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From the Editor's Desk

Dear Reader

A very Happy New Year 2010 from all of us at ASM! May this be the most fruitful year thus far!

Nature is so powerful that you go weak kneed in awe when she is in full command! The recent act in Haiti is a grim reminder of the fact that should nature decide to wreck havoc, no man made effort can stop it. Foresee it, we might! Prevent it, not always! But let us not despair. Being "Mother" Nature, she still gives us the scope to rectify some of our mistakes. The sooner we wake up to these realities and understand our role in controlling the damage, the better we are assured of mankind's existence on the earth.

One area where each one of us can make a difference is that of climate change. It could be just a drop in the ocean, but it is the aggregation of these drops that make up the ocean! All stakeholders – individuals, institutions, governments, regulatory bodies, scientists – are trying to do their bit, though with limited success, to control the damage that has been inflicted on the climate. Before the climatic forces decide to have their way and inflict their wrath on us and our future generations, let us explore the ways we as individuals can do our bit. This issue is dedicated to the articles on Climate Change. We invite your comments on the same for publication.

Just into the fourth issue and we are ready to bring enhancements to ASMaCOM. Starting Feb 2010, ASMaCOM will move to a theme based issue. Going forward, the current issue will announce the theme for the forthcoming issue. In this issue, lookout for the next issue's theme and be sure to share your ideas with us.

Lastly, something which lightens each one of our purses, something I keep promising myself to do wisely and early every year – the annual tax savings. Act now at least, if not already done!

Do write to editorasmacom@acharya.ac.in to let us know what you think about this issue!

Happy Reading!
Madhavi Srinivas

When the term Global Warming is mentioned, images of black smoke produced by exhausts of vehicles, dark and deadly looking vapours escaping from the soot stained chimneys of factories or even the memories of choking on fumes of burning garbage flash across our mind's eye. These pictures are soon replaced by thoughts of articles and documentaries which talk of how we as individuals can play our part in curtailing the emission of various greenhouse gases. Global Warming has now been recognized by the environmental community as one of the gravest threats to the planet. Regrettably, most efforts usually aim at tackling the increase in the levels of carbon dioxide (CO₂) in the environment. This is unfortunate for reasons put forward by Dr. James Hansen (Director of NASA's Goddard Institute for Space Studies who has been called "a grandfather of the global warming theory") in publications which show that CO₂ emissions are not the foremost reason for the increase in the atmospheric temperature. While human activity leads to the discharge of more CO₂ than all the other greenhouse gases combined, the former is far less powerful in trapping heat than the others; some of which are sometimes several thousand times more powerful in this respect.

This theory brings into light two major points. Firstly, many gases other than CO₂ increase the global temperature, in both the short and long term. Secondly the effect of CO₂ is often overplayed. It explores the idea that cars and power plants, the primary sources of its emission, also release aerosols which have a cooling effect on the global temperature. It is considered that this negates the effects of rises in temperature, thereby resulting in the idea that CO₂ does not play a part in global warming in the short-term. This theory is supported by Dr. James McCarthy (co-chair of the International Panel on Climate Change's Working Group II).

The non-CO₂ greenhouse gas with the largest short term impact on global warming is methane. Studies have shown that it has a larger impact on the environment than all the other greenhouse gases combined. Wetlands are the primary natural source of methane. The largest human-induced source of this gas worldwide is animal agriculture. Methane is produced in quantities of over 100 million tons every year because of this activity. 85% of the methane from animal agriculture is produced during the digestive processes of millions of livestock. The remaining 15% is got from the storage "lagoons" of untreated farm animal waste that also serves as the main source of water pollution in the United States of America. A simple yet affective answer to this major problem is to eradicate the consumption of animals and their products. In other words, going vegan would eliminate the emission of human-induced methane emission.

Reduction of the release of methane, which is said to trap heat 20 times as effectively as CO₂, would help a great deal in slowing down the process of global warming. Cutting out the meat in our diet is a simple step that each individual is capable of doing. Albeit a small adjustment in our lifestyles, it must be borne in mind that at the end of the day it is tiny drops of water that make an ocean. Similarly, simple acts such as this would help us save our planet while leading healthier lives. It seems apt to end this with a quote by the great Sir Paul McCartney: "If anyone wants to save the planet, all they have to do is stop eating meat. That's the single most important thing you can do."

