trade off as well. As long as a tradeoff does not cause a bigger and more adverse environmental impact, we should embrace it.

The flat screens have replaced the tubes in many homes and work places - should we not wonder what happened to all these electronic waste that was discarded? May be tomorrow another flat screen with a newer technological

advancement would replace the existing ones. It is difficult to strike a balance though, but what needs to be looked at is an innovation that can last a few decades and not a few years. Information technology has always been a

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slate for the projected power generation capacity can become a lot cleaner and greener by bringing down the demand on fossil fuels by another 15%. The road ahead is surely bumpy but can be maneuvered with a good thinking on strategy, policies and incentives, which the policy makers will be required to bring in. An overall reduction of 30% of the demand coupled with the innovation ahead can make the ride a lot smoother.

V.K.Kripanand is one of the founders of See Beyond Technologies Pvt Ltd. and has over two decades of experience in various aspects of the IT industry related to software development, software engineering and systems engineering. His company is a product development outfit, with a mission to build products and solutions in the areas of Green IT, software estimation, project management, and knowledge management. In the recent 4 years, Kripanand has been passionate about environment and carbon footprint reduction and has spearheaded many initiatives and product innovations in areas of energy conservation.

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- Measures the installation of software licenses, therefore **enabling license compliance.**
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- Enables **software asset mandate and usage through time slicing** thus maximizes productive use of software license investment.

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License Metering
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Automated Desktop Management

Lockdown Capabilities

ROI < 6 Months

Zero e-waste

Savings USD 50K per Annum*

300 Tonnes CO2 Reduction*

* for 1000 Desktops

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