The Prime Minister's council has proposed the National Action Plan for Climate Change (NAPCC), which extensively talks about the National Solar Mission, whose main objective is to generate 20,000 MW of solar power by 2020. The National Solar Mission is launched to significantly increase the share of solar energy in the total energy mix.

India is a tropical country located in the equatorial sun belt of the earth, where sunshine is available for longer hours per day and in great intensity. The country receives about 5,000 trillion kWh/year equivalent energy through solar radiation. In most parts of India, clear sunny weather is experienced 250 to 300 days a year. The average solar insolation incident over India is about 5.5 kWh/m² per day. Just 1% of India's land area can meet India's entire electricity requirements till 2030!

Power technologies based on solar energy are one of the cleanest forms of power generation with practically no form of emissions at the point of generation. Solar Thermal Power Generating Systems (STPG) or Concentrating Solar Power (CSP) makes use of concentrated solar radiation to produce temperatures greater than 500°C to produce electricity. The conversion of solar heat to electricity is fundamentally similar to that of traditional thermal power plants, thus making it easier to implement.

The challenges for Solar Mission

The investment cost of stand-alone solar thermal power plants are in the range of Rs 20-22 Cr/MW. The estimated unit cost of generation is currently in the range of 20-25 Rs/kWh. India is a country which is primarily based on coal for most of its power generation and its per unit cost of electricity is Rs.4 for domestic consumers and Rs. 9 for commercial supply. The cost of solar energy is much higher when compared to the conventional system. The R&D effort should be directed mainly at reducing costs of production and maintenance, and include both production design and fabrication/assembly techniques. The main reason we are not seeing a large amount of solar energy technology installations is due to cost, and as the price of fossil fuels remains lower than the initial investment towards the currently available solar panels, we will not see a mass shift towards solar electricity production as yet.

Solar Photovoltaic Generation – In solar PV generation, solar energy is directly converted to electricity using a semi-conductor, usually a silicon diode. The investment costs of solar PV based power system are in the range of Rs. 30-35 Cr/MW. The unit cost of generation is still in the range of Rs. 15-20 kWh.

In specific areas of both solar thermal and solar PV systems, it would be useful to enter collaboration with institutions working elsewhere, with sharing of the resulting Intellectual Property Rights (IPRs). Technology transfer in both Solar Thermal and the PV technologies will be required in respect of cost-effective and efficient technologies suitable for use in India.

Over the 11th and 12th five year plan periods, the Mission will aim to deliver at least 80% coverage for all low temperature (<150°C), and at least 60% coverage for medium temperature (150°C to 250°C) applications of solar energy in all urban areas, industries, and commercial establishments. Rural solar thermal applications will be pursued under public-private partnerships where feasible. Further, the Mission is aiming to produce local PV's from integrated facilities at a level of 1000 MW/annum.

In the long term, the Mission would direct Indian Solar Research initiatives to come up with truly disruptive innovations that cut across more than one approach or technology. These include,

- Getting the same electrical, optical, chemical and physical performance from cheap materials as that delivered by expensive materials
- Developing new paradigms for solar cell design that surpass current efficiency limits
- Finding catalyst that enable inexpensive, efficient, conversion of solar energy into chemical fuel
- Identify novel methods of self assembly of molecular components into functionally integrated systems, and
- Developing new materials for solar energy conversion infrastructure, such as robust, and inexpensive, thermal management materials.

The Ministry of New and Renewable Energy (www.mnes.nic.in), earlier known as the Ministry of Non-conventional Energy Sources – have initiated innovative schemes to accelerate utilization and exploitation of the solar energy. Number of incentives like subsidy, soft loan, 80 percent accelerated depreciation, concessional duty on import of raw materials and certain products, excise duty exemption on certain devices/systems etc. are being provided for the production and use of solar energy systems. The central government promotes the installation of solar water heating systems through a soft loan scheme being operated through the Indian Renewable Energy Development Agency Ltd and banks. Soft loans at 2% to domestic users, 3% to institutional users not availing accelerated depreciation and 5% to industrial/commercial users availing depreciation are available. The government also provides an interest subsidy, besides a 5% rebate on property tax. Capital subsidy is available for installation of solar water heating systems to registered institutions and commercial establishments.

The ultimate objective of the Mission is to develop a solar industry in India that will be capable of delivering solar energy competitively against the prevalent fossil options from the Kilowatt range of distributed solar thermal to solar PV to the Gigawatt scale within the next 20-25 years.

Amol Parithosh is a First Year Student Manager at ASM's PGDM program.

1. The numbers are all in base 9 (as against the traditional base 10 system). Therefore, the number after 8 would be "10", which explains why $4+5 = 10$.
2. Light up both ends of cord1 and one end of the cord2 simultaneously. When cord1 is completely burnt, light the other end of cord2. By the time cord2 burns off completely, it is 45 minutes.

Brain Teasers

1. Four married couples played a "mixed double" tennis tournament, a man and a lady always playing against a man and a lady. But no person ever played with or against any other person more than once. Can you show how they all could have played together in the two courts on three successive days? This is a little puzzle of a quite practical kind, and it is just perplexing enough to be interesting.
2. "One of the most perplexing things I have come across lately," said Mr. Banerjee "is this. Eight men had been dining not wisely but too well at a certain Mumbai restaurant. They were the last to leave, but not one man was in a condition to identify his own coat. Now, considering that they took their coats at random, what are the chances that every man took a coat that did not belong to him?"

"The first thing," said Mr. Chatterjee "is to see in how many different ways the eight coats could be taken."

"That is quite easy," Mr. Mukherjee explained. "Multiply together the numbers, 1, 2, 3, 4, 5, 6, 7, and 8. Let me see—half a minute—yes; there are 40,320 different ways."

"Now all you've got to do is to see in how many of these cases no man has his own coat," said Mr. Banerjee.

"Thank you, I'm not taking any," said Mr. Chimmojee. "I don't envy the man who attempts the task of writing out all those forty-thousand-odd cases and then picking out the ones he wants."

They all agreed that life is not long enough for that sort of amusement; and as nobody saw any other way of getting at the answer, the matter was postponed indefinitely. Can you solve the puzzle?

In an attempt to provide greater cogency to ASMaCOM, we are introducing themes to forthcoming issues. A majority of the articles will be focused on the theme.

Our theme for the February 2010 issue of ASMaCOM is "Managing Organizational Diversity." There is diversity in society, in organization, in thinking, in philosophies, in nature Diversity is all pervasive. The issues to be addressed are around the management of diversity. Are we making a virtue out of a necessity? Do we need rules and regulations in this regard or is this a naturally occurring phenomenon in organizations? Is this a fad of the West? Is there a genuine need to promote this in India? Are we encouraging mediocrity in the name of diversity? Are organizations reaping any benefits out of this or are they just paying lip service to this? Do we need to redefine this concept in line with changes happening in society?

The issues to be addressed are not limited to this list. The canvas is widespread. It is for you to paint the picture. We invite diverse articles from our readers on this issue. Please send your articles as per guidelines issued earlier, on or before February 5, 2010, to editorasmacom@acharya.ac.in.

Sayed makes us proud!

It gives us immense pleasure to present Sayeed Ahmed Ansari, an amount of Rs 500/- for the winning entry of the quiz "The Happenings Outside – Are You Aware?" in the Inaugural issue of ASMaCOM. Sayeed is a First Year Student Manager at ASM's PGDM program.

Sayed's involvement and enthusiasm is highly appreciated! This reminds us of the credo of sportsmanship – Participation is more important than Winning. Let this spirit be all pervasive! He has also been the first student contributor to ASMaCOM.

We look forward to more participation from him in future!

May this be a clarion call for all budding quizzers and logical thinkers to wear their thinking hats and announce their arrival! Every issue carries some teasers to set your grey cells working at a rapid pace! Look out for them in this issue as well